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Environmental Restoration

# **Roger Stevens Warehouse** 1966 Roger Stevens Drive

**Transportation Impact Assessment** 



# Roger Stevens Warehouse 1966 Rogers Stevens Drive Transportation Impact Assessment

Prepared By:

# **NOVATECH**

Suite 200, 240 Michael Cowpland Drive Ottawa, Ontario K2M 1P6

July 12, 2019

Novatech File: 119018 Ref: 2019-115



July 12, 2019

City of Ottawa Planning and Growth Management Department 110 Laurier Ave. W., 4<sup>th</sup> Floor, Ottawa, Ontario K1P 1J1

Attention: Mr. Jeff Ostafichuk

Planner II, File Lead

Dear Mr. Ostafichuk:

Reference: Roger Stevens Warehouse, 1966 Roger Stevens Drive

**Transportation Impact Assessment Report** 

Novatech File No. P18142

We are pleased to submit the following Transportation Impact Assessment report in support of an Official Plan Amendment and Zoning By-law Amendment Application for the above address. The structure and format of this report is in accordance with the MTO Traffic Impact Study Guidelines (2008) and the City of Ottawa Transportation Impact Assessment Guidelines (June 2017).

If you have any questions or comments regarding this report, please feel free to contact Jennifer Luong, or the undersigned.

Yours truly,

**NOVATECH** 

Rochelle Fortier, B.Eng.

E.I.T. | Transportation/Traffic



# **TIA Plan Reports**

On 14 June 2017, the Council of the City of Ottawa adopted new Transportation Impact Assessment (TIA) Guidelines. In adopting the guidelines, Council established a requirement for those preparing and delivering transportation impact assessments and reports to sign a letter of certification.

Individuals submitting TIA reports will be responsible for all aspects of development-related transportation assessment and reporting, and undertaking such work, in accordance and compliance with the City of Ottawa's Official Plan, the Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines.

By submitting the attached TIA report (and any associated documents) and signing this document, the individual acknowledges that s/he meets the four criteria listed below.

#### CERTIFICATION

- 1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
- 2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
- 3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
- 4. I am either a licensed¹ or registered² professional in good standing, whose field of expertise [check √ appropriate field(s)] is either transportation engineering ☑ or transportation planning □.
- License of registration body that oversees the profession is required to have a code of conduct and ethics guidelines that will ensure appropriate conduct and representation for transportation planning and/or transportation engineering works.

Dated at	Ottawa	this	12 day of	July	, 201 <u>9</u>
(	City)			,	
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Professional Title	: <u> </u>	Senior Projec	ct Manager, Tr	ansportation/T	raffic.
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	Signature of	ndividual de	ertifier that s/h	meets the abo	ove four criteria

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#### **EXECUTIVE SUMMARY**

This Transportation Impact Assessment (TIA) report has been prepared in support of an Official Plan Amendment and Zoning By-law Amendment application for 1966 Roger Stevens Drive.

The subject lands are currently registered as a plan of subdivision (AM-1191), known as the Jordel Acres Industrial Subdivision.

The proposed development consists of a new warehouse, with a footprint of approximately 700,000 square feet. The proposed development will provide approximately 1,820 vehicular parking spaces, approximately 240 trailer drop spaces, and will be served by two all-movement employee accesses on Roger Stevens Drive, and one all-movement truck access on Roger Stevens Drive. The proposed development is anticipated to be completed in one phase, with full occupancy by the year 2021.

A typical warehouse facility of this size and nature could operate with two shifts with approximately 1,100 employees on site during each shift during the off-peak season and approximately 1,700 employees on site during each shift during the peak season. The peak season for a typical warehouse of this size and nature generally occurs from October to January, and the off-peak season from February to September. For the purpose of this report, the total traffic analysis will include the site traffic for the peak season.

The trip generation rates for the proposed development were determined using first principles. The owner provided typical hourly volumes for both employee and delivery truck movements to and from a warehouse of this size and nature. It was assumed that the peak hour for the site generated traffic occurs between 6:30am to 7:30am and 5:30pm to 6:30pm. The peak hours of site traffic are generally expected to coincide with the weekday AM and PM peak hours of the adjacent road traffic.

A 90% auto driver share was applied to all employee trips to account for 10% ride-sharing and no daily transit service. The proposed warehouse could generate approximately 1,950 vehicle trips (985 in, 965 out) during the AM peak hour, and 2,000 vehicle trips (975 in, 1,025 out) during the PM peak hour.

The main conclusions and recommendations of this TIA can be summarized as follows:

# **Development Design & Parking**

- Pedestrian facilities will be provided between the parking lot and the main building entrances and will be reviewed at the Site Plan stage.
- A 2.5m paved shoulder is proposed on both sides of Roger Stevens Drive for the extents of the roadway modifications.
- A review of the Transportation Demand Management (TDM) Supportive Development Design and Infrastructure Checklist has been conducted.
- Approximately 1,820 parking spaces are proposed in order to serve the employees and visitors at the warehouse, which will meet the minimum requirements of the Zoning By-Law. Bicycle parking is proposed and will be reviewed at the Site Plan stage.
- The ZBL identifies a requirement of 3 loading spaces for the proposed development. A total of 63 loading bays are proposed, and approximately 240 trailer drop spaces are proposed.
- Accessible parking spaces will be reviewed at the Site Plan stage and will be provided in accordance with the requirements.

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# Boundary Street Multi-Modal Level of Service (MMLOS)

- Roger Stevens Drive currently meets the target Truck Level of Service (TkLOS) and Vehicular Level of Service (Auto LOS), however does not meet the target Pedestrian Level of Service (PLOS) or Bicycle Level of Service (BLOS).
- Currently, along the frontage of the subject site there are gravel shoulders provided. Paved shoulders along the frontage of the subject site do not achieve the PLOS or BLOS targets, however given the rural context of the site they are recommended.

#### Access Design

- Three site accesses are proposed along Roger Stevens Drive: one westerly truck access, and two eastern accesses to employee parking.
- The truck access is located approximately 290m east of the Roger Stevens Drive/Third Line Road intersection, measured from centerline to centerline. The east employee access is located approximately 390m west of the Roger Stevens Drive/Highway 416 Southbound Off-Ramp, measured stop bar to stop bar. The west employee access is located approximately 160m west of the east employee access, measured centerline to centerline, and approximately 140m east of the truck access, measured centerline to centerline.
- The east employee access will be signalized and 15.5m in width and will include four 3.5m lanes with the ingress and egress separated by a 1.5m median. The west employee access will be 8.5m in width and will include two 4.25m lanes. The truck access will be 8.5m in width and will include two 4.25m lanes.
- The site accesses meet all requirements of the Private Approach By-Law.
- On an arterial roadway, the minimum clear throat length for a driveway to a large light industrial development is 60m. Clear throat lengths will be reviewed at the Site Plan stage.

# <u>Transportation Demand Management</u>

- The TDM measures that could be considered for this development are:
  - Preferential carpool parking.
  - Ridesharing: potential carpoolers in Ottawa are served by www.OttawaRideMatch.com, an online service to help people find carpool partners. Employers can arrange for a dedicated portal where their employees can search for potential carpool partners only among their colleagues, if they desire. Some very large employers may establish internal ride matching services, to maximize employee uptake and corporate control. Ride matching service providers typically include a waiver to relieve employers of liability when their employees start carpooling through a ride matching service. Ridesharing with co-workers also tends to eliminate security concerns.
  - Vanpool service: Vanpools operate in the Toronto and Vancouver metropolitan areas, where vans that carry up to about ten occupants are driven by one of the vanpool members. Vanpools tend to operate on a cost-recovery basis and are most practical for long-distance commutes where transit is not an option. Current legislation in Ontario does not permit third-party (i.e. private or non-profit) vanpool services but does permit employers to operate internal vanpools.
  - Carshare vehicles & memberships: VRTUCAR and Zipcar both operate carsharing services in Ottawa, for use by the general public or by businesses as an alternative to corporate fleets. Carsharing services offer 24-hour access, self-serve reservation

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systems, itemized monthly billings, and outsourcing of all financing, insurance, maintenance and administrative responsibilities.

#### <u>Transit</u>

• Currently, the site is not serviced by a regular bus route. As such, no transit modal share was applied to the trips generated by the development.

# Network Concept

 Deficiencies are noted at the Highway 416 ramps with the addition of site traffic. However, the analysis is based on existing conditions, with one lane of travel. Additional lanes are recommended at the 416 Southbound Off-Ramp and the 416 Northbound On-Ramp to accommodate site traffic.

# Intersection MMLOS

- Roger Stevens Drive/East Employee Access
  - The intersection is anticipated to meet the target Auto LOS and TkLOS but will not meet the targets for PLOS or BLOS.
  - Based on the Pedestrian Exposure to Traffic (PETSI) the intersection is operating with a PLOS E. A reduction in the crossing distance on all approaches would have the greatest improvement on the PETSI score and the Pedestrian Delay. However, given the projected traffic volumes, the westbound dual left turns and northbound dual right turns are required, and the intersection configuration is considered appropriate.
  - The intersection is anticipated to operate with a BLOS F, based on both left and right turn characteristics. Given the high turning movement traffic volumes, the proposed dual westbound left turn lanes and dual northbound right turn lanes are required. Paved shoulders are proposed along Roger Stevens Drive and given the rural context of the site, they are an appropriate cycling facility.
- Roger Stevens Drive/Highway 416 Southbound Ramps
  - The Roger Stevens Drive/Highway 416 Southbound Ramps intersection is anticipated to meet the target Auto LOS but will not meet the target PLOS and TkLOS.
  - Based on the PETSI, the intersection is operating with a PLOS F. A reduction in the crossing distance on the north approach would have the greatest improvement on the PETSI score and the Pedestrian Delay. However, based on projected traffic volumes, the proposed lane configuration is appropriate. Per MTO cross section design, a 10m median is required separating the on- and off-ramps.
  - BLOS has not been evaluated for the intersection as bikes are prohibited on 400 series highways. The ramp is under MTO jurisdiction and BLOS is not a consideration.
  - The intersection is anticipated to operate with a TkLOS E. The westbound right turn movement has one receiving lane on departure from this intersection. However, per MTO design for a single lane ramp, the on-ramp currently has a 4.75m wide lane with a right shoulder width of 2.5m and a left shoulder width of 1.0m. No changes are proposed to the configuration of the on-ramp as it currently accommodates trucks.
- Roger Stevens Drive/Highway 416 Northbound Ramps
  - The intersection is anticipated to meet the target Auto LOS and TkLOS but will not meet the target PLOS.

- Based on the PETSI, the intersection is operating with a PLOS F. A reduction in the crossing distance would have the greatest improvement on the PETSI score and the Pedestrian Delay. No north-south crossing is proposed at this intersection. As such, only the east-west crossing has been evaluated in terms of PLOS. Per MTO cross section design, a 10m median is required separating the on- and off-ramps and the proposed lane configuration is required for capacity therefore no reduction is recommended.
- BLOS has not been evaluated for the intersection as bikes are prohibited on 400 series highways. The ramp is under MTO jurisdiction and BLOS is not a consideration.

# **Existing Intersection Operations**

- Under existing traffic conditions, all study area intersections are operating with a LOS C or better.
- Signals are not warranted at the Roger Stevens Drive/Highway 416 Northbound Ramps or the Roger Stevens Drive/Highway 416 Southbound ramps under existing traffic conditions.
- Currently, a westbound slip around lane is provided at the Roger Stevens Drive/Highway 416 Northbound Ramps, and an eastbound slip around lane is provided at the Roger Stevens Drive/Highway 416 Southbound Ramps. A review of the MTO Left Turn Lane Warrants suggests that a westbound left turn lane with a storage of 25m is warranted at the northbound on-ramp under existing traffic conditions. No eastbound left turn lane is warranted at the southbound on-ramp.

#### **Background Intersection Operations**

- Under background traffic conditions, all study area intersections are anticipated to operate with a LOS C or better.
- Under projected background traffic conditions in 2031, traffic signals are not warranted at the Roger Stevens Drive/Highway 416 Northbound Ramps or the Roger Stevens Drive/Highway 416 Southbound ramps.

#### 2021 Total Intersection Operations

- With the addition of site traffic, traffic signals will be warranted at the intersections of Roger Stevens Drive/Highway 416 Northbound ramps, Roger Stevens Drive/Highway 416 Southbound ramps, and Roger Stevens Drive/East Employee Access in 2021. Traffic signals are 92% warranted at the Roger Stevens Drive/West Employee Access in the 2021 opening year.
- For the purposes of the analysis presented in this study, it has been assumed that traffic signals will be provided at the Roger Stevens Drive/Highway 416 Northbound ramps, Roger Stevens Drive/Highway 416 Southbound ramps, and Roger Stevens Drive/East Employee Access at buildout (2021). The Synchro and MTO warrant analysis completed as part of this study indicate that under these conditions, traffic signals are needed to ensure an adequate LOS during peak hours and will also be warranted based on peak hour traffic volumes. Actuated-coordinated signal timings are assumed.
- Under 2021 total traffic conditions, the Roger Stevens Drive/Highway 416 Southbound intersection is anticipated to operate with a v/c ratio of 0.91 and a LOS E during the AM peak hour. All other intersections are anticipated to operate with a LOS D or better.
- Maximum queue length for the eastbound through movement at the Highway 416 Southbound Ramps is anticipated to be approximately 290m during the AM peak. This queue length is not anticipated to extend past the Roger Stevens Drive/East Employee

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Access intersection. Synchro identifies that the eastbound queue may take more than one cycle to clear the intersection during the peak hour. Due to space constraints at the Highway 416 overpass bridge to the east, a second eastbound through lane at the Roger Stevens Drive/Highway 416 Southbound Ramps could not be provided without widening the bridge.

- The eastbound queue at the northbound ramps is metered due to capacity constraints at the upstream intersection (southbound ramps). No further improvements are recommended due to the space constraints at the Highway 416 overpass bridge.
- The southbound queue at the southbound ramps is anticipated to be approximately 80m, and the northbound queue at the northbound ramps is anticipated to be approximately 70m.
- The maximum northbound queue length at the east employee access is anticipated to be approximately 30m. The maximum northbound queue length at the west employee access is anticipated to be approximately 20m. The maximum northbound queue length at the truck access is anticipated to be insignificant.
- The westbound queue at the east employee access is anticipated to be approximately 90m.
   This queue length is not anticipated to extend past the Roger Stevens Drive/Highway 416
   Southbound intersection.

# 2026 Total Intersection Operations

- Under 2026 total traffic conditions, with adjusted signal timing, all intersections are anticipated to operate with a LOS D or better.
- Maximum queue length for the eastbound through movement at the Highway 416 Southbound Ramps is anticipated to be approximately 70m in the AM peak and 110m in the PM peak. This is an improvement from the projected AM queue of 290m under 2021 total traffic conditions. The improvement is due to the longer cycle length proposed under 2026 total traffic conditions. This eastbound queue length is not anticipated to extend past the Roger Stevens Drive/East Employee Access intersection. Synchro identifies that the eastbound queue may take more than one cycle to clear the intersection during the peak hour. Due to space constraints at the Highway 416 overpass bridge to the east, a second eastbound through lane at the Roger Stevens Drive/Highway 416 Southbound Ramps could not be provided without widening the bridge.
- The eastbound queue at the northbound ramps is metered due to capacity constraints at the upstream intersection (southbound ramps). No further improvements are recommended due to the space constraints at the Highway 416 overpass bridge.
- The southbound queue at the southbound ramps is anticipated to be approximately 90m, and the northbound queue at the northbound ramps is anticipated to be approximately 65m.
- The maximum northbound queue length at the east employee access is anticipated to be approximately 30m. The maximum northbound queue length at the west employee access is anticipated to be approximately 25m. The maximum northbound queue length at the truck access is anticipated to be insignificant.
- The westbound queue at the east employee access is anticipated to be approximately 85m. This queue length is not anticipated to extend past the Roger Stevens Drive/Highway 416 Southbound intersection.

#### 2031 Total Intersection Operations

- Under 2031 total traffic conditions, all intersections are anticipated to operate with a LOS D or better.
- Maximum queue length for the eastbound through movement at the Highway 416 Southbound Ramps is anticipated to be approximately 290m in the AM peak and 280m in the PM peak hour. This queue length is not anticipated to extend past the Roger Stevens

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Drive/East Employee Access intersection. Synchro identifies that the eastbound queue may take more than one cycle to clear the intersection during the peak hour. Due to space constraints at the Highway 416 overpass bridge to the east, a second eastbound through lane at the Roger Stevens Drive/Highway 416 Southbound Ramps could not be provided without widening the bridge.

- The eastbound queue at the northbound ramps is metered due to capacity constraints at the upstream intersection (southbound ramps). No further improvements are recommended due to the space constraints at the Highway 416 overpass bridge.
- The southbound queue at the southbound ramps is anticipated to be approximately 95m, and the northbound queue at the northbound ramps is anticipated to be approximately 80m.
- The maximum northbound queue length at the east employee access is anticipated to be approximately 30m. The maximum northbound queue length at the west employee access is anticipated to be approximately 25m. The maximum northbound queue length at the truck access is anticipated to be insignificant.
- The westbound queue at the east employee access is anticipated to be approximately 85m. This queue length is not anticipated to extend past the Roger Stevens Drive/Highway 416 Southbound intersection.

#### Functional Design

- Left and right turn deceleration lane requirements have been calculated using a design speed of 60km/h for Roger Stevens Drive. This is less than the posted speed of 80km/h.
- It is anticipated that the proposed modifications including signals, medians, and turn lanes will create additional side friction for motorists and reduce the operating speed along Roger Stevens Drive.
- A road modification approval (RMA) package for the proposed modifications to Roger Stevens Drive will be submitted under separate cover. A Provincial Class Environmental Assessment (EA) is required for the roadway modifications located within MTO's jurisdiction.

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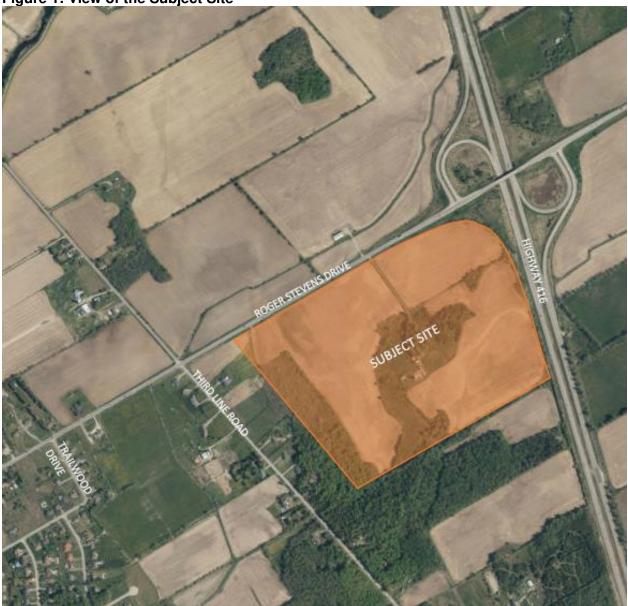
#### 1.0 INTRODUCTION

This Transportation Impact Assessment (TIA) report has been prepared in support of an Official Plan Amendment and Zoning By-law Amendment application for 1966 Roger Stevens Drive. The subject site is currently vacant. The subject site is surrounded by the following:

- Roger Stevens Drive and agricultural property to the north;
- Highway 416 and agricultural property to the east;
- Residential properties and Third Line Road to the west; and
- Vacant land to the south.

A view of the subject site is provided in **Figure 1**.

Figure 1: View of the Subject Site



#### 2.0 PROPOSED DEVELOPMENT

The subject lands are currently registered as a plan of subdivision (AM-1191), known as the Jordel Acres Industrial Subdivision.

The eastern portion of the subject site is designated 'Highway Commercial' whereas the remainder (west) is designated Industrial on Schedule 'A' of the North Gower Secondary Plan. It is currently zoned Rural Commercial 'RC', Rural General Commercial 'RG' and Rural Commercial exception 'RC[55r]'. A Zoning By-law amendment is required to remove the exception from the RC zone in order to permit a warehouse use.

The proposed development consists of a new warehouse, with a footprint of approximately 700,000 square feet. The proposed development will provide approximately 1,820 vehicular parking spaces, approximately 240 trailer drop spaces, and will be served by two all-movement employee accesses on Roger Stevens Drive, and one all-movement truck access on Roger Stevens Drive. The proposed development is anticipated to be completed in one phase, with full occupancy by the year 2021.

A copy of the site plan is included in **Appendix A**.

#### 3.0 SCREENING

The City's 2017 TIA Guidelines identifies three triggers for completing a TIA report, including trip generation, location, and safety. The criteria for each trigger are outlined in the City's TIA Screening Form.

The trigger results are as follows:

- Trip Generation Trigger the proposed development is anticipated to generate more than 60 person trips during the peak hour; further assessment is required based on this trigger.
- Location Trigger the development proposes a new driveway to a boundary street that is designated as part of the City's Spine Bicycle Network; further assessment is required based on this trigger.
- Safety Trigger the posted speed limit on a boundary road is 80km/hr; further assessment is required based on this trigger.

Based on the foregoing, the proposed development satisfies all three triggers for completing a TIA. A copy of the TIA screening form is included in **Appendix B**.

# 4.0 SCOPING

# 4.1 Existing Conditions

#### 4.1.1 Roadways

Highway 416 falls under the jurisdiction of the Ministry of Transportation of Ontario (MTO). All other study area roadways fall under the jurisdiction of the City of Ottawa.

Highway 416 is a four-lane rural divided freeway. It has a north-south alignment extending from Highway 417 to the north to Highway 401 in the south. The posted speed is 100km/h.

Roger Stevens Drive (Ottawa Regional Road 6) is a two-lane undivided major arterial roadway with a rural cross section. It has an east-west alignment with a posted speed limit of 80km/h in the vicinity of the subject site. A speed survey, dated May 2018, obtained from the City of Ottawa indicates the 85<sup>th</sup> percentile motor vehicle operating speed along Roger Stevens Drive between Third Line Road and Highway 416 is approximately 100km/h. Roger Stevens Drive is classified as a truck route, allowing full loads. The existing ROW width is approximately 28m across the City's portion of the Roger Stevens Drive frontage.

Third Line Road is a two-lane undivided collector roadway with a rural cross section. Third Line Road is discontinuous: the northern stretch runs from Brophy Drive in the north, and terminates south of Carsonby Road, while the southern stretch picks up again at Phelan Road and terminates south of Dilworth Road. The regulatory speed limit along Third Line Road is 80km/h.

Trailwood Drive is a two-lane undivided local roadway with a rural cross section. The regulatory speed limit along Trailwood Drive is 50km/h.

#### 4.1.2 Intersections

#### Roger Stevens Drive/Highway 416

- Partial cloverleaf interchange
- West ramps:
  - Stop-controlled T intersection, with free flow on Roger Stevens Drive
  - Southbound: one shared left/right turn lane
  - Eastbound: one through lane, one slip around lane
  - Westbound: one through lane and one right turn lane
- East ramps:
  - Stop-controlled T intersection, with free flow on Roger Stevens Drive
  - Northbound: one shared left/right turn lane
  - Eastbound: one through lane, one right turn lane
  - Westbound: one through lane, one slip around lane



#### Roger Stevens Drive/Third Line Road

- Stop controlled intersection, with free flow on Roger Stevens Drive
- One travel lane in all directions



# Roger Stevens Drive/Trailwood Drive

- Stop controlled T intersection, with free flow on Roger Stevens Drive
- One travel lane in all directions



# 4.1.3 Driveways

In accordance with the City's 2017 TIA guidelines, a review of adjacent driveways along the boundary roads (within 200m of the subject site) was conducted. There is one driveway on the north side of Rogers Stevens Drive, providing access to the agricultural property at 1969 Rogers Stevens Drive.

# 4.1.4 Pedestrian and Cycling Facilities

Roger Stevens Drive is classified as a Spine Cycling Route in the City of Ottawa's Cycling Plan. Currently, there are gravel shoulders on Roger Stevens Drive along the City owned portion of the frontage of the subject site, with paved shoulders along the MTO portion of the frontage of Roger Stevens Drive.

No other designated pedestrian or cycling facilities are provided in the study area.

#### 4.1.5 Transit

The nearest bus stops to the subject site are located at the Roger Stevens Drive/Third Line Road intersection. These bus stops serve OC Transpo Route 305, which is a Shopper Route. Shopper Routes are free to ride and are a convenient way for rural residents to get into town for shopping, appointments and more. These routes offer once-a-week service from rural communities to urban shopping destinations.

Route 305 travels from the communities of Kars, North Gower, and Manotick and arrives at the Barrhaven Center and Carlingwood Shopping Centers. It operates once a week on Fridays. The bus arrives at stop #2176 (on the south side of Roger Stevens Drive) at 9:39 AM and returns to stop #2177 (on the north side of Roger Stevens Drive) at 3:32 PM.

OC Transpo Route information is included in **Appendix C**.

# 4.1.6 Existing Area Traffic Management Measures

Currently, there are no existing Area Traffic Management (ATM) measures within the study area.

# 4.1.7 Existing Traffic Volumes

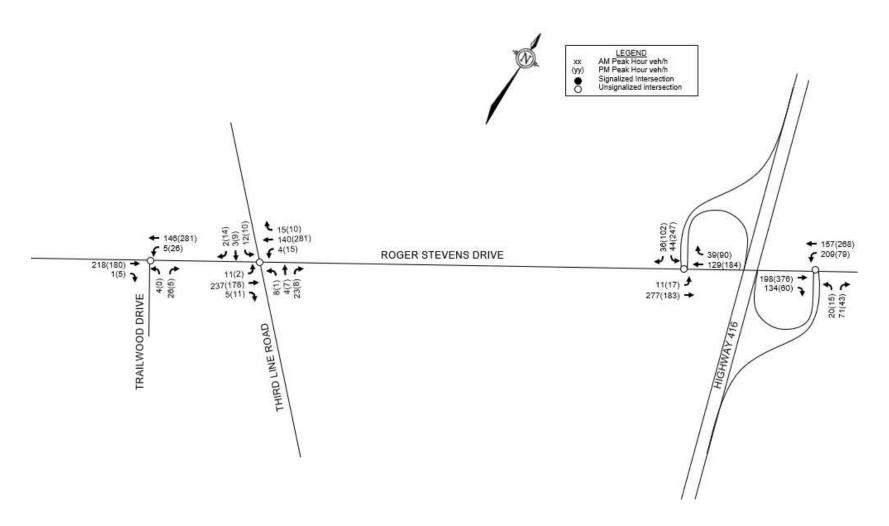
Traffic counts were completed at the study area intersections to determine the existing pedestrian, cyclist and vehicular traffic volumes.

Weekday counts were completed by Novatech at the Roger Stevens Drive/Third Line Road and Roger Stevens Drive/Trailwood Drive intersections. A weekday count was completed by the MTO, at the Roger Stevens Drive/Highway 416 Northbound and Southbound Ramps. The traffic counts were completed on the following dates:

<ul> <li>Roger Stevens Drive/Third Line Road January 9, 2019 (Wed</li> </ul>	nesday)
• Roger Stevens Drive/Trailwood Drive January 9, 2019 (Wed	nesday)
<ul> <li>Roger Stevens Drive/416 Northbound Ramps</li> <li>April 25, 2018 (Monda</li> </ul>	y)
• Roger Stevens Drive/416 Southbound Ramps May 25, 2018 (Friday)	

Existing traffic volumes along the study area roadways are shown in **Figure 3**. Peak hour summary sheets of the above traffic counts are included in **Appendix D**.

**Figure 2: Existing Traffic Volumes** 



#### 4.1.8 Collision Records

Historical collision data from the last five years was obtained from the City's Public Works and Service Department for the study area. Copies of the collision summary reports are included in **Appendix E**.

The collision data has been evaluated to determine if there are any identifiable collision patterns. **Table 1** summarizes the number of collisions at each intersection from January 1, 2013 to December 31, 2017.

Table 1: Reported Collisions

Location	Number of Reported Collisions
Roger Stevens Drive/Third Line Road	3
Roger Stevens Drive between Third Line Road and Highway 416 Southbound Off-Ramp	2
Roger Stevens Drive between Highway 416 Northbound On-Ramp and Highway 416 Southbound On-Ramp	2
Highway 416 Southbound Off-Ramp between Highway 416 and Roger Stevens Drive	2
Highway 416 Northbound On-Ramp between Highway 416 and Roger Stevens Drive	2
Roger Stevens Drive/Highway 416 Northbound On-Ramp	1

Half of all collisions reported occurred under snowy or icy conditions, suggesting unfavourable environmental factors played a significant role in the collision history.

Based on the foregoing, no identifiable collision patterns exist in the study area.

## 4.2 Planned Conditions

The City of Ottawa's Transportation Master Plan (TMP) does not identify any roadway or transit projects along the boundary streets within its Affordable Road Network and Affordable Rapid Transit and Transit Priority Network.

Thirteen new residential lots are proposed as part of the Williams Farm Subdivision directly to the west of Trailwood Drive. Based on a review of the City's Development Application online tool, there appear to be no other developments under construction, approved, or in the approval process within the study area.

# 4.3 Study Area and Time Periods

The study area will include the intersections of Roger Stevens Drive/Third Line Road, Roger Stevens Drive/Trailwood Drive, Roger Stevens Drive/Highway 416 Northbound Ramps, Roger Stevens Drive/Highway 416 Southbound Ramps, and the site accesses.

The time periods chosen for analysis are the weekday AM and PM peak hours. Analysis will be performed for the operational year (2021), a five-year horizon (2026), and a ten-year horizon (2031).

# 4.4 Exemptions Review

This module reviews possible exemptions from the final TIA, as outlined in the TIA Guidelines. The applicable exemptions for this site are shown in **Table 2**.

**Table 2: TIA Exemptions** 

Module	Element Exemption Criteria		Exemption Applies		
<b>Design Review</b>	Component				
4.1	4.1.2 Circulation and Access	Only required for site plans	Not Exempt		
Development Design	4.1.3 New Street Networks	Only required for plans of subdivision	Exempt		
4.0	4.2.1 Parking Supply	Only required for site plans	Not Exempt		
<b>4.2</b> Parking	4.2.2 Spillover Parking	Only required for site plans where parking supply is 15% below unconstrained demand	Exempt		
Network Impact Component					
4.5 Transportation Demand Management	All elements	Not required for site plans expected to have fewer than 60 employees and/or students on location at any given time	Not Exempt		
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds	Exempt		
4.8 Network Concept	All elements	Only required when the proposed development generates more than 200 person-trips during the peak hour in excess of the equivalent volume permitted by the established zoning	Not Exempt		

Trips generated by the established zoning have been estimated using local data. A traffic count was completed on June 25, 2019 at the Carp Road/Reis Road intersection in order to estimate site traffic at the Reis Industrial Park. Peak hour summary sheets from the traffic count have been included in **Appendix D**. This location was chosen as it is comprised of industrial uses of similar nature to the approved zoning for the Jordel Acres Industrial Subdivision. The traffic count was prorated based on the area of the properties that are currently occupied at the Reis Industrial Park (approximately 50 acres) compared to the total area of the 1966 Roger Stevens Drive

property (approximately 120 acres). It was estimated that the established zoning at the subject site would generate a two-way total of approximately 290 vehicles in the AM peak and 425 vehicles in the PM peak hour. As it is anticipated that the proposed warehouse will generate more than 200 person trips during the peak hour in excess of the equivalent volume permitted by the established zoning, the Network Concept (Module 4.8) is not exempt from the TIA analysis.

#### 5.0 FORECASTING

# 5.1 Development-Generated Traffic

# 5.1.1 Trip Generation

A typical warehouse facility of this size and nature could operate with two shifts with approximately 1,100 employees on site during each shift during the off-peak season and approximately 1,700 employees on site during each shift during the peak season. The peak season for a typical warehouse of this size and nature generally occurs from October to January, and the off-peak season from February to September. For the purpose of this report, the total traffic analysis will include the site traffic for the peak season.

The trip generation rates for the proposed development were determined using first principles. The owner provided typical hourly volumes for both employee and delivery truck movements to and from a warehouse of this size and nature. It was assumed that the peak hour for the site generated traffic occurs between 6:30am to 7:30am and 5:30pm to 6:30pm. The peak hours of site traffic are generally expected to coincide with the weekday AM and PM peak hours of the adjacent road traffic.

A 90% auto driver share was applied to all employee trips to account for 10% ride-sharing and no daily transit service. The following table indicates an estimate of the number of employee vehicles and delivery trucks accessing the site during the peak hour of the peak season.

**Table 3: Site Generated Traffic** 

Land Haa	AM Peak			PM Peak		
Land Use	IN	OUT	TOTAL	IN	OUT	TOTAL
Employees	980	960	1,940	960	1,010	1,970
Trucks	5	5	10	15	15	30
TOTAL	985	965	1,950	975	1,025	2,000

Based on the foregoing, the proposed warehouse could generate approximately 1,950 trips (985 in, 965 out) during the AM peak hour, and 2,000 trips (975 in, 1,025 out) during the PM peak hour.

#### 5.1.2 Trip Distribution and Assignment

Trip distribution assumptions are based on origin/destination data provided by the owner as well as population of surrounding communities, logical routing assumptions, and potential for future growth.

# **Employees**

The trip distribution for employees is expected to be:

- 78% to/from the north (Kanata, Nepean, Barrhaven, Manotick)
- 15% to/from the south (North Grenville)
- 5% to/from the east (Kars, Osgoode)
- 2% to/from the west (North Gower)

Of the traffic arriving from/departing to the east, north, and south, two thirds have been assigned to the easterly employee access while the remaining one third has been assigned to the westerly employee access. Similarly, two thirds of traffic arriving from/departing to the west has been assigned to the westerly access, with the remainder assigned to the easterly access.

# Trucks

The owner has indicated that all trucks accessing the warehouse would use Roger Stevens Drive to access Highway 416. It is anticipated that 50% of delivery trucks will travel to/from the north towards Ottawa, with the balance, 50% travelling to/from the south towards Highway 401.

Delivery trucks will access the site via the truck access along Roger Stevens Drive.

For analysis purposes, a nominal volume of 5 trucks per hour has been assigned to Roger Stevens Drive, west of the subject site, to test the sensitivity of the left-turn movements in and out of the truck access.

Site generated traffic volumes can be found in **Figure 3**.

# 5.2 Background Traffic

# 5.2.1 General Background Growth Rate

Historical traffic volume data was obtained from the MTO for the Roger Stevens Drive/Highway 416 Southbound Ramps and Roger Stevens Drive/Highway 416 Northbound Ramps. Traffic count information from 2011<sup>†</sup>, 2013, 2014, and 2018 indicate that traffic volumes have not increased significantly within the study area. Traffic count data can be found in **Appendix D**.

A review of the City of Ottawa's Long-Range TRANS model was conducted in order to determine a general background growth rate in the area. The model shows little to no growth in the study area. Screenshots from the Long-Range model can be found in **Appendix D**.

Conservatively, a nominal background traffic volume growth rate of 1% annually was applied to existing traffic volumes along Roger Stevens Drive and at the Highway 416 Ramps to obtain background traffic volumes.

<sup>† 2011</sup> counts obtained from the MTO for the Roger Stevens/416 Northbound and Southbound ramps are high compared to 2013, 2014, and 2018 counts. Total intersection volumes at the Northbound ramps in 2011 are on average 15% higher and total intersection volumes at the Southbound ramps in 2011 are on average 22% higher than the data from 2013, 2014, and 2018. For this reason, the 2011 counts have been discounted as an anomaly for this report.

# 5.2.2 Other Area Development

A review of the City's Development Application online tool was conducted in order to account for traffic generated by other development within the vicinity of the subject site. Thirteen new residential lots are proposed as part of the Williams Farm Subdivision directly to west of Trailwood Drive. Traffic generated by these new residential lots is expected to be insignificant. No other developments are planned within the study area.

Background traffic volumes for the opening year (2021), the five-year horizon (2026), and the ten-year horizon (2031) can be found in **Figures 4**, **5**, and **6**.

Total traffic volumes have been calculated by adding the site generated traffic with the projected background traffic. The 2021, 2026, and 2031 total traffic volumes can be found in **Figures 7**, **8**, and **9**.

**Figure 3: Site Generated Traffic Volumes** 

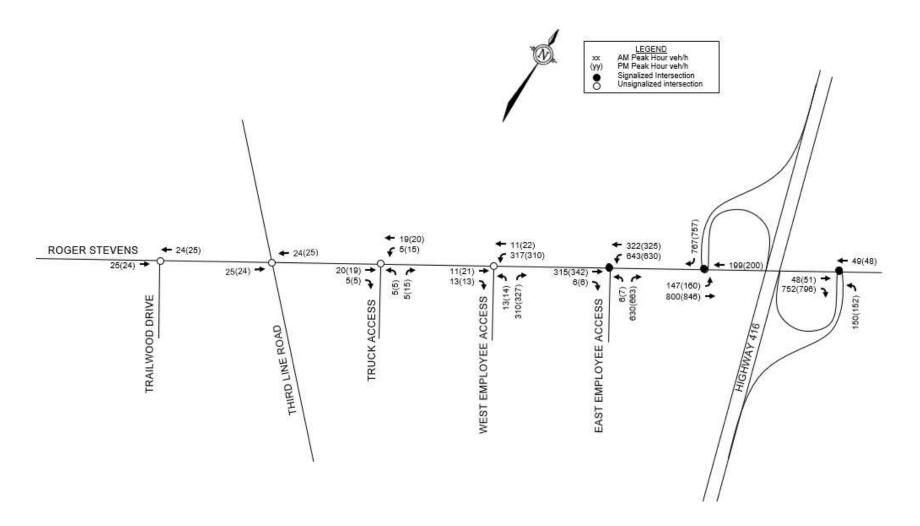


Figure 4: 2021 Background Traffic Volumes

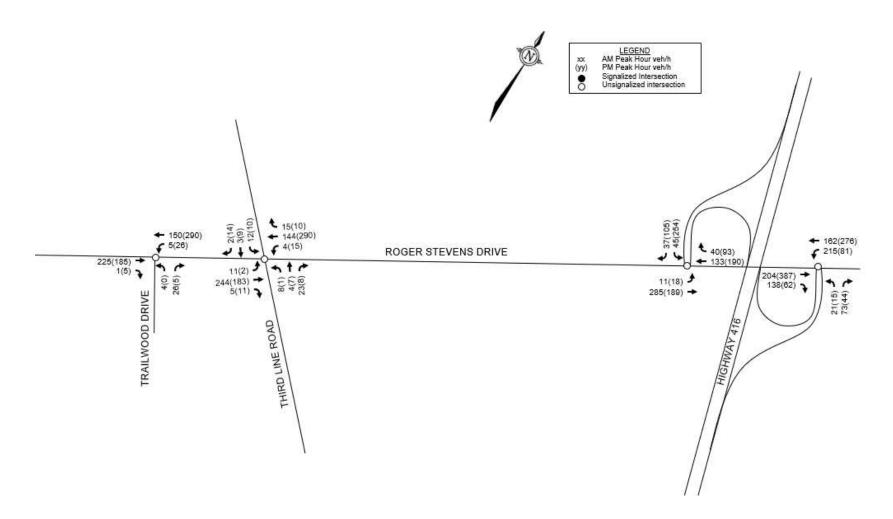


Figure 5: 2026 Background Traffic Volumes

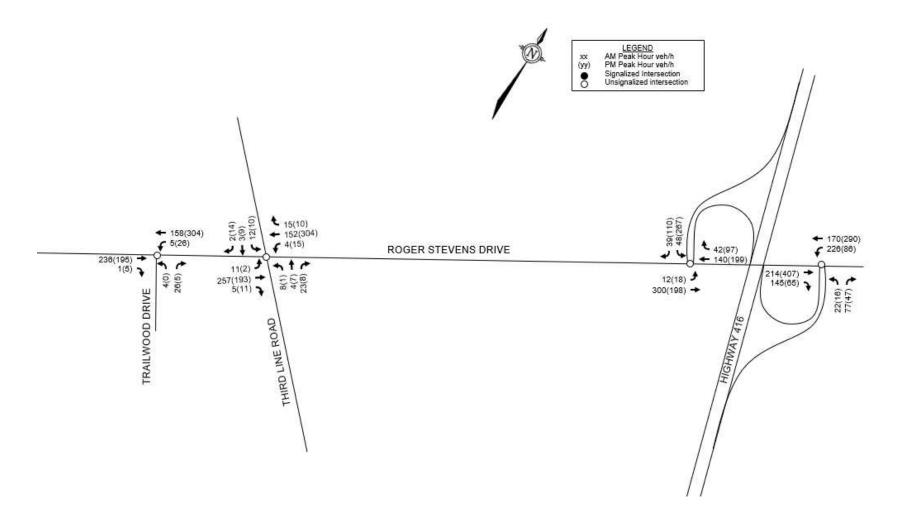


Figure 6: 2031 Background Traffic Volumes

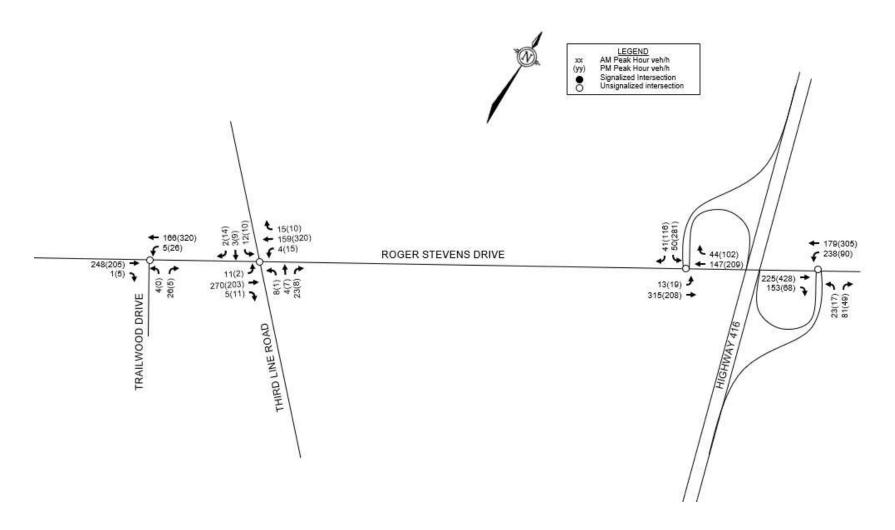


Figure 7: 2021 Total Traffic Volumes

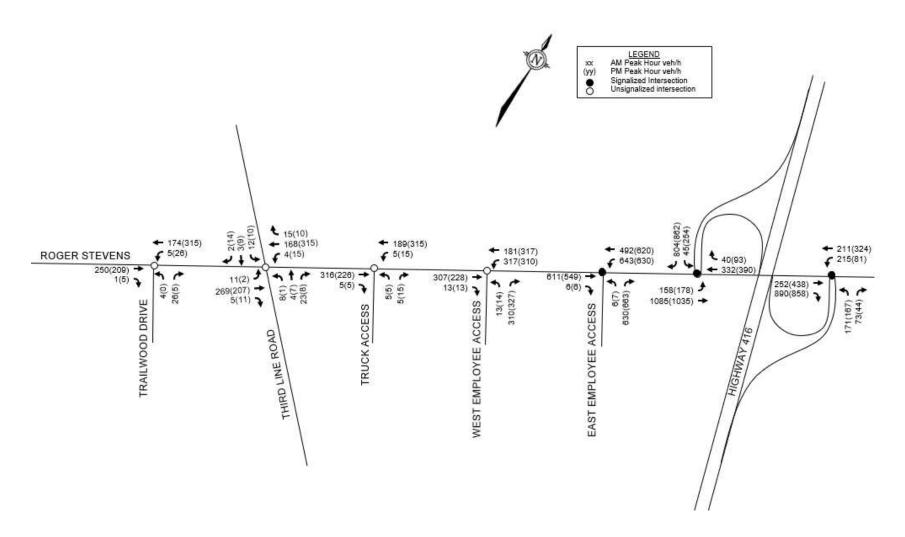


Figure 8: 2026 Total Traffic Volumes

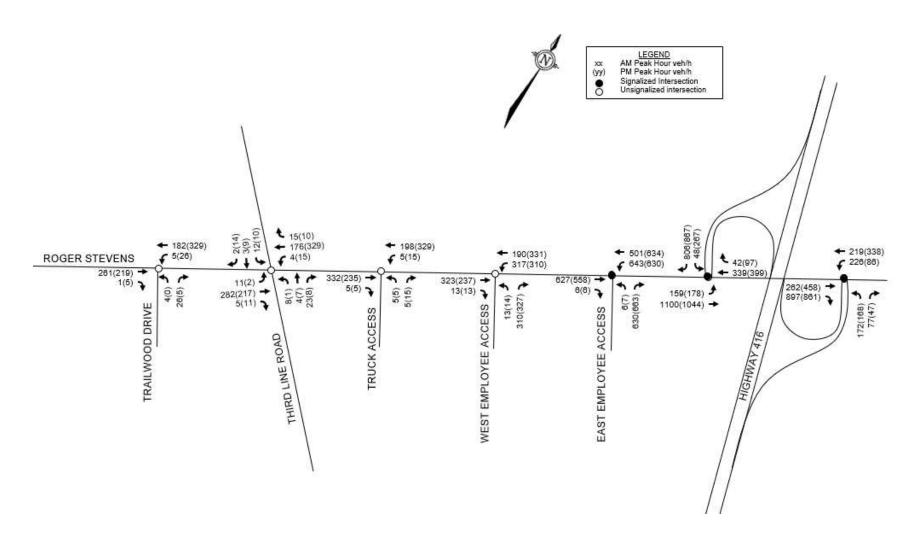
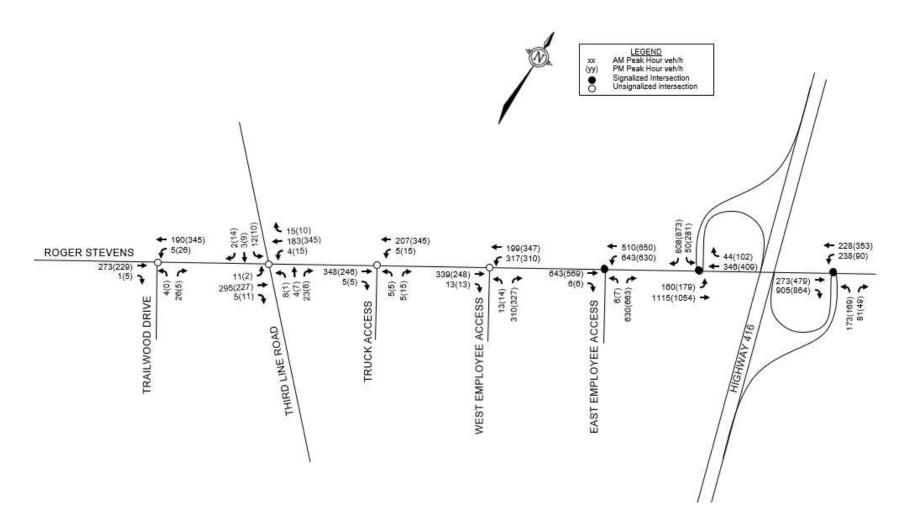


Figure 9: 2031 Total Traffic Volumes



#### 6.0 ANALYSIS

# 6.1 Development Design

# 6.1.1 Design for Sustainable Modes

Pedestrian facilities will be provided between the parking lot and the main building entrances and will be reviewed at the Site Plan stage.

Bicycle parking will be provided, with the locations to be reviewed at the Site Plan stage. Bicycle parking requirements are outlined in Section 6.2.

A 2.5m paved shoulder is proposed on both sides of Roger Stevens Drive for the extents of the roadway modifications.

A review of the Transportation Demand Management (TDM) – Supportive Development Design and Infrastructure Checklist has been conducted. A copy of the TDM checklist is included in **Appendix F**.

#### 6.1.2 Circulation and Access

The proposed development will be served by two all-movement employee accesses on Roger Stevens Drive and one all-movement truck access on Roger Stevens Drive.

The proposed fire route and garbage collection will be further reviewed at the Site Plan stage.

# 6.2 Parking

The subject site is located in Area D on Schedule 1 and Schedule 1A of the City of Ottawa's Official Plan. Minimum vehicular and bicycle parking rates for the proposed warehouse use are identified in the Zoning By-law (ZBL) and are summarized in the following table.

**Table 4: Parking Requirements** 

Land Use	Rate	GFA	Requirement
Vehicle Parking			
Warehouse	0.8 per 100 m <sup>2</sup> of GFA	65,032 m <sup>2</sup>	520
Bicycle Parking			
Warehouse	1 per 2000 m <sup>2</sup> of GFA	65,032 m <sup>2</sup>	33

Based on the foregoing, 520 vehicular parking spaces and 33 bicycle parking spaces are required for the proposed development. Approximately 1,820 parking spaces are proposed in order to serve the employees and visitors at the warehouse. Bicycle parking is proposed and will be reviewed at the Site Plan stage.

The ZBL identifies a minimum requirement of 3 loading spaces per 25,000m<sup>2</sup> of gross floor area and over for a warehouse. A total of 63 loading bays are proposed, and approximately 240 trailer drop spaces are proposed.

As per AODA standards, for a parking lot providing 1,820 parking spaces, 29 accessible parking spaces are required. Accessible parking spaces will be reviewed at the Site Plan stage and will be provided in accordance with the requirements.

# 6.3 Boundary Street Design

This section provides a review of the boundary streets using complete streets principles. The Multi-Modal Level of Service (MMLOS) guidelines produced by IBI Group in 2015 were used to evaluate the LOS of the boundary roadways for each mode of transportation. Schedule 'A' of the City of Ottawa's Official Plan indicates Roger Stevens Drive is located at the boundary of an Agricultural Resource Area and a Village. As there are no MMLOS targets for Agricultural Resource Area (i.e. the 'All Other Designations' targets would apply), the MMLOS targets for Roger Stevens Drive have been based on the Village designation. Targets for pedestrian level of service (PLOS), bicycle level of service (BLOS), truck level of service (TkLOS), and vehicular level of service (Auto LOS) for Roger Stevens Drive adhere to those outlined for an arterial road located in a Village, as identified in Exhibit 22 of the MMLOS guidelines.

The transit level of service (TLOS) has been evaluated for Roger Stevens Drive, despite having no target, as there is a regular transit route.

# 6.3.1 Pedestrian Level of Service (PLOS)

Exhibit 4 of the MMLOS guidelines has been used to evaluate the segment PLOS of the boundary road. Exhibit 22 of the MMLOS guidelines suggest a target PLOS C for all road classes within a Village. The results of the segment PLOS analysis are summarized in the following table.

**Table 5: PLOS Segment Analysis** 

Sidewalk Width	Boulevard Width	Avg. Daily Curb Lane Traffic Volume	Presence of On- Street Parking	Operating Speed <sup>1</sup>	Segment PLOS	
Roger Steve	Roger Stevens Drive					
No Sidewalk	N/A	N/A	N/A	90 km/h	F	

<sup>1.</sup> Operating Speed identified as 10 km/h above the speed limit

#### 6.3.2 Bicycle Level of Service (BLOS)

Exhibit 11 of the MMLOS guidelines has been used to evaluate the segment BLOS of the boundary roadway. Exhibit 22 of the MMLOS guidelines suggest a target BLOS C for Spine Routes located on an arterial road in a Village. The results of the segment BLOS analysis are in the following table.

**Table 6: BLOS Segment Analysis** 

Road Class	Bike Route	Type of Bikeway	Travel Lanes	Operating Speed	Segment BLOS	
Roger Stevens Drive						
Arterial	Spine Route	Mixed Traffic	2	90km/h	F	

# 6.3.3 Transit Level of Service (TLOS)

Exhibit 15 of the MMLOS guidelines has been used to evaluate the segment TLOS of the boundary road. Roger Stevens Drive has been evaluated for TLOS despite having no target, as it currently serves transit. The results of the segment TLOS analysis are summarized in the following table.

**Table 7: TLOS Segment Analysis** 

Table 7: 1200 deginent Analysis						
Eggility Tymo	Level/Exposure to	0 TI 00				
Facility Type	Congestion	Friction	Incident Potential	Segment TLOS		
Roger Stevens Drive						
Mixed Traffic	Yes	Low	Medium	D		

# 6.3.4 Truck Level of Service (TkLOS)

Exhibit 20 of the MMLOS guidelines has been used to evaluate the segment TkLOS of the boundary road. Exhibit 22 of the MMLOS guidelines suggest a target TkLOS D for a Truck Route on an arterial road in a Village. The results of the segment TkLOS are in the following table.

Table 8: Truck Level of Service (TkLOS)

Curb Lane Width (m)	Number of Travel Lanes	TkLOS					
Roger Stevens Drive							
≤3.5	Two (one in each direction)	С					

#### 6.3.5 Vehicular Level of Service (Auto LOS)

Exhibit 22 of the MMLOS guidelines suggest a target Auto LOS D for all roadways within a Village. The typical lane capacity along the study area roadways are based on the City's guidelines for the TRANS Long-Range Transportation Model. The lane capacity along the boundary streets has been estimated based on roadway classification and general characteristics (i.e. rural highway). The results of the Auto LOS analysis are summarized in the following table.

**Table 9: Auto LOS Segment Analysis** 

Direction	Directional Capacity	Traffic Volumes		V/C Ratio and LOS					
		AM Peak	PM Peak	AM Peak		PM Peak			
				V/C	LOS	V/C	LOS		
Roger Stevens Drive									
EB	1600	272	196	0.17	Α	0.12	Α		
WB	1600	159	306	0.10	Α	0.19	Α		

# 6.3.6 Segment MMLOS Summary

The results of the segment MMLOS analysis is summarized in the following table.

**Table 10: Segment MMLOS Summary** 

Segment	PLOS	BLOS	TLOS	TkLOS	Auto LOS
Roger Stevens Drive	F	F	D	С	А
Target	С	С	-	D	D

Roger Stevens Drive currently meets the target TkLOS and Auto LOS, however does not meet the target PLOS or BLOS.

Currently, along the frontage of the subject site there are gravel shoulders provided.

The MMLOS guidelines suggest that paved shoulders may be appropriate pedestrian facilities in rural settings where pedestrian volumes are low. In recognition of this, paved shoulders may be evaluated based on the existing methodology as if they are sidewalks, but it is recommended that the resulting score be adjusted down one grade to recognize their differences (maintenance, lack of physical separation, potential blockage, accessibility, etc.).

The MMLOS guidelines suggest that paved shoulders in a rural context may be evaluated as bike lanes, although they are unlikely to score high due to the high operating speeds on rural roads. This reflects more experienced adult cyclists making use of these facilities, which may be appropriate in the rural context.

A 2m shoulder with no boulevard achieves a PLOS D and a BLOS E. Adjusting the scores down one grade, Roger Stevens would earn a PLOS E and BLOS F.

Paved shoulders along the frontage of the subject site do not achieve the PLOS or BLOS targets, however given the rural context of the site they are recommended.

#### 6.4 Access Intersection Design

Three site accesses are proposed along Roger Stevens Drive: one westerly truck access, and two eastern accesses to employee parking.

The truck access is located approximately 290m east of the Roger Stevens Drive/Third Line Road intersection, measured from centerline to centerline. The east employee access is located approximately 390m west of the Roger Stevens Drive/Highway 416 Southbound Off-Ramp, measured stop bar to stop bar. The west employee access is located approximately 160m west of the east employee access, measured centerline to centerline, and approximately 140m east of the truck access, measured centerline to centerline.

Section 25 (a) of the City's *Private Approach By-Law* identifies a maximum number of private approaches that can be provided, based on the amount of frontage. For sites with 46m to 150m of frontage, one two-way private approach and two one-way private approaches or two two-way private approaches are permitted. For every additional 90m of frontage in excess of 150m, the by-law permits another two-way private approach or two one-way private approaches. The subject site has approximately 620m of frontage on Roger Stevens Drive. Therefore, the number of accesses serving the proposed development meets this requirement.

Section 25 (m) of the *Private Approach By-Law* identifies a requirement to provide a minimum distance of 60m at the street line between the private approach and the nearest intersecting street line.

Section 25 (p) of the *Private Approach By-Law* identifies a minimum spacing requirement of 3.0m between the nearest edge of a private approach and the property line, as measured at the street line.

Based on the proposed spacing described, the site accesses will meet the minimum spacing requirements of the *Private Approach By-Law*.

The east employee access will be signalized and 15.5m in width and will include four 3.5m lanes with the ingress and egress separated by a 1.5m median. The west employee access will be 8.5m in width and will include two 4.25m lanes. The truck access will be 8.5m in width and will include two 4.25m lanes.

Section 25 (d) of the *Private Approach By-Law* identifies a maximum width requirement of 9.0m for any two-way private approach, as measured at the street line, although an exception for wider accesses is permitted under Section 25 (e) for transport loading areas.

Section 107 (1)(a) of the *Zoning By-Law* identifies a minimum width requirement of 6.7m for a two-way driveway to a parking lot.

The Transportation Association of Canada (TAC) *Geometric Design Guide for Canadian Roads* suggests a minimum corner clearance of 70m for an access from a major intersection along an arterial roadway. Note that this minimum corner clearance is based on an operating speed of 50km/h, and higher values are desirable for higher speeds. Based on the spacing described above, the minimum corner clearance requirements are met.

The TAC Geometric Design Guide for Canadian Roads outlines minimum clear throat lengths for driveways based on land use, development size, and types of roadways. On an arterial roadway, the minimum clear throat length for a driveway to a large light industrial development is 60m. Clear throat lengths will be reviewed at the Site Plan stage.

#### 6.5 Transportation Demand Management

The City's TIA guidelines require proponents of qualifying developments to assess the context, need and opportunity for transportation demand management (TDM) program measures at their development.

The TDM measures that could be considered for this development are:

- Preferential carpool parking.
- Ridesharing: potential carpoolers in Ottawa are served by www.OttawaRideMatch.com, an online service to help people find carpool partners. Employers can arrange for a dedicated portal where their employees can search for potential carpool partners only among their colleagues, if they desire. Some very large employers may establish internal ride matching services, to maximize employee uptake and corporate control. Ride matching service providers typically include a waiver to relieve employers of liability when their employees start carpooling through a ride matching service. Ridesharing with co-workers also tends to eliminate security concerns.
- Vanpool service: Vanpools operate in the Toronto and Vancouver metropolitan areas, where vans that carry up to about ten occupants are driven by one of the vanpool members. Vanpools tend to operate on a cost-recovery basis and are most practical for long-distance commutes where transit is not an option. Current legislation in Ontario does not permit third-party (i.e. private or non-profit) vanpool services but does permit employers to operate internal vanpools.
- Carshare vehicles & memberships: VRTUCAR and Zipcar both operate carsharing services in Ottawa, for use by the general public or by businesses as an alternative to corporate fleets. Carsharing services offer 24-hour access, self-serve reservation systems, itemized monthly billings, and outsourcing of all financing, insurance, maintenance and administrative responsibilities.

A copy of the TDM checklist for non-residential developments is included in **Appendix F**.

### 6.6 Transit

Currently, the site is not serviced by a regular bus route. As such, no transit modal share was applied to the trips generated by the development.

# 6.7 Network Concept

This module determines if changes to the Transportation Master Plan (TMP) concept for auto or transit networks are required to accommodate the development-generated travel demands.

Typical lane capacities on the major road network are established based on roadway classification and general characteristics (i.e. suburban with limited access, rural highway, urban with on-street parking, etc.). The typical lane capacities used in this study are based on the City's guidelines for the TRANS Long-Range Transportation Model. The TIA guidelines require the identification of mitigation measures in the form of additional lane capacity where the volume to capacity ratio exceeds 0.9, except in the Urban Core where 1.0 is acceptable.

The projected traffic volumes and lane capacities are summarized in the following table for the major study area roads during the weekday peak hours.

**Table 11: Screenline Analysis** 

Table 11: Screenline Analy		Directional		ffic imes	V/C Ratio a		and LOS	
Road Segment	Direction	Capacity	AM	PM	AM	Peak	PM	Peak
		(per lane)	Peak	Peak	V/C	LOS	V/C	LOS
Existing Traffic						I	I	
Roger Stevens Drive	EB	1600	269	419	0.17	Α	0.26	Α
(east of Highway 416)	WB	1600	366	347	0.23	Α	0.22	Α
Roger Stevens Drive	EB	1600	288	200	0.18	Α	0.13	Α
(west of Highway 416)	WB	1600	165	286	0.10	Α	0.18	Α
416 Southbound Ramps	NB	1200	50	107	0.04	Α	0.09	Α
410 Southbound Hamps	SB	1200	80	349	0.07	Α	0.29	Α
416 Northbound Ramps	NB	1200	91	58	0.08	Α	0.05	Α
410 Northbound Hamps	SB	1200	343	139	0.29	Α	0.12	Α
2031 Background Traffic								
Roger Stevens Drive	EB	1600	306	477	0.19	Α	0.30	Α
(east of Highway 416)	WB	1600	417	395	0.26	Α	0.25	Α
Roger Stevens Drive	EB	1600	328	227	0.21	Α	0.14	Α
(west of Highway 416)	WB	1600	188	325	0.12	Α	0.20	Α
416 Southbound Ramps	NB	1200	57	121	0.05	Α	0.10	Α
410 Oddinbodna Hamps	SB	1200	91	397	0.08	Α	0.33	Α
416 Northbound Ramps	NB	1200	104	66	0.09	Α	0.10	Α
410 Northbound Namps	SB	1200	391	158	0.33	Α	0.13	Α
2031 Total Traffic				ı		ı	ı	
Roger Stevens Drive	EB	1600	354	528	0.22	Α	0.33	Α
(east of Highway 416)	WB	1600	466	443	0.29	Α	0.28	Α
Roger Stevens Drive	EB	1600	1272	1231	0.80	С	0.77	С
(west of Highway 416)	WB	1600	1146	1279	0.72	С	0.80	С
416 Southbound Ramps	NB	1200	203	280	0.17	Α	0.23	Α
Codinodina rampo	SB	1200	852	1152	0.71	С	0.96	E
416 Northbound Ramps	NB	1200	252	217	0.21	Α	0.18	Α
410 Northbound Namps	SB	1200	1141	953	0.95	E	0.79	С

Deficiencies are noted at the Highway 416 ramps with the addition of site traffic. However, this analysis is based on existing conditions, with one lane of travel. Additional lanes are recommended at the 416 Southbound Off-Ramp and the 416 Northbound On-Ramp, as noted in Section 6.8, to accommodate site traffic.

### 6.8 Intersection Design

### 6.8.1 Intersection MMLOS

This section provides a review of the study area intersections using the complete streets principles. The MMLOS guidelines produced by IBI Group in October 2015 were used to evaluate the LOS of all signalized study area intersections for each mode of transportation. Schedule 'A' of the City of Ottawa's Official Plan indicates Roger Stevens Drive west of Highway 416 is in a 'Village' and east of Highway 416 is in an 'Agricultural Resource Center'.

The functional design for the Roger Stevens Drive modifications is detailed in **Section 6.8.7** and is shown in **Appendix G**. New traffic control signals are proposed at the intersections of Roger Stevens Drive/East Employee Access, Roger Stevens Drive/Highway 416 Southbound Ramps, and Roger Stevens Drive/Highway 416 Northbound Ramps.

Target PLOS, BLOS, TLOS, TkLOS, and Auto LOS for the intersections of Roger Stevens Drive/East Employee Access and Roger Stevens Drive/Highway 416 Southbound Ramps are based on the Village designation, while the targets for the intersection of Roger Stevens Drive/Highway 416 Northbound Ramps are based on the 'All Other Designation' classification, as identified in Exhibit 22 of the MMLOS guidelines. The following table summarizes the finding of the MMLOS intersection analysis. Detailed intersection MMLOS calculations are included in **Appendix H.** 

**Table 12: Intersection MMLOS Summary** 

Intersection	PLOS	BLOS	TLOS	TkLOS	Auto LOS¹
Roger Stevens Drive/East Employee Access	Е	F	Е	D	D
Roger Stevens Drive/Highway 416 Southbound Ramps	F	-	С	E	D
Target	С	С	-	D	D
Roger Stevens Drive/Highway 416 Northbound Ramps	F	-	С	С	В
Target	D	С	-	D	D

<sup>1 –</sup> Auto LOS results from 2031 total traffic conditions. See Section 6.8.6 for further details.

# Roger Stevens Drive/East Employee Access

The Roger Stevens Drive/East Employee Access intersection is anticipated to meet the target Auto LOS and TkLOS but will not meet the targets for PLOS or BLOS.

Based on the Pedestrian Exposure to Traffic (PETSI) the Roger Stevens Drive/East Employee Access is operating with a PLOS E. A reduction in the crossing distance on all approaches would have the greatest improvement on the PETSI score and the Pedestrian Delay. However, given the projected traffic volumes, the westbound dual left turns and northbound dual right turns are required, and the intersection configuration is considered appropriate.

The Roger Stevens Drive/East Employee Access is anticipated to operate with a BLOS F, based on both left and right turn characteristics. Given the high turning movement traffic volumes, the proposed dual westbound left turn lanes and dual northbound right turn lanes are required. Paved shoulders are proposed along Roger Stevens Drive and given the rural context of the site, they are an appropriate cycling facility.

# Roger Stevens Drive/Highway 416 Southbound Ramps

The Roger Stevens Drive/Highway 416 Southbound Ramps intersection is anticipated to meet the target Auto LOS but will not meet the target PLOS and TkLOS.

Based on the PETSI, the Roger Stevens Drive/Highway 416 Southbound Ramps intersection is operating with a PLOS F. A reduction in the crossing distance on the north approach would have the greatest improvement on the PETSI score and the Pedestrian Delay. However, based on projected traffic volumes, the proposed lane configuration is appropriate. Per MTO cross section design, a 10m median is required separating the on- and off-ramps.

BLOS has not been evaluated for the Roger Stevens Drive/Highway 416 Southbound intersection as bikes are prohibited on 400 series highways. The ramp is under MTO jurisdiction and BLOS is not a consideration.

The Roger Stevens Drive/Highway 416 Southbound Ramps intersection is anticipated to operate with a TkLOS E. The westbound right turn movement has one receiving lane on departure from this intersection. However, per MTO design for a single lane ramp, the on-ramp currently has a 4.75m wide lane with a right shoulder width of 2.5m and a left shoulder width of 1.0m. No changes are proposed to the configuration of the on-ramp as it currently accommodates trucks.

### Roger Stevens Drive/Highway 416 Northbound Ramps

The Roger Stevens Drive/Highway 416 Northbound Ramps intersection is anticipated to meet the target Auto LOS and TkLOS but will not meet the target PLOS.

Based on PETSI, the Roger Stevens Drive/Highway 416 Northbound Ramps intersection is operating with a PLOS F. A reduction in the crossing distance would have the greatest improvement on the PETSI score. No north-south crossing is proposed at this intersection. As such, only the east-west crossing has been evaluated in terms of PLOS. Per MTO cross section design, a 10m median is required separating the on- and off-ramps and the proposed lane configuration is required for capacity therefore no reduction is recommended.

BLOS has not been evaluated for the Roger Stevens Drive/Highway 416 Northbound intersection as bikes are prohibited on 400 series highways. The ramp is under MTO jurisdiction and BLOS is not a consideration.

### 6.8.2 Existing Intersection Operations

Intersection capacity analysis has been completed for the existing traffic condition. The intersection parameters used in the analysis are consistent with the City's TIA guidelines (saturation flow rate: 1800 vphpl, PHF: 0.9). The results of the analysis are summarized in **Table** 13 for the weekday AM and PM peak hours. Detailed reports are included in **Appendix J**.

Table 13: Existing Intersection Operations

	Al	M Peak		PM Peak		
Intersection	Max V/C or Delay	LOS	Mvmt	Max V/C or Delay	LOS	Mvmt
Existing Traffic						
Roger Stevens Drive/Trailwood Drive	10 sec.	Α	NB	9 sec.	Α	NB
Roger Stevens Drive/Third Line Road	13 sec.	В	SB	13 sec.	В	SB
Roger Stevens Drive/Highway 416 Southbound Ramps	11 sec.	В	SB	20 sec.	С	SB
Roger Stevens Drive/Highway 416 Northbound Ramps	13 sec.	В	NB	14 sec.	В	NB

Under existing traffic conditions, all study area intersections are operating with a LOS C or better.

The need for traffic control signal at the existing intersections along Roger Stevens Drive was reviewed according to the procedure outlined in the *Ontario Traffic Manual* Book 12. Traffic signal justifications are provided in **Appendix I**.

Based on the results of the warrant analysis, signals are not warranted at the Roger Stevens Drive/Highway 416 Northbound Ramps or the Roger Stevens Drive/Highway 416 Southbound ramps under existing traffic conditions.

Currently, a westbound slip around lane is provided at the Roger Stevens Drive/Highway 416 Northbound Ramps, and an eastbound slip around lane is provided at the Roger Stevens Drive/Highway 416 Southbound Ramps. A review of the MTO Left Turn Lane Warrants suggests that a westbound left turn lane with a storage of 25m is warranted at the northbound on-ramp under existing traffic conditions. No eastbound left turn lane is warranted at the southbound on-ramp. Left turn lane warrants are provided in **Appendix I**.

### 6.8.3 Background Intersection Operations

Intersection capacity analysis has been completed for the 2021, 2026, and 2031 background traffic conditions. The intersection parameters used in the analysis are consistent with the City's TIA guidelines (saturation flow rate: 1800 vphpl, PHF: 1.0). The results of the analysis are summarized in **Table 14** for the weekday AM and PM peak hours. Detailed reports are included in **Appendix J**.

**Table 14: Background Intersection Operations** 

Table 14: Background Intersection O		/ Peak		PM	l Peak	
Intersection	Max V/C or Delay	LOS	Mvmt	Max V/C or Delay	LOS	Mvmt
2021 Background Traffic						
Roger Stevens Drive/Trailwood Drive	10 sec.	Α	NB	9 sec.	Α	NB
Roger Stevens Drive/Third Line Road	12 sec.	В	SB	12 sec.	В	SB
Roger Stevens Drive/Highway 416 Southbound Ramps	11 sec.	В	SB	17 sec.	O	SB
Roger Stevens Drive/Highway 416 Northbound Ramps	12 sec.	В	NB	13 sec.	В	NB
2026 Background Traffic						
Roger Stevens Drive/Trailwood Drive	10 sec.	Α	NB	9 sec.	Α	NB
Roger Stevens Drive/Third Line Road	12 sec.	В	SB	12 sec.	В	SB
Roger Stevens Drive/Highway 416 Southbound Ramps	11 sec.	В	SB	19 sec.	O	SB
Roger Stevens Drive/Highway 416 Northbound Ramps	13 sec.	В	NB	13 sec.	В	NB
2031 Background Traffic						
Roger Stevens Drive/Trailwood Drive	10 sec.	Α	NB	9 sec.	Α	NB
Roger Stevens Drive/Third Line Road	13 sec.	В	SB	13 sec.	В	SB
Roger Stevens Drive/Highway 416 Southbound Ramps	11 sec.	В	SB	21 sec.	С	SB
Roger Stevens Drive/Highway 416 Northbound Ramps	13 sec.	В	NB	14 sec.	В	NB

Under background traffic conditions, all study area intersections are anticipated to operate with a LOS C or better.

Note than some critical movements appear to operate slightly better under projected conditions than under existing conditions; this is a result of PHF of 1.0 for future conditions as per the City's TIA guidelines.

The need for traffic control signal at the existing intersections along Roger Stevens Drive was reviewed according to the procedure outlined in the *Ontario Traffic Manual* Book 12 for peak hour traffic demands. Average Hourly Volumes (AHV) were estimated by diving the sum of projected AM and PM peak hour volumes by four. Traffic signal justifications are provided in **Appendix I**.

Under projected background traffic conditions in 2031, traffic signals are not warranted at the Roger Stevens Drive/Highway 416 Northbound Ramps or the Roger Stevens Drive/Highway 416 Southbound ramps.

### 6.8.4 2021 Total Intersection Operations

Intersection capacity analysis has been completed for the 2021 total traffic conditions. The intersection parameters used in the analysis are consistent with the TIA guidelines (saturation flow rate: 1800 vphpl, PHF: 1.0). The results of the analysis are summarized in **Table 15** for the weekday AM and PM peak hours. Detailed reports are included in **Appendix J**.

With the addition of site traffic, traffic signals will be warranted at the intersections of Roger Stevens Drive/Highway 416 Northbound ramps, Roger Stevens Drive/Highway 416 Southbound ramps, and Roger Stevens Drive/East Employee Access in 2021. Traffic signals are 92% warranted at the Roger Stevens Drive/West Employee Access in the 2021 opening year. Traffic signal justifications are provided in **Appendix I**.

For the purposes of the analysis presented in this study, it has been assumed that traffic signals will be provided at the Roger Stevens Drive/Highway 416 Northbound ramps, Roger Stevens Drive/Highway 416 Southbound ramps, and Roger Stevens Drive/East Employee Access at buildout (2021). The Synchro and MTO warrant analysis completed as part of this study indicate that under these conditions, traffic signals are needed to ensure an adequate LOS during peak hours and will also be warranted based on peak hour traffic volumes. Actuated-coordinated signal timings are assumed.

Cycle lengths were modelled at 110 seconds in the AM and PM peak hours.

The functional design for the Roger Stevens Drive modifications is detailed in **Section 6.8.7** and is shown in **Appendix G**. The following summarizes the lane configurations assumed for the study area intersections:

- Roger Stevens/416 Northbound Ramps:
  - Northbound: one shared left/right turn lane
  - o Eastbound: one through lane, one free flow channelized right turn lane
  - Westbound: one through lane, one left turn lane
- Roger Stevens/416 Southbound Ramps:
  - o Southbound: one left turn lane, two right turn lanes
  - o Eastbound: one left turn lane, one through lane
  - Westbound: one through lane, one right turn lane
- Roger Stevens/East Employee Access:
  - o Northbound: one shared left/right turn lane, one right turn lane
  - Eastbound: one shared through/right turn lane
  - o Westbound: two left turn lanes, one through lane
- Roger Stevens/West Employee Access:
  - Northbound: one shared left/right turn lane
  - Eastbound: one shared through/right turn lane
  - Westbound: one left turn lane, one through lane
- Roger Stevens Drive/Truck Access:
  - Northbound: one shared left/right turn lane
  - Eastbound: one shared through/right turn lane
  - Westbound: one left turn lane, one through lane
- Roger Stevens/Third Line Road: one travel lane in all directions
- Roger Stevens/Trailwood Drive: one travel lane in all directions

Table 15: 2021 Total Intersection Operations

Tuble 10: 2021 Total Intersection Ope		/ Peak		PM Peak		
Intersection	Max V/C or Delay	LOS	Mvmt	Max V/C or Delay	LOS	Mvm t
2021 Total Traffic – Unsignalized Inter-	sections					
Roger Stevens Drive/Trailwood Drive	10 sec.	Α	NB	9 sec.	Α	NB
Roger Stevens Drive/Third Line Road	11 sec.	В	NB	13 sec.	В	SB
Roger Stevens Drive/West Employee Access	16 sec.	С	NB	15 sec.	С	NB
Roger Stevens Drive/Truck Access	13 sec.	В	NB	12 sec.	В	NB
2021 Total Traffic - Signalized Interse	ctions					
Roger Stevens Drive/Highway 416 Southbound Ramps	0.91	Е	EBT	0.87	D	EBT
Roger Stevens Drive/Highway 416 Northbound Ramps	0.69	В	EBR	0.66	В	EBR
Roger Stevens Drive/East Employee Access	0.82	D	WBL	0.82	D	WBL

Under 2021 total traffic conditions, the Roger Stevens Drive/Highway 416 Southbound intersection is anticipated to operate with a v/c ratio of 0.91 and a LOS E during the AM peak hour. All other intersections are anticipated to operate with a LOS D or better.

Maximum queue length for the eastbound through movement at the Highway 416 Southbound Ramps is anticipated to be approximately 290m during the AM peak. This queue length is not anticipated to extend past the Roger Stevens Drive/East Employee Access intersection. Synchro identifies that the eastbound queue may take more than one cycle to clear the intersection during the peak hour. Due to space constraints at the Highway 416 overpass bridge to the east, a second eastbound through lane at the Roger Stevens Drive/Highway 416 Southbound Ramps could not be provided without widening the bridge.

The eastbound queue at the northbound ramps is metered due to capacity constraints at the upstream intersection (southbound ramps). No further improvements are recommended due to the space constraints at the Highway 416 overpass bridge.

The southbound queue at the southbound ramps is anticipated to be approximately 80m, and the northbound queue at the northbound ramps is anticipated to be approximately 70m.

The maximum northbound queue length at the east employee access is anticipated to be approximately 30m. The maximum northbound queue length at the west employee access is anticipated to be approximately 20m. The maximum northbound queue length at the truck access is anticipated to be insignificant.

The westbound queue at the east employee access is anticipated to be approximately 90m. This queue length is not anticipated to extend past the Roger Stevens Drive/Highway 416 Southbound intersection.

### 6.8.5 2026 Total Intersection Operations

Intersection capacity analysis has been completed for the 2026 total traffic conditions. The intersection parameters used in the analysis are consistent with the TIA guidelines (saturation flow rate: 1800 vphpl, PHF: 1.0). The results of the analysis are summarized in **Table 16** for the weekday AM and PM peak hours. Detailed reports are included in **Appendix J**.

The assumptions listed in the 2021 total traffic conditions have been carried forward to the 2026 total traffic analysis. The analysis was completed using 2021 signal timing and modified 2026 traffic signal timing/phasing for the AM and PM peak hours.

The 2026 cycle lengths were modelled at 120 seconds in the AM peak hour and 110 seconds in the PM peak hour.

**Table 16: 2026 Total Intersection Operations** 

Table 10. 2020 Total Intersection Ope		M Peak		PM Peak		
Intersection	Max V/C or Delay	LOS	Mvmt	Max V/C or Delay	LO S	Mvm t
2026 Total Traffic – Unsignalized Inter	sections					
Roger Stevens Drive/Trailwood Drive	10 sec.	В	NB	9 sec.	Α	NB
Roger Stevens Drive/Third Line Road	11 sec.	В	NB	13 sec.	В	SB
Roger Stevens Drive/West Employee Access	17 sec.	С	NB	15 sec.	С	NB
Roger Stevens Drive/Truck Access	14 sec.	В	NB	12 sec.	В	NB
2026 Total Traffic – Signalized Intersections (2021 Signal Timing)						
Roger Stevens Drive/Highway 416 Southbound Ramps	0.92	E	EBT	0.88	D	EBT
Roger Stevens Drive/Highway 416 Northbound Ramps	0.69	В	EBR	0.67	В	EBR
Roger Stevens Drive/East Employee Access	0.82	D	WBL	0.82	D	WBL
2026 Total Traffic - Signalized Interse	ctions (2026	Signal	Timing)			
Roger Stevens Drive/Highway 416 Southbound Ramps	0.89	D	EBT	0.88	D	EBT
Roger Stevens Drive/Highway 416 Northbound Ramps	0.69	В	EBR	0.67	В	EBR
Roger Stevens Drive/East Employee Access	0.84	D	WBL	0.82	D	WBL

Under 2026 total traffic conditions, with adjusted signal timing, all intersections are anticipated to operate with a LOS D or better.

Maximum queue length for the eastbound through movement at the Highway 416 Southbound Ramps is anticipated to be approximately 70m in the AM peak and 110m in the PM peak. This is an improvement from the projected AM queue of 290m under 2021 total traffic conditions. The improvement is due to the longer cycle length proposed under 2026 total traffic conditions. This

eastbound queue length is not anticipated to extend past the Roger Stevens Drive/East Employee Access intersection. Synchro identifies that the eastbound queue may take more than one cycle to clear the intersection during the peak hour. Due to space constraints at the Highway 416 overpass bridge to the east, a second eastbound through lane at the Roger Stevens Drive/Highway 416 Southbound Ramps could not be provided without widening the bridge.

The eastbound queue at the northbound ramps is metered due to capacity constraints at the upstream intersection (southbound ramps). No further improvements are recommended due to the space constraints at the Highway 416 overpass bridge.

The southbound queue at the southbound ramps is anticipated to be approximately 90m, and the northbound queue at the northbound ramps is anticipated to be approximately 65m.

The maximum northbound queue length at the east employee access is anticipated to be approximately 30m. The maximum northbound queue length at the west employee access is anticipated to be approximately 25m. The maximum northbound queue length at the truck access is anticipated to be insignificant.

The westbound queue at the east employee access is anticipated to be approximately 85m. This queue length is not anticipated to extend past the Roger Stevens Drive/Highway 416 Southbound intersection.

### 6.8.6 2031 Total Intersection Operations

Intersection capacity analysis has been completed for the 2031 total traffic conditions. The intersection parameters used in the analysis are consistent with the TIA guidelines (saturation flow rate: 1800 vphpl, PHF: 1.0). The results of the analysis are summarized in **Table 17** for the weekday AM and PM peak hours. Detailed reports are included in **Appendix J**.

The assumptions listed in the 2026 total traffic conditions have been carried forward to the 2031 total traffic analysis. The analysis was completed using 2026 traffic signal timing/phasing for the AM and PM peak hours.

Cycle lengths were modelled at 120 seconds in the AM peak hour and 110 seconds in the PM peak hour.

**Table 17: 2031 Total Intersection Operations** 

Tuble 17: 2001 Total intersection op		M Peak		PM Peak		
Intersection	Max V/C or Delay	LOS	Mvmt	Max V/C or Delay	LOS	Mvmt
2031 Total Traffic – Unsignalized Inte	rsections					
Roger Stevens Drive/Trailwood Drive	10 sec.	В	NB	10 sec.	Α	NB
Roger Stevens Drive/Third Line Road	11 sec.	В	NB	13 sec.	В	SB
Roger Stevens Drive/West Employee Access	17 sec.	С	NB	16 sec.	С	NB
Roger Stevens Drive/Truck Access	14 sec.	В	NB	13 sec.	В	NB
2031 Total Traffic – Signalized Interse	ections (202	?6 Signa	l Timing)			
Roger Stevens Drive/Highway 416 Southbound Ramps	0.90	D	EBT	0.89	D	EBT
Roger Stevens Drive/Highway 416 Northbound Ramps	0.69	В	EBR	0.68	В	EBR
Roger Stevens Drive/East Employee Access	0.84	D	WBL	0.82	D	WBL

Under 2031 total traffic conditions, all intersections are anticipated to operate with a LOS D or better.

Maximum queue length for the eastbound through movement at the Highway 416 Southbound Ramps is anticipated to be approximately 290m in the AM peak and 280m in the PM peak hour. This queue length is not anticipated to extend past the Roger Stevens Drive/East Employee Access intersection. Synchro identifies that the eastbound queue may take more than one cycle to clear the intersection during the peak hour. Due to space constraints at the Highway 416 overpass bridge to the east, a second eastbound through lane at the Roger Stevens Drive/Highway 416 Southbound Ramps could not be provided without widening the bridge.

The eastbound queue at the northbound ramps is metered due to capacity constraints at the upstream intersection (southbound ramps). No further improvements are recommended due to the space constraints at the Highway 416 overpass bridge.

The southbound queue at the southbound ramps is anticipated to be approximately 95m, and the northbound queue at the northbound ramps is anticipated to be approximately 80m.

The maximum northbound queue length at the east employee access is anticipated to be approximately 30m. The maximum northbound queue length at the west employee access is anticipated to be approximately 25m. The maximum northbound queue length at the truck access is anticipated to be insignificant.

The westbound queue at the east employee access is anticipated to be approximately 85m. This queue length is not anticipated to extend past the Roger Stevens Drive/Highway 416 Southbound intersection.

### 6.8.7 Functional Design

The functional design for the Roger Stevens Drive modifications is included in **Appendix G**.

Left turn storage lane requirements have been calculated based on the greater of the TAC standard of 1.5 times the average number of arrivals per cycle in the heaviest hour or the projected 95th percentile queue lengths.

Left and right turn deceleration lane requirements have been calculated using a design speed of 60km/h for Roger Stevens Drive. This is less than the posted speed of 80km/h.

It is anticipated that the proposed modifications including signals, medians, and turn lanes will create additional side friction for motorists and reduce the operating speed along Roger Stevens Drive.

Approach and departure taper ratios of 27:1 were used and bay taper ratios of 11:1 were used as required for the turning lanes.

Storage lane and taper length requirements for the recommended turning lanes are summarized in the following table.

**Table 18: Turn Lane Requirements** 

Intersection	Mvmt	Storage (m)	Taper (m)
Roger Stevens Drive/Highway 416 Southbound Ramps	EBL	60	100
	WBR <sup>1</sup>	30	40
	SBR	110	60
	SBL	110	60
Roger Stevens Drive/Highway	WBL	85	100
416 Northbound Ramps	EBR <sup>2</sup>	0	70
Roger Stevens Drive/East Employee Access	Dual WBL	125	100
Roger Stevens Drive/West Employee Access	WBL	75	40
Roger Stevens Drive/Truck Access	WBL	30	40

<sup>1 –</sup> Existing condition

A road modification approval (RMA) package for the proposed modifications to Roger Stevens Drive will be submitted under separate cover. A Provincial Class Environmental Assessment (EA) is required for the roadway modifications located within MTO's jurisdiction.

<sup>2 -</sup> Free Flow Channel recommended

### 7.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the foregoing, the conclusions and recommendations of this TIA can be summarized as follows:

### **Development Design & Parking**

- Pedestrian facilities will be provided between the parking lot and the main building entrances and will be reviewed at the Site Plan stage.
- A 2.5m paved shoulder is proposed on both sides of Roger Stevens Drive for the extents of the roadway modifications.
- A review of the Transportation Demand Management (TDM) Supportive Development Design and Infrastructure Checklist has been conducted.
- Approximately 1,820 parking spaces are proposed in order to serve the employees and visitors at the warehouse, which will meet the minimum requirements of the Zoning By-Law. Bicycle parking is proposed and will be reviewed at the Site Plan stage.
- The ZBL identifies a requirement of 3 loading spaces for the proposed development. A total of 63 loading bays are proposed, and approximately 240 trailer drop spaces are proposed.
- Accessible parking spaces will be reviewed at the Site Plan stage and will be provided in accordance with the requirements.

### **Boundary Street MMLOS**

- Roger Stevens Drive currently meets the target TkLOS and Auto LOS, however does not meet the target PLOS or BLOS.
- Currently, along the frontage of the subject site there are gravel shoulders provided. Paved shoulders along the frontage of the subject site do not achieve the PLOS or BLOS targets, however given the rural context of the site they are recommended.

### Access Design

- Three site accesses are proposed along Roger Stevens Drive: one westerly truck access, and two eastern accesses to employee parking.
- The truck access is located approximately 290m east of the Roger Stevens Drive/Third Line Road intersection, measured from centerline to centerline. The east employee access is located approximately 390m west of the Roger Stevens Drive/Highway 416 Southbound Off-Ramp, measured stop bar to stop bar. The west employee access is located approximately 160m west of the east employee access, measured centerline to centerline, and approximately 140m east of the truck access, measured centerline to centerline.
- The east employee access will be signalized and 15.5m in width and will include four 3.5m lanes with the ingress and egress separated by a 1.5m median. The west employee access will be 8.5m in width and will include two 4.25m lanes. The truck access will be 8.5m in width and will include two 4.25m lanes.
- The site accesses meet all requirements of the Private Approach By-Law.
- On an arterial roadway, the minimum clear throat length for a driveway to a large light industrial development is 60m. Clear throat lengths will be reviewed at the Site Plan stage.

### Transportation Demand Management

- The TDM measures that could be considered for this development are:
  - Preferential carpool parking.

- Ridesharing: potential carpoolers in Ottawa are served by www.OttawaRideMatch.com, an online service to help people find carpool partners. Employers can arrange for a dedicated portal where their employees can search for potential carpool partners only among their colleagues, if they desire. Some very large employers may establish internal ride matching services, to maximize employee uptake and corporate control. Ride matching service providers typically include a waiver to relieve employers of liability when their employees start carpooling through a ride matching service. Ridesharing with co-workers also tends to eliminate security concerns.
- Vanpool service: Vanpools operate in the Toronto and Vancouver metropolitan areas, where vans that carry up to about ten occupants are driven by one of the vanpool members. Vanpools tend to operate on a cost-recovery basis and are most practical for long-distance commutes where transit is not an option. Current legislation in Ontario does not permit third-party (i.e. private or non-profit) vanpool services but does permit employers to operate internal vanpools.
- Carshare vehicles & memberships: VRTUCAR and Zipcar both operate carsharing services in Ottawa, for use by the general public or by businesses as an alternative to corporate fleets. Carsharing services offer 24-hour access, self-serve reservation systems, itemized monthly billings, and outsourcing of all financing, insurance, maintenance and administrative responsibilities.

### Transit

• Currently, the site is not serviced by a regular bus route. As such, no transit modal share was applied to the trips generated by the development.

### Network Concept

 Deficiencies are noted at the Highway 416 ramps with the addition of site traffic. However, this analysis is based on existing conditions, with one lane of travel. Additional lanes are recommended at the 416 Southbound Off-Ramp and the 416 Northbound On-Ramp to accommodate site traffic.

### Intersection MMLOS

- Roger Stevens Drive/East Employee Access
  - The intersection is anticipated to meet the target Auto LOS and TkLOS but will not meet the targets for PLOS or BLOS.
  - Based on the Pedestrian Exposure to Traffic (PETSI) the intersection is operating with a PLOS E. A reduction in the crossing distance on all approaches would have the greatest improvement on the PETSI score and the Pedestrian Delay. However, given the projected traffic volumes, the westbound dual left turns and northbound dual right turns are required, and the intersection configuration is considered appropriate.
  - The intersection is anticipated to operate with a BLOS F, based on both left and right turn characteristics. Given the high turning movement traffic volumes, the proposed dual westbound left turn lanes and dual northbound right turn lanes are required. Paved shoulders are proposed along Roger Stevens Drive and given the rural context of the site, they are an appropriate cycling facility.

- Roger Stevens Drive/Highway 416 Southbound Ramps
  - The Roger Stevens Drive/Highway 416 Southbound Ramps intersection is anticipated to meet the target Auto LOS but will not meet the target PLOS and TkLOS.
  - Based on the PETSI, the intersection is operating with a PLOS F. A reduction in the crossing distance on the north approach would have the greatest improvement on the PETSI score and the Pedestrian Delay. However, based on projected traffic volumes, the proposed lane configuration is appropriate. Per MTO cross section design, a 10m median is required separating the on- and off-ramps.
  - BLOS has not been evaluated for the intersection as bikes are prohibited on 400 series highways. The ramp is under MTO jurisdiction and BLOS is not a consideration.
  - The intersection is anticipated to operate with a TkLOS E. The westbound right turn movement has one receiving lane on departure from this intersection. However, per MTO design for a single lane ramp, the on-ramp currently has a 4.75m wide lane with a right shoulder width of 2.5m and a left shoulder width of 1.0m. No changes are proposed to the configuration of the on-ramp as it currently accommodates trucks.
- Roger Stevens Drive/Highway 416 Northbound Ramps
  - The intersection is anticipated to meet the target Auto LOS and TkLOS but will not meet the target PLOS.
  - Based on the PETSI, the intersection is operating with a PLOS F. A reduction in the crossing distance would have the greatest improvement on the PETSI score and the Pedestrian Delay. No north-south crossing is proposed at this intersection. As such, only the east-west crossing has been evaluated in terms of PLOS. Per MTO cross section design, a 10m median is required separating the on- and offramps and the proposed lane configuration is required for capacity therefore no reduction is recommended.
  - BLOS has not been evaluated for the intersection as bikes are prohibited on 400 series highways. The ramp is under MTO jurisdiction and BLOS is not a consideration.

### **Existing Intersection Operations**

- Under existing traffic conditions, all study area intersections are operating with a LOS C or better.
- Signals are not warranted at the Roger Stevens Drive/Highway 416 Northbound Ramps or the Roger Stevens Drive/Highway 416 Southbound ramps under existing traffic conditions.
- Currently, a westbound slip around lane is provided at the Roger Stevens Drive/Highway 416 Northbound Ramps, and an eastbound slip around lane is provided at the Roger Stevens Drive/Highway 416 Southbound Ramps. A review of the MTO Left Turn Lane Warrants suggests that a westbound left turn lane with a storage of 25m is warranted at the northbound on-ramp under existing traffic conditions. No eastbound left turn lane is warranted at the southbound on-ramp.

### **Background Intersection Operations**

 Under background traffic conditions, all study area intersections are anticipated to operate with a LOS C or better.

• Under projected background traffic conditions in 2031, traffic signals are not warranted at the Roger Stevens Drive/Highway 416 Northbound Ramps or the Roger Stevens Drive/Highway 416 Southbound ramps.

### 2021 Total Intersection Operations

- With the addition of site traffic, traffic signals will be warranted at the intersections of Roger Stevens Drive/Highway 416 Northbound ramps, Roger Stevens Drive/Highway 416 Southbound ramps, and Roger Stevens Drive/East Employee Access in 2021. Traffic signals are 92% warranted at the Roger Stevens Drive/West Employee Access in the 2021 opening year.
- For the purposes of the analysis presented in this study, it has been assumed that traffic signals will be provided at the Roger Stevens Drive/Highway 416 Northbound ramps, Roger Stevens Drive/Highway 416 Southbound ramps, and Roger Stevens Drive/East Employee Access at buildout (2021). The Synchro and MTO warrant analysis completed as part of this study indicate that under these conditions, traffic signals are needed to ensure an adequate LOS during peak hours and will also be warranted based on peak hour traffic volumes. Actuated-coordinated signal timings are assumed.
- Under 2021 total traffic conditions, the Roger Stevens Drive/Highway 416 Southbound intersection is anticipated to operate with a v/c ratio of 0.91 and a LOS E during the AM peak hour. All other intersections are anticipated to operate with a LOS D or better.
- Maximum queue length for the eastbound through movement at the Highway 416 Southbound Ramps is anticipated to be approximately 290m during the AM peak. This queue length is not anticipated to extend past the Roger Stevens Drive/East Employee Access intersection. Synchro identifies that the eastbound queue may take more than one cycle to clear the intersection during the peak hour. Due to space constraints at the Highway 416 overpass bridge to the east, a second eastbound through lane at the Roger Stevens Drive/Highway 416 Southbound Ramps could not be provided without widening the bridge.
- The eastbound queue at the northbound ramps is metered due to capacity constraints at the upstream intersection (southbound ramps). No further improvements are recommended due to the space constraints at the Highway 416 overpass bridge.
- The southbound queue at the southbound ramps is anticipated to be approximately 80m, and the northbound queue at the northbound ramps is anticipated to be approximately 70m
- The maximum northbound queue length at the east employee access is anticipated to be approximately 30m. The maximum northbound queue length at the west employee access is anticipated to be approximately 20m. The maximum northbound queue length at the truck access is anticipated to be insignificant.
- The westbound queue at the east employee access is anticipated to be approximately 90m. This queue length is not anticipated to extend past the Roger Stevens Drive/Highway 416 Southbound intersection.

### 2026 Total Intersection Operations

- Under 2026 total traffic conditions, with adjusted signal timing, all intersections are anticipated to operate with a LOS D or better.
- Maximum queue length for the eastbound through movement at the Highway 416 Southbound Ramps is anticipated to be approximately 70m in the AM peak and 110m in the PM peak. This is an improvement from the projected AM queue of 290m under 2021 total traffic conditions. The improvement is due to the longer cycle length proposed under 2026 total traffic conditions. This eastbound queue length is not anticipated to extend past

the Roger Stevens Drive/East Employee Access intersection. Synchro identifies that the eastbound queue may take more than one cycle to clear the intersection during the peak hour. Due to space constraints at the Highway 416 overpass bridge to the east, a second eastbound through lane at the Roger Stevens Drive/Highway 416 Southbound Ramps could not be provided without widening the bridge.

- The eastbound queue at the northbound ramps is metered due to capacity constraints at the upstream intersection (southbound ramps). No further improvements are recommended due to the space constraints at the Highway 416 overpass bridge.
- The southbound queue at the southbound ramps is anticipated to be approximately 90m, and the northbound queue at the northbound ramps is anticipated to be approximately 65m.
- The maximum northbound queue length at the east employee access is anticipated to be approximately 30m. The maximum northbound queue length at the west employee access is anticipated to be approximately 25m. The maximum northbound queue length at the truck access is anticipated to be insignificant.
- The westbound queue at the east employee access is anticipated to be approximately 85m. This queue length is not anticipated to extend past the Roger Stevens Drive/Highway 416 Southbound intersection.

### 2031 Total Intersection Operations

- Under 2031 total traffic conditions, all intersections are anticipated to operate with a LOS D or better.
- Maximum queue length for the eastbound through movement at the Highway 416 Southbound Ramps is anticipated to be approximately 290m in the AM peak and 280m in the PM peak hour. This queue length is not anticipated to extend past the Roger Stevens Drive/East Employee Access intersection. Synchro identifies that the eastbound queue may take more than one cycle to clear the intersection during the peak hour. Due to space constraints at the Highway 416 overpass bridge to the east, a second eastbound through lane at the Roger Stevens Drive/Highway 416 Southbound Ramps could not be provided without widening the bridge.
- The eastbound queue at the northbound ramps is metered due to capacity constraints at the upstream intersection (southbound ramps). No further improvements are recommended due to the space constraints at the Highway 416 overpass bridge.
- The southbound queue at the southbound ramps is anticipated to be approximately 95m, and the northbound queue at the northbound ramps is anticipated to be approximately 80m.
- The maximum northbound queue length at the east employee access is anticipated to be approximately 30m. The maximum northbound queue length at the west employee access is anticipated to be approximately 25m. The maximum northbound queue length at the truck access is anticipated to be insignificant.
- The westbound queue at the east employee access is anticipated to be approximately 85m. This queue length is not anticipated to extend past the Roger Stevens Drive/Highway 416 Southbound intersection.

### Functional Design

• Left and right turn deceleration lane requirements have been calculated using a design speed of 60km/h for Roger Stevens Drive. This is less than the posted speed of 80km/h.

- It is anticipated that the proposed modifications including signals, medians, and turn lanes will create additional side friction for motorists and reduce the operating speed along Roger Stevens Drive.
- A road modification approval (RMA) package for the proposed modifications to Roger Stevens Drive will be submitted under separate cover. A Provincial Class Environmental Assessment (EA) is required for the roadway modifications located within MTO's jurisdiction.

### **NOVATECH**

Prepared by:

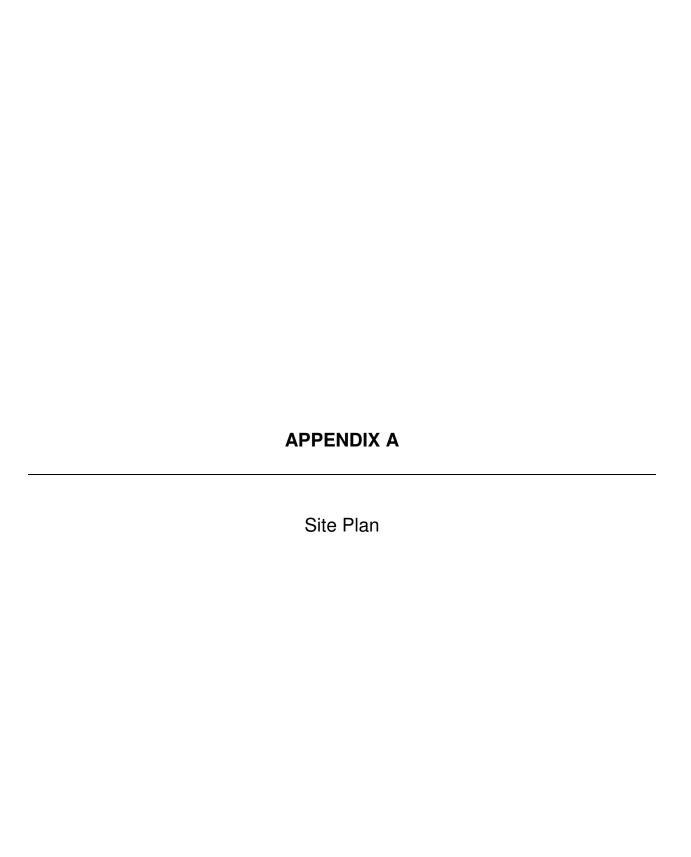
Reviewed by:

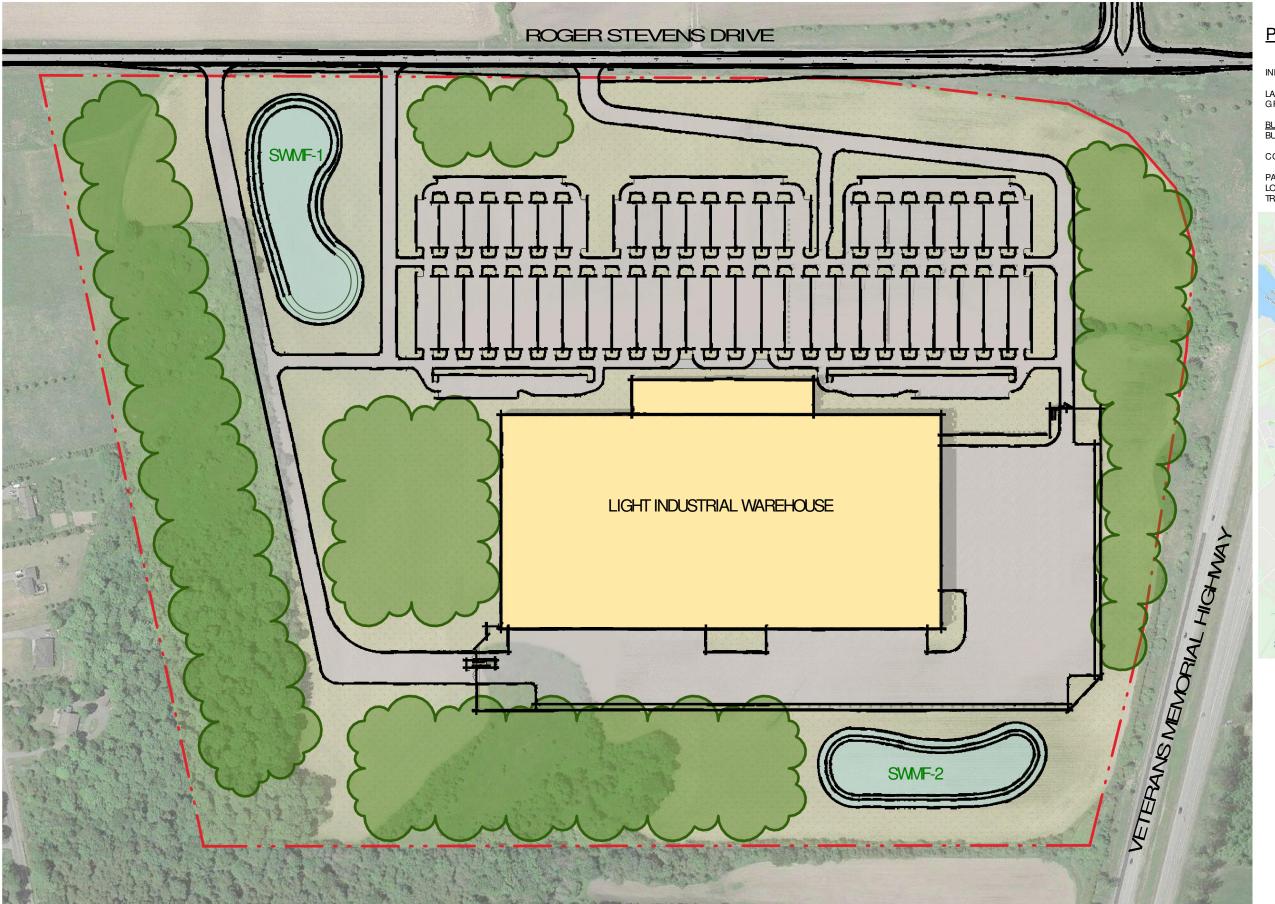
J.L. LUONG TO ONTHE

Rochelle Fortier, B.Eng. E.I.T. | Transportation/Traffic

Kochellefort

Jennifer Luong, P.Eng. Senior Project Manager | Transportation/Traffic





# PROJECT SUMMARY:

INDUSTRIAL BUILDING

LAND AREA GREEN SPACE AREA

BUILDING AREA (GCA) BUILDING FOOTPRINT

700,000± SF

COVERAGE

AGE 13.1%

PARKING PROVIDED LOADING DOCKS TRAILER DROPS 1,820 STALLS 63 DOCKS 240 DROPS

5,320,400± SF 3,203,100± SF



# **APPENDIX B** TIA Screening Form



# City of Ottawa 2017 TIA Guidelines Screening Form

# 1. Description of Proposed Development

Municipal Address	1966 Roger Stevens Drive
Description of Location	Southwest of Roger Stevens Drive/Highway 416
Land Use Classification	Warehouse
Development Size (units)	
Development Size (m²)	Approx. 65,000 m <sup>2</sup> (700,000 SF)
Number of Accesses and Locations	3 - two employee accesses, one service access
Phase of Development	1
Buildout Year	2021

If available, please attach a sketch of the development or site plan to this form.

# 2. Trip Generation Trigger

Considering the Development's Land Use type and Size (as filled out in the previous section), please refer to the Trip Generation Trigger checks below.

Land Use Type	Minimum Development Size
Single-family homes	40 units
Townhomes or apartments	90 units
Office	3,500 m²
Industrial	5,000 m <sup>2</sup>
Fast-food restaurant or coffee shop	100 m²
Destination retail	1,000 m <sup>2</sup>
Gas station or convenience market	75 m <sup>2</sup>

<sup>\*</sup> If the development has a land use type other than what is presented in the table above, estimates of person-trip generation may be made based on average trip generation characteristics represented in the current edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual.

If the proposed development size is greater than the sizes identified above, the Trip Generation Trigger is satisfied.



### **Transportation Impact Assessment Screening Form**

# 3. Location Triggers

	Yes	No
Does the development propose a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit or Spine Bicycle Networks?	X	
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?*		X

<sup>\*</sup>DPA and TOD are identified in the City of Ottawa Official Plan (DPA in Section 2.5.1 and Schedules A and B; TOD in Annex 6). See Chapter 4 for a list of City of Ottawa Planning and Engineering documents that support the completion of TIA).

If any of the above questions were answered with 'Yes,' the Location Trigger is satisfied.

# 4. Safety Triggers

	Yes	No
Are posted speed limits on a boundary street 80 km/hr or greater?	Х	
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?		X
Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions)?		Х
Is the proposed driveway within auxiliary lanes of an intersection?		X
Does the proposed driveway make use of an existing median break that serves an existing site?		X
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?		Х
Does the development include a drive-thru facility?		X

# If any of the above questions were answered with 'Yes,' the Safety Trigger is satisfied.

# 5. Summary

	Yes	No
Does the development satisfy the Trip Generation Trigger?	Χ	
Does the development satisfy the Location Trigger?	Χ	
Does the development satisfy the Safety Trigger?	Χ	

If none of the triggers are satisfied, <u>the TIA Study is complete</u>. If one or more of the triggers is satisfied, <u>the TIA Study must continue into the next stage</u> (Screening and Scoping).

# **APPENDIX C** OC Transpo System Information



### **FRIDAY only / Vendredi seulement**

Selected time periods Périodes sélectionnées



2017.01



# **APPENDIX D** Traffic Count Data and Long-Range Snapshots

# **15 MIN REPORT**

Intersection ID:491900000(--E--) HWY 416 @ RMOC RD 6 - ROGER STEVENS DRIVE IC Municipality: Eastern Date: 25-Apr-2018

	NORTH APPROACH  ime   Cars   Trucks   Heavies   Ped   Ca											F	EAST	APPRO	ACH						so	UTH	APPF	ROACI	н							WES.	Т АР	PRO	СН					
													-							_												•								
Time					Truck				-	Ped		Cars			Frucks		Heav		Ped	l.,		ars		Truc			eavies		Ped		Cars			Γruck 			avie	-	Ped	Total
Doriod1	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru R	ight I	_eft	Thru Righ	t Left	. Ih	ru Right		Let	t II	hru Right	Left	Ihru	Right	Left	Ihru	Right		Left	I hru i	Right	Left	Ihru	Right	Left T	hru	Right		
Period1	•	_	•		•			•						•		Ι.		•		Ι.			Ι.	•			•	_						_		•	_		_	99
14:15	0	0	0	0	0	0	0	0	0	0	13	24	0	0	0 0		0		0	4			1	0	0	0	0	0	0	0	41	9	0	2	0	0	2	0	0	
14:30	0	0	0	0	0	0	0	0	0	0	10	34	0	1	0 0		3		0	2			0	0	0	0	0	1	0	0	48	6	0	2	0	0	3	0	0	117
14:45	0	0	0	0	0	0	0	0	0	0	14	33	0	1	0 0	0	6		0	4		_	0	0	1	0	0	0	0	0	33	10	0	2	0	0	0	0	0	115
15:00	0	0	0	0	0	0	0	0	0	0	23	34	0	0	0 0	0		0	0	2			0	0	0	0	0	0	0	0	41	9	0	2	0	0	0	0	0	120
15:15	0	0	0	0	0	0	0	0	0	0	11	36	0	0	0 0	1	1	0	0	5			0	0	0	0	0	2	0	0	43	12	0	3	0	0	3	1	0	123
15:30	0	0	0	0	0	0	0	0	0	0	7	34	0	0	1 0	0		0	0	0			0	0	1	1	0	0	0	0	39	9	0	0	0	0	2	0	0	104
15:45	0	0	0	0	0	0	0	0	0	0	19	44	0	0	1 0	0			0	6	; C		0	0	2	0	0	0	0	0		11	0	1	0	0	3	0	0	163
16:00	0	0	0	0	0	0	0	0	0	0	13	52	0	0	1 0	1			0	1			0	0	0	0	0	4	0	0		15	0	2	0	0	1	1	0	180
16:15	0	0	0	0	0	0	0	0	0	0	13	44	0	0	0 0	0		0	0	5			0	0	0	0	0	2	0	0	60	8	0	2	1	0	1	0	0	140
16:30	0	0	0	0	0	0	0	0	0	0	16	66	0	0	0 0	0			0	6			0	0	0	0	0	0	0	0	74	9	0	3	0	0	1	1	0	190
16:45	0	0	0	0	0	0	0	0	0	0	14	62	0	0	1 0	0			0	2	: C	8 (	0	0	0	0	0	2	0	0		17	0	1	0	0	1	0	0	192
17:00	0	0	0	0	0	0	0	0	0	0	16	57	0	0	2 0	0		0	0	4	. 0	) 11	0	0	0	0	0	0	0	0		15	0	2	2	0	2	0	0	213
17:15	0	0	0	0	0	0	0	0	0	0	31	77	0	0	1 0	0			0	5			1	0	0	0	0	0	0	0		13	0	0	1	0	2	0	1	231
17:30	0	0	0	0	0	0	0	0	0	0	18	60	0	0	2 0	0		0	0	3	C		0	0	2	0	0	0	0	0	96	12	0	1	0	0	4	0	0	206
17:45	0	0	0	0	0	0	0	0	0	0	27	53	0	0	1 0	0			0	5	0		0	0	1	0	0	0	0	0	56	11	0	0	0	0	0	0	0	157
18:00	0	0	0	0	0	0	0	0	0	0	14	45	0	1	2 0	0	3	0	0	3	0	) 10	0	0	0	0	0	0	0	0	54	11	0	0	0	0	1	0	0	144
Period2																																								455
7:15	0	0	0	0	0	0	0	0	0	0	48	15	0	1	0 0	0			0	3			0	0	0	1	0	0	0	0		32	0	0	0	0	0	0	0	155
7:30	0	0	0	0	0	0	0	0	0	0	62	21	0	2	2 0	0	1	0	0	3			0	0	0	0	0	3	0	0		43	0	4	0	0	1	0	0	195
7:45	0	0	0	0	0	0	0	0	0	0	49	30	0	2	0 0	1	4		0	7	-		0	0	0	1	0	1	0	0		33	0	2	0	0	6	1	0	206
8:00	0	0	0	0	0	0	0	0	0	0	52	47	0	1	4 0	0			0	6			0	0	0	0	0	0	0	0		27	0	0	1	0	3	0	0	208
8:15	0	0	0	0	0	0	0	0	0	0	38	40	0	2	1 0	0			0	2			0	0	0	1	0	1	0	0		26	0	0	1	0	3	2	0	180
8:30	0	0	0	0	0	0	0	0	0	0	57	35	0	2	1 0	0			0	3		) 10	0	0	0	0	0	0	0	0		20	0	1	0	0	1	0	0	161
8:45	0	0	0	0	0	0	0	0	0	0	36	27	0	0	0 0	0			0	3	0		0	0	0	0	0	0	0	0		24	0	1	1	0	0	0	0	139
9:00	0	0	0	0	0	0	0	0	0	0	27	31	0	1	1 0	1		0	0	4		) 13	0	0	0	0	0	3	0	0		13	0	2	1	0	4	0	0	132
9:15	0	0	0	0	0	0	0	0	0	0	30	20	0	1	0 0	0	2	0	0	2	. 0	) 18	1	0	0	2	0	1	0	0		14	0	0	0	0	2	0	0	124
9:30	0	0	0	0	0	0	0	0	0	0	14	30	0	1	2 0	0	1	0	0	1	C	) 2	0	0	0	0	0	1	0	0	35	16	0	0	1	0	2	0	0	106
9:45	0	0	0	0	0	0	0	0	0	0	21	28	0	0	0 0	1	0	0	0	4	. 0	8 (	0	0	0	1	0	0	0	0	34	14	0	1	2	0	1	0	0	115
10:00	0	0	0	0	0	0	0	0	0	0	17	25	0	2	2 0	0	0	0	0	3	C	) 3	0	0	0	0	0	0	0	0	24	12	0	1	1	0	1	1	0	92
10:15	0	0	0	0	0	0	0	0	0	0	18	21	0	0	1 0	0	2	0	0	1	C	) 11	0	0	1	0	0	0	0	0	20	16	0	3	0	0	0	0	0	94
10:30	0	0	0	0	0	0	0	0	0	0	18	30	0	1	0 0	1			0	5	0	9	0	0	0	0	0	0	0	0	19	13	0	0	1	0	0	1	0	98
10:45	0	0	0	0	0	0	0	0	0	0	18	24	0	0	1 0	0	3	0	0	2	. 0	3	0	0	1	0	0	0	0	0	23	11	0	1	0	0	3	2	0	92
11:00	0	0	0	0	0	0	0	0	0	0	11	26	0	0	1 0	Ιo	0	0	0	1 3	0	7	0	0	0	0	0	2	0	0	19	8	0	0	0	0	3	2	0	82



# HWY 416 @ RMOC RD 6 - ROGER STEVENS DRIVE IC

Eastern

Intersection ID:491900000(--E--)

Count Day: Wednesday

Ped.

Ped.

Trucks%

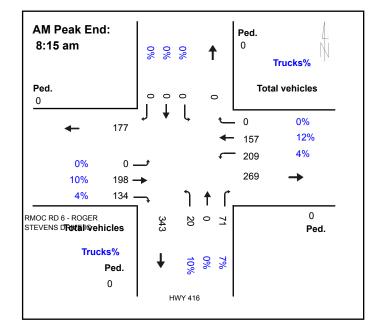
Total vehicles

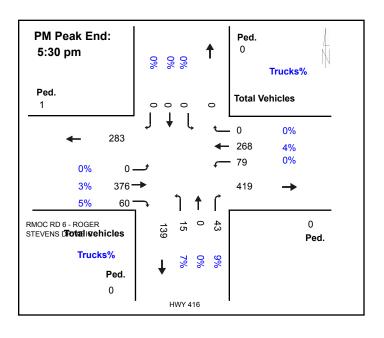
Total vehicles

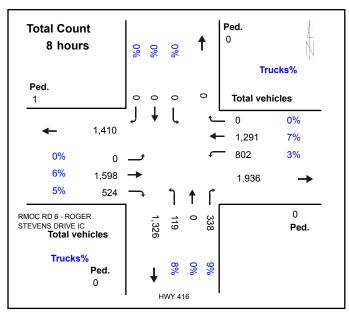
Trucks%

Ped.

Count Date: 25-Apr-2018







# **15 MIN REPORT**

Intersection ID:491900000(--W--) HWY 416 @ RMOC RD 6 - ROGER STEVENS DRIVE IC Municipality: Eastern Date: 25-May-2018

	NORTH APPROACH																																			—			
			1	NORT	H AF	PRO	<u>ACH</u>						<u> </u>	AST	APPRO	<u>ACH</u>						SOL	JTH /	APPR	OACH	<u> </u>						WES	T AP	PRO	<u>∤CH</u>				
Time		Cars	s	•	Truck	s	Не	eavies	S	Ped		Cars		1	Trucks		Heav	ies	Ped		Cai	rs		Truck	(S	He	eavies	3	Ped	С	ars		Truck	s	He	avies	s	Ped	Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru R	Right	_eft	Thru Righ	t Left	Thr	u Right		Left	Thru	u Right	Left	Thru	Right	Left	Thru	Right		Left T	hru Righ	Left	Thru	Right	Left T	hru F	Right		
Period1																																							
14:15	17	0	16	0	0	0	2	0	0	0	0	17	6	0	2 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 :	32 0	0	2	0	0	0	0	0	95
14:30	27	0	12	1	0	0	1	0	0	0	0	28	7	0	1 0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	1 2	28 0	0	1	0	0	2	0	0	112
14:45	15	0	19	1	0	0	0	0	0	0	0	26	11	0	0 0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	3 2	27 0	0	2	0	0	0	0	0	109
15:00	19	0	16	0	0	0	1	0	0	0	0	26	12	0	0 0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3 2	9 0	0	0	0	0	2	0	0	111
15:15	19	0	20	1	0	0	0	0	0	0	0	33	10	0	0 0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	6	37 0	0	3	0	0	4	0	0	135
15:30	25	0	27	0	0	1	1	0	1	0	0	30	10	0	1 0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2 2	26 0	1	0	0	0	1	0	0	127
15:45	39	0	16	1	0	0	0	0	0	0	0	41	11	0	0 0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1 :	86 0	0	2	0	0	1	0	0	150
16:00	40	0	30	0	0	0	0	0	0	0	0	28	20	0	0 0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	3	3 0	0	1	0	0	2	0	0	179
16:15	38	0	29	0	0	0	0	0	1	0	0	36	13	0	0 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2 2	27 0	0	2	0	0	2	0	0	150
16:30	49	0	30	1	0	0	0	0	1	0	0	53	16	0	0 0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	6	3 0	0	2	0	0	1	0	0	197
16:45	55	0	26	0	0	0	0	0	1	0	0	46	12	0	1 0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	4	9 0	0	1	0	0	1	0	0	189
17:00	67	0	23	0	0	0	1	0	0	0	0	40	16	0	1 1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	5	0 0	0	4	0	0	1	0	0	210
17:15	55	0	21	0	0	0	1	0	0	0	0	49	31	0	2 0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	5	88 0	0	1	0	0	1	0	0	206
17:30	67	0	31	0	0	0	1	0	0	0	0	41	26	0	0 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3 4	2 0	0	2	0	0	3	0	0	218
17:45	34	0	19	0	0	1	0	0	0	0	0	42	15	0	1 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 ;	86 0	0	0	0	1	0	0	0	150
18:00	35	0	27	0	0	0	1	0	1	0	0	35	14	0	0 2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2 2	27 0	0	0	0	0	0	0	0	146
Period2																																							100
7:15	10	0	7	0	0	0	0	0	1	0	0	15	2	0	0 0	0	3	1	0	0	0	0	0	0	0	0	0	0	0		64 0	0	0	0	0	0	0	0	106
7:30	11	0	11	2	0	0	0	0	0	0	0	17	6	0	0 2	0	1	0	0	0	0	0	0	0	0	0	0	0	0		7 0	0	1	0	0	1	0	0	112
7:45	11	0	5	0	0	1	0	0	0	0	0	28	6	0	0 0	0	3	2	0	0	0	0	0	0	0	0	0	0	0		6 0	0	2	0	0	7	0	0	143
8:00	7	0	11	0	0	0	0	0	0	0	0		11	0	2 0	0	6	0	0	0	0	0	0	0	0	0	0	0	0		0 0	0	2	0	0	3	0	0	142
8:15	12	0	6	0	0	2	1	0	0	0	0		11	0	1 0	0	2	1	0	0	0	0	0	0	0	0	0	0	0		64 0	1	1	0	0	3	0	0	139
8:30	11	0	7	1	0	1	0	0	0	0	0	28	10	0	1 1	0	0	2	0	0	0	0	0	0	0	0	0	0	0		89 0	0		0	1	1	0	0	103
8:45	7	0	4	0	0	1	0	0	0	0	0	20	7	0	1 0	0	2	1	0	0	0	0	0	0	0	0	0	0	0		5 0	0	2	0	0	0	0	0	94
9:00	11	0	6	0	0	2	1	0	0	0	0		11	0	1 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		86 0	0	0	0	0	4	0	0	101
9:15	10	0	10	0	0	0	2	0	0	0	0	20	2	0	1 0	0	2	1	0	0	0	0	0	0	0	0	0	0	0		86 0	0	0	0	0	0	0	0	87
9:30	15	0	4	0	0	0	1	0	1	0	0	28	4	0	1 1	0	1	0	0	0	0	0	0	0	0	0	0	0	0		35 0	0	1	0	1	1	0	0	95
9:45	14	0	9	2	0	1	1	0	1	0	0	25	8	0	0 0	0	1	0	0	0	0	0	0	0	0	0	0	0	0		33 0	0	2	0	1	0	0	0	100
10:00	7	0	5	2	0	0	1	0	1	0	0	21	10	0	1 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0		24 0	0	0	0	0	1	0	0	76 74
10:15	8	0	5	2	0	1	0	0	1	0	0	13	8	0	0 1	0	1	1	0	0	0	0	0	0	0	0	0	0	0		29 0	0	1	0	0	0	0	0	71 70
10:30	8	0	8	0	0	0	0	0	0	0	0	23	12	0	0 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		25 0	0	1	0	0	1	0	0	78 70
10:45	5	0	10	0	0	0	2	0	1	0	0	17	8	0	1 0	0	1	2	0	0	0	0	0	0	0	0	0	0	0		26 0	0	0	0	0	3	0	0	78 70
11:00 <b>l</b>	8	0	13 l	0	0	1 I	1	0	0 1	0	0	19	9 I	0	1 0	I 0	0	0	I 0	0	0	0	0	0	0 1	<b>I</b> 0	0	0	0 1	2 2	20 0	I 0	2	0 <b>I</b>	0	3	0 <b>I</b>	0 <b>I</b>	79

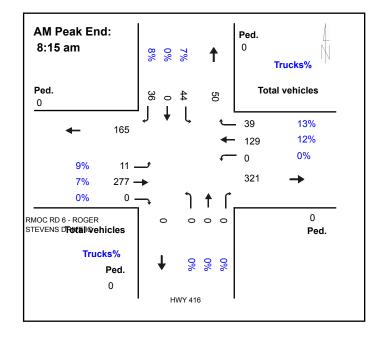


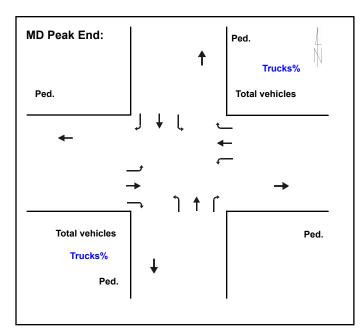
# HWY 416 @ RMOC RD 6 - ROGER STEVENS DRIVE IC

**Eastern** 

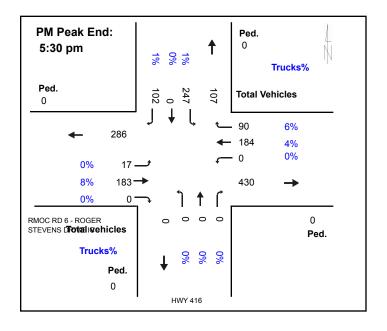
Intersection ID:491900000(--W--)

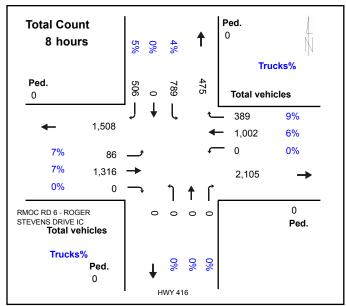
Count Day: Friday





Count Date: 25-May-2018







Weather: Clear File Name: Roger Stevens\_Third Line

Serial #: T12-1612 Site Code : 01814202 Counted by: Cameron Chown Start Date : 1/9/2019

Location: Roger Stevens&Third Line Page No : 1

Start Time   Right   Thriu   Left   Peds   Ass. took   Right   Thriu   Left   Peds   Right   Thriu   Left   Peds   Right   Thriu   Left   Peds   Right   T						Grou	ps Pri	nted-	Pass	enger	Vehicle	es - Li	ght Tr	ucks	- Hea	vy Truc	cks					
Start Time   Right   Time   Right   Time   Right   R							R				ve		-	_		_	R				ve	
O7:00 AM																						
07:15 AM																						
07:45 AM 0 1 3 0 4 4 0 6 6 3 39 1 0 43 10 1 0 0 0 11 3 65 2 0 70 130 07:45 AM 0 1 3 0 4 4 4 38 2 0 44 5 2 3 0 10 0 59 2 0 61 119 07:45 AM 0 1 3 0 4 4 4 38 2 0 44 5 2 3 0 10 0 59 2 0 61 119 07:45 AM 0 1 2 2 9 0 13 13 13 125 4 0 142 22 5 8 0 35 4 249 9 0 262 452 08:00 AM 0 1 5 0 6 2 43 1 0 46 2 0 1 0 0 3 1 4 4 3 0 48 103 08:15 AM 2 0 1 0 0 3 1 32 1 0 34 1 0 1 0 2 0 34 2 0 36 75 08:30 AM 0 0 0 1 0 1 1 1 24 4 0 29 0 2 2 0 4 1 4 0 1 0 1 0 2 0 34 2 76 08:45 AM 2 1 1 1 5 3 3 30 0 0 3 3 1 3 2 1 0 3 4 1 0 1 0 2 0 34 2 0 38 75 10 104 1 2 8 8 1 15 7 129 6 0 142 4 5 5 5 0 14 3 151 10 0 164 335 09:45 AM 2 0 0 4 0 6 0 29 0 0 25 2 0 0 0 0 0 1 1 4 3 151 10 0 164 335 09:45 AM 2 0 0 4 0 6 0 29 0 0 25 0 0 0 0 0 0 1 1 4 3 151 10 0 164 335 09:45 AM 2 0 0 4 0 6 0 29 0 0 25 0 0 0 0 0 0 0 1 1 43 0 0 0 44 79 09:30 AM 0 0 0 0 0 0 1 1 19 1 0 21 1 2 1 0 0 4 0 34 5 0 39 6 4 1 70 13 1 10 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1		-	_		-		-	_	•	-		-	•		-	-	_		-	-	-	-
O7:45 AM		-	-	-	-		-		_	-	-	_	-		-					_		
OB-00 AM			-	-	-	-	_			-	-	_	-	_	-		_			_	-	
08:00 AM																						
08:15 AM	I otal	2	2	9	0	13	13	125	4	0	142	22	5	8	0	35	4	249	9	0	262	452
08:15 AM	08:00 AM	٥	1	5	0	6	2	43	1	٥	46	2	0	1	٥	3	1	44	3	0	48	103
08:30 AM		-	-	_	-					-	-		_	-	-					_	-	
OB:45 AM			-	-	-		-			-	-	-	_		-		_	-		-		
Total		-	•	•	-	-	•		•	-		•			-	•			•	-		
09:00 AM									_			4					3					
09:15 AM																·						
09:30 AM		-	-	-	-			_	-	-				_	-		_			-		
09:45 AM		_	-	-	-	-	-		-	-	-	-	-	-	-	-			-	-		-
Total 3 1 4 0 8 4 91 4 0 99 5 8 1 0 14 2 144 8 0 154 275  *****BREAK****  11:30 AM		-	-	-	-	-	-		-	-		-		-	-		_		-	-		-
*** BREAK ***  11:30 AM																					_	
11:30 AM	I otal	3	1	4	0	8	4	91	4	0	99	5	8	1	0	14	2	144	8	0	154	275
11:45 AM	*** BREAK *	**																				
Total 2 1 2 0 5 1 46 5 0 52 5 1 2 0 8 2 48 1 0 51 116  12:00 PM 1 0 4 0 5 2 23 0 0 25 2 2 1 0 5 1 27 2 0 30 65  12:15 PM 1 0 3 0 4 0 20 4 0 24 1 0 0 0 1 0 29 1 0 30 59  12:30 PM 1 0 2 0 3 0 20 1 0 21 1 1 1 0 3 0 30 0 0 30 57  12:45 PM 0 2 1 0 3 0 15 2 0 17 0 2 3 0 5 3 22 2 0 27 52  Total 3 2 10 0 15 2 78 7 0 87 4 5 5 0 14 4 108 5 0 117 233  01:00 PM 3 0 1 0 4 0 24 0 0 24 2 1 1 0 4 108 5 0 117 233  01:15 PM 3 1 3 0 7 1 25 1 0 27 0 1 0 2 1 0 1 0 22 0 0 22 57  ****BREAK****  Total 6 1 4 0 11 1 49 1 0 51 2 2 1 0 5 3 46 1 0 50 117  ****BREAK****  03:00 PM 2 1 1 0 4 2 39 0 0 41 4 1 1 0 6 1 32 1 0 34 85  03:15 PM 0 3 0 0 3 0 43 1 0 44 4 1 1 0 6 0 36 0 0 36 89  03:30 PM 1 3 2 0 6 1 51 1 1 0 0 3 0 39 106  03:45 PM 2 3 4 0 9 0 59 4 0 63 0 2 0 0 2 1 37 1 0 39 113		1	1		0	2	0		4	0			1	1	0		2	29	0	0		
12:00 PM	11:45 AM																				_	
12:15 PM	Total	2	1	2	0	5	1	46	5	0	52	5	1	2	0	8	2	48	1	0	51	116
12:15 PM	12:00 PM	1	0	4	0	5	2	23	0	0	25	2	2	1	0	5	1	27	2	0	30	65
12:30 PM		-	_		-				_	-				-	-					_		
12:45 PM		1	Õ	_	-		-		-	-		1	-	-	-	-	_		-	-		
Total 3 2 10 0 15 2 78 7 0 87 4 5 5 0 14 4 108 5 0 117 233  01:00 PM 3 0 1 0 4 0 24 0 0 24 2 1 1 0 0 4 3 24 1 0 28 60 01:15 PM 3 1 3 0 7 1 25 1 0 27 0 1 0 0 1 0 22 0 0 22 57  **** BREAK ****  Total 6 1 4 0 11 1 49 1 0 51 2 2 1 0 5 3 46 1 0 50 117  **** BREAK ****  03:00 PM 2 1 1 0 4 2 39 0 0 41 4 1 1 0 6 1 32 1 0 34 85 03:15 PM 0 3 0 3 0 43 1 0 44 4 1 1 0 6 0 36 0 0 36 89 03:30 PM 1 3 2 0 6 1 51 1 0 53 6 1 1 0 8 1 35 3 0 39 106 03:45 PM 2 3 4 0 9 0 59 4 0 63 0 2 0 0 2 1 37 1 0 39 113		0	_		-		0	_		0		0	2		-		3			-		
01:15 PM   3   1   3   0   7   1   25   1   0   27   0   1   0   0   1   0   22   0   0   22   57 ***BREAK ***  Total   6   1   4   0   11   1   49   1   0   51   2   2   1   0   5   3   46   1   0   50   117 ***BREAK ***  03:00 PM   2   1   1   0   4   2   39   0   0   41   4   1   1   0   6   1   32   1   0   34   85   03:15 PM   0   3   0   0   3   0   43   1   0   44   4   1   1   0   6   0   36   0   0   36   89   03:30 PM   1   3   2   0   6   1   51   1   0   53   6   1   1   0   8   1   35   3   0   39   106   03:45 PM   2   3   4   0   9   0   59   4   0   63   0   2   0   0   2   1   37   1   0   39   113				10																		
01:15 PM   3   1   3   0   7   1   25   1   0   27   0   1   0   0   1   0   22   0   0   22   57 ***BREAK ***  Total   6   1   4   0   11   1   49   1   0   51   2   2   1   0   5   3   46   1   0   50   117 ***BREAK ***  03:00 PM   2   1   1   0   4   2   39   0   0   41   4   1   1   0   6   1   32   1   0   34   85   03:15 PM   0   3   0   0   3   0   43   1   0   44   4   1   1   0   6   0   36   0   0   36   89   03:30 PM   1   3   2   0   6   1   51   1   0   53   6   1   1   0   8   1   35   3   0   39   106   03:45 PM   2   3   4   0   9   0   59   4   0   63   0   2   0   0   2   1   37   1   0   39   113	04 00 514	0	_		•		•	0.4	•	•	0.4	_			•			0.4		•	00	00
*** BREAK ***  Total 6 1 4 0 11 1 49 1 0 51 2 2 1 0 5 3 46 1 0 50 117  *** BREAK ***  03:00 PM 2 1 1 0 4 2 39 0 0 41 4 1 1 0 6 1 32 1 0 34 85 03:15 PM 0 3 0 0 3 0 43 1 0 44 4 1 1 0 6 0 36 0 0 36 89 03:30 PM 1 3 2 0 6 1 51 1 0 53 6 1 1 0 8 1 35 3 0 39 106 03:45 PM 2 3 4 0 9 0 59 4 0 63 0 2 0 0 2 1 37 1 0 39 113									-	-					-					-		
Total 6 1 4 0 11 1 49 1 0 51 2 2 1 0 5 3 46 1 0 50 117  **** BREAK ****  03:00 PM 2 1 1 0 4 2 39 0 0 41 4 1 1 0 6 1 32 1 0 34 85 03:15 PM 0 3 0 0 3 0 43 1 0 44 4 1 1 0 6 0 36 0 0 36 89 03:30 PM 1 3 2 0 6 1 51 1 0 53 6 1 1 0 8 1 35 3 0 39 106 03:45 PM 2 3 4 0 9 0 59 4 0 63 0 2 0 0 2 1 37 1 0 39 113		-	- 1	3	U	/	ı	25	ı	U	27	U	ı	U	U	1	U	22	U	U	22	57
*** BREAK ***  03:00 PM			1	1	0	11	1	49	1	0	51	2	2	1	0	5	3	46	1	0	50	117
03:15 PM 0 3 0 0 3 0 43 1 0 44 4 1 1 0 6 0 36 0 0 36 89 03:30 PM 1 3 2 0 6 1 51 1 0 53 6 1 1 0 8 1 35 3 0 39 106 03:45 PM 2 3 4 0 9 0 59 4 0 63 0 2 0 0 2 1 37 1 0 39 113			'	7	U	111	'	43	'	U	31	۷	۷		U	3	3	40	•	Ü	30	117
03:15 PM 0 3 0 0 3 0 43 1 0 44 4 1 1 0 6 0 36 0 0 36 89 03:30 PM 1 3 2 0 6 1 51 1 0 53 6 1 1 0 8 1 35 3 0 39 106 03:45 PM 2 3 4 0 9 0 59 4 0 63 0 2 0 0 2 1 37 1 0 39 113	03:00 PM	2	1	1	0	4	2	39	0	0	41	4	1	1	0	6	1	32	1	0	34	85
03:30 PM									_	-				i	-					_		
03:45 PM 2 3 4 0 9 0 59 4 0 63 0 2 0 0 2 1 37 1 0 39 113		-	_	-	-		-			-			-	-	-	-	_		-	_		
		-			-	-	-	-		-		-	-		-	-			_	_		
				7			3		6			14					3		5			



File Name : Roger Stevens\_Third Line Site Code : 01814202

Start Date : 1/9/2019

Page No : 2
Groups Printed- Passenger Vehicles - Light Trucks - Heavy Trucks

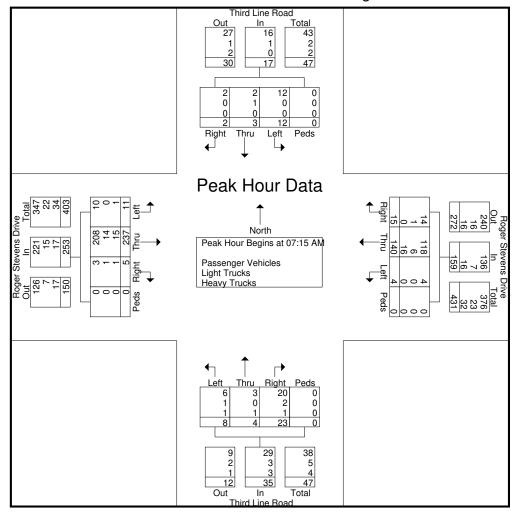
	04:00 PM																				
		Third	d Line	Road		F	loger	Steve	ns Dri	ve		Thire	d Line	Road		R	loger	Steve	ns Dri	ive	
		So	uthbo	und			W	estbo	und			No	rthbo	und			Ea	astbou	und		
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	7	1	4	0	12	1	48	1	0	50	0	0	0	0	0	0	43	3	0	46	108
04:15 PM	5	3	3	0	11	4	68	3	0	75	3	4	0	0	7	4	45	1	0	50	143
04:30 PM	2	1	1	0	4	2	74	8	0	84	2	1	1	0	4	3	43	0	0	46	138
04:45 PM	3	4	3	0	10	4	73	3	0	80	2	1	0	0		1	39	0	0	40	133
Total	17	9	11	0	37	11	263	15	0	289	7	6	1	0	14	8	170	4	0	182	522
05:00 PM	4	1	3	0	8	0	66	1	0	67	1	1	0	0	2	3	51	1	0	55	132
05:15 PM	1	6	2	0	9	4	56	3	0	63	2	0	0	0	2	1	32	4	0	37	111
05:30 PM	2	4	4	0	10	1	47	3	0	51	0	0	0	0	0	1	53	5	0	59	120
05:45 PM	1	6	2	0	9	2	47	1_	0	50	1	0	0	0	1	0	30	0	0	30	90
Total	8	17	11	0	36	7	216	8	0	231	4	1	0	0	5	5	166	10	0	181	453
																					i
Grand Total	50	45	66	1	162	49	1189	56	0	1294	67	38	26	0	131	34	1222	53	0	1309	2896
Apprch %	30.9	27.8	40.7	0.6		3.8	91.9	4.3	0		51.1	29	19.8	0		2.6	93.4	4	0		
Total %	1.7	1.6	2.3	0	5.6	1.7	41.1	1.9	0	44.7	2.3	1.3	0.9	0	4.5	1.2	42.2	1.8	0	45.2	
Passenger Vehicles	46	43	65	1	155	45	1073	51	0	1169	57	36	18	0	111	29	1103	51	0	1183	2618
% Passenger Vehicles	92	95.6	98.5	100	95.7	91.8	90.2	91.1	0	90.3	85.1	94.7	69.2	0	84.7	85.3	90.3	96.2	0	90.4	90.4
Light Trucks	2	1	1	0	4	4	49	4	0	57	7	1	5	0	13	2	59	0	0	61	135
% Light Trucks	4	2.2	1.5	0	2.5	8.2	4.1	7.1	0	4.4	10.4	2.6	19.2	0	9.9	5.9	4.8	0	0	4.7	4.7
Heavy Trucks	2	1	0	0	3	0	67	1	0	68	3	1	3	0	7	3	60	2	0	65	143
% Heavy Trucks	4	2.2	0	0	1.9	0	5.6	1.8	0	5.3	4.5	2.6	11.5	0	5.3	8.8	4.9	3.8	0	5	4.9



File Name: Roger Stevens\_Third Line

Site Code : 01814202 Start Date : 1/9/2019

Page No : 5

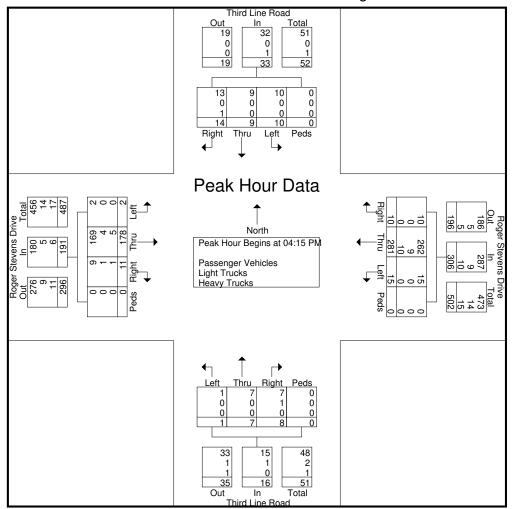




File Name: Roger Stevens\_Third Line

Site Code : 01814202 Start Date : 1/9/2019

Page No: 9





File Name: Roger Stevens\_Trailwood Site Code: 01814201 Weather: Clear

Serial #: T12-1614 Start Date : 1/9/2019 Counted by: Devin McRae

Location: Roger Stevens Dr&Trailwood Dr Page No : 1

	F		evens Di			Trailw		t Trucks - F		Roger St	evens [	Or	
	-	Westk				North			-		ound	-	
Start Time	Thru	Left		App. Total	Right	Left		App. Total	Right	Thru		App. Total	Int. Total
07:00 AM	28	1	0	29	6	0	0	6	0	52	0	52	87
07:15 AM	25	1	0	26	7	2	0	9	0	65	0	65	100
07:30 AM	37	2	0	39	6	0	0	6	1	61	0	62	107
07:45 AM	41	1	0	42	10	2	0	12	0	49	0	49	103
Total	131	5	0	136	29	4	0	33	1	227	0	228	397
08:00 AM	43	1	0	44	3	0	0	3	0	43	0	43	90
08:15 AM	36	1	0	37	6	1	0	7	0	39	0	39	83
08:30 AM	22	1	0	23	4	1	0	5	0	36	0	36	64
08:45 AM	29	3	0	32	3	1_	0	4	1	31	0	32	68
Total	130	6	0	136	16	3	0	19	1	149	0	150	305
09:00 AM	25	1	0	26	0	0	0	0	0	36	0	36	62
09:15 AM	30	0	0	30	3	0	0	3	1	43	0	44	77
09:30 AM	20	0	0	20	5	0	0	5	1	36	0	37	62
09:45 AM Total	21 96	0 1	0	21 97	<u>4</u> 12	0	0	12	0 2	24 139	0	24 141	49 250
* BREAK ***	00		Ü	07	12	Ü	Ü	12	_	100	Ü	141	200
11:30 AM	25	2	0	27	0	1	0	1	1	30	0	31	59
11:45 AM	24	0	0	24	2	1	0	3	0	21	0	21	48
Total	49	2	0	51	2	2	0	4	1	51	0	52	107
12:00 PM	25	0	0	25	1	0	0	1	1	27	0	28	54
12:15 PM	19	3	0	22	5	0	0	5	0	27	0	27	54
12:30 PM	19	2	0	21	2	1	0	3	1	25	0	26	50
12:45 PM	18	0	0	18	3	00	0	3	3	25	0	28_	49
Total	81	5	0	86	11	1	0	12	5	104	0	109	207
01:00 PM	28	3	0	31	1	0	0	1	0	22	0	22	54
01:15 PM   * BREAK ***	27	3	0	30	1	0	0	1	0	25	0	25	56
Total	55	6	0	61	2	0	0	2	0	47	0	47	110
* BREAK ***													
03:00 PM	40	4	0	44	1	4	0	5	0	31	0	31	80
03:15 PM	37	0	0	37	2	0	0	2	0	24	0	24	63
03:30 PM	60	1	0	61	1	1	0	2	0	32	0	32	95
03:45 PM	59	2	0	61	2	1_	0	3	2	36	0	38	102
Total	196	7	0	203	6	6	0	12	2	123	0	125	340



File Name: Roger Stevens\_Trailwood Site Code: 01814201

Start Date : 1/9/2019

Page No : 2 eneger Vehicles - Light Trucks - Heavy Trucks

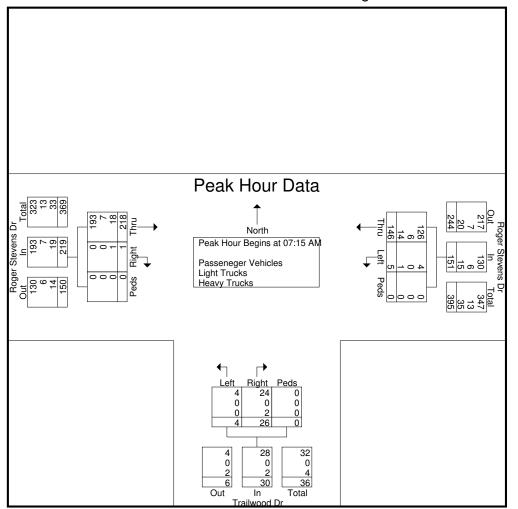
			Groups	Printed- Pa	assenege	r Vehicle	s - Ligh	t Irucks - I	Heavy Iru	ICKS			
		Roger St	evens [	)r		Trailwe	ood Dr			Roger S	tevens [	Or	
		Westk	oound			North	oound			Eastl	oound		
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
04:00 PM	48	7	0	55	2	0	0	2	1	41	0	42	99
04:15 PM	64	12	0	76	3	0	0	3	0	46	0	46	125
04:30 PM	77	4	0	81	0	0	0	0	3	46	0	49	130
04:45 PM	71	3	0	74	1_	0	0	1	2	39	0	41	116
Total	260	26	0	286	6	0	0	6	6	172	0	178	470
05:00 PM	69	7	0	76	1	0	0	1	0	49	0	49	126
05:15 PM	45	12	0	57	2	0	0	2	1	27	0	28	87
05:30 PM	51	1	0	52	5	0	0	5	1	50	0	51	108
05:45 PM	44	2	0	46	4	0	0	4	0	26	0	26	76
Total	209	22	0	231	12	0	0	12	2	152	0	154	397
Grand Total	1207	80	0	1287	96	16	0	112	20	1164	0	1184	2583
Apprch %	93.8	6.2	0		85.7	14.3	0		1.7	98.3	0		
Total %	46.7	3.1	0	49.8	3.7	0.6	0	4.3	0.8	45.1	0	45.8	
Passeneger Vehicles	1103	74	0	1177	89	14	0	103	19	1072	0	1091	2371
% Passeneger Vehicles	91.4	92.5	0	91.5	92.7	87.5	0	92	95	92.1	0	92.1	91.8
Light Trucks	40	2	0	42	0	0	0	0	0	33	0	33	75
% Light Trucks	3.3	2.5	0	3.3	0	0	0	0	0	2.8	0	2.8	2.9
Heavy Trucks	64	4	0	68	7	2	0	9	1	59	0	60	137
% Heavy Trucks	5.3	5	0	5.3	7.3	12.5	0	8	5	5.1	0	5.1	5.3



File Name: Roger Stevens\_Trailwood

Site Code : 01814201 Start Date : 1/9/2019

Page No : 5

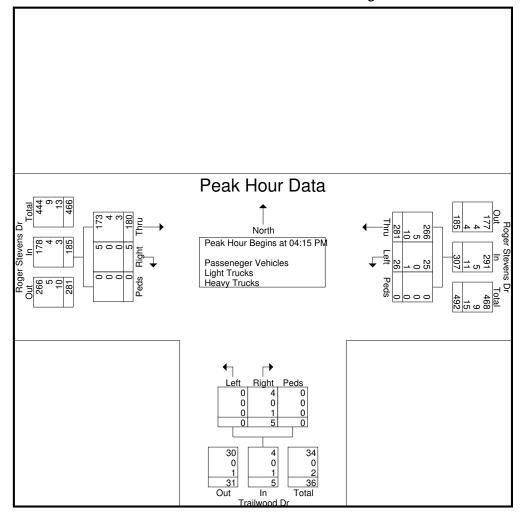




File Name: Roger Stevens\_Trailwood

Site Code : 01814201 Start Date : 1/9/2019

Page No : 9

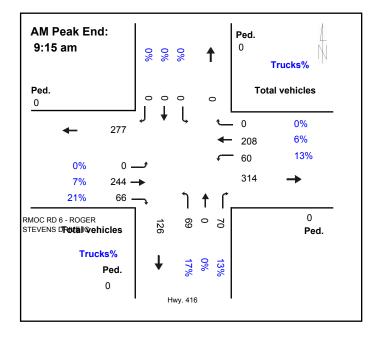


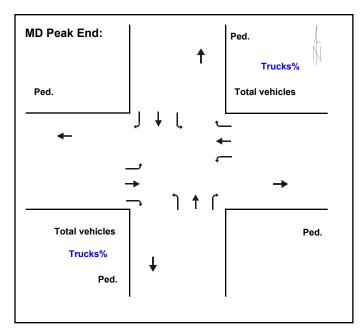


Eastern

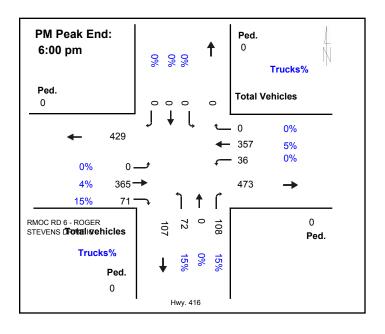
Intersection ID:491900000(--E--)

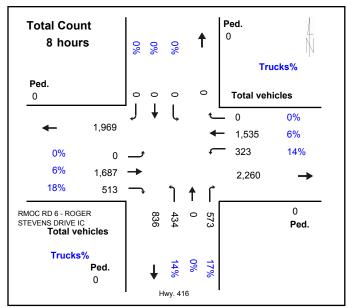
Count Day: Thursday





Count Date: 01-Sep-2011



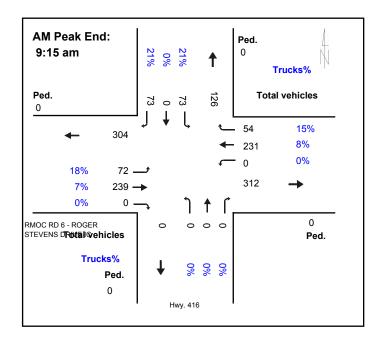


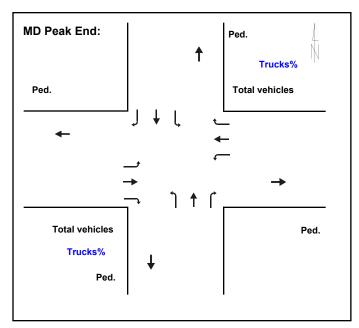


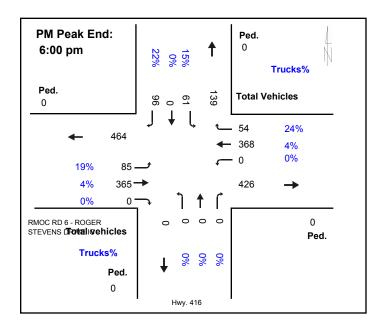
Eastern

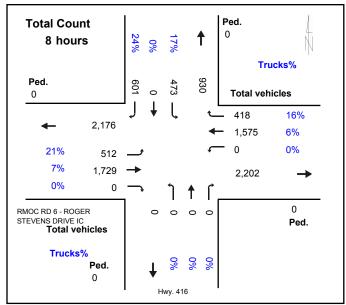
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Count Day: Thursday Count Date: 01-Sep-2011







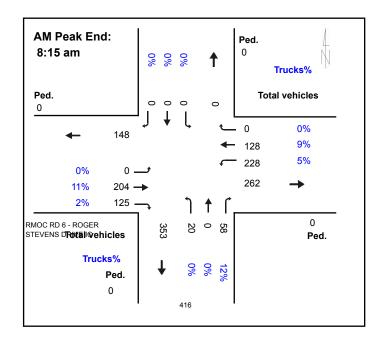


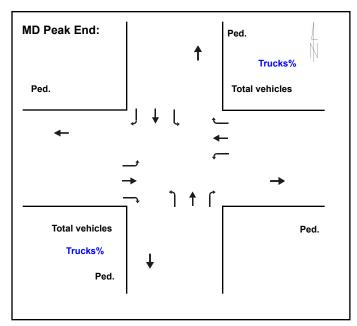


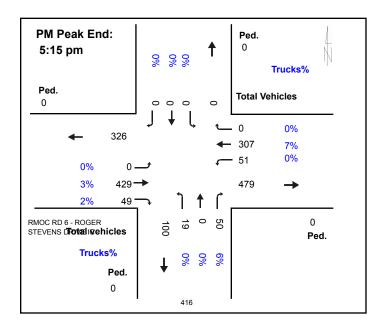
Eastern

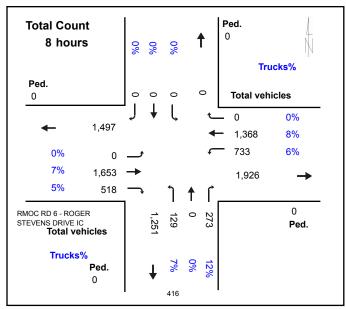
Intersection ID:491900000(--E--)

Count Day: Thursday Count Date: 19-Sep-2013











Eastern

Intersection ID:491900000(--W--)

Count Day: Thursday

Ped.

Ped.

Trucks%

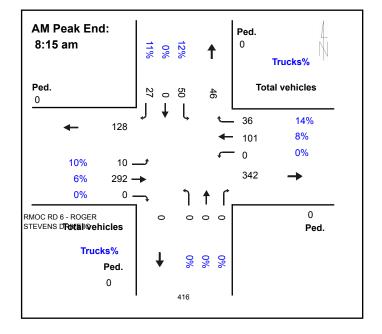
Total vehicles

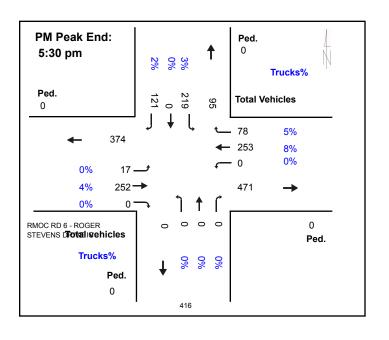
Trucks%

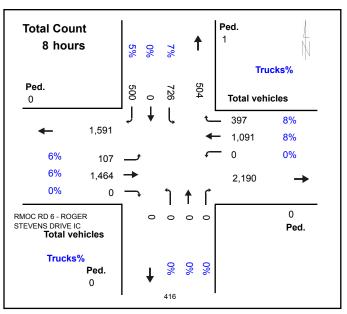
Ped.

Count Date: 19-Sep-2013

Ped.





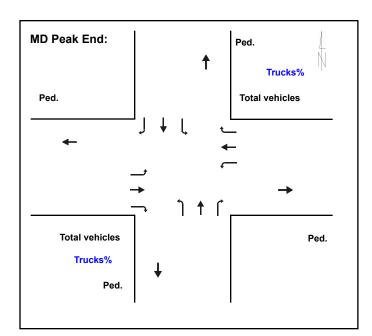




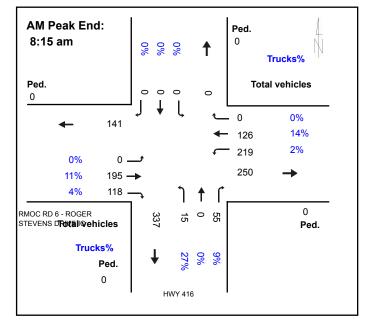
Eastern

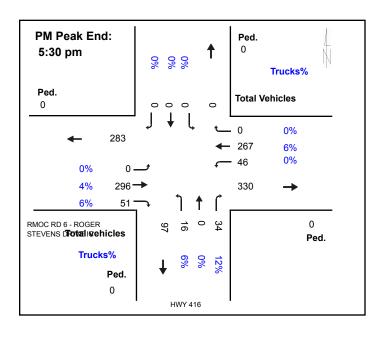
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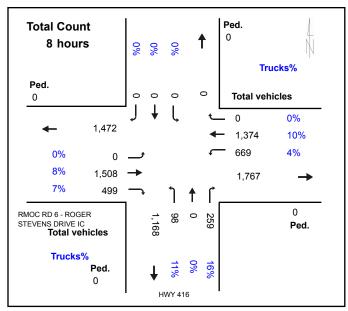
Count Day: Thursday



Count Date: 18-Sep-2014



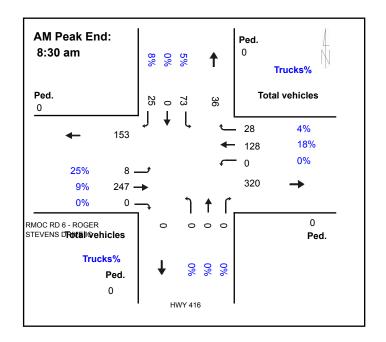


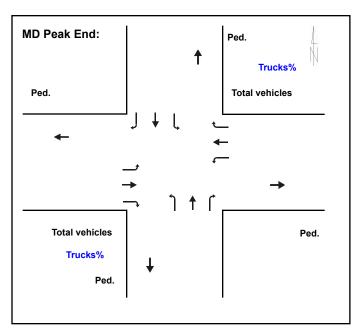


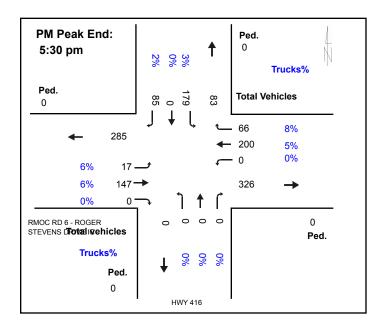


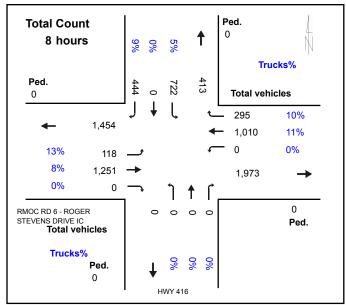
Eastern

Intersection ID:491900000(--W--) Count Day: Monday Count Date: 22-Sep-2014











## Turning Movement Count Summary Report AADT and Expansion Factors

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses,

and School Buses

Carp Road & Reis Road	Carp, ON
-----------------------	----------

Survey Date: Tuesday, 25 June 2019 Start Time: 0700 AADT Factor: 0.9

Weather AM: Overcast +14°C Survey Duration: 6 Hrs. Survey Hours: 0700-1000 & 1500-1800

Weather PM: Partly Cloudy +28°C Surveyor(s): Carmody

			N/A				Re	eis F	₹d.				Ca	rp F	₹d.			Ca	ırp F	₹d.			
		Ea	stboı	ınd			We	stbou	ınd				Noi	rthbo	und			Sou	ıthbo	und			
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0700-0800	0	0	0	0	0	71	0	5	0	76	76	0	315	55	0	370	18	321	0	0	339	709	785
0800-0900	0	0	0	0	0	31	0	8	0	39	39	0	299	47	0	346	22	342	0	0	364	710	749
0900-1000	0	0	0	0	0	27	0	8	0	35	35	0	263	47	0	310	10	311	0	0	321	631	666
1500-1600	0	0	0	0	0	50	0	13	0	63	63	0	440	51	0	491	7	371	0	0	378	869	932
1600-1700	0	0	0	0	0	76	0	33	0	109	109	0	500	44	0	544	12	368	0	0	380	924	1033
1700-1800	0	0	0	0	0	63	0	11	0	74	74	0	418	39	0	457	9	322	0	0	331	788	862
Totals	0	0	0	0	0	318	0	78	0	396	396	0	2235	283	0	2518	78	2035	0	0	2113	4631	5027

# Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor Applicable to the Day and Month of the Turning Movement Count

Expansion factors are applied exclusively to standard <u>weekday</u> 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

•	Eq	uivaler	t 12-h	our veh	icle vo	umes.	These	volume	es are c	alculate	d by m	ultiplyi	ng the	3-hour	totals	by the 8	3 ➡12 (	expans	ion fac	tor of 1	.39		
Equ. 12 Hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		A		. 40 h.a				Th			laulata.	al la	. [4] []	41		laus 40 l	4 .	tala b	4h - AA	DT food		•	
		Avera	ge daliy	y 12-no								•		-	•			-			or of: 0	.9	
AADT 12-hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	24-Hc	ur AAD	T. The	se volu	mes a	re calc	ulated b	y mult	iplying	the ave	rage da	aily 12-l	hour ve	hicle v	olume	s by the	12 ➡2	24 expa	nsion	factor o	f 1.31		
AADT 24 Hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

#### **AADT and expansion factors provided by the City of Ottawa**

AM Peak Ho	our Fac	tor =	<b>&gt;</b>	0.9	)4									High	est H	ourly \	/ehic	le Volu	ıme B	Betwe	en 07	00h &	1000h
AM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT S	.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
0745-0845	0	0	0	0	0	33	0	7	0	40	40	0	342	59	0	401	21	330	0	0	351	752	792

PM Peak Ho	ur Fac	tor =	<b>)</b>	0.9	92								High	est H	ourly \	Vehic	le Volu	ıme B	etwe	en 150	00h &	1800h
PM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
1615-1715	0	0	0	0	0	87	0	29	0	116 116	0	497	46	0	543	15	373	0	0	388	931	1047

## **Comments:**

No pedestrians observed during the traffic count.

#### Notes:

- 1. Includes all vehicle types except bicycles, electric bicycles, and electric scooters.
- 2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

Printed on: 6/26/2019 Prepared by: thetrafficspecialist@gmail.com

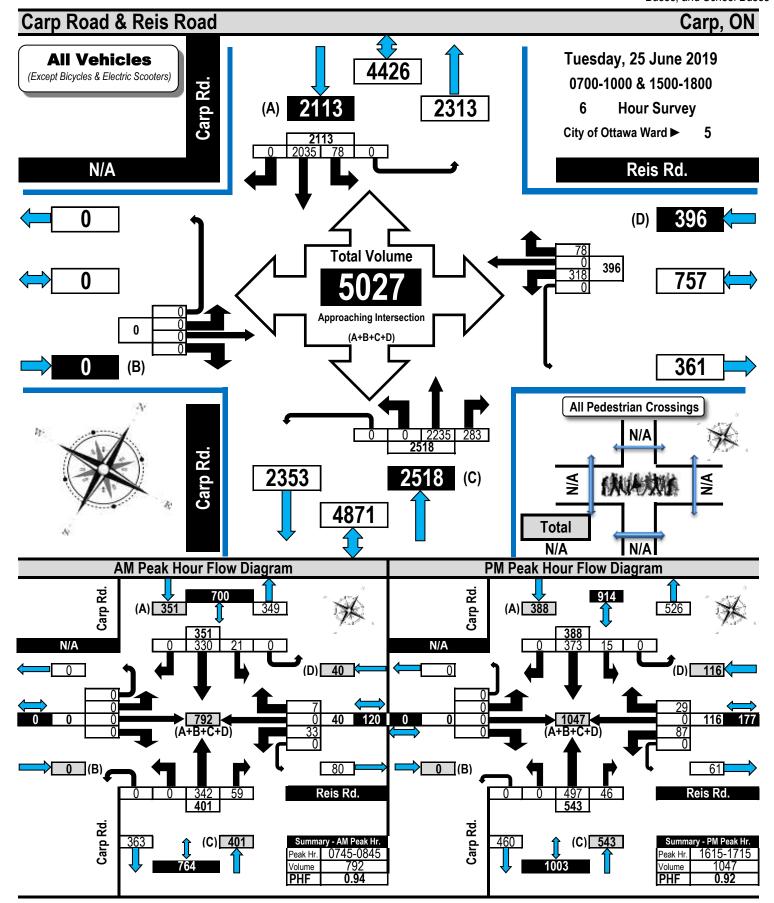


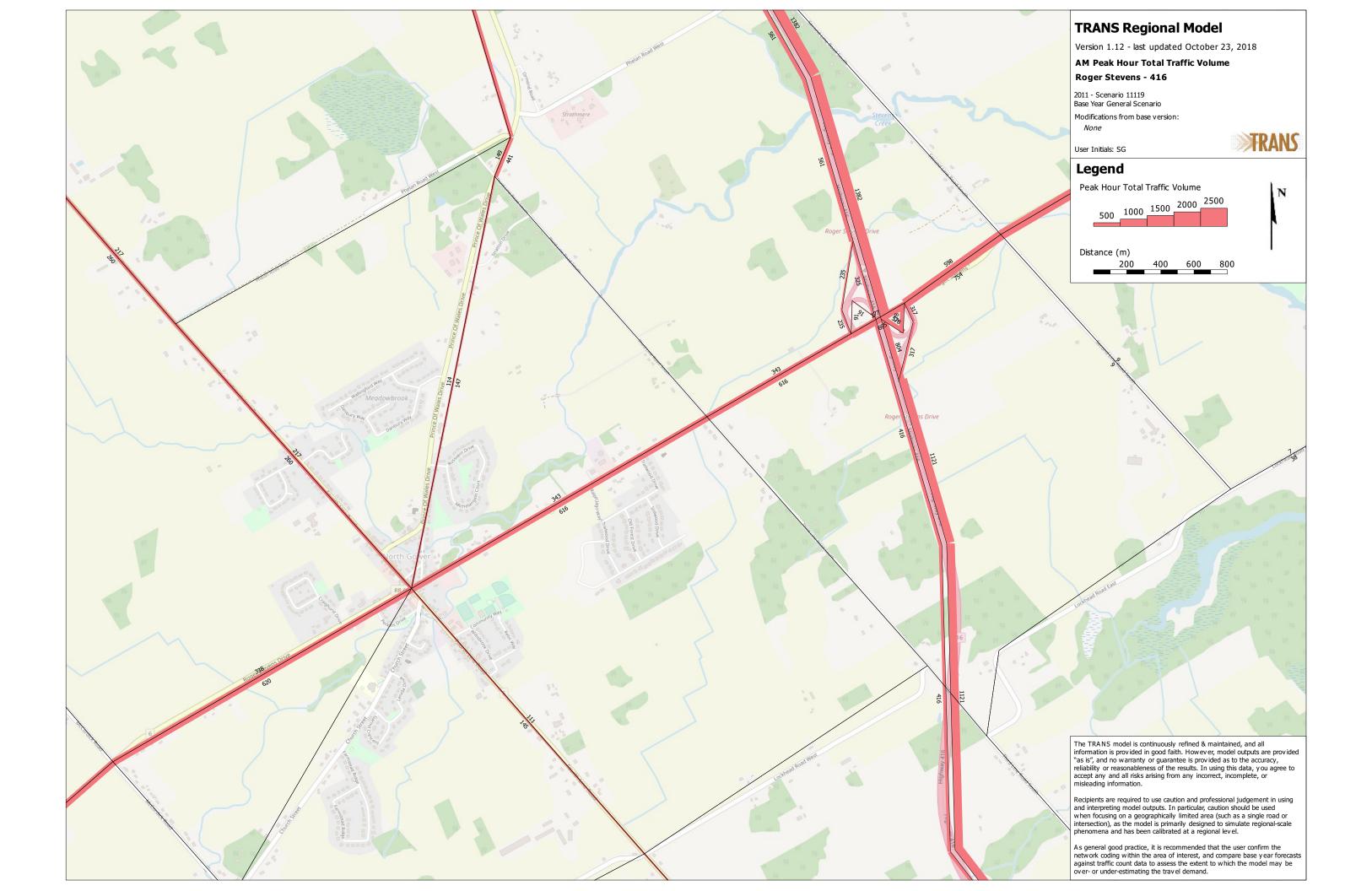
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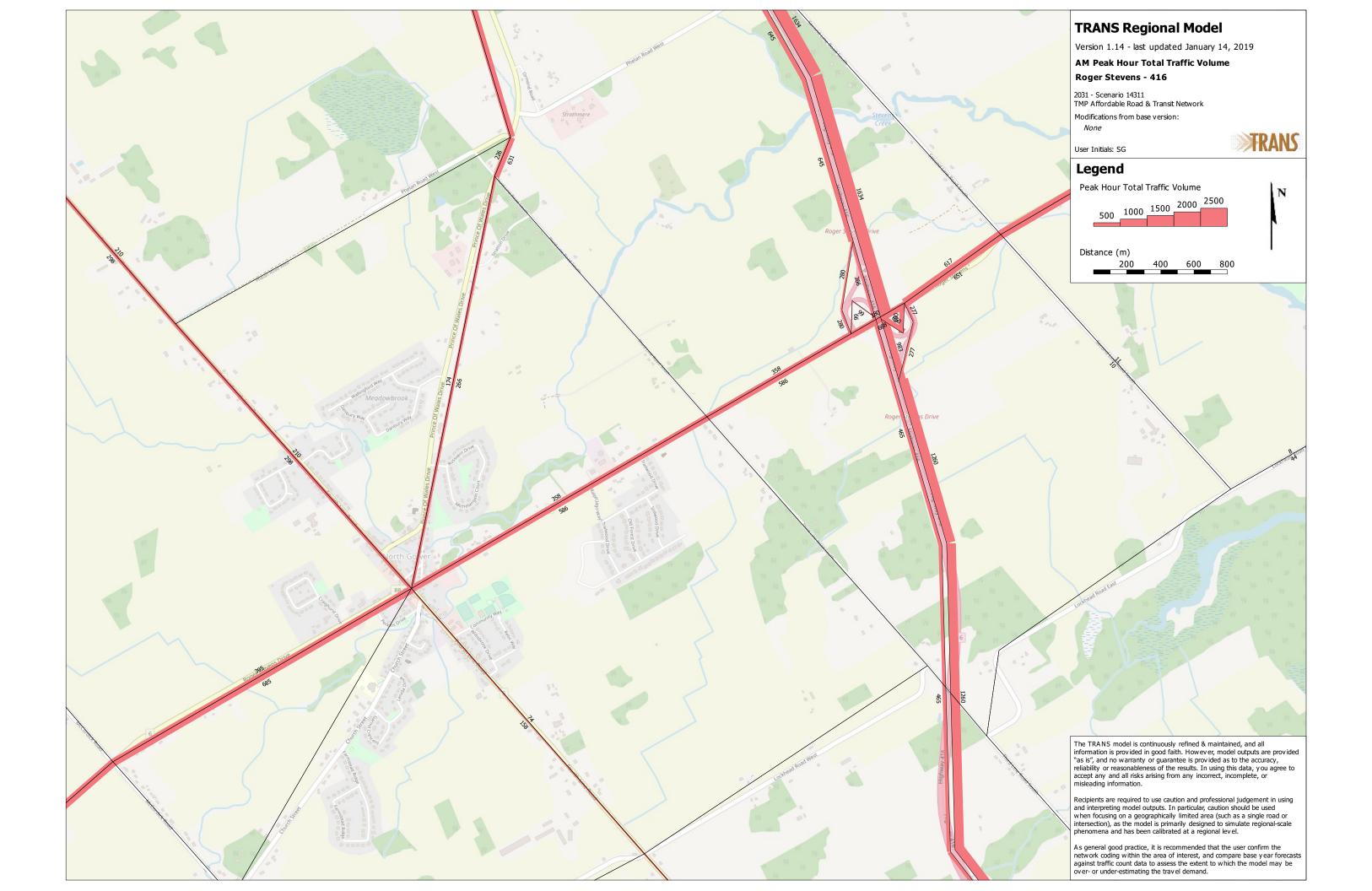
## Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams

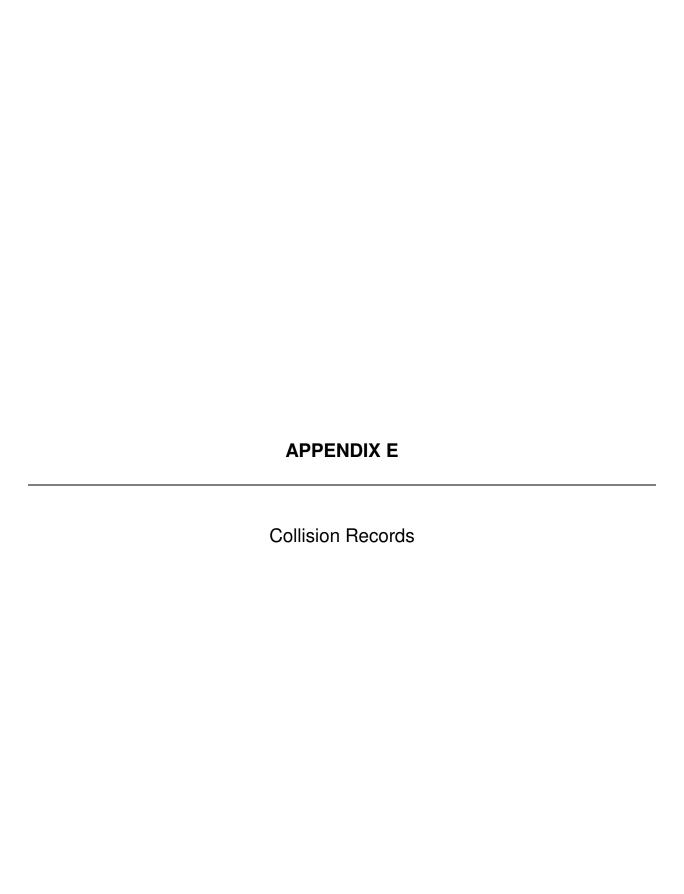
Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Flow Diagrams: AM PM Peak











# **City Operations - Transportation Services**

# **Collision Details Report - Public Version**

**From:** January 1, 2007 **To:** December 31, 2017

Location: HWY 416 ROGERSTE IC49R42 @ ROGER STEVENS DR

Traffic Control: No control Total Collisions: 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver Veh	hicle type	First Event	No. Ped
2017-Jun-14, Wed,20:30	Clear	SMV other	P.D. only	Dry	East	0 0	itomobile, ation wagon	Ran off road	

Location: HWY416 IC49 RAMP34 btwn HIGHWAY 416 & ROGER STEVENS DR

Traffic Control: No control

Total Collisions: 2

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2013-Sep-29, Sun,07:40	Clear	SMV other	P.D. only	Dry	South	•	Automobile, station wagon	Ditch	
2017-Dec-12, Tue,15:55	Snow	SMV other	P.D. only	Loose snow	South	•	Automobile, station wagon	Skidding/sliding	

Location: HWY416 IC49 RAMP42 btwn HIGHWAY 416 & ROGER STEVENS DR

Traffic Control: No control Total Collisions: 2

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2013-Dec-14, Sat,09:20	Clear	SMV other	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other	
2014-Jan-05, Sun,15:20	Drifting Snow	SMV other	P.D. only	Ice	North	Going ahead	Pick-up truck	Skidding/sliding	

Location: ROGER STEVENS DR @ THIRD LINE RD

Traffic Control: Stop sign

Total Collisions: 3

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver Vehicle type	First Event	No. Ped	

Tuesday, January 15, 2019 Page 1 of 2

2013-Dec-21, Sat,13:21	Freezing Rain	Rear end	P.D. only	Slush	West	Slowing or stoppin	g Pick-up truck	Skidding/sliding
					West	Stopped	Automobile, station wagon	Other motor vehicle
2014-Mar-29, Sat,14:14	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Turning left	Pick-up truck	Other motor vehicle
2017-Jan-05, Thu,10:48	Snow	Rear end	P.D. only	Slush	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Turning left	Pick-up truck	Other motor vehicle

Location: ROGER STEVENS DR btwn HWY416 IC49 RAMP43 & HWY416 IC49 RAMP42

Traffic Control: No control

Total Collisions: 2

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	er Vehicle type	First Event	No. Ped
2013-Jun-09, Sun,14:45	Clear	SMV other	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Animal - wild	
2014-Mar-17, Mon,00:00	Clear	SMV other	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Ran off road	

Location: ROGER STEVENS DR btwn THIRD LINE RD S & HWY416 IC49 RAMP34

Traffic Control: No control

Total Collisions: 2

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2015-Jan-16, Fri,07:07	Snow	SMV other	P.D. only	Loose snow	East	Going ahead	Automobile, station wagon	Ditch	
2017-Jun-12, Mon,07:19	Clear	Turning movement	P.D. only	Dry	East	Making "U" turn	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

Tuesday, January 15, 2019 Page 2 of 2



# **TDM-Supportive Development Design and Infrastructure Checklist:**

Non-Residential Developments (office, institutional, retail or industrial)

Legend					
REQUIRED	The Official Plan or Zoning By-law provides related guidance that must be followed				
BASIC	The measure is generally feasible and effective, and in most cases would benefit the development and its users				
BETTER	The measure could maximize support for users of sustainable modes, and optimize development performance				

	TDM-supportive design & infrastructure measures:  Non-residential developments		Check if completed & add descriptions, explanations or plan/drawing references
	1.	WALKING & CYCLING: ROUTES	
	1.1	Building location & access points	
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	
	1.2	Facilities for walking & cycling	
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations (see Official Plan policy 4.3.3)	□ N/A
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible (see Official Plan policy 4.3.12)	☐ To be reviewed at Site Plan

	TDM-s	supportive design & infrastructure measures:  Non-residential developments	Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3	Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks (see Official Plan policy 4.3.10)	☐ To be reviewed at Site Plan
REQUIRED	1.2.4	Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps (see Official Plan policy 4.3.10)	☐ To be reviewed at Site Plan
REQUIRED	1.2.5	Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and onroad cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians (see Official Plan policy 4.3.11)	☐ To be reviewed at Site Plan
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	□ N/A
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	□ N/A
BASIC	1.2.8	Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	
	1.3	Amenities for walking & cycling	
BASIC	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	
BASIC	1.3.2	Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	

	TDM-s	supportive design & infrastructure measures:  Non-residential developments	Check if completed & add descriptions, explanations or plan/drawing references
	2.	WALKING & CYCLING: END-OF-TRIP FACILI	TIES
	2.1	Bicycle parking	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible (see Official Plan policy 4.3.6)	☐ To be reviewed at Site Plan
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas (see Zoning By-law Section 111)	☐ To be reviewed at Site Plan
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored (see Zoning By-law Section 111)	☐ To be reviewed at Site Plan
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met), plus the expected peak number of customer/visitor cyclists	
BETTER	2.1.5	Provide bicycle parking spaces equivalent to the expected number of commuter and customer/visitor cyclists, plus an additional buffer (e.g. 25 percent extra) to encourage other cyclists and ensure adequate capacity in peak cycling season	
	2.2	Secure bicycle parking	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single office building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers (see Zoning By-law Section 111)	
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met)	
	2.3	Shower & change facilities	
BASIC	2.3.1	Provide shower and change facilities for the use of active commuters	
BETTER	2.3.2	In addition to shower and change facilities, provide dedicated lockers, grooming stations, drying racks and laundry facilities for the use of active commuters	
	2.4	Bicycle repair station	
BETTER	2.4.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	

	TDM-s	supportive design & infrastructure measures:  Non-residential developments	Check if completed & add descriptions, explanations or plan/drawing references
	3.	TRANSIT	
	3.1	Customer amenities	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	
	4.	RIDESHARING	
	4.1	Pick-up & drop-off facilities	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	☐ To be reviewed at Site Plan
	4.2	Carpool parking	
BASIC	4.2.1	Provide signed parking spaces for carpools in a priority location close to a major building entrance, sufficient in number to accommodate the mode share target for carpools	☐ To be reviewed at Site Plan
BETTER	4.2.2	At large developments, provide spaces for carpools in a separate, access-controlled parking area to simplify enforcement	
	5.	CARSHARING & BIKESHARING	
	5.1	Carshare parking spaces	
BETTER	5.1.1	Provide carshare parking spaces in permitted non-residential zones, occupying either required or provided parking spaces (see Zoning By-law Section 94)	
	5.2	Bikeshare station location	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	

	TDM-s	supportive design & infrastructure measures:  Non-residential developments	Check if completed & add descriptions, explanations or plan/drawing references
	6.	PARKING	
	6.1	Number of parking spaces	
REQUIRED	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly (see Zoning By-law Section 104)	
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking (see Zoning By-law Section 111)	
	6.2	Separate long-term & short-term parking areas	
BETTER	6.2.1	Separate short-term and long-term parking areas using signage or physical barriers, to permit access controls and simplify enforcement (i.e. to discourage employees from parking in visitor spaces, and vice versa)	
	7.	OTHER	
	7.1	On-site amenities to minimize off-site trips	
BETTER	7.1.1	Provide on-site amenities to minimize mid-day or mid-commute errands	

## **TDM Measures Checklist:**

Non-Residential Developments (office, institutional, retail or industrial)

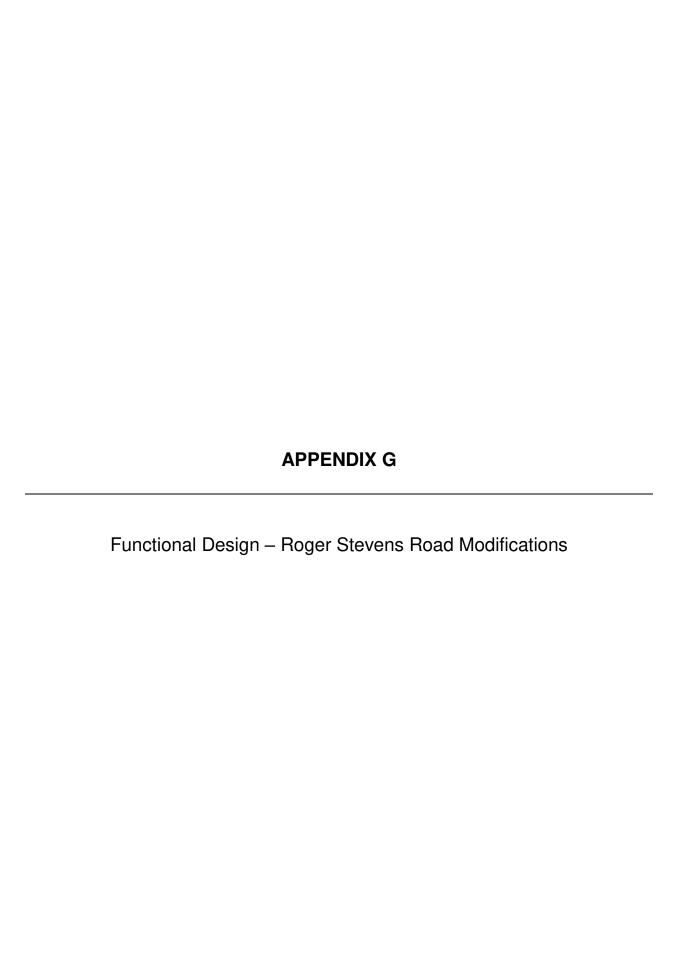
# The measure is generally feasible and effective, and in most cases would benefit the development and its users The measure could maximize support for users of sustainable modes, and optimize development performance The measure is one of the most dependably effective tools to encourage the use of sustainable modes

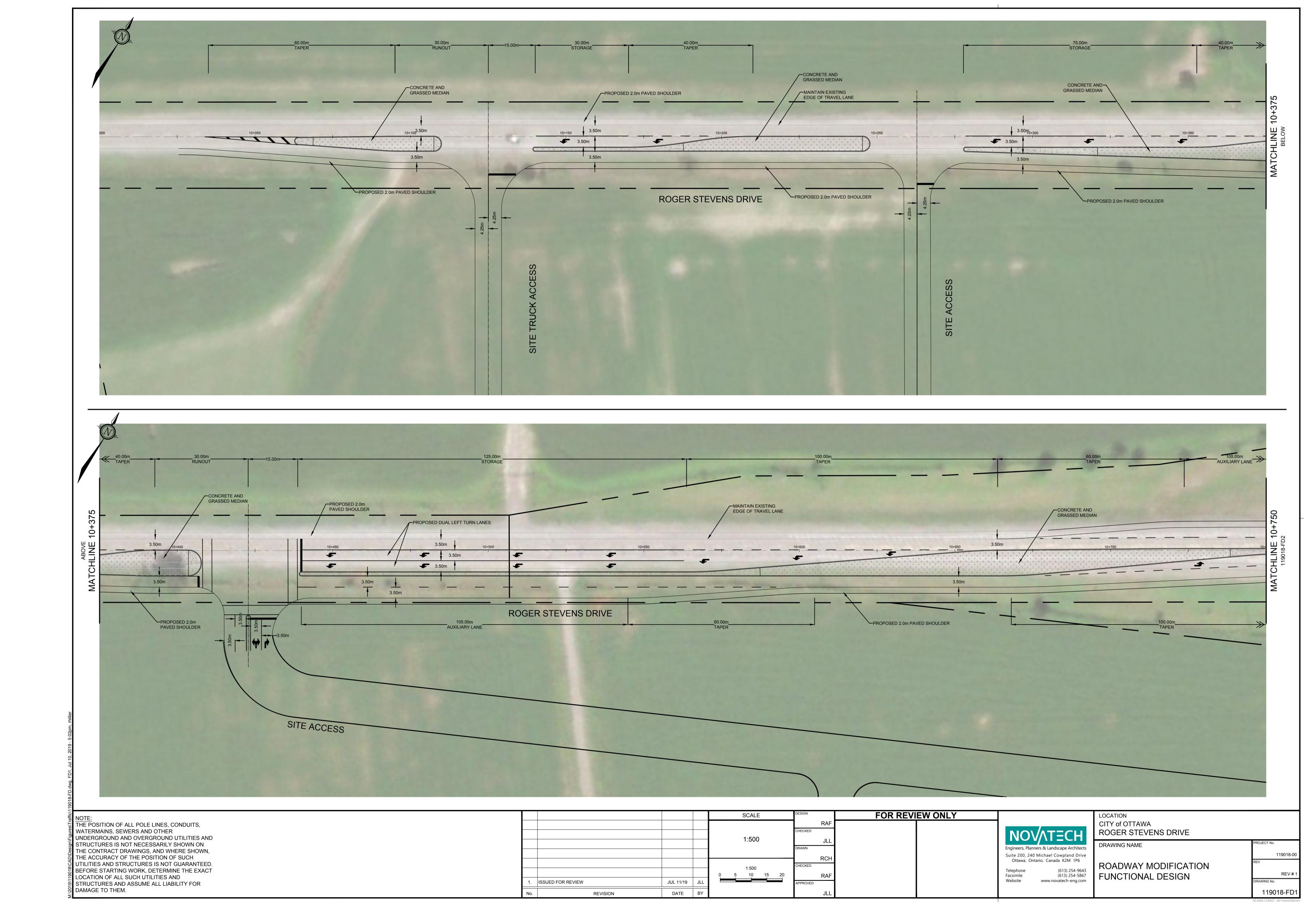
	TDM	measures: Non-residential developments	Check if proposed & add descriptions
	1.	TDM PROGRAM MANAGEMENT	
	1.1	Program coordinator	
BASIC	★ 1.1.1	Designate an internal coordinator, or contract with an external coordinator	
	1.2	Travel surveys	
BETTER	1.2.1	Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	
	2.	WALKING AND CYCLING	
	2.1	Information on walking/cycling routes & destin	ations
BASIC	2.1.1	Display local area maps with walking/cycling access routes and key destinations at major entrances	
·	2.2	Bicycle skills training	
		Commuter travel	
BETTER	★ 2.2.1	Offer on-site cycling courses for commuters, or subsidize off-site courses	
	2.3	Valet bike parking	
		Visitor travel	
BETTER	2.3.1	Offer secure valet bike parking during public events when demand exceeds fixed supply (e.g. for festivals, concerts, games)	

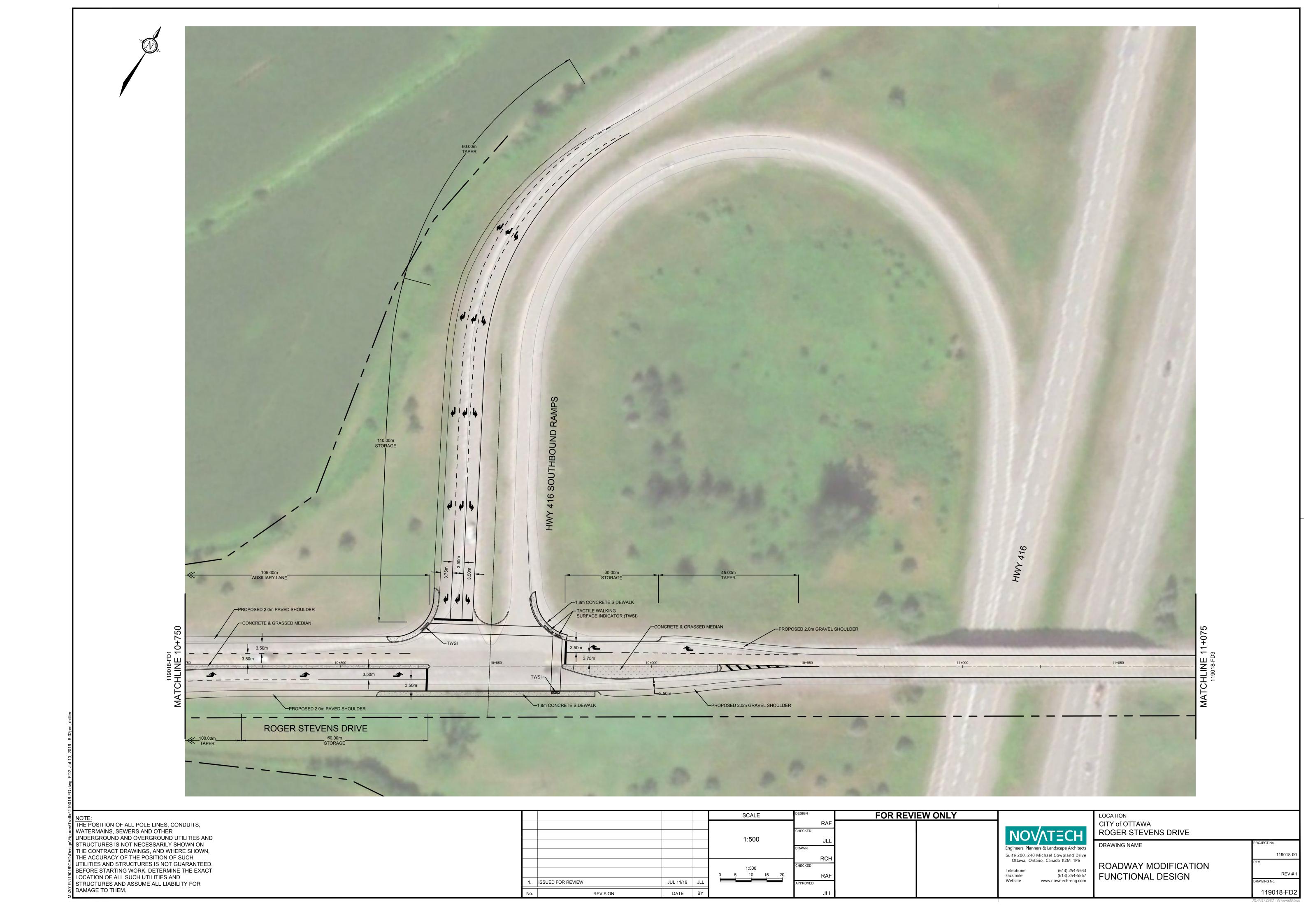
	TDM	measures: Non-residential developments	Check if proposed & add descriptions
	3.	TRANSIT	
	3.1	Transit information	
BASIC	3.1.1	Display relevant transit schedules and route maps at entrances	
BASIC	3.1.2	Provide online links to OC Transpo and STO information	
BETTER	3.1.3	Provide real-time arrival information display at entrances	
	3.2	Transit fare incentives	
		Commuter travel	
BETTER	3.2.1	Offer preloaded PRESTO cards to encourage commuters to use transit	
BETTER ★	3.2.2	Subsidize or reimburse monthly transit pass purchases by employees	
		Visitor travel	
BETTER	3.2.3	Arrange inclusion of same-day transit fare in price of tickets (e.g. for festivals, concerts, games)	
	3.3	Enhanced public transit service	
		Commuter travel	
BETTER	3.3.1	Contract with OC Transpo to provide enhanced transit services (e.g. for shift changes, weekends)	
		Visitor travel	
BETTER	3.3.2	Contract with OC Transpo to provide enhanced transit services (e.g. for festivals, concerts, games)	
	3.4	Private transit service	
		Commuter travel	
BETTER	3.4.1	Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for shift changes, weekends)	
		Visitor travel	
BETTER	3.4.2	Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for festivals, concerts, games)	

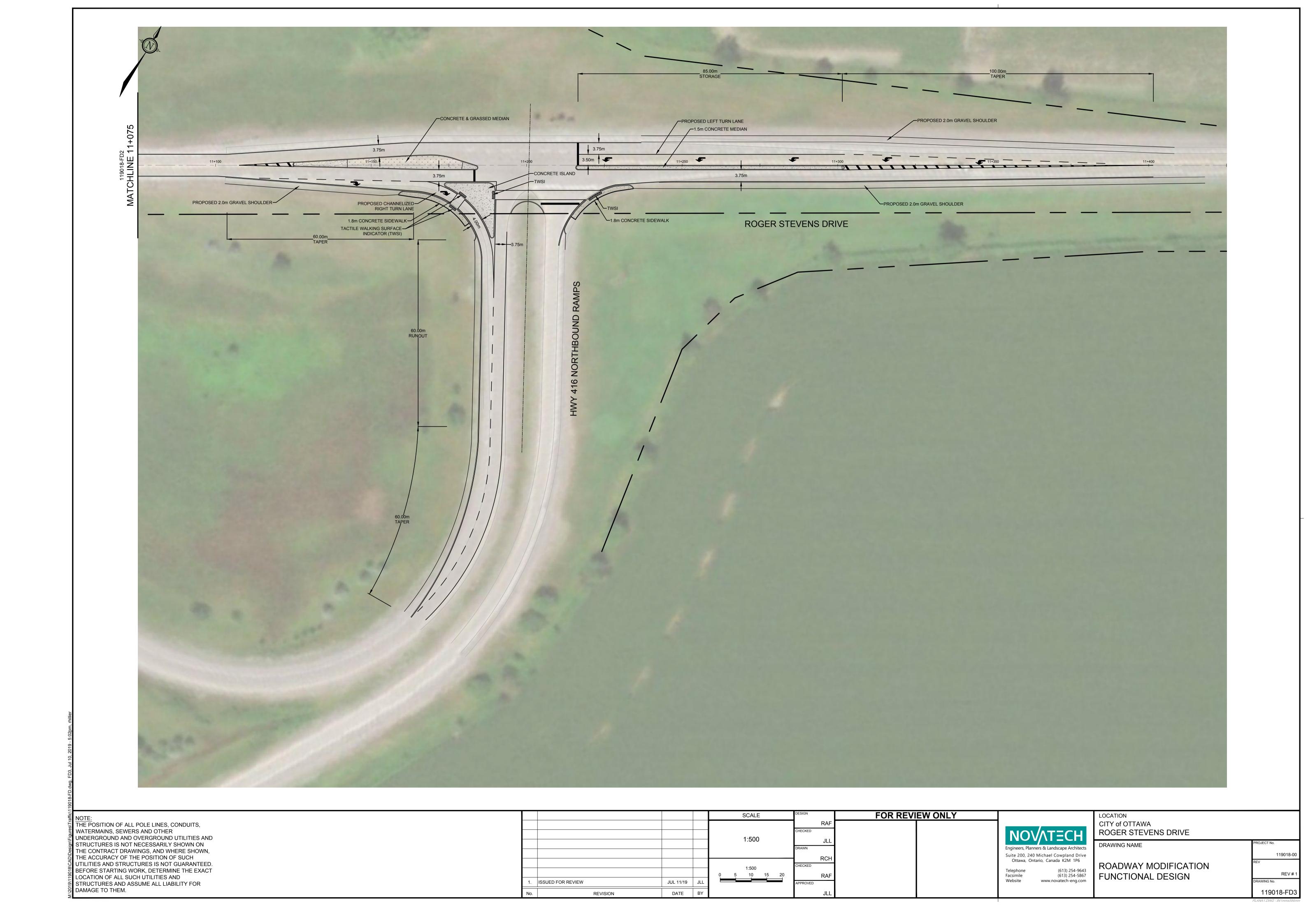
	TDM	measures: Non-residential developments	Check if proposed & add descriptions
	4.	RIDESHARING	
	4.1	Ridematching service	
	_	Commuter travel	
BASIC *	4.1.1	Provide a dedicated ridematching portal at OttawaRideMatch.com	
	4.2	Carpool parking price incentives	
		Commuter travel	
BETTER	4.2.1	Provide discounts on parking costs for registered carpools	
	4.3	Vanpool service	
		Commuter travel	
BETTER	4.3.1	Provide a vanpooling service for long-distance commuters	
	5.	CARSHARING & BIKESHARING	
	5.1	Bikeshare stations & memberships	
BETTER	5.1.1	Contract with provider to install on-site bikeshare station for use by commuters and visitors	
		Commuter travel	
BETTER	5.1.2	Provide employees with bikeshare memberships for local business travel	
	5.2	Carshare vehicles & memberships	
		Commuter travel	
BETTER	5.2.1	Contract with provider to install on-site carshare vehicles and promote their use by tenants	
BETTER	5.2.2	Provide employees with carshare memberships for local business travel	
	6.	PARKING	
	6.1	Priced parking	
;		Commuter travel	
BASIC ★	6.1.1	Charge for long-term parking (daily, weekly, monthly)	
BASIC	6.1.2	Unbundle parking cost from lease rates at multi-tenant sites	
		Visitor travel	
BETTER	6.1.3	Charge for short-term parking (hourly)	

	TDM	measures: Non-residential developments	Check if proposed & add descriptions
	7.	TDM MARKETING & COMMUNICATIONS	
	7.1	Multimodal travel information	
		Commuter travel	
BASIC *	7.1.1	Provide a multimodal travel option information package to new/relocating employees and students	
		Visitor travel	:
BETTER ★	7.1.2	Include multimodal travel option information in invitations or advertising that attract visitors or customers (e.g. for festivals, concerts, games)	
	7.2	Personalized trip planning	
		Commuter travel	
BETTER ★	7.2.1	Offer personalized trip planning to new/relocating employees	
	7.3	Promotions	
		Commuter travel	
BETTER	7.3.1	Deliver promotions and incentives to maintain awareness, build understanding, and encourage trial of sustainable modes	
	8.	OTHER INCENTIVES & AMENITIES	
	8.1	Emergency ride home	
		Commuter travel	
BETTER ★	8.1.1	Provide emergency ride home service to non-driving commuters	
	8.2	Alternative work arrangements	
		Commuter travel	
BASIC ★	8.2.1	Encourage flexible work hours	
BETTER	8.2.2	Encourage compressed workweeks	
BETTER ★	8.2.3	Encourage telework	
	8.3	Local business travel options	
		Commuter travel	
BASIC *	8.3.1	Provide local business travel options that minimize the need for employees to bring a personal car to work	
	8.4	Commuter incentives	
BETTER		Commuter travel	
	8.4.1	Offer employees a taxable, mode-neutral commuting allowance	
	8.4.1 <b>8.5</b>	Offer employees a taxable, mode-neutral commuting	
7. TDM MARKETING & COMMUNICATIONS 7.1 Multimodal travel information    Commuter travel			











#### Pedestrian Level of Service (PLOS)

Exhibit 5 of the Addendum to the MMLOS guidelines has been used to evaluate the PLOS at the proposed signalized intersections of Roger Stevens Drive/East Employee Access, Roger Stevens Drive/Highway 416 Northbound Ramps, and Roger Stevens Drive/Highway 416 Southbound Ramps. Exhibit 22 of the MMLOS guidelines suggests a target PLOS C for all roadways within a Village, and a target POS D for all roadways within the 'All Other Designation' classification. The results of the intersection PLOS are summarized in the following tables. Traffic signal timing from the 2031 total traffic analysis was used.

## PLOS Intersection Analysis – Roger Stevens Drive/East Employee Access

Criteria	South Approa	ach	East Approac	ch	West Approac	:h			
Roger Stevens Drive/Eas	oger Stevens Drive/East Employee Access								
	-	PETSI	SCORE						
CROSSING DISTANCE CONDITION	ONS								
Median > 2.4m in Width	No	70	No		No	70			
Lanes Crossed (3.5m Lane Width)	5	72	6	55	5	72			
SIGNAL PHASING AND TIMING									
Left Turn Conflict	Protected	0	No Left Turn/Prohibited	0	Permissive	-8			
Right Turn Conflict	Permissive or Yield	-5	Permissive or Yield	-5	No Right Turn/Prohibited	0			
Right Turn on Red	RTOR Allowed	-3	N/A	0	RTOR Allowed	-3			
Leading Pedestrian Interval	No	-2	No	-2	No	-2			
CORNER RADIUS									
Parallel Radius	> 5m to 10m	-5	> 10m to 15m	-6	No Right Turn	0			
Parallel Right Turn Channel	No Right Turn Channel	-4	No Right Turn Channel	-4	No Right Turn	0			
Perpendicular Radius	N/A	0	N/A	0	N/A	0			
Perpendicular Right Turn Channel	N/A	0	N/A	0	N/A	0			
CROSSING TREATMENT									
Treatment	Standard	-7	Standard	-7	Standard	-7			
PETSI SCORE		46		31		52			
LOS		D		Е		D			
	I	DELAY	SCORE						
Cycle Length		110		120		120			
Pedestrian Walk Time		32.9		7		7			
DELAY SCORE		27		53.2		53.2			
LOS		С		E		E			
OVERALL		D		E		E			

## PLOS Intersection Analysis – Roger Stevens/Highway 416 Southbound Ramps

Criteria	North Appro	ach	East Approach						
Roger Stevens Drive/416	Southbound Ra	amps							
	PETSI SCORE								
CROSSING DISTANCE CONDITION	CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	Yes	0	No	72					
Lanes Crossed (3.5m Lane Width)	10 +	U	5	12					
SIGNAL PHASING AND TIMING									
Left Turn Conflict	Permissive	-8	Permissive	-8					
Right Turn Conflict	Permissive or Yield	-5	No Right Turn/Prohibited	0					
Right Turn on Red	RTOR Allowed	-3	RTOR Allowed	-3					
Leading Pedestrian Interval	No	-2	No	-2					
CORNER RADIUS									
Parallel Radius	> 10m to 15m	-6	No Right Turn	0					
Parallel Right Turn Channel	lo Right Turn Channe	-4	No Right Turn	0					
Perpendicular Radius	N/A	0	N/A	0					
Perpendicular Right Turn Channel	N/A	0	N/A	0					
CROSSING TREATMENT									
Treatment	Standard	-7	Standard	-7					
	PETSI SCORE	-35		52					
	LOS	F		D					
	DELAY SCC	RE							
Cycle Length		110		120					
Pedestrian Walk Time		43.4		7.3					
	DELAY SCORE	20.2		52.9					
	LOS	С		E					
	OVERALL	F		E					

## PLOS Intersection Analysis - Roger Stevens/Highway 416 Northbound Ramps

Criteria	South Approach				
Roger Stevens Drive/416 Northbound Ramps PETSI SCORE					
Median > 2.4m in Width	Yes	0			
Lanes Crossed (3.5m Lane Width)	10 +	U			
SIGNAL PHASING AND TIMING					
Left Turn Conflict	Permissive	-8			
Right Turn Conflict	Permissive or Yield	-5			
Right Turn on Red	RTOR Allowed	-3			
Leading Pedestrian Interval	No	-2			
CORNER RADIUS					
Parallel Radius	> 15m to 25m	-8			
Parallel Right Turn Channel	Conventional with Receiving	-3			
Perpendicular Radius	N/A	0			
Perpendicular Right Turn Channel	N/A	0			
CROSSING TREATMENT					
Treatment	Standard	-7			
PETSI SCORE		-36			
LOS		F			
DELAY SCORE					
Cycle Length		120			
Pedestrian Walk Time		53.4			
DELAY SCORE		18.5			
LOS		В			
OVERALL		F			

## **Bicycle Level of Service (BLOS)**

Exhibit 12 of the MMLOS guidelines has been used to evaluate the BLOS at the proposed signalized intersection of Roger Stevens Drive/East Employee Access. BLOS was not evaluated at the Highway 416 ramps as bikes are prohibited on 400 series highways. The ramps are under MTO jurisdiction and BLOS is not a consideration. Exhibit 22 of the MMLOS guidelines suggests a target BLOS C for Spine Routes in a Village. The results of the intersection BLOS are summarized in the following table.

**BLOS Intersection Analysis** 

Approach	Bikeway Facility Type	Criteria	Travel Lanes and/or Speed	BLOS		
Roger Stevens Drive/East Employee Access						
South Approach Mixed Tr	Mixed Troffic	Right Turn Lane Characteristics	Dual, Shared or Exclusive	F		
	Mixed Frame	Left Turn Accommodation	No Lane Crossed, < 50km/h (No Designated Left Turn Lane)	В		
East Approach Paved Shoulder	Right Turn Lane Characteristics	No Right Turns	-			
	Shoulder	Left Turn Accommodation	Dual Left Turn Lanes	F		
West Approach Paved		Right Turn Lane Characteristics	Shared Through/Right Turn Lane	А		
West Approach	Shoulder	Left Turn Accommodation	No Left Turn	-		

## **Transit Level of Service (TLOS)**

There are no TLOS targets identified in Exhibit 22 of the MMLOS guidelines for the study area intersections. However, a bus route currently utilizes Roger Stevens Drive and will travel through the proposed signals at Roger Stevens Drive/East Employee Access, Roger Stevens Drive/Highway 416 Northbound Ramps, and Roger Stevens Drive/Highway 416 Southbound Ramps. These intersections have been evaluated for TLOS despite having no target. The results of the intersection TLOS are summarized in the following table.

**TLOS Intersection Analysis** 

Approach	Delay¹ (sec.)	TLOS			
Roger Stevens Drive/East Employee Access					
East Approach	31.0	E			
West Approach	28.4	D			
South Approach	N/A	N/A			
Roger Stevens Drive/Highway 416 Northbound Ramps					
East Approach	10.1	С			
West Approach	3.7	В			
South Approach	N/A	N/A			
Roger Stevens Drive/Highway 416 Southbound Ramps					
East Approach	4.7	В			
West Approach	16.2	С			
North Approach	N/A	N/A			

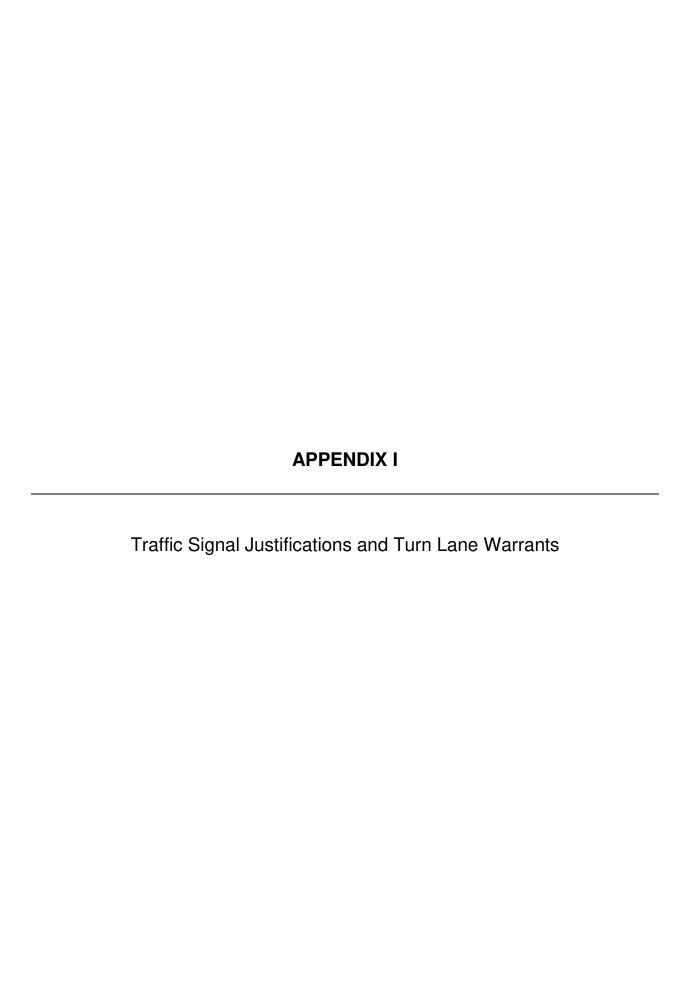
<sup>1.</sup> Delay based on outputs from 2031 Total Traffic Synchro analysis

#### **Truck Level of Service (TkLOS)**

Exhibit 21 of the MMLOS guidelines has been used to evaluate the existing TkLOS at the proposed signalized intersections of Roger Stevens Drive/East Employee Access, Roger Stevens Drive/Highway 416 Northbound Ramps, and Roger Stevens Drive/Highway 416 Southbound Ramps. Exhibit 22 of the MMLOS guidelines suggests a target TkLOS D for arterial truck routes in a Village and in 'All Other Designations'. The results of the intersection TkLOS are summarized in the following table.

**TkLOS Intersection Analysis** 

Approach	Effective Corner Radius	Number of Receiving Lanes on Departure from Intersection	LOS	
Roger Stevens Drive/East Employee Access				
South	10 – 15m	Two	В	
West	< 10m	Two	D	
Roger Stevens Drive/Highway 416 Southbound Ramps				
North	10 – 15m	Two	В	
East	10 – 15m	One	Ш	
Fallowfield Road/Highway 416 Northbound Ramps				
South	> 15m	One	О	
West	> 15m	One	O	





## TRAFFIC SIGNAL JUSTIFICATION

LOCATION: Roger Stevens at 416 NB

**DATE**: 25 April, 2018

### JUSTIFICATION 1 - Minimum Vehicular Volume

		MUM REQU SHOWN IN		`	PE	RCENTA	.GE		V	WARRAN <sup>*</sup>	Т		
APPROACH LANES		1	2 or	MORE				HOUR I	ENDING				
FLOW CONDITION	FREE FLOW	RESTR FLOW	FREE FLOW	RESTR FLOW	8:00	9:00	10:00	11:00 -12:30	15:00 <del>13:30</del>	16:00	17:00	18:00	TOTAL ACROSS
A.	480					764 612 437 366 451 570 735 738					738		
	(385)	(575)	(480)	(720)	764	012	707	300	701	570	700	7 30	
ALL		100% Fl	JLFILLED		100	100				100	100	100	500
APPROACHES		80% FL	ILFILLED				80		80				160
	ACTUAL % IF BELOW 80% VALUE							76					76
											TOTAL	DOWN:	736
										AVEF	RAGE (TO	OTAL/8):	92 %

T Intersection Add 50%

	180 143	255 203	180 143	255 203									
B.	120	170	120	170	94	69	47	45	41	54	53	53	TOTAL
	(95)	(135)	(95)	(135)	0.	00	.,	.0		٠.	-	00	ACROSS
MINOR STREET		100% Fl	JLFILLE	)									
BOTH APPROACHES		80% FU	LFILLED	)									
	ACTU	IAL % IF BE	LOW 80	% VALUE	52	38	26	25	23	30	29	29	252
											TOTAL	DOWN:	252
										AVE	RAGE (TO	OTAL/8):	32 %

## JUSTIFICATION 2 - Delay To Cross Traffic

		MUM REQU SHOWN IN		`	PE	RCENTA	GE		V	VARRAN	Т		
APPROACH LANES		1	2 or	MORE				HOUR E	ENDING				
FLOW CONDITION	FREE FLOW	RESTR FLOW	8:00	9:00	10:00	11:00 <del>12:30</del>	15:00 13:30	16:00	17:00	18:00	TOTAL ACROSS		
A.	480					<b>540</b>	200	004	440	<b>540</b>	000	005	
	(385)	(575)	(480)	(720)	670	543	390	321	410	516	682	685	
MAJOR STREET		100% F	ULFILLED		100	100				100	100	100	500
BOTH APPROACHES		80% FL	JLFILLED				80		80				160
	ACTU	ACTUAL % IF BELOW 80% VALUE						67					67
					•						TOTAL	DOWN:	727
										AVER	AGE (TC	TAL/8):	91 %

В.	50 (40)	75 (60)	50 (40)	75 (60)	21	13	14	11	13	13	17	17	TOTAL ACROSS
TRAFFIC		100% F	ULFILLED										
CROSSING MAJOR STREET		80% FL	JLFILLED										
	ACTU	JAL % IF BE	ELOW 80%	S VALUE	42	26	28	22	26	26	34	34	238
											TOTAL	DOWN:	238
										AVEF	RAGE (TC	)TAL/8):	30 %



# TRAFFIC SIGNAL JUSTIFICATION **SUMMARY TABLE**

LOCATION: Roger Stevens at 416 NB	LOCATION:	Roger Stevens	at	416 NB	
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**DATE**: \_\_\_25 April, 2018

		MINIMUM RE	QUIREMENT	СОМРІ	LIANCE
JUSTIFICATION	DESCRIPTION	FREE FLOW	RESTRICTED FLOW		
		OPERATING SPEED ≥ 70KM/H	OPERATING SPEED < 70 KM/H	SECTIONAL %	ENTIRE % <sup>(2)</sup>
1. MINIMUM VEHICULAR	A. Vehicle volume, all approaches for each of the heaviest 8 hours of an average day, and	480 600 (2 or more lane approach	720 900 (2 or more lane approach	92 %	32 %
WARRANT	B. Vehicle volume, along minor street, for each of the same 8 hours.	120 180 (tee intersection)	170 255 (tee intersection)	32 %	OZ 70
2. DELAY TO	A. Vehicle volume, along major street for each for the heaviest 8 hours of an average day, and	480 600 (2 or more lane approach)	720 900 (2 or more lane approach	91 %	30 %
CROSS TRAFFIC	B <sup>(1)</sup> . Combined vehicle and pedestrian volume <u>crossing</u> the major street for each of the same 8 hours	50	75	30 %	30 70
3. VOLUME/DELAY COMBINATION	The above Justifications (1 and 2) both satisfied to the extent of 80% or more	Yes		No X	
4. MINIMUM FOUR HOUR VEHICLE VOLUME	Plotted point representing hourly volume for minor approach vs. major approach for four highest hours of an average day fall above the applicable curve	Yes		No X	
5. COLLISION	A. Total reported accidents of types susceptible to correction by a traffic signal, per 12 month period averaged over a 36 month period, and	,	5		
EXPERIENCE	B. Adequate trial of less restrictive remedies, where satisfactory observance and enforcement have failed to reduce the number of accidents	Yes		No	
6. PEDESTRIAN VOLUME AND	A. Plotted point representing 8 hour pedestrian volume vs. 8 hour vehicular volume fall in justified zone, and	Yes		No	
DELAY	B. Plotted point representing 8 hour volume of pedestrian experiencing delays of 10 s or more vs. 8 hour pedestrian volume fall in justified zone	Yes		No	

- NOTES
  1) For definition of <u>crossing</u> volume refer to the Ontario Traffic Manual Book 12, Section 4.5 (Nov. 2007).
  2) The lowest sectional percentage governs the entire Justification.



## TRAFFIC SIGNAL JUSTIFICATION

LOCATION: Roger Stevens at 416 SB

**DATE:** 25 May, 2018

### JUSTIFICATION 1 - Minimum Vehicular Volume

		MUM REQU SHOWN IN		`	PE	RCENTA	.GE		١	WARRAN	Т		
APPROACH LANES		1	2 or	MORE				HOUR I	ENDING				
FLOW CONDITION	FREE FLOW	RESTR FLOW	FREE FLOW	RESTR FLOW	8:00	9:00	10:00	11:00 -12:30	15:00 <del>13:30</del>	16:00	17:00	18:00	TOTAL ACROSS
A.	480					437	358	306	427	591	746	720	
	(385)	(575)	(480)	(720)	503	431	550	300	721	001	740	120	
ALL		100% Fl	JLFILLED		100					100	100	100	400
APPROACHES		80% FL	JLFILLED			80			80				160
	ACTUAL % IF BELOW 80% VALUE						75	64					139
											TOTAL	DOWN:	699
										AVE	RAGE (TO	OTAL/8):	87 %

T Intersection Add 50%

180

255

255

	143	203	143	203									
B.	120	170	120	170	77	73	87	74	148	221	322	294	TOTAL
	(95)	(135)	(95)	(135)	11	13	01	74	140	221	322	294	ACROSS
MINOR STREET		100% Fl	JLFILLE	)						100	100	100	300
BOTH APPROACHES		80% FU	LFILLED	l					80				80
	ACTU	IAL % IF BE	LOW 80	% VALUE	43	41	48	41					173
											TOTAL	DOWN:	553
										AVEF	RAGE (TC	)TAL/8):	69%

## JUSTIFICATION 2 - Delay To Cross Traffic

180

		MUM REQU SHOWN IN		`	PE	RCENTA	GE		V	VARRAN	Т		
APPROACH LANES		1	2 or	MORE				HOUR E	ENDING				
FLOW CONDITION	FREE FLOW	RESTR FLOW	FREE FLOW	RESTR FLOW	8:00	9:00	10:00	11:00 <del>12:30</del>	15:00 13:30	16:00	17:00	18:00	TOTAL ACROSS
A.	480	720	600	900	400	004	074	000	070	070	404	400	
	(385)	(575)	(480)	(720)	426	364	271	232	279	370	424	426	
MAJOR STREET		100% F	ULFILLED										
BOTH APPROACHES		80% FL	JLFILLED		80						80	80	240
	ACTUAL % IF BELOW 80% VALUE					76	56	67	58	77			334
											TOTAL	DOWN:	574
										AVEF	RAGE (TC	)TAL/8):	72 %

В.	50 (40)	75 (60)	50 (40)	75 (60)	41	44	55	34	84	126	211	194	TOTAL ACROSS
TRAFFIC		100% F	ULFILLED				100		100	100	100	100	500
CROSSING MAJOR STREET		80% FL	JLFILLED		80	80							160
	ACTU	JAL % IF BE	ELOW 80%	VALUE				68					68
											TOTAL	DOWN:	728
										AVER	AGE (TO	TAL/8):	91 %



# TRAFFIC SIGNAL JUSTIFICATION **SUMMARY TABLE**

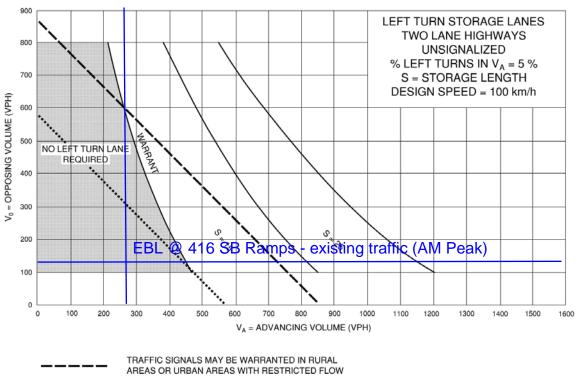
LOCATION: _	Roger Stevens	at	416 SB
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25 May, 2018 DATE: \_

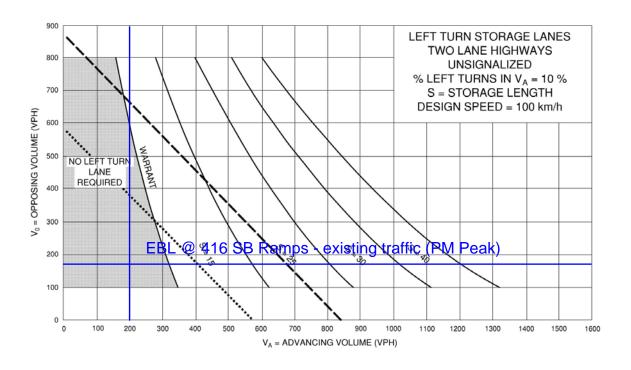
		MINIMUM RE	QUIREMENT	СОМРІ	LIANCE
JUSTIFICATION	DESCRIPTION	FREE FLOW	RESTRICTED FLOW		
		OPERATING SPEED ≥ 70KM/H	OPERATING SPEED < 70 KM/H	SECTIONAL %	ENTIRE % <sup>(2)</sup>
1. MINIMUM VEHICULAR	A. Vehicle volume, all approaches for each of the heaviest 8 hours of an average day, and	480 600 (2 or more lane approach	720 900 (2 or more lane approach	87 %	69 %
WARRANT	B. Vehicle volume, along minor street, for each of the same 8 hours.	120 180 (tee intersection)	170 255 (tee intersection)	69 %	36 76
2. DELAY TO	A. Vehicle volume, along major street for each for the heaviest 8 hours of an average day, and	480 600 (2 or more lane approach)	720 900 (2 or more lane approach	72 %	72 %
CROSS TRAFFIC	B <sup>(1)</sup> . Combined vehicle and pedestrian volume <u>crossing</u> the major street for each of the same 8 hours	50	75	91 %	72 70
3. VOLUME/DELAY COMBINATION	The above Justifications (1 and 2) both satisfied to the extent of 80% or more	Yes		No X	
4. MINIMUM FOUR HOUR VEHICLE VOLUME	Plotted point representing hourly volume for minor approach vs. major approach for four highest hours of an average day fall above the applicable curve	Yes		No X	
5. COLLISION	A. Total reported accidents of types susceptible to correction by a traffic signal, per 12 month period averaged over a 36 month period, and		5		
EXPERIENCE	B. Adequate trial of less restrictive remedies, where satisfactory observance and enforcement have failed to reduce the number of accidents	Yes		No	
6. PEDESTRIAN VOLUME AND	A. Plotted point representing 8 hour pedestrian volume vs. 8 hour vehicular volume fall in justified zone, and	Yes		No	
DELAY	B. Plotted point representing 8 hour volume of pedestrian experiencing delays of 10 s or more vs. 8 hour pedestrian volume fall in justified zone	Yes		No	

- NOTES
  1) For definition of <u>crossing</u> volume refer to the Ontario Traffic Manual Book 12, Section 4.5 (Nov. 2007).
  2) The lowest sectional percentage governs the entire Justification.

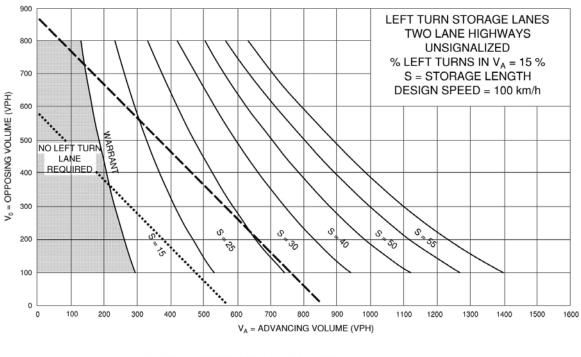
### Exhibit 9A-22



TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

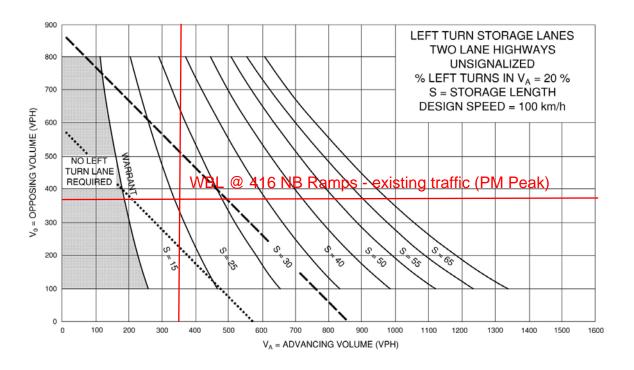


### Exhibit 9A-23

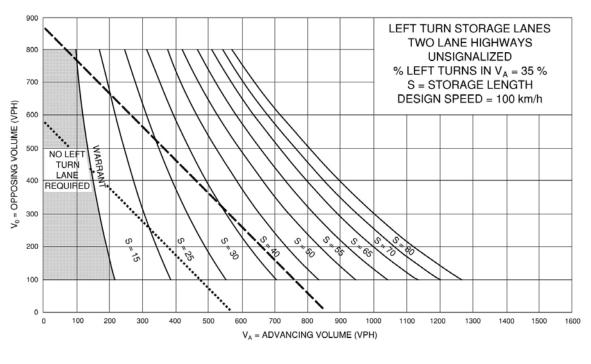


TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

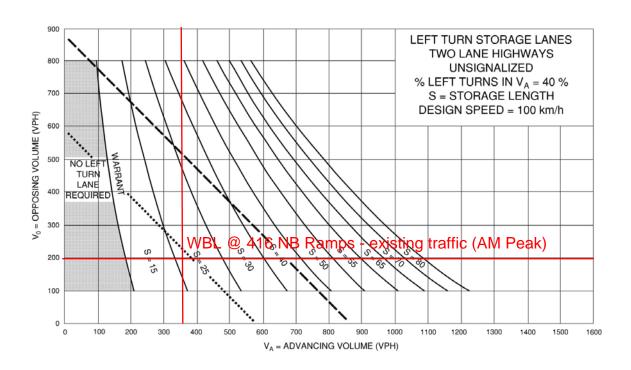


### Exhibit 9A-25



TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL
AREAS OR URBAN AREAS WITH RESTRICTED FLOW
TRAFFIC SIGNALS MAY BE WARRANTED IN

"FREE FLOW" URBAN AREAS





Roger Stevens 416 NB LOCATION:

		MINIMUM RE	QUIREMENT	С	OMPLIANCE	
JUSTIFICATION	DESCRIPTION	FREE FLOW	RESTRICTED FLOW	SECTION	ONAL	ENTIRE
		OPERATING SPEED ≥ 70KM/H	OPERATING SPEED < 70 KM/H	NUMERICAL	PERCENT	% <sup>(2)</sup>
1. MINIMUM VEHICULAR	A. Vehicle volume, all approaches (average hour)	480 600 (2 or more lane approach	720 900 (2 or more lane approach	930	194 %	
WARRANT	B. Vehicle volume along minor street (average hour)	120 180 (tee intersection)	170 255 (tee intersection)	113	63 %	63 %
2. DELAY TO	A. Vehicle volume along major street (average hour)	480 600 (2 or more lane approach)	720 900 (2 or more lane approach	817	170 %	400.0/
CROSS TRAFFIC	B <sup>(1)</sup> . Combined vehicle and pedestrian volume <u>crossing</u> the major street (average hour)	50	75	84	168 %	168 %

- For definition of crossing volume refer to the Ontario Traffic Manual Book 12, Section 4.5 (Nov. 2007).
- The lowest sectional percentage governs the entire Justification. Average hourly volumes estimated from peak hour volumes, AHV = PM / 2 or AHV = (AM + PM) / 4.



Roger Stevens 416 SB LOCATION:

		MINIMUM RE	QUIREMENT	С	OMPLIANCE	
JUSTIFICATION	DESCRIPTION	FREE FLOW	RESTRICTED FLOW	SECTION	ONAL	ENTIRE
		OPERATING SPEED ≥ 70KM/H	OPERATING SPEED < 70 KM/H	NUMERICAL	PERCENT	% <sup>(2)</sup>
1. MINIMUM VEHICULAR	A. Vehicle volume, all approaches (average hour)	480 600 (2 or more lane approach	720 900 (2 or more lane approach	1320	275 %	
WARRANT	B. Vehicle volume along minor street (average hour)	120 180 (tee intersection)	170 255 (tee intersection)	494	275 %	275 %
2. DELAY TO	A. Vehicle volume along major street (average hour)	480 600 (2 or more lane approach)	720 900 (2 or more lane approach	826	172 %	450.0/
CROSS TRAFFIC	B <sup>(1)</sup> . Combined vehicle and pedestrian volume <u>crossing</u> the major street (average hour)	50	75	75	150 %	150 %

- For definition of crossing volume refer to the Ontario Traffic Manual Book 12, Section 4.5 (Nov. 2007).
- The lowest sectional percentage governs the entire Justification. Average hourly volumes estimated from peak hour volumes, AHV = PM / 2 or AHV = (AM + PM) / 4.



East Employee Access Roger Stevens LOCATION:

		MINIMUM RE	QUIREMENT	С	OMPLIANCE	
JUSTIFICATION	DESCRIPTION	FREE FLOW	RESTRICTED FLOW	SECTION	ONAL	ENTIRE
		OPERATING SPEED ≥ 70KM/H	OPERATING SPEED < 70 KM/H	NUMERICAL	PERCENT	% <sup>(2)</sup>
1. MINIMUM VEHICULAR	A. Vehicle volume, all approaches (average hour)	480 600 (2 or more lane approach	720 900 (2 or more lane approach	1213	253 %	
WARRANT	B. Vehicle volume along minor street (average hour)	120 180 (tee intersection)	170 255 (tee intersection)	327	182 %	182 %
2. DELAY TO	A. Vehicle volume along major street (average hour)	480 600 (2 or more lane approach)	720 900 (2 or more lane approach	886	185 %	0.0/
CROSS TRAFFIC	B <sup>(1)</sup> . Combined vehicle and pedestrian volume <u>crossing</u> the major street (average hour)	50	75	3	6 %	6 %

- For definition of crossing volume refer to the Ontario Traffic Manual Book 12, Section 4.5 (Nov. 2007).
- The lowest sectional percentage governs the entire Justification. Average hourly volumes estimated from peak hour volumes, AHV = PM / 2 or AHV = (AM + PM) / 4.



West Employee Access Roger Stevens LOCATION:

		MINIMUM RE	QUIREMENT	С	OMPLIANCE	
JUSTIFICATION	DESCRIPTION	FREE FLOW	RESTRICTED FLOW	SECTION	ONAL	ENTIRE
		OPERATING SPEED ≥ 70KM/H	OPERATING SPEED < 70 KM/H	NUMERICAL	PERCENT	% <sup>(2)</sup>
1. MINIMUM VEHICULAR	A. Vehicle volume, all approaches (average hour)	480 600 (2 or more lane approach	720 900 (2 or more lane approach	586	122 %	
WARRANT	B. Vehicle volume along minor street (average hour)	120 180 (tee intersection)	170 255 (tee intersection)	166	92 %	92 %
2. DELAY TO	A. Vehicle volume along major street (average hour)	480 600 (2 or more lane approach)	720 900 (2 or more lane approach	420	88 %	4.4.0/
CROSS TRAFFIC	B <sup>(1)</sup> . Combined vehicle and pedestrian volume <u>crossing</u> the major street (average hour)	50	75	7	14 %	14 %

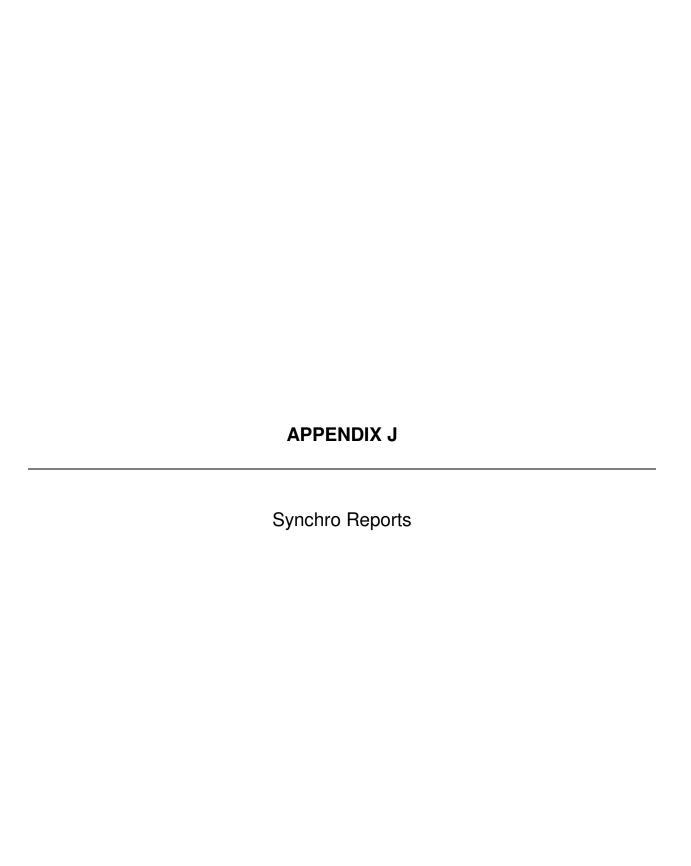
- For definition of crossing volume refer to the Ontario Traffic Manual Book 12, Section 4.5 (Nov. 2007).
- The lowest sectional percentage governs the entire Justification. Average hourly volumes estimated from peak hour volumes, AHV = PM / 2 or AHV = (AM + PM) / 4.



West Employee Access Roger Stevens LOCATION:

		MINIMUM RE	QUIREMENT	С	OMPLIANCE	
JUSTIFICATION	DESCRIPTION	FREE FLOW	RESTRICTED FLOW	SECTION	ONAL	ENTIRE
		OPERATING SPEED ≥ 70KM/H	OPERATING SPEED < 70 KM/H	NUMERICAL	PERCENT	% <sup>(2)</sup>
1. MINIMUM VEHICULAR	A. Vehicle volume, all approaches (average hour)	480 600 (2 or more lane approach	720 900 (2 or more lane approach	611	127 %	
WARRANT	B. Vehicle volume along minor street (average hour)	120 180 (tee intersection)	170 255 (tee intersection)	166	92 %	92 %
2. DELAY TO	A. Vehicle volume along major street (average hour)	480 600 (2 or more lane approach)	720 900 (2 or more lane approach	445	93 %	4.4.0/
CROSS TRAFFIC	B <sup>(1)</sup> . Combined vehicle and pedestrian volume <u>crossing</u> the major street (average hour)	50	75	7	14 %	14 %

- For definition of crossing volume refer to the Ontario Traffic Manual Book 12, Section 4.5 (Nov. 2007).
- The lowest sectional percentage governs the entire Justification. Average hourly volumes estimated from peak hour volumes, AHV = PM / 2 or AHV = (AM + PM) / 4.



		_		+	•	<b>≯</b>
	-	*	•		7	7
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<b>1</b> 218			4	**	
Traffic Volume (veh/h)	218	1	5	146	4	26
Future Volume (Veh/h)	218	1	5	146	4	26
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)	242	1	6	162	4	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			243		416	242
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			243		416	242
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					<b>.</b>	V. <u> </u>
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	96
cM capacity (veh/h)			1323		590	796
					000	100
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	243	168	33			
Volume Left	0	6	4			
Volume Right	1	0	29			
cSH	1700	1323	764			
Volume to Capacity	0.14	0.00	0.04			
Queue Length 95th (m)	0.0	0.1	1.0			
Control Delay (s)	0.0	0.3	9.9			
Lane LOS		Α	Α			
Approach Delay (s)	0.0	0.3	9.9			
Approach LOS			Α			
Intersection Summary						
			0.9			
Average Delay			22.4%	101	U Level of S	onioo
Intersection Capacity Utilization				iCl	U Level of S	ei vice
Analysis Period (min)			15			

	<b>≯</b>	<b>→</b>	•	•	←	•	•	<b>†</b>	/	<b>\</b>	<b>↓</b>	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	• NBR	SBL	SBT	SBR
Lane Configurations		₽.						43-				
Traffic Volume (veh/h)	11	237	5	4	<b>4</b> 140	15	8	4	23	12	<b>4</b>	2
Future Volume (Veh/h)	11	237	5	4	140	15	8	4	23	12	3	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	12	263	6	4	156	17	9	4	26	13	3	2
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	173			269			466	471	266	490	466	164
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	173			269			466	471	266	490	466	164
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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 %	99			100			98	99	97	97	99	100
cM capacity (veh/h)	1404			1295			499	485	773	465	489	880
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	281	177	39	18								
Volume Left	12	4	9	13								
Volume Right	6	17	26	2								
cSH	1404	1295	651	495								
Volume to Capacity	0.01	0.00	0.06	0.04								
Queue Length 95th (m)	0.2	0.1	1.5	0.9								
Control Delay (s)	0.4	0.2	10.9	12.6								
Lane LOS	Α	Α	В	В								
Approach Delay (s)	0.4	0.2	10.9	12.6								
Approach LOS			В	В								
Intersection Summary												
Average Delay			1.5									
Intersection Capacity Utilization			29.0%	IC	U Level of Se	ervice			Α			
Analysis Period (min)			15									

	•	<b>→</b>	<b>←</b>	4	1	4
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	*	<b>*</b>	•	1	W	
Traffic Volume (veh/h)	11	277	129	39	44	36
Future Volume (Veh/h)	11	277	129	39	44	36
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)	12	308	143	43	49	40
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	186				475	143
vC1, stage 1 conf vol	100				110	110
vC2, stage 2 conf vol						
vCu, unblocked vol	186				475	143
tC, single (s)	4.2				6.5	6.3
tC, 2 stage (s)	1.2				0.0	0.0
tF (s)	2.3				3.6	3.4
p0 queue free %	99				91	95
cM capacity (veh/h)	1347				534	889
, , ,						
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	12	308	143	43	89	
Volume Left	12	0	0	0	49	
Volume Right	0	0	0	43	40	
cSH	1347	1700	1700	1700	651	
Volume to Capacity	0.01	0.18	0.08	0.03	0.14	
Queue Length 95th (m)	0.2	0.0	0.0	0.0	3.6	
Control Delay (s)	7.7	0.0	0.0	0.0	11.4	
Lane LOS	Α				В	
Approach Delay (s)	0.3		0.0		11.4	
Approach LOS					В	
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization			27.0%	ICI	J Level of S	ervice
Analysis Period (min)			15	100	2010:0:0	011100
Maryoro I Griou (IIIII)			10			

	<b>→</b>	•	•	←	•	~
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<b>A</b>	7	*	<b>A</b>	W	
Traffic Volume (veh/h)	198	134	209	157	20	71
Future Volume (Veh/h)	198	134	209	157	20	71
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)	220	149	232	174	22	79
Pedestrians	220	143	202	1/4	22	13
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh) Median type	None			None		
	ivone			ivone		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked			000		050	000
vC, conflicting volume			369		858	220
vC1, stage 1 conf vol						
vC2, stage 2 conf vol			000		0.50	000
vCu, unblocked vol			369		858	220
tC, single (s)			4.1		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			80		91	90
cM capacity (veh/h)			1179		255	807
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	220	149	232	174	101	
Volume Left	0	0	232	0	22	
Volume Right	0	149	0	0	79	
cSH	1700	1700	1179	1700	548	
Volume to Capacity	0.13	0.09	0.20	0.10	0.18	
Queue Length 95th (m)	0.0	0.0	5.6	0.0	5.1	
Control Delay (s)	0.0	0.0	8.8	0.0	13.0	
Lane LOS			Α		В	
Approach Delay (s)	0.0		5.0		13.0	
Approach LOS	0.0		0.0		В	
Intersection Summary						
Average Delay			3.8			
Intersection Capacity Utilization			39.0%	ICI	J Level of S	ervice
Analysis Period (min)			15	101	2 20,01010	J. 1100
Analysis i Gilou (IIIII)			13			

		/		+	•	<b>*</b>
	_	•	*		,	-
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<b>1</b> 30			વી	W	
Traffic Volume (veh/h)	180	5	26	281	0	5
Future Volume (Veh/h)	180	5	26	281	0	5
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)	200	6	29	312	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			206		573	203
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			206		573	203
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	99
cM capacity (veh/h)			1365		471	838
	FD /	14/5-4				
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	206	341	6			
Volume Left	0	29	0			
Volume Right	6	0	6			
cSH	1700	1365	838			
Volume to Capacity	0.12	0.02	0.01			
Queue Length 95th (m)	0.0	0.5	0.2			
Control Delay (s)	0.0	0.8	9.3			
Lane LOS		Α	Α			
Approach Delay (s)	0.0	8.0	9.3			
Approach LOS			Α			
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			40.8%	ICI	U Level of S	envice
			40.6%	101	O FEARI OI 2	CI VICE
Analysis Period (min)			15			

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Movement	EBL	EBT	₽ EBR	<b>▼</b> WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	LDL	4	LDIX	VVDL	4	WDIX	NDL	4	NDIX	ODL		ODIN
Traffic Volume (veh/h)	2	178	11	15	281	10	1	7	8	10	<b>4</b>	14
Future Volume (Veh/h)	2	178	11	15	281	10	1	7	8	10	9	14
Sign Control		Free	!!	10	Free	10	'	Stop		10	Stop	17
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	2	198	12	17	312	11	1	8	9	11	10	16
Pedestrians		130	12	17	012			- U	<u> </u>		10	10
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	323			210			580	565	204	572	566	318
vC1, stage 1 conf vol	020			210			000	000	201	012	000	010
vC2, stage 2 conf vol												
vCu, unblocked vol	323			210			580	565	204	572	566	318
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)	7.1			7.1			7.1	0.0	0.2	7.1	0.0	0.2
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	98	99	97	98	98
cM capacity (veh/h)	1237			1361			404	428	837	415	428	723
		WD 4	NB 1				707	720	001	710	420	120
Direction, Lane #	EB 1	WB 1		SB 1								
Volume Total	212	340	18	37								
Volume Left	2	17	1	11								
Volume Right	12	11	9	16								
cSH "	1237	1361	564	514								
Volume to Capacity	0.00	0.01	0.03	0.07								
Queue Length 95th (m)	0.0	0.3	0.8	1.8								
Control Delay (s)	0.1	0.5	11.6	12.5								
Lane LOS	A	A	В	В								
Approach Delay (s)	0.1	0.5	11.6	12.5								
Approach LOS			В	В								
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			38.4%	IC	U Level of Ser	vice			Α			
Analysis Period (min)			15									

	•	<b>→</b>	+	•	1	4
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	ች	<b>A</b>	<b>A</b>	1	W	
Traffic Volume (veh/h)	17	183	184	90	247	102
Future Volume (Veh/h)	17	183	184	90	247	102
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)	19	203	204	100	274	113
Pedestrians	10	200		100		110
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)		TAOTIC	THOTIC			
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	304				445	204
vC1, stage 1 conf vol	304				770	204
vC2, stage 2 conf vol						
vCu, unblocked vol	304				445	204
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)	7.1				0.4	0.2
tF (s)	2.2				3.5	3.3
p0 queue free %	98				5.5	86
cM capacity (veh/h)	1257				562	837
, , ,						001
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	19	203	204	100	387	
Volume Left	19	0	0	0	274	
Volume Right	0	0	0	100	113	
cSH	1257	1700	1700	1700	622	
Volume to Capacity	0.02	0.12	0.12	0.06	0.62	
Queue Length 95th (m)	0.3	0.0	0.0	0.0	32.8	
Control Delay (s)	7.9	0.0	0.0	0.0	19.9	
Lane LOS	Α				С	
Approach Delay (s)	0.7		0.0		19.9	
Approach LOS					С	
Intersection Summary						
Average Delay			8.6			
Intersection Capacity Utilization			42.6%	ICI	J Level of S	ervice
Analysis Period (min)			15	100	2010:0:0	011100
Analysis i Gilou (IIIIII)			10			

	<b>→</b>	•	•	←	4	/
Movement	EBT	EBR	• WBL	WBT	NBL	- NBR
Lane Configurations	<b>A</b>	7	ሻ	<b>A</b>	W	HOIL
Traffic Volume (veh/h)	<b>3</b> 76	60	79	268	15	43
Future Volume (Veh/h)	376	60	79	268	15	43
Sign Control	Free	00	7.5	Free	Stop	70
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	418	67	88	298	17	48
Pedestrians	410	07	00	230	17	40
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
	None			None		
Median type	None			ivone		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked			40=		200	440
vC, conflicting volume			485		892	418
vC1, stage 1 conf vol						
vC2, stage 2 conf vol			105		202	110
vCu, unblocked vol			485		892	418
tC, single (s)			4.1		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			92		94	92
cM capacity (veh/h)			1078		281	620
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	418	67	88	298	65	
Volume Left	0	0	88	0	17	
Volume Right	0	67	0	0	48	
cSH	1700	1700	1078	1700	472	
Volume to Capacity	0.25	0.04	0.08	0.18	0.14	
Queue Length 95th (m)	0.0	0.0	2.0	0.0	3.6	
Control Delay (s)	0.0	0.0	8.6	0.0	13.9	
Lane LOS			Α		В	
Approach Delay (s)	0.0		2.0		13.9	
Approach LOS					В	
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			39.2%	ICI	J Level of S	envice
			15	101	J Level OI S	ervice
Analysis Period (min)			15			

	<b>→</b>	•	•	<b>←</b>	•	~
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1,			र्	W	
Traffic Volume (veh/h)	225	1	5	150	4	26
Future Volume (Veh/h)	225	1	5	150	4	26
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	225	1	5	150	4	26
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			226		386	226
vC1, stage 1 conf vol			220		300	220
vC2, stage 2 conf vol						
vCu, unblocked vol			226		386	226
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)			7.1		٠.٦	0.2
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	97
cM capacity (veh/h)			1342		615	814
					010	014
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	226	155	30			
Volume Left	0	5	4			
Volume Right	1	0	26			
cSH	1700	1342	780			
Volume to Capacity	0.13	0.00	0.04			
Queue Length 95th (m)	0.0	0.1	0.9			
Control Delay (s)	0.0	0.3	9.8			
Lane LOS		Α	Α			
Approach Delay (s)	0.0	0.3	9.8			
Approach LOS			Α			
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			22.6%	IC	U Level of S	ervice
Analysis Period (min)			15	.0		
raidiyolo i ollou (illili)			10			

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		<b>→</b>	*	•		`	7	ı	7	•	*	•
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
Lane Configurations		<b>4</b> 244			<b>4</b> 144			43-			<b>4</b>	
Traffic Volume (veh/h)	11	244	5	4	144	15	8	4	23	12	3	2
Future Volume (Veh/h)	11	244	5	4	144	15	8	4	23	12	3	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	11	244	5	4	144	15	8	4	23	12	3	2
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	159			249			432	436	246	453	430	152
vC1, stage 1 conf vol	100			240			702	100	2-10	400	400	102
vC2, stage 2 conf vol												
vCu, unblocked vol	159			249			432	436	246	453	430	152
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)	7.1			7.1			7.1	0.0	0.2	7.1	0.0	0.2
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			98	99	97	98	99	100
cM capacity (veh/h)	1420			1317			526	509	792	495	512	895
							320	309	132	433	312	030
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	260	163	35	17								
Volume Left	11	4	8	12								
Volume Right	5	15	23	2								
cSH	1420	1317	672	526								
Volume to Capacity	0.01	0.00	0.05	0.03								
Queue Length 95th (m)	0.2	0.1	1.3	0.8								
Control Delay (s)	0.4	0.2	10.7	12.1								
Lane LOS	Α	Α	В	В								
Approach Delay (s)	0.4	0.2	10.7	12.1								
Approach LOS			В	В								
Intersection Summary												
Average Delay			1.5									
Intersection Capacity Utilization			29.4%	IC	U Level of Se	ervice			Α			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	*	<b>*</b>	•	1	W	
Traffic Volume (veh/h)	11	285	133	40	45	37
Future Volume (Veh/h)	11	285	133	40	45	37
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	11	285	133	40	45	37
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	173				440	133
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	173				440	133
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				92	96
cM capacity (veh/h)	1404				570	916
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	11	285	133	40	82	
Volume Left	11	0	0	0	45	
Volume Right	0	0	0	40	37	
cSH	1404	1700	1700	1700	687	
Volume to Capacity	0.01	0.17	0.08	0.02	0.12	
Queue Length 95th (m)	0.2	0.0	0.0	0.0	3.1	
Control Delay (s)	7.6	0.0	0.0	0.0	10.9	
Lane LOS	7.0 A	0.0	0.0	0.0	В	
Approach Delay (s)	0.3		0.0		10.9	
Approach LOS	0.0		0.0		В	
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			27.5%	ICI	J Level of S	ervice
Analysis Period (min)			15	100	LOVOI OI O	01 1100
Alialysis Fellou (IIIIII)			15			

	<b>→</b>	•	•	•	•	~
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<b>A</b>	7	ሻ	<b>*</b>	W	HUIT
Traffic Volume (veh/h)	<b>1</b> 204	138	215	<b>1</b> 62	21	73
Future Volume (Veh/h)	204	138	215	162	21	73
Sign Control	Free	100	210	Free	Stop	,,,
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	204	138	215	162	21	73
Pedestrians	204	130	213	102	۷۱	73
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
	None			None		
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked			0.40		=00	004
vC, conflicting volume			342		796	204
vC1, stage 1 conf vol						
vC2, stage 2 conf vol			0.40		700	004
vCu, unblocked vol			342		796	204
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			82		93	91
cM capacity (veh/h)			1217		293	837
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	204	138	215	162	94	
Volume Left	0	0	215	0	21	
Volume Right	0	138	0	0	73	
cSH	1700	1700	1217	1700	592	
Volume to Capacity	0.12	0.08	0.18	0.10	0.16	
Queue Length 95th (m)	0.0	0.0	4.9	0.0	4.3	
Control Delay (s)	0.0	0.0	8.6	0.0	12.2	
Lane LOS			Α		В	
Approach Delay (s)	0.0		4.9		12.2	
Approach LOS					В	
Intersection Summary						
Average Delay			3.7			
Intersection Capacity Utilization			39.9%	ICI	J Level of S	envice
			15	100	J Level OI S	EI VICE
Analysis Period (min)			15			

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	-	*	₹		7	1
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1.			4	W	
Traffic Volume (veh/h)	185	5	26	290	0	5
Future Volume (Veh/h)	185	5	26	290	0	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	185	5	26	290	0	5
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			190		530	188
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			190		530	188
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					<b>U.</b> .	V. <u>_</u>
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	99
cM capacity (veh/h)			1384		500	855
					000	000
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	190	316	5			
Volume Left	0	26	0			
Volume Right	5	0	5			
cSH	1700	1384	855			
Volume to Capacity	0.11	0.02	0.01			
Queue Length 95th (m)	0.0	0.4	0.1			
Control Delay (s)	0.0	0.8	9.2			
Lane LOS		Α	Α			
Approach Delay (s)	0.0	0.8	9.2			
Approach LOS			Α			
Intersection Summary						
			0.6			
Average Delay			41.6%	101	U Level of S	onioo
Intersection Capacity Utilization				ICI	o Level of S	ei vice
Analysis Period (min)			15			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		43-			43-			43-			43-	
Traffic Volume (veh/h)	2	183	11	1	290	10	1	7	8	10	9	14
Future Volume (Veh/h)	2	183	11	1	290	10	1	7	8	10	9	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	183	11	1	290	10	1	7	8	10	9	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)												
pX, platoon unblocked												
vC, conflicting volume	300			194			508	494	188	501	495	295
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	300			194			508	494	188	501	495	295
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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 %	100			100			100	99	99	98	98	98
cM capacity (veh/h)	1261			1379			459	475	853	470	475	744
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	196	301	16	33								
Volume Left	190	301	1	33 10								
	11	10	8	14								
Volume Right cSH	1261	1379	609	559								
Volume to Capacity	0.00	0.00	0.03	0.06								
	0.00	0.00	0.03	1.4								
Queue Length 95th (m)	0.0											
Control Delay (s)		0.0	11.1 B	11.8 B								
Lane LOS	A 0.1	A 0.0	11.1	11.8								
Approach Delay (s)	0.1	0.0	11.1 B	11.8 B								
Approach LOS			В	В								
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			29.5%	IC	U Level of Se	ervice			Α			
Analysis Period (min)			15									

	•	<b>→</b>	<b>←</b>	•	<u> </u>	4
Movement	EBL	EBT	WBT	WBR	SBL	SBR
						SBK
Lane Configurations	<b>\</b>	<b>^</b>	<b>*</b>	<b>*</b>	<b>*</b>	405
Traffic Volume (veh/h)	18	189	190	93	254	105
Future Volume (Veh/h)	18	189	190	93	254	105
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	18	189	190	93	254	105
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	283				415	190
vC1, stage 1 conf vol					110	100
vC2, stage 2 conf vol						
vCu, unblocked vol	283				415	190
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)	4.1				0.4	0.2
tF (s)	2.2				3.5	3.3
	99				5.5 57	3.3 88
p0 queue free %	1279				57 586	
cM capacity (veh/h)	12/9				900	852
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	18	189	190	93	359	
Volume Left	18	0	0	0	254	
Volume Right	0	0	0	93	105	
cSH	1279	1700	1700	1700	644	
Volume to Capacity	0.01	0.11	0.11	0.05	0.56	
Queue Length 95th (m)	0.3	0.0	0.0	0.0	26.2	
Control Delay (s)	7.9	0.0	0.0	0.0	17.4	
Lane LOS	A	0.0	0.0	0.0	C	
Approach Delay (s)	0.7		0.0		17.4	
Approach LOS	0.1		0.0		17.4 C	
•					- 0	
Intersection Summary						
Average Delay			7.5			
Intersection Capacity Utilization			44.1%	ICI	J Level of S	ervice
Analysis Period (min)			15			
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	<b>→</b>	•	•	<b>←</b>	4	~
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<b>A</b>	7	*	<b>A</b>	W	
Traffic Volume (veh/h)	387	62	81	<b>T</b> 276	15	44
Future Volume (Veh/h)	387	62	81	276	15	44
Sign Control	Free	02	01	Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	387	62	81	276	1.00	44
Pedestrians	301	02	01	270	10	44
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			449		825	387
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			449		825	387
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		95	93
cM capacity (veh/h)			1111		317	661
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	387	62	81	276	59	
Volume Left	0	0	81	0	15	
Volume Right	0	62	0	0	44	
cSH	1700	1700	1111	1700	518	
Volume to Capacity	0.23	0.04	0.07	0.16	0.11	
Queue Length 95th (m)	0.0	0.0	1.8	0.0	2.9	
Control Delay (s)	0.0	0.0	8.5	0.0	12.8	
Lane LOS	0.0	0.0	Α	0.0	В	
Approach Delay (s)	0.0		1.9		12.8	
Approach LOS	0.0		1.0		12.0 B	
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			40.0%	ICI	U Level of S	ervice
Analysis Period (min)			15			
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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				र्	W	
Traffic Volume (veh/h)	<b>1</b> 236	1	5	158	4	26
Future Volume (Veh/h)	236	1	5	158	4	26
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	236	1	5	158	4	26
Pedestrians		•			•	
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)	1,0110			110110		
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			237		404	236
vC1, stage 1 conf vol			201		דטד	200
vC2, stage 2 conf vol						
vCu, unblocked vol			237		404	236
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)			7.1		0.4	0.2
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	97
cM capacity (veh/h)			1330		600	802
					000	002
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	237	163	30			
Volume Left	0	5	4			
Volume Right	1	0	26			
cSH	1700	1330	768			
Volume to Capacity	0.14	0.00	0.04			
Queue Length 95th (m)	0.0	0.1	0.9			
Control Delay (s)	0.0	0.3	9.9			
Lane LOS		Α	Α			
Approach Delay (s)	0.0	0.3	9.9			
Approach LOS			Α			
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			23.2%	IC	U Level of S	ervice
Analysis Period (min)			15			
manyono i onou (mmi)						

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		- 4\}			45			<i>Δ</i> 1			<i>Δ</i>	
Traffic Volume (veh/h)	11	<b>4</b> 257	5	4	<b>♣</b> 152	15	8	4	23	12	<b>4</b>	2
Future Volume (Veh/h)	11	257	5	4	152	15	8	4	23	12	3	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	11	257	5	4	152	15	8	4	23	12	3	2
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	167			262			452	456	260	474	452	160
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	167			262			452	456	260	474	452	160
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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 %	99			100			98	99	97	97	99	100
cM capacity (veh/h)	1411			1302			510	495	779	479	498	886
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	273	171	35	17								
Volume Left	11	4	8	12								
Volume Right	5	15	23	2								
cSH	1411	1302	657	510								
Volume to Capacity	0.01	0.00	0.05	0.03								
Queue Length 95th (m)	0.2	0.1	1.3	0.8								
Control Delay (s)	0.4	0.2	10.8	12.3								
Lane LOS	Α	Α	В	В								
Approach Delay (s)	0.4	0.2	10.8	12.3								
Approach LOS			В	В								
Intersection Summary			4.5									
Average Delay			1.5	10					A			
Intersection Capacity Utilization			30.2%	IC	U Level of Sen	vice			Α			
Analysis Period (min)			15									

<b>→ ← &lt; &gt; ~</b>
Movement EBL EBT WBT WBR SBL SBR
Lane Configurations A A 7 M
Traffic Volume (veh/h) 12 300 140 42 48 39
Future Volume (Veh/h) 12 300 140 42 48 39
Sign Control Free Free Stop
Grade 0% 0% 0%
Peak Hour Factor 1.00 1.00 1.00 1.00 1.00 1.00
Hourly flow rate (vph) 12 300 140 42 48 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 182 464 140
vC1, stage 1 conf vol
vC2, stage 2 conf vol
vCu, unblocked vol 182 464 140
tC, single (s) 4.1 6.4 6.2
tC, 2 stage (s)
tF(s) 2.2 3.5 3.3
p0 queue free % 99 91 96
cM capacity (veh/h) 1393 552 908
Direction, Lane # EB 1 EB 2 WB 1 WB 2 SB 1
·
Volume Left 12 0 0 0 48 Volume Right 0 0 0 42 39
· · · · · · · · · · · · · · · · · · ·
cSH 1393 1700 1700 669
Volume to Capacity 0.01 0.18 0.08 0.02 0.13
Queue Length 95th (m) 0.2 0.0 0.0 3.4
Control Delay (s) 7.6 0.0 0.0 11.2
Lane LOS A B
Approach Delay (s) 0.3 0.0 11.2
Approach LOS B
Intersection Summary
Average Delay 1.8
Intersection Capacity Utilization 28.7% ICU Level of Service
Analysis Period (min) 15

	<b>→</b>	•	•	<b>←</b>	4	~
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<b>A</b>	7	*	<b>A</b>	W	.,,,,
Traffic Volume (veh/h)	214	145	226	170	22	77
Future Volume (Veh/h)	214	145	226	170	22	77
Sign Control	Free	110		Free	Stop	• • •
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	214	145	226	170	22	77
Pedestrians	214	140	220	170	22	11
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
	ivone			INOTIE		
Median storage veh) Upstream signal (m)						
pX, platoon unblocked						
			359		836	214
vC, conflicting volume			359		830	214
vC1, stage 1 conf vol						
vC2, stage 2 conf vol			250		000	044
vCu, unblocked vol			359		836	214
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			81		92	91
cM capacity (veh/h)			1200		274	826
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	214	145	226	170	99	
Volume Left	0	0	226	0	22	
Volume Right	0	145	0	0	77	
cSH	1700	1700	1200	1700	570	
Volume to Capacity	0.13	0.09	0.19	0.10	0.17	
Queue Length 95th (m)	0.0	0.0	5.3	0.0	4.7	
Control Delay (s)	0.0	0.0	8.7	0.0	12.6	
Lane LOS			Α		В	
Approach Delay (s)	0.0		5.0		12.6	
Approach LOS					В	
Intersection Summary						
Average Delay			3.8			
Intersection Capacity Utilization			41.4%	ICI	J Level of S	ervice
Analysis Period (min)			15	100	J Level of S	CIVICE
Analysis Fellou (IIIII)			15			

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	-	•	•		١	/
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<b>1</b> 95			र्ध	N/A	
Traffic Volume (veh/h)	195	5	26	304	0	5
Future Volume (Veh/h)	195	5	26	304	0	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	195	5	26	304	0	5
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			200		554	198
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			200		554	198
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					<b>U.</b> .	0.2
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	99
cM capacity (veh/h)			1372		484	844
					707	0-1-1
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	200	330	5			
Volume Left	0	26	0			
Volume Right	5	0	5			
cSH	1700	1372	844			
Volume to Capacity	0.12	0.02	0.01			
Queue Length 95th (m)	0.0	0.4	0.1			
Control Delay (s)	0.0	0.8	9.3			
Lane LOS		Α	Α			
Approach Delay (s)	0.0	0.8	9.3			
Approach LOS			Α			
Intersection Summary						
			0.6			
Average Delay			42.9%	101	U Level of S	onioo
Intersection Capacity Utilization				ICI	o Level of S	ei vice
Analysis Period (min)			15			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		43-			45			<i>Δ</i> 1			Δ	
Traffic Volume (veh/h)	2	193	11	1	<b>3</b> 04	10	1	<b>4</b>	8	10	<b>4</b>	14
Future Volume (Veh/h)	2	193	11	1	304	10	1	7	8	10	9	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	193	11	1	304	10	1	7	8	10	9	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)												
pX, platoon unblocked												
vC, conflicting volume	314			204			532	518	198	525	519	309
vC1, stage 1 conf vol	<u> </u>							0.0		0_0	0.0	
vC2, stage 2 conf vol												
vCu, unblocked vol	314			204			532	518	198	525	519	309
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)								0.0	V. <u>_</u>		0.0	V
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	98	99	98	98	98
cM capacity (veh/h)	1246			1368			442	460	843	453	460	731
		M/D 1	ND 1					100	0.10	100	100	701
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	206	315	16	33								
Volume Left	2	1	1	10								
Volume Right	11	10	8	14								
cSH	1246	1368	593	543								
Volume to Capacity	0.00	0.00	0.03	0.06								
Queue Length 95th (m)	0.0	0.0	0.6	1.5								
Control Delay (s)	0.1	0.0	11.2	12.1								
Lane LOS	Α	Α	В	В								
Approach Delay (s)	0.1	0.0	11.2	12.1								
Approach LOS			В	В								
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			30.3%	IC	U Level of Sen	vice			Α			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	*	<b>*</b>	•	1	14	
Traffic Volume (veh/h)	18	198	199	97	268	110
Future Volume (Veh/h)	18	198	199	97	268	110
Sign Control		Free	Free	<u> </u>	Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	18	198	199	97	268	110
Pedestrians	10	100	100		200	110
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)		TAOTIC	THOTIC			
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	296				433	199
vC1, stage 1 conf vol	230				400	133
vC2, stage 2 conf vol						
vCu, unblocked vol	296				433	199
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)	7.1				0.4	0.2
tF(s)	2.2				3.5	3.3
p0 queue free %	99				53	87
cM capacity (veh/h)	1265				572	842
,						042
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	18	198	199	97	378	
Volume Left	18	0	0	0	268	
Volume Right	0	0	0	97	110	
cSH	1265	1700	1700	1700	631	
Volume to Capacity	0.01	0.12	0.12	0.06	0.60	
Queue Length 95th (m)	0.3	0.0	0.0	0.0	30.3	
Control Delay (s)	7.9	0.0	0.0	0.0	18.9	
Lane LOS	Α				С	
Approach Delay (s)	0.7		0.0		18.9	
Approach LOS					С	
Intersection Summary						
Average Delay			8.2			
Intersection Capacity Utilization			45.2%	ICU	J Level of S	ervice
Analysis Period (min)			15			
maryolo i choa (min)			10			

		`		<b>←</b>	•	<b>/</b>
		•	▼		١,	′
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	•	7	7	•	M.	
Traffic Volume (veh/h)	407	65	86	290	16	47
Future Volume (Veh/h)	407	65	86	290	16	47
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	407	65	86	290	16	47
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			472		869	407
vC1, stage 1 conf vol			412		009	407
vC2, stage 2 conf vol			472		869	407
vCu, unblocked vol						
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)			0.0		0.5	0.0
tF (s)			2.2		3.5	3.3
p0 queue free %			92		95	93
cM capacity (veh/h)			1090		297	644
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	407	65	86	290	63	<u>-</u>
Volume Left	0	0	86	0	16	
Volume Right	0	65	0	0	47	
cSH	1700	1700	1090	1700	497	
Volume to Capacity	0.24	0.04	0.08	0.17	0.13	
Queue Length 95th (m)	0.0	0.0	1.9	0.0	3.3	
Control Delay (s)	0.0	0.0	8.6	0.0	13.3	
Lane LOS	0.0	0.0	Α	0.0	В	
Approach Delay (s)	0.0		2.0		13.3	
Approach LOS	0.0		2.0		В	
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			41.6%	ICI	J Level of S	ervice
Analysis Period (min)			15			

	<b>→</b>	•	•	←	4	/
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations			-,,	र्	W	
Traffic Volume (veh/h)	<b>1</b> 248	1	5	166	4	26
Future Volume (Veh/h)	248	1	5	166	4	26
Sign Control	Free	'		Free	Stop	20
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
	248	1.00	5	166	4	26
Hourly flow rate (vph) Pedestrians	240	ı	J	100	4	20
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			249		424	248
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			249		424	248
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	97
cM capacity (veh/h)			1317		584	790
	<b>55.</b> 4	1115 1				
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	249	171	30			
Volume Left	0	5	4			
Volume Right	1	0	26			
cSH	1700	1317	755			
Volume to Capacity	0.15	0.00	0.04			
Queue Length 95th (m)	0.0	0.1	0.9			
Control Delay (s)	0.0	0.3	10.0			
Lane LOS		Α	Α			
Approach Delay (s)	0.0	0.3	10.0			
Approach LOS			Α			
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			23.8%	IC	U Level of S	onvico
				IC	o revei of 2	ervice
Analysis Period (min)			15			

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	۶	-	•	•	←	•	4	<b>†</b>	~	-	<b>↓</b>	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		43-			43-			43-			43-	
Traffic Volume (veh/h)	11	270	5	4	159	15	8	4	23	12	3	2
Future Volume (Veh/h)	11	270	5	4	159	15	8	4	23	12	3	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	11	270	5	4	159	15	8	4	23	12	3	2
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	174			275			472	476	272	494	472	166
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	174			275			472	476	272	494	472	166
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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 %	99			100			98	99	97	97	99	100
cM capacity (veh/h)	1403			1288			494	482	766	464	485	878
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	286	178	35	17								
Volume Left	11	4	8	12								
Volume Right	5	15	23	2								
cSH	1403	1288	642	495								
Volume to Capacity	0.01	0.00	0.05	0.03								
Queue Length 95th (m)	0.2	0.1	1.3	0.8								
Control Delay (s)	0.4	0.2	10.9	12.5								
Lane LOS	A	A	В	В								
Approach Delay (s)	0.4	0.2	10.9	12.5								
Approach LOS		•	В	В								
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			31.1%	IC	U Level of Ser	vice			Α			
Analysis Period (min)			15									

<i>y</i> _	•	<b>←</b>	•	<b>\</b>	4
Movement EBL E	EBT	WBT	WBR	SBL	SBR
Lane Configurations	<b>A</b>	<b>*</b>	#	N/F	
	315	147	44	50	41
	315	147	44	50	41
	ree	Free		Stop	
	0%	0%		0%	
	1.00	1.00	1.00	1.00	1.00
	315	147	44	50	41
Pedestrians	0.0				
Lane Width (m)					
Walking Speed (m/s)					
Percent Blockage					
Right turn flare (veh)					
	one	None			
Median storage veh)	0110	110110			
Upstream signal (m)					
pX, platoon unblocked					
vC, conflicting volume 191				488	147
vC1, stage 1 conf vol				100	
vC2, stage 2 conf vol					
vCu, unblocked vol 191				488	147
tC, single (s) 4.1				6.4	6.2
tC, 2 stage (s)				0.1	0.2
tF (s) 2.2				3.5	3.3
p0 queue free % 99				91	95
cM capacity (veh/h) 1383				534	900
	B 2	WB 1	WB 2	SB 1	
	315	147	44	91	
Volume Left 13	0	0	0	50	
Volume Right 0	0	0	44	41	
	700	1700	1700	654	
	0.19	0.09	0.03	0.14	
	0.0	0.0	0.0	3.7	
	0.0	0.0	0.0	11.4	
Lane LOS A				В	
Approach Delay (s) 0.3		0.0		11.4	
Approach LOS				В	
Intersection Summary					
Average Delay		1.9			
Intersection Capacity Utilization		29.7%	ICL	Level of S	ervice
Analysis Period (min)		15			

	<b>→</b>	•	•	<b>←</b>	•	~
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<b>A</b>	#	*	<b>A</b>	W	
Traffic Volume (veh/h)	225	153	238	179	23	81
Future Volume (Veh/h)	225	153	238	179	23	81
Sign Control	Free	100	200	Free	Stop	0.
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	225	153	238	179	23	81
Pedestrians	225	100	230	113	25	O I
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
	None			None		
Median type	NOTIE			NOTIE		
Median storage veh) Upstream signal (m)						
pX, platoon unblocked						
			378		880	225
vC, conflicting volume			3/8		880	225
vC1, stage 1 conf vol						
vC2, stage 2 conf vol			378		880	225
vCu, unblocked vol						
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)			0.0		0.5	0.0
tF (s)			2.2		3.5	3.3
p0 queue free %			80		91	90
cM capacity (veh/h)			1180		254	814
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	225	153	238	179	104	
Volume Left	0	0	238	0	23	
Volume Right	0	153	0	0	81	
cSH	1700	1700	1180	1700	547	
Volume to Capacity	0.13	0.09	0.20	0.11	0.19	
Queue Length 95th (m)	0.0	0.0	5.7	0.0	5.3	
Control Delay (s)	0.0	0.0	8.8	0.0	13.1	
Lane LOS			Α		В	
Approach Delay (s)	0.0		5.0		13.1	
Approach LOS					В	
Intersection Summary						
Average Delay			3.9			
Intersection Capacity Utilization			43.0%	ICI	J Level of S	ervice
Analysis Period (min)			15	10.	2 20101 01 0	011100
Analysis i Gilou (IIIII)			10			

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	î,			4	14	
Traffic Volume (veh/h)	205	5	26	320	0	5
Future Volume (Veh/h)	205	5	26	320	0	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	205	5	26	320	0	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)				<del>-</del>		
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			210		580	208
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			210		580	208
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					*	- · · -
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	99
cM capacity (veh/h)			1361		468	833
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	210	346	5			
Volume Left	0	26	0			
Volume Right	5	0	5			
cSH	1700	1361	833			
Volume to Capacity	0.12	0.02	0.01			
Queue Length 95th (m)	0.0	0.4	0.1			
Control Delay (s)	0.0	0.7	9.3			
Lane LOS		Α	Α			
Approach Delay (s)	0.0	0.7	9.3			
Approach LOS			Α			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			44.3%	ICI	U Level of S	onvice
			15	101	O FEARI OI 2	CI VICE
Analysis Period (min)			15			

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		_	•	•			١	<u>'</u>	′		*	_
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		₽.			₽.			₽.			43-	
Traffic Volume (veh/h)	2	203	11	1	320	10	1	7	8	10	9	14
Future Volume (Veh/h)	2	203	11	1	320	10	1	7	8	10	9	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	203	11	1	320	10	1	7	8	10	9	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)												
pX, platoon unblocked												
vC, conflicting volume	330			214			558	544	208	551	545	325
vC1, stage 1 conf vol								• • • • • • • • • • • • • • • • • • • •			0.0	020
vC2, stage 2 conf vol												
vCu, unblocked vol	330			214			558	544	208	551	545	325
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							•••	0.0	0.2		0.0	0.2
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	98	99	98	98	98
cM capacity (veh/h)	1229			1356			424	445	832	435	445	716
		WD 4	ND 4				727	770	002	700	770	710
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	216	331	16	33								
Volume Left	2	1	1	10								
Volume Right	11	10	8	14								
cSH	1229	1356	577	526								
Volume to Capacity	0.00	0.00	0.03	0.06								
Queue Length 95th (m)	0.0	0.0	0.6	1.5								
Control Delay (s)	0.1	0.0	11.4	12.3								
Lane LOS	Α	Α	В	В								
Approach Delay (s)	0.1	0.0	11.4	12.3								
Approach LOS			В	В								
Intersection Summary												
Average Delay			1.0									
Intersection Capacity Utilization			31.2%	IC	U Level of Ser	vice			Α			
Analysis Period (min)			15									

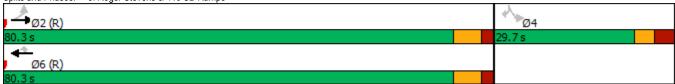
	•	<b>→</b>	+	•	1	4
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	*				¥ <b>/</b>	JUIN
	<b>1</b> 9	<b>↑</b> 208	<b>↑</b> 209	<b>7</b> 102	281	116
Traffic Volume (veh/h) Future Volume (Veh/h)	19	208	209	102	281	116
	19		Free	102		110
Sign Control		Free	0%		Stop	
Grade	4.00	0%		4.00	0%	4.00
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	19	208	209	102	281	116
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	311				455	209
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	311				455	209
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					***	
tF (s)	2.2				3.5	3.3
p0 queue free %	98				49	86
cM capacity (veh/h)	1249				555	831
, , ,						001
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	19	208	209	102	397	
Volume Left	19	0	0	0	281	
Volume Right	0	0	0	102	116	
cSH	1249	1700	1700	1700	614	
Volume to Capacity	0.02	0.12	0.12	0.06	0.65	
Queue Length 95th (m)	0.4	0.0	0.0	0.0	35.5	
Control Delay (s)	7.9	0.0	0.0	0.0	20.9	
Lane LOS	A				С	
Approach Delay (s)	0.7		0.0		20.9	
Approach LOS	***				C	
•						
Intersection Summary						
Average Delay			9.0			
Intersection Capacity Utilization			47.2%	ICU	J Level of S	ervice
Analysis Period (min)			15			

	_	_		+	•	<b>*</b>
	-	•	₹		7	7
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<b>*</b>	7	*	•	W	
Traffic Volume (veh/h)	428	68	90	305	17	49
Future Volume (Veh/h)	428	68	90	305	17	49
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	428	68	90	305	17	49
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			496		913	428
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			496		913	428
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			92		94	92
cM capacity (veh/h)			1068		278	627
				14/5-2		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	428	68	90	305	66	
Volume Left	0	0	90	0	17	
Volume Right	0	68	0	0	49	
cSH	1700	1700	1068	1700	474	
Volume to Capacity	0.25	0.04	0.08	0.18	0.14	
Queue Length 95th (m)	0.0	0.0	2.1	0.0	3.7	
Control Delay (s)	0.0	0.0	8.7	0.0	13.8	
Lane LOS			Α		В	
Approach Delay (s)	0.0		2.0		13.8	
Approach LOS					В	
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			43.2%	ICI	U Level of Sen	ico
Analysis Period (min)			45.2%	100	o revei di Seli	/IC <del>C</del>
Analysis Period (min)			15			

	•	<b>→</b>	<b>←</b>	•	<b>\</b>	4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	LDL K	<u>LBI</u>	<u>₩</u>	₩DK	SDL K	77
Traffic Volume (vph)	158	1085	332	40	45	804
Future Volume (vph)	158	1085	332	40	45	804
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	60.0	1000	1000	30.0	110.0	110.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0				60.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88
Frt	1.00	1.00	1.00	0.850	1.00	0.850
Flt Protected	0.950			0.000	0.950	0.000
Satd. Flow (prot)	1695	1784	1784	1517	1695	2669
Flt Permitted	0.548	1704	1704	1017	0.950	2009
Satd. Flow (perm)	978	1784	1784	1517	1695	2669
	910	1704	1704		1090	Yes
Right Turn on Red				Yes 40		804
Satd. Flow (RTOR)		00	00	40	<b>F</b> 0	804
Link Speed (k/h)		80	80		50	
Link Distance (m)		122.5	76.1		162.5	
Travel Time (s)		5.5	3.4	,	11.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	158	1085	332	40	45	804
Shared Lane Traffic (%)						
Lane Group Flow (vph)	158	1085	332	40	45	804
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	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	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel	CITLX	OITEX	OITLX	OITLX	OITEX	OITEX
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		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	NA	Perm	Perm	Perm
Protected Phases		2	6			
Permitted Phases	2			6	4	4
Detector Phase	2	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	26.6	26.6	43.6	43.6	29.7	29.7
Total Split (s)	80.3	80.3	80.3	80.3	29.7	29.7
Total Split (%)	73.0%	73.0%	73.0%	73.0%	27.0%	27.0%
Maximum Green (s)	73.0%	73.0%	73.0%	73.0%	27.0%	23.0
Vallaur Tima (a)	4.6	4.6	4.6 2.0	4.6 2.0	3.3	3.3
	~ ~ ~		711	/()	3.4	3.4
Yellow Time (s) All-Red Time (s)	2.0	2.0				
	2.0 0.0 6.6	0.0 6.6	0.0 6.6	0.0 6.6	0.0 6.7	0.0 6.7

	•	<b>→</b>	+	4	<b>/</b>	4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead-Lag Optimize?	LDE		.,,,		JUL	JUIT
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max
Walk Time (s)	an	•a.n	7.0	7.0	7.0	7.0
Flash Dont Walk (s)			30.0	30.0	16.0	16.0
Pedestrian Calls (#/hr)			0	0	0	0
Act Effct Green (s)	73.7	73.7	73.7	73.7	23.0	23.0
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.21	0.21
v/c Ratio	0.24	0.91	0.28	0.04	0.13	0.67
Control Delay	4.1	20.6	7.7	1.6	36.6	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.1	20.6	7.7	1.6	36.6	5.8
LOS	Α.1	20.0 C	Α.	Α	30.0 D	3.0 A
Approach Delay	71	18.5	7.0	, ,	7.5	
Approach LOS		В	7.0 A		7.5 A	
90th %ile Green (s)	73.7	73.7	73.7	73.7	23.0	23.0
90th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR
70th %ile Green (s)	73.7	73.7	73.7	73.7	23.0	23.0
70th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR
50th %ile Green (s)	73.7	73.7	73.7	73.7	23.0	23.0
50th %ile Term Code	Coord	Coord	Coord	Coord	Z3.0 MaxR	Z3.0 MaxR
			73.7			23.0
30th %ile Green (s) 30th %ile Term Code	73.7 Coord	73.7 Coord	Coord	73.7 Coord	23.0 MaxR	23.0 MaxR
10th %ile Green (s) 10th %ile Term Code	73.7 Coord	73.7 Coord	73.7 Coord	73.7 Coord	23.0 MaxR	23.0 MaxR
Queue Length 50th (m)	5.5	218.2	36.9	1.3	7.9	0.0
Queue Length 95th (m)	m8.7	#288.3	48.3	m1.9	17.6	16.5
Internal Link Dist (m)	20.0	98.5	52.1	20.0	138.5	440.0
Turn Bay Length (m)	60.0	4405	440=	30.0	110.0	110.0
Base Capacity (vph)	655	1195	1195	1029	354	1193
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	0.24	0.91	0.28	0.04	0.13	0.67
Intersection Summary						
Area Type:	Other					
Cycle Length: 110						
Actuated Cycle Length: 110						
Offset: 0 (0%), Referenced to ph	ase 2:EBTL and	6:WBT. St	art of Green			
Natural Cycle: 90						
Control Type: Actuated-Coordina	ated					
Maximum v/c Ratio: 0.91						
Intersection Signal Delay: 13.0				Int	ersection L	OS: B
Intersection Capacity Utilization	79 7%				J Level of S	
Analysis Period (min) 15	/ .			10	5 E0 701 01 C	751 VIOC D
# 95th percentile volume excee	eds canacity ou	eue may ho	longer			
Queue shown is maximum af		out may be	ionger.			
	•	hy unatroa	m cianal			
m Volume for 95th percentile q	ueue is metered	upstrea	ııı sıgnaı.			

Splits and Phases: 8: Roger Stevens & 416 SB Ramps



	<b>→</b>	•	•	•	4	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<u>LB1</u>	LDK	WDL K	<u>₩Ы</u>	₩.	HUIT
Traffic Volume (vph)	<b>T</b> 252	890	215	211	171	73
Future Volume (vph)	252	890	215	211	171	73
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		30.0	85.0		0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			100.0		30.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.960	
Flt Protected			0.950		0.966	
Satd. Flow (prot)	1784	1517	1695	1784	1655	0
Flt Permitted			0.603		0.966	
Satd. Flow (perm)	1784	1517	1076	1784	1655	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		890			18	
Link Speed (k/h)	80			80	50	
Link Distance (m)	73.7			234.6	117.8	
Travel Time (s)	3.3			10.6	8.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	252	890	215	211	171	73
Shared Lane Traffic (%)	202	550	210	211	- 111	- 10
Lane Group Flow (vph)	252	890	215	211	244	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7	Nigrit	Leit	3.7	3.7	Nigrit
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	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	1.00	1.06	24	1.00	24	1.06
Number of Detectors	2	14	24 1	2	1	14
		-				
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	
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	Perm	Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases		2	6			
Detector Phase	2	2	6	6	8	
Switch Phase						
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	
Minimum Split (s)	38.6	38.6	26.6	26.6	22.5	
Total Split (s)	77.6	77.6	77.6	77.6	32.4	
Total Split (%)	70.5%	70.5%	70.5%	70.5%	29.5%	
Maximum Green (s)	71.0	71.0	71.0	71.0	25.7	
Yellow Time (s)	4.6	4.6	4.6	4.6	3.3	
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.7	
Lead/Lag	0.0	0.0	0.0	0.0	0.1	
Load/Lay						

	-	•	•	<b>←</b>	•	<i>&gt;</i>	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
ead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max		
Valk Time (s)	7.0	7.0					
lash Dont Walk (s)	25.0	25.0					
Pedestrian Calls (#/hr)	0	0					
ct Effct Green (s)	71.0	71.0	71.0	71.0	25.7		
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.23		
//c Ratio	0.22	0.69	0.31	0.18	0.61		
Control Delay	5.5	2.4	10.1	8.3	42.3		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	5.5	2.4	10.1	8.3	42.3		
.OS	A	A	В	A	D		
Approach Delay	3.1	• •		9.2	42.3		
Approach LOS	Α			Α.Δ	72.3 D		
90th %ile Green (s)	71.0	71.0	71.0	71.0	25.7		
90th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
70th %ile Green (s)	71.0	71.0	71.0	71.0	25.7		
70th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
50th %ile Green (s)	71.0	71.0	71.0	71.0	25.7		
50th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
30th %ile Green (s)	71.0	71.0	71.0	71.0	25.7		
30th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
10th %ile Green (s)	71.0	71.0	71.0	71.0	25.7		
10th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
Queue Length 50th (m)	8.7	0.0	18.7	16.7	43.6		
Queue Length 95th (m)	m14.7	m0.0	31.5	26.5	69.9		
nternal Link Dist (m)	49.7	1110.0	31.3	210.6	93.8		
Turn Bay Length (m)	43.1	30.0	85.0	210.0	53.0		
Base Capacity (vph)	1151	1294	694	1151	400		
Starvation Cap Reductn	0	1294	094	0	400		
	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn Reduced v/c Ratio	0.22	0.69	0.31	0.18	0.61		
	U.ZZ	0.09	0.31	υ.1δ	0.01		
ntersection Summary	011						
71	Other						
ycle Length: 110							
ctuated Cycle Length: 110							
Offset: 4 (4%), Referenced to phase	se 2:EBT and (	6:WBTL, Sta	art of Green				
latural Cycle: 65							
control Type: Actuated-Coordinate	ed						
laximum v/c Ratio: 0.69							
ntersection Signal Delay: 9.8					ersection LO		
tersection Capacity Utilization 85	5.8%			IC	U Level of Se	rvice E	
nalysis Period (min) 15							
n Volume for 95th percentile que	eue is metered	l by upstrea	m signal.				
plits and Phases: 10: 416 NB	Ramps & Roge	er Stevens					
•	rtampo a rtoge	or otovorio					
▼ Ø2 (R)							
//.6 s							
Ø6 (R)							<b>↑</b> Ø8
76-							22.4 c

	-	•	•	←	4	<i>&gt;</i>
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations		LDIN	NDL KK		INDL W	NDK
Traffic Volume (vph)	<b>1</b> 611	6	<b>9 9</b> 643	<b>4</b> 92	<b>'''</b>	630
Future Volume (vph)	611	6	643	492	6	630
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	1000	0.0	125.0	1000	0.0	0.0
Storage Lanes		0.0	2		1	1
Taper Length (m)			100.0		30.0	•
Lane Util. Factor	1.00	1.00	0.97	1.00	1.00	0.95
Frt	0.999		3.01		0.853	0.850
Flt Protected	0.000		0.950		0.999	0.000
Satd. Flow (prot)	1783	0	3288	1784	1520	1441
Flt Permitted	1700	J J	0.950	17.04	0.999	1771
Satd. Flow (perm)	1783	0	3288	1784	1520	1441
Right Turn on Red	1700	Yes	0200	1704	1020	Yes
Satd. Flow (RTOR)	1	103			315	315
Link Speed (k/h)	80			80	48	313
Link Distance (m)	191.8			211.8	133.2	
Travel Time (s)	8.6			9.5	10.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
	611	1.00	643		1.00	630
Adj. Flow (vph)	011	b	043	492	D	
Shared Lane Traffic (%)	047	^	040	400	204	50%
Lane Group Flow (vph)	617	0	643	492	321	315
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4			7.4	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	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex		CI+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		0.0	28.7	5.0	3.0
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel	OITEX			OITLA		
Detector 2 Extend (s)	0.0			0.0		
( )	NA		Prot		Drot	Perm
Turn Type			Prot 1	NA	Prot 8	Perm
Protected Phases	2		T	6	ď	_
Permitted Phases	^				_	8
Detector Phase	2		1	6	8	8
Switch Phase					/	
Minimum Initial (s)	20.0		5.0	20.0	10.0	10.0
Minimum Split (s)	26.1		14.5	26.1	29.0	29.0
Total Split (s)	50.0		31.0	81.0	29.0	29.0
Total Split (%)	45.5%		28.2%	73.6%	26.4%	26.4%
Maximum Green (s)	43.9		26.0	74.9	23.0	23.0
Yellow Time (s)	4.6		3.0	4.6	3.3	3.3
All-Red Time (s)	1.5		2.0	1.5	2.7	2.7
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1		5.0	6.1	6.0	6.0
Lead/Lag	Lag		Lead			
•	- 3					

	<b>→</b>	<b>→</b>	-	4	~
Lane Group	EBT	EBR WB	_ WBT	NBL	NBR
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.	3.0	3.0	3.0
Recall Mode	C-Max	Non		None	None
Walk Time (s)	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0		11.0	16.0	16.0
Pedestrian Calls (#/hr)	0		0	0	0
Act Effct Green (s)	54.5	26.	85.8	12.1	12.1
Actuated g/C Ratio	0.50	0.2		0.11	0.11
v/c Ratio	0.70	0.8		0.72	0.72
Control Delay	28.4	48.		15.1	14.8
Queue Delay	0.0	0.		0.0	0.0
Total Delay	28.4	48.		15.1	14.8
LOS	C	10.		В	В
Approach Delay	28.4	•	28.8	14.9	
Approach LOS	C		C	В	
90th %ile Green (s)	43.9	30.		18.8	18.8
90th %ile Term Code	Coord	Ma		Gap	Gap
70th %ile Green (s)	52.1	29.		11.8	11.8
70th %ile Term Code	Coord	Ga		Gap	Gap
50th %ile Green (s)	56.1	26.		10.0	10.0
50th %ile Term Code	Coord	Ga		Min	Min
30th %ile Green (s)	58.5	24.		10.0	10.0
30th %ile Term Code	Coord	Ga		Min	Min
10th %ile Green (s)	62.0	20.		10.0	10.0
10th %ile Term Code	Coord	Ga		Min	Min
Queue Length 50th (m)	95.3	69.		1.2	0.0
Queue Length 95th (m)	#183.9	77.		26.4	26.2
Internal Link Dist (m)	167.8	11.	187.8	109.2	20.2
Turn Bay Length (m)	107.0	125.		103.2	
Base Capacity (vph)	884	82		566	550
	004		) 1391	0	0
Starvation Cap Reductn	0		) 0	0	0
Spillback Cap Reductn	0		) 0	0	0
Storage Cap Reductn					
Reduced v/c Ratio	0.70	0.7	3 0.35	0.57	0.57
Intersection Summary					
Area Type:	Other				
Cycle Length: 110					

Cycle Length: 110 Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82 Intersection Signal Delay: 25.0 Intersection Capacity Utilization 82.0%

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: 16: East Employee Access & Roger Stevens



Synchro 10 Report Rochelle Fortier, Novatech

		_		+	•	<b>→</b>
	-	•	₹		7	7
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	ĵ.		7	•	W	
Traffic Volume (veh/h)	316	5	5	189	5	5
Future Volume (Veh/h)	316	5	5	189	5	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	316	5	5	189	5	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				351		
pX, platoon unblocked						
vC, conflicting volume			321		518	318
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			321		518	318
tC, single (s)			5.1		7.4	7.2
tC, 2 stage (s)			• • • • • • • • • • • • • • • • • • • •			
tF (s)			3.1		4.4	4.2
p0 queue free %			99		99	99
cM capacity (veh/h)			844		379	543
					070	0.10
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	321	5	189	10		
Volume Left	0	5	0	5		
Volume Right	5	0	0	5		
cSH	1700	844	1700	446		
Volume to Capacity	0.19	0.01	0.11	0.02		
Queue Length 95th (m)	0.0	0.1	0.0	0.5		
Control Delay (s)	0.0	9.3	0.0	13.3		
Lane LOS		Α		В		
Approach Delay (s)	0.0	0.2		13.3		
Approach LOS				В		
Intersection Summary						
Average Delay			0.3			
			27.9%	ICI	J Level of S	oniioo
Intersection Capacity Utilization				ICI	D Level of S	ei vice
Analysis Period (min)			15			

	<b>→</b>	•	•	<b>←</b>	•	~
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				र्	W	
Traffic Volume (veh/h)	<b>1</b> 249	1	5	174	4	26
Future Volume (Veh/h)	249	1	5	174	4	26
Sign Control	Free			Free	Stop	20
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	249	1.00	5	174	4	26
Pedestrians	249	Į.	J	174	4	20
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)	Niero			Niere		
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			250		434	250
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			250		434	250
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	97
cM capacity (veh/h)			1316		577	789
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	250	179	30			
Volume Left	0	5	4			
Volume Right	1	0	26			
cSH	1700	1316	752			
Volume to Capacity	0.15	0.00	0.04			
Queue Length 95th (m)	0.0	0.1	0.9			
Control Delay (s)	0.0	0.2	10.0			
Lane LOS		A	A			
Approach Delay (s)	0.0	0.2	10.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			23.9%	IC	U Level of S	ervice
Analysis Period (min)			15	10	2 20,0, 0, 0	
Allarysis i Gilou (Illili)			13			

	•	<b>→</b>	•	•	←	•	4	<b>†</b>	<b>/</b>	<b>&gt;</b>	<b>↓</b>	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		Δħ			43-			4			Δ	
Traffic Volume (veh/h)	11	<b>4</b> 268	5	4	168	15	8	4	23	12	<b>4</b> 3	2
Future Volume (Veh/h)	11	268	5	4	168	15	8	4	23	12	3	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	11	268	5	4	168	15	8	4	23	12	3	2
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	183			273			480	484	270	501	478	176
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	183			273			480	484	270	501	478	176
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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 %	99			100			98	99	97	97	99	100
cM capacity (veh/h)	1392			1290			489	478	768	459	481	868
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	284	187	35	17								
Volume Left	11	4	8	12								
Volume Right	5	15	23	2								
cSH	1392	1290	640	490								
Volume to Capacity	0.01	0.00	0.05	0.03								
Queue Length 95th (m)	0.2	0.1	1.3	0.8								
Control Delay (s)	0.4	0.2	10.9	12.6								
Lane LOS	Α	Α	В	В								
Approach Delay (s)	0.4	0.2	10.9	12.6								
Approach LOS			В	В								
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			31.1%	IC	U Level of Sen	vice			Α			
Analysis Period (min)			15									

	<b>→</b>	•	•	•	•	~
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1,	LDI	Y DE	<u>₩</u>	W	וטונ
Traffic Volume (veh/h)	307	13	317	181	13	310
Future Volume (Veh/h)	307	13	317	181	13	310
Sign Control	Free		<b>V.</b> .	Free	Stop	0.0
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	307	13	317	181	13	310
Pedestrians	001	10	017	101	10	010
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)	NOHE			NOTIC		
Upstream signal (m)				192		
pX, platoon unblocked				132		
vC, conflicting volume			320		1128	314
vC1, stage 1 conf vol			320		1120	314
vC2, stage 2 conf vol						
vCu, unblocked vol			320		1128	314
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)			4.1		0.4	0.2
tF (s)			2.2		3.5	3.3
p0 queue free %			74		92	5.5 57
			1240		168	727
cM capacity (veh/h)			1240		100	121
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	320	317	181	323		
Volume Left	0	317	0	13		
Volume Right	13	0	0	310		
cSH	1700	1240	1700	641		
Volume to Capacity	0.19	0.26	0.11	0.50		
Queue Length 95th (m)	0.0	7.8	0.0	21.6		
Control Delay (s)	0.0	8.9	0.0	16.2		
Lane LOS		Α		С		
Approach Delay (s)	0.0	5.7		16.2		
Approach LOS				С		
Intersection Summary						
Average Delay			7.1			
Intersection Capacity Utilization			67.4%	ICI	J Level of S	ervice
Analysis Period (min)			15			
a., o.o . o.iou (iiiii)			1.0			

	•	<b>→</b>	<b>←</b>	•	<b>\</b>	1
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	LDL K	<u> </u>	VVD1	₩DK	SDL K	77
Traffic Volume (vph)	178	1035	<b>3</b> 90	93	254	862
Future Volume (vph)	178	1035	390	93	254	862
deal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	60.0	1000	1000	30.0	110.0	110.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0			•	60.0	•
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88
Frt	1.00	1.00	1.00	0.850	1.00	0.850
Flt Protected	0.950			0.000	0.950	0.000
Satd. Flow (prot)	1695	1784	1784	1517	1695	2669
Flt Permitted	0.506	1704	1704	1017	0.950	2003
Satd. Flow (perm)	903	1784	1784	1517	1695	2669
	903	1704	1704	Yes	1090	Yes
Right Turn on Red				yes 93		862
Satd. Flow (RTOR)		00	00	93	<b>F</b> 0	802
Link Speed (k/h)		80	80		50	
Link Distance (m)		122.5	76.1		162.5	
Travel Time (s)		5.5	3.4		11.7	,
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	178	1035	390	93	254	862
Shared Lane Traffic (%)						
Lane Group Flow (vph)	178	1035	390	93	254	862
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	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	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	Cl+Ex	CI+Ex	CI+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Type Detector 1 Channel	CI+EX	UI+EX	OI+EX	OI+EX	OI+EX	UI+EX
	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
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		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	NA	Perm	Perm	Perm
Protected Phases		2	6			
Permitted Phases	2		-	6	4	4
Detector Phase	2	2	6	6	4	4
Switch Phase	_				•	•
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	26.6	26.6	43.6	43.6	29.7	29.7
Total Split (s)	80.0	80.0	80.0	80.0	30.0	30.0
Total Split (%)	72.7%	72.7%	72.7%	72.7%	27.3%	27.3%
Maximum Green (s)						
waxiinum Green (S)	73.4	73.4	73.4	73.4	23.3	23.3
	4.6	4.6	4.6	4.6	3.3	3.3 3.4
Yellow Time (s)	0.0	~ ~			.7 /	.3 /1
Yellow Time (s) All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	
Yellow Time (s)	2.0 0.0 6.6	2.0 0.0 6.6	2.0 0.0 6.6	0.0 6.6	0.0 6.7	0.0 6.7

	•	-	←	•	-	4	
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	
Walk Time (s)			7.0	7.0	7.0	7.0	
Flash Dont Walk (s)			30.0	30.0	16.0	16.0	
Pedestrian Calls (#/hr)			0	0	0	0	
Act Effct Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.21	0.21	
v/c Ratio	0.30	0.87	0.33	0.09	0.71	0.69	
Control Delay	6.6	16.0	5.7	0.3	52.2	5.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	6.6	16.0	5.7	0.3	52.2	5.9	
LOS	Α	В	Α	Α	D	Α	
Approach Delay		14.6	4.7		16.4		
Approach LOS		В	Α		В		
90th %ile Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
90th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	
70th %ile Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
70th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	
50th %ile Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
50th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	
30th %ile Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
30th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	
10th %ile Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
10th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	
Queue Length 50th (m)	7.3	54.7	17.2	0.0	50.9	0.0	
Queue Length 95th (m)	19.3	#106.6	22.6	1.0	#80.4	16.7	
Internal Link Dist (m)		98.5	52.1		138.5		
Turn Bay Length (m)	60.0			30.0	110.0	110.0	
Base Capacity (vph)	602	1190	1190	1043	359	1244	
Starvation Cap Reductn	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.30	0.87	0.33	0.09	0.71	0.69	
Intersection Summary							
Area Type: Cycle Length: 110	Other						
Actuated Cycle Length: 110							
Offset: 96 (87%), Referenced to p	hase 2:ERTL a	and 6·WRT	Start of Gro	an .			
Natural Cycle: 90	Jilase Z.LDTL a	, ושט.אאווי	Start of Ole	CII			
Control Type: Actuated-Coordina	tad						
Maximum v/c Ratio: 0.87	icu						
Intersection Signal Delay: 13.6				Int	ersection LO	ງເ∙ B	
Intersection Capacity Utilization 8	3 4%				J Level of S		
Analysis Period (min) 15	70.470			10.	2 20101 01 0	OI VIOC L	
# 95th percentile volume excee	ds canacity du	eue may he	longer				
Queue shown is maximum after		cuc may bo	longor.				
Splits and Phases: 8: Roger St	tevens & 416 S	B Ramps					
		cpo					1
→ø2 (R)							Ø4
80 s							30 s
<u>-44</u>							
							I

	<b>→</b>	•	•	←	4	/
Lana Croup	EDT	- EDD	- \//DI	WDT	NDI	NDD
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations Traffic Volume (vph)	<b>↑</b> 438	<b>₹</b> 858	<b>ኝ</b> 81	<b>↑</b> 324	167	44
Future Volume (vph)	438	858	81	324	167	44
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	1000	30.0	85.0	1000	0.0	0.0
Storage Lanes		30.0	1		1	0.0
Taper Length (m)		•	100.0		30.0	U
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.850	1.00	1.00	0.972	1.00
Flt Protected		0.000	0.950		0.962	
Satd. Flow (prot)	1784	1517	1695	1784	1668	0
Flt Permitted	1704	1017	0.470	1704	0.962	U
Satd. Flow (perm)	1784	1517	839	1784	1668	0
Right Turn on Red	1704	Yes	000	1704	1000	Yes
Satd. Flow (RTOR)		858			11	169
Link Speed (k/h)	80	000		80	50	
Link Opeed (km)	73.7			234.6	117.8	
Travel Time (s)	3.3			10.6	8.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
	438	858	81	324	1.00	44
Adj. Flow (vph)	438	000	δI	324	107	44
Shared Lane Traffic (%)	420	050	04	204	044	0
Lane Group Flow (vph)	438	858 No.	81 No	324	211 No.	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	4.00	4.00	4.00	4.00	4.00	4.00
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2	1	1	2	1	
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	
Detector 1 Type	CI+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	
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	Perm	Perm	NA	Prot	
Protected Phases	2	. 01111	7 01111	6	8	
Permitted Phases		2	6	•		
Detector Phase	2	2	6	6	8	
Switch Phase	L	L		•		
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	
Minimum Split (s)	38.6	38.6	26.6	26.6	22.5	
Total Split (s)	79.0	79.0	79.0	79.0	31.0	
Total Split (%)	79.0	79.0	79.0	79.0	28.2%	
			71.8%	71.8%		
Maximum Green (s)	72.4	72.4			24.3	
Yellow Time (s)	4.6	4.6	4.6	4.6	3.3	
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.7	
Lead/Lag						

	<b>→</b>	•	•	•	1		
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max		
Walk Time (s)	7.0	7.0					
Flash Dont Walk (s)	25.0	25.0					
Pedestrian Calls (#/hr)	0	0					
Act Effct Green (s)	72.4	72.4	72.4	72.4	24.3		
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.22		
v/c Ratio	0.37	0.66	0.15	0.28	0.56		
Control Delay	5.8	1.9	7.9	8.6	42.6		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	5.8	1.9	7.9	8.6	42.6		
LOS	A	Α	A	Α	D		
Approach Delay	3.2			8.5	42.6		
Approach LOS	A			A	D		
90th %ile Green (s)	72.4	72.4	72.4	72.4	24.3		
90th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
70th %ile Green (s)	72.4	72.4	72.4	72.4	24.3		
70th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
50th %ile Green (s)	72.4	72.4	72.4	72.4	24.3		
50th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
30th %ile Green (s)	72.4	72.4	72.4	72.4	24.3		
30th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
10th %ile Green (s)	72.4	72.4	72.4	72.4	24.3		
10th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
Queue Length 50th (m)	20.4	6.6	6.0	26.5	38.4		
Queue Length 95th (m)	m26.5	m2.8	12.1	39.4	62.4		
Internal Link Dist (m)	49.7	1112.0	12.1	210.6	93.8		
Turn Bay Length (m)	43.1	30.0	85.0	210.0	33.0		
Base Capacity (vph)	1174	1291	552	1174	377		
	0	0	0	0	0		
Starvation Cap Reductn							
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.37	0.66	0.15	0.28	0.56		
ntersection Summary							
	)ther						
Cycle Length: 110							
Actuated Cycle Length: 110							
Offset: 2 (2%), Referenced to phase	2:EBT and 6	6:WBTL, Sta	art of Green				
Natural Cycle: 65							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.66							
Intersection Signal Delay: 8.7				Int	ersection LOS:	Α	
Intersection Capacity Utilization 83.7	7%				U Level of Serv		
Analysis Period (min) 15							
m Volume for 95th percentile queu	ue is metered	by upstrea	m signal.				
Splits and Phases: 10: 416 NB Ra			ŭ				
· _	amps & Roge	el Stevelis					
▼ Ø2 (R)							
79 s							
₩							
∮ Ø6 (R)							

	-	•	•	•	4	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations		LDR	NDL NN		NBL W	NDK 7
Traffic Volume (vph)	<b>1</b> 549	5	630	<b>↑</b> 620	7	663
Future Volume (vph)	549	5 5	630	620	7	663
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	1000	0.0	125.0	1000	0.0	0.0
Storage Lanes		0.0	125.0		1	1
Taper Length (m)		U	100.0		30.0	I
Lane Util. Factor	1.00	1.00	0.97	1.00	1.00	0.95
Frt	0.999	1.00	0.91	1.00	0.853	0.850
Fit Protected	0.999		0.950		0.853	0.000
	1783	0	3288	1784	1520	1441
Satd. Flow (prot)	1/83	0		1/84	0.999	1441
Flt Permitted	1700	^	0.950	1704		4.4.4.4
Satd. Flow (perm)	1783	0	3288	1784	1520	1441
Right Turn on Red		Yes			200	Yes
Satd. Flow (RTOR)	22				332	331
Link Speed (k/h)	80			80	48	
Link Distance (m)	191.8			211.8	133.2	
Travel Time (s)	8.6			9.5	10.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	549	5	630	620	7	663
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	554	0	630	620	339	331
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4			7.4	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	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.1	0.1
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
	CI+Ex		Cl+Ex	CI+Ex	CI+Ex	Cl+Ex
Detector 1 Type	OI+EX		UI+EX	UI+EX	OI+EX	UI+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		Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases						8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0		5.0	20.0	10.0	10.0
Minimum Split (s)	26.1		14.5	26.1	29.0	29.0
Total Split (s)	50.0		31.0	81.0	29.0	29.0
Total Split (%)	45.5%		28.2%	73.6%	26.4%	26.4%
Maximum Green (s)	43.5%		26.0	74.9	23.0	23.0
Yellow Time (s)	43.9		3.0	4.6	3.3	3.3
	1.5		2.0	1.5	3.3 2.7	2.7
				0.0	0.0	0.0
	Λ Λ					
Lost Time Adjust (s)	0.0		0.0			
All-Red Time (s) Lost Time Adjust (s) Total Lost Time (s) Lead/Lag	0.0 6.1 Lag		5.0 Lead	6.1	6.0	6.0

	-	<b>→</b> ✓	←	•	~	
ane Group	EBT	EBR WBL	WBT	NBL	NBR	
_ead-Lag Optimize?						
/ehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	None	C-Max	None	None	
Valk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	11.0		11.0	16.0	16.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effct Green (s)	54.9	25.8	85.7	12.2	12.2	
Actuated g/C Ratio	0.50	0.23	0.78	0.11	0.11	
/c Ratio	0.62	0.82	0.45	0.73	0.73	
Control Delay	25.7	49.9	4.6	15.2	14.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	25.7	49.9	4.6	15.2	14.8	
.OS	C	D	Α.	В	В	
Approach Delay	25.7		27.5	15.0		
Approach LOS	C C		C C	В		
90th %ile Green (s)	43.9	29.8	78.7	19.2	19.2	
90th %ile Term Code	Coord	Max	Coord	Gap	Gap	
70th %ile Green (s)	52.4	28.5	85.9	12.0	12.0	
70th %ile Term Code	Coord	Gap	Coord	Gap	Gap	
50th %ile Green (s)	56.6	26.3	87.9	10.0	10.0	
50th %ile Term Code	Coord	Gap	Coord	Min	Min	
30th %ile Green (s)	59.0	23.9	87.9	10.0	10.0	
30th %ile Term Code	Coord	Gap	Coord	Min	Min	
10th %ile Green (s)	62.5	20.4	87.9	10.0	10.0	
10th %ile Term Code	Coord	Gap	Coord	Min	Min	
Queue Length 50th (m)	80.4	69.3	27.6	1.4	0.0	
Queue Length 95th (m)	145.7	86.6	47.8	27.1	26.9	
nternal Link Dist (m)	167.8	00.0	187.8	109.2	20.0	
Turn Bay Length (m)		125.0				
Base Capacity (vph)	889	816	1389	580	563	
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	0.62	0.77	0.45	0.58	0.59	
	0.02	5.11	3			
ntersection Summary	211					
Area Type:	Other					
Cycle Length: 110						
Actuated Cycle Length: 110	h 0.EDT 1.01	AIDT OLD CO				
Offset: 0 (0%), Referenced to p	onase 2:EBT and 6:	WB1, Start of Green				
Natural Cycle: 90						
Control Type: Actuated-Coordin	nated					
Maximum v/c Ratio: 0.82				lana a alta a la	20.0	
ntersection Signal Delay: 23.7	70.00/			tersection LO		
ntersection Capacity Utilization	1 / 8.9%		IC	U Level of S	ervice D	
analysis Period (min) 15						
Splits and Phases: 16: East	Employee Access &	Roger Stevens				
		_				
ÿ1		Ø2 (R)				
31s	5	0 s				
←						<b>.</b> .
Ø6 (R)						<b>√</b> 08

	<b>→</b>	•	•	←	•	/
Movement	EBT	EBR	• WBL	WBT	NBL	- NBR
Lane Configurations		LDI	7	<u>₩</u>	**	HUIT
Traffic Volume (veh/h)	<b>1</b> 226	5	15	<b>T</b> 315	<b>'''</b> 5	15
Future Volume (Veh/h)	226	5	15	315	5	15
Sign Control	Free	J	10	Free	Stop	10
Grade	0%			0%	0%	
		1.00	4.00			4.00
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	226	5	15	315	5	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)				351		
pX, platoon unblocked						
vC, conflicting volume			231		574	228
vC1, stage 1 conf vol					• • •	
vC2, stage 2 conf vol						
vCu, unblocked vol			231		574	228
tC, single (s)			5.1		7.4	7.2
tC, 2 stage (s)			J. I		7.4	1.4
tF (s)			3.1		4.4	4.2
p0 queue free %			98		99	98
			98		344	98 618
cM capacity (veh/h)			923		344	010
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	231	15	315	20		
Volume Left	0	15	0	5		
Volume Right	5	0	0	15		
cSH	1700	923	1700	516		
Volume to Capacity	0.14	0.02	0.19	0.04		
Queue Length 95th (m)	0.0	0.4	0.0	0.9		
Control Delay (s)	0.0	9.0	0.0	12.3		
Lane LOS		A		В		
Approach Delay (s)	0.0	0.4		12.3		
Approach LOS	0.0	V. I		В		
Intersection Summary						
			0.7			
Average Delay				101		
Intersection Capacity Utilization			27.5%	ICI	U Level of S	ervice
Analysis Period (min)			15			

		_		+	*	<b>▶</b>
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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<b>1</b> , 209			र्स	W	
Traffic Volume (veh/h)	209	5	25	315	0	5
Future Volume (Veh/h)	209	5	25	315	0	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	209	5	25	315	0	5
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			214		576	212
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			214		576	212
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	99
cM capacity (veh/h)			1356		470	829
		14.5				
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	214	340	5			
Volume Left	0	25	0			
Volume Right	5	0	5			
cSH	1700	1356	829			
Volume to Capacity	0.13	0.02	0.01			
Queue Length 95th (m)	0.0	0.4	0.1			
Control Delay (s)	0.0	0.7	9.4			
Lane LOS		Α	Α			
Approach Delay (s)	0.0	0.7	9.4			
Approach LOS			Α			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			44.2%	ICI	U Level of S	envice
Analysis Period (min)			15	101	O FEARI OI 2	CI VICE
Analysis Period (min)			15			

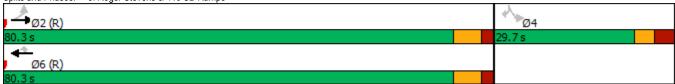
	۶	<b>→</b>	•	•	<b>—</b>	•	1	<b>†</b>	<i>&gt;</i>	<b>\</b>	<del> </del>	√
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		43-			4			43-			Δ	
Traffic Volume (veh/h)	2	207	11	15	315	10	1	7	8	10	<b>4</b>	14
Future Volume (Veh/h)	2	207	11	15	315	10	1	7	8	10	9	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	207	11	15	315	10	1	7	8	10	9	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)												
pX, platoon unblocked												
vC, conflicting volume	325			218			585	572	212	578	572	320
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	325			218			585	572	212	578	572	320
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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 %	100			99			100	98	99	98	98	98
cM capacity (veh/h)	1235			1352			404	425	828	414	425	721
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	220	340	16	33								
Volume Left	2	15	1	10								
Volume Right	11	10	8	14								
cSH	1235	1352	559	509								
Volume to Capacity	0.00	0.01	0.03	0.06								
Queue Length 95th (m)	0.0	0.3	0.7	1.6								
Control Delay (s)	0.1	0.4	11.6	12.6								
Lane LOS	Α	Α	В	В								
Approach Delay (s)	0.1	0.4	11.6	12.6								
Approach LOS			В	В								
Intersection Summary												
Average Delay			1.3									
Intersection Capacity Utilization			40.5%	IC	U Level of Sei	rvice			Α			
Analysis Period (min)			15									

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	<b>→</b>	•	₩	-	7	
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1.		*	•	W	
Traffic Volume (veh/h)	<b>1</b> 228	13	310	317	14	327
Future Volume (Veh/h)	228	13	310	317	14	327
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	228	13	310	317	14	327
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)				192		
pX, platoon unblocked				132		
vC, conflicting volume			241		1172	234
vC1, stage 1 conf vol			241		1172	204
vC2, stage 2 conf vol						
vCu, unblocked vol			241		1172	234
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)			7.1		0.4	0.2
tF (s)			2.2		3.5	3.3
p0 queue free %			77		3.5 91	5.5 59
cM capacity (veh/h)			1326		163	805
Civi Capacity (veri/fi)					103	000
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	241	310	317	341		
Volume Left	0	310	0	14		
Volume Right	13	0	0	327		
cSH	1700	1326	1700	693		
Volume to Capacity	0.14	0.23	0.19	0.49		
Queue Length 95th (m)	0.0	6.9	0.0	20.8		
Control Delay (s)	0.0	8.5	0.0	15.1		
Lane LOS		Α		С		
Approach Delay (s)	0.0	4.2		15.1		
Approach LOS				С		
Intersection Summary						
			6.5			
Average Delay			63.8%	101	J Level of S	onioo
Intersection Capacity Utilization				iCl	revelot 2	ei vice
Analysis Period (min)			15			

	•	<b>→</b>	<b>←</b>	•	<b>\</b>	1
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	LDL K	<u></u>	VVD1	₩DK	SDL Š	77
Traffic Volume (vph)	159	1100	339	42	48	806
Future Volume (vph)	159	1100	339	42	48	806
deal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	60.0	1000	1000	30.0	110.0	110.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0			•	60.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88
Frt	1.00	1.00	1.00	0.850	1.00	0.850
FIt Protected	0.950			0.000	0.950	0.030
Satd. Flow (prot)	1695	1784	1784	1517	1695	2669
Fit Permitted	0.543	1704	1704	1317	0.950	2009
	969	1784	1784	1517	1695	2669
Satd. Flow (perm)	909	1/84	1/04		1095	
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)		00	00	42		806
Link Speed (k/h)		80	80		50	
Link Distance (m)		122.5	76.1		162.5	
Travel Time (s)		5.5	3.4		11.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	159	1100	339	42	48	806
Shared Lane Traffic (%)						
Lane Group Flow (vph)	159	1100	339	42	48	806
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	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	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24	1.50	1.50	1.00	24	1.00
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.1	0.0	0.0	0.1	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel		^ ^	^ ^	^ ^	^ ^	
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		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	NA	Perm	Perm	Perm
Protected Phases	. 01111	2	6	. 51111	. 01111	7 07111
Permitted Phases	2	L	-	6	4	4
Detector Phase	2	2	6	6	4	4
Switch Phase			U	U	7	7
	00.0	20.0	20.0	20.0	10.0	10.0
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	26.6	26.6	43.6	43.6	29.7	29.7
Total Split (s)	80.3	80.3	80.3	80.3	29.7	29.7
Total Split (%)	73.0%	73.0%	73.0%	73.0%	27.0%	27.0%
Maximum Green (s)	73.7	73.7	73.7	73.7	23.0	23.0
Yellow Time (s)	4.6	4.6	4.6	4.6	3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.7	6.7

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max
Walk Time (s)	O Max	O Max	7.0	7.0	7.0	7.0
Flash Dont Walk (s)			30.0	30.0	16.0	16.0
Pedestrian Calls (#/hr)			0	0	0	0.0
Act Effct Green (s)	73.7	73.7	73.7	73.7	23.0	23.0
	0.67	0.67	0.67	0.67	0.21	0.21
Actuated g/C Ratio v/c Ratio	0.07	0.67	0.67	0.07	0.21	0.21
Control Delay	4.1	21.8	7.6	1.5	36.7	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.1	21.8	7.6	1.5	36.7	5.8
LOS	Α	С	Α	Α	D	Α
Approach Delay		19.6	6.9		7.6	
Approach LOS		В	Α		Α	
90th %ile Green (s)	73.7	73.7	73.7	73.7	23.0	23.0
90th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR
70th %ile Green (s)	73.7	73.7	73.7	73.7	23.0	23.0
70th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR
50th %ile Green (s)	73.7	73.7	73.7	73.7	23.0	23.0
50th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR
30th %ile Green (s)	73.7	73.7	73.7	73.7	23.0	23.0
30th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR
10th %ile Green (s)	73.7	73.7	73.7	73.7	23.0	23.0
10th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR
Queue Length 50th (m)	5.5	226.7	37.3	1.2	8.5	0.0
Queue Length 95th (m)	m8.5	#295.7	47.6	m1.9	18.6	16.5
Internal Link Dist (m)		98.5	52.1		138.5	
Turn Bay Length (m)	60.0			30.0	110.0	110.0
Base Capacity (vph)	649	1195	1195	1030	354	1195
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	0.24	0.92	0.28	0.04	0.14	0.67
	0.24	0.32	0.20	0.04	0.14	0.07
Intersection Summary	Other					
	Other					
Cycle Length: 110						
Actuated Cycle Length: 110						
Offset: 0 (0%), Referenced to phase	se 2:EBTL and	d 6:WBT, Sta	art of Green			
Natural Cycle: 90						
Control Type: Actuated-Coordinate	ed					
Maximum v/c Ratio: 0.92						
Intersection Signal Delay: 13.5				Int	ersection Lo	ns B
Intersection Capacity Utilization 80	1 5%				J Level of S	
	J.J /0			IC	J LEVEI OI S	DELVICE D
Analysis Period (min) 15	da		lana.			
# 95th percentile volume exceed		eue may be	longer.			
Queue shown is maximum afte						
m Volume for 95th percentile qu	eue is metered	d by upstrea	ım signal.			

Splits and Phases: 8: Roger Stevens & 416 SB Ramps



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<u>LD1</u>	₹	Y DE		¥.	HUIT
Traffic Volume (vph)	<b>1</b> 262	897	226	<b>1</b> 219	172	77
Future Volume (vph)	262	897	226	219	172	77
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		30.0	85.0	.000	0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			100.0		30.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.958	
Flt Protected			0.950		0.967	
Satd. Flow (prot)	1784	1517	1695	1784	1653	0
Flt Permitted			0.597		0.967	
Satd. Flow (perm)	1784	1517	1065	1784	1653	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		897			19	
Link Speed (k/h)	80			80	50	
Link Distance (m)	73.7			234.6	117.8	
Travel Time (s)	3.3			10.6	8.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	262	897	226	219	172	77
Shared Lane Traffic (%)						
Lane Group Flow (vph)	262	897	226	219	249	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7	· igit	LOIL	3.7	3.7	igiit
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	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	1.00	14	24	1.00	24	14
Number of Detectors	2	1	1	2	1	17
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	
	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Type	CI+EX	UI+EX	UI+EX	UI+EX	UI+⊏X	
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	Cl+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0	_	_	0.0		
Turn Type	NA	Perm	Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases		2	6			
Detector Phase	2	2	6	6	8	
Switch Phase						
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	
Minimum Split (s)	38.6	38.6	26.6	26.6	22.5	
Total Split (s)	77.6	77.6	77.6	77.6	32.4	
Total Split (%)	70.5%	70.5%	70.5%	70.5%	29.5%	
Maximum Green (s)	71.0	71.0	71.0	71.0	25.7	
Yellow Time (s)	4.6	4.6	4.6	4.6	3.3	
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.7	
Lead/Lag						
•						

Lane Group Lead-Lag Optimize? Vehicle Extension (s) Recall Mode Walk Time (s) Flash Dont Walk (s) Pedestrian Calls (#/hr) Act Effct Green (s) Actuated g/C Ratio v/c Ratio Control Delay Queue Delay Total Delay LOS Approach Delay Approach LOS 90th %ile Green (s) 90th %ile Green (s) 70th %ile Green (s)	3.0 C-Max 7.0 25.0 0 71.0 0.65 0.23 5.6 0.0 5.6 A 3.2 A 71.0 Coord	3.0 C-Max 7.0 25.0 0 71.0 0.65 0.69 2.5 0.0 2.5 A	71.0 0.65 0.33 10.4 0.0 10.4	3.0 C-Max 71.0 0.65 0.19 8.4	3.0 Max 25.7 0.23 0.62	NBR	
Lead-Lag Optimize?  Vehicle Extension (s)  Recall Mode  Walk Time (s)  Flash Dont Walk (s)  Pedestrian Calls (#/hr)  Act Effct Green (s)  Actuated g/C Ratio  v/c Ratio  Control Delay  Queue Delay  Total Delay  LOS  Approach Delay  Approach LOS  90th %ile Green (s)  90th %ile Green (s)  70th %ile Green (s)	C-Max 7.0 25.0 0 71.0 0.65 0.23 5.6 0.0 5.6 A 3.2 A 71.0 Coord	3.0 C-Max 7.0 25.0 0 71.0 0.65 0.69 2.5 0.0	3.0 C-Max 71.0 0.65 0.33 10.4 0.0	71.0 0.65 0.19	25.7 0.23		
Vehicle Extension (s) Recall Mode Walk Time (s) Flash Dont Walk (s) Pedestrian Calls (#/hr) Act Effct Green (s) Actuated g/C Ratio v/c Ratio Control Delay Queue Delay Total Delay LOS Approach Delay Approach LOS 90th %ile Green (s) 90th %ile Green (s) 70th %ile Green (s)	C-Max 7.0 25.0 0 71.0 0.65 0.23 5.6 0.0 5.6 A 3.2 A 71.0 Coord	C-Max 7.0 25.0 0 71.0 0.65 0.69 2.5 0.0 2.5	71.0 0.65 0.33 10.4 0.0	71.0 0.65 0.19	25.7 0.23		
Recall Mode Walk Time (s) Flash Dont Walk (s) Pedestrian Calls (#/hr) Act Effct Green (s) Actuated g/C Ratio v/c Ratio Control Delay Queue Delay Total Delay LOS Approach Delay Approach LOS 90th %ile Green (s) 90th %ile Green (s) 70th %ile Green (s)	7.0 25.0 0 71.0 0.65 0.23 5.6 0.0 5.6 A 3.2 A 71.0	7.0 25.0 0 71.0 0.65 0.69 2.5 0.0 2.5	71.0 0.65 0.33 10.4 0.0	71.0 0.65 0.19	25.7 0.23		
Flash Dont Walk (s) Pedestrian Calls (#/hr) Act Effct Green (s) Actuated g/C Ratio v/c Ratio Control Delay Queue Delay Total Delay LOS Approach Delay Approach LOS 90th %ile Green (s) 90th %ile Green (s) 70th %ile Term Code 70th %ile Term Code 50th %ile Green (s)	25.0 0 71.0 0.65 0.23 5.6 0.0 5.6 A 3.2 A 71.0	25.0 0 71.0 0.65 0.69 2.5 0.0 2.5	0.65 0.33 10.4 0.0	0.65 0.19	0.23		
Flash Dont Walk (s) Pedestrian Calls (#/hr) Act Effct Green (s) Actuated g/C Ratio v/c Ratio Control Delay Queue Delay Total Delay LOS Approach Delay Approach LOS 90th %ile Green (s) 90th %ile Green (s) 70th %ile Term Code 70th %ile Term Code 50th %ile Green (s)	0 71.0 0.65 0.23 5.6 0.0 5.6 A 3.2 A 71.0 Coord	0 71.0 0.65 0.69 2.5 0.0 2.5	0.65 0.33 10.4 0.0	0.65 0.19	0.23		
Act Effct Green (s) Actuated g/C Ratio v/c Ratio Control Delay Queue Delay Total Delay LOS Approach Delay Approach LOS 90th %ile Green (s) 90th %ile Green (s) 70th %ile Term Code 70th %ile Term Code 50th %ile Green (s)	71.0 0.65 0.23 5.6 0.0 5.6 A 3.2 A 71.0 Coord	71.0 0.65 0.69 2.5 0.0 2.5	0.65 0.33 10.4 0.0	0.65 0.19	0.23		
Actuated g/C Ratio v/c Ratio Control Delay Queue Delay Total Delay LOS Approach Delay Approach LOS 90th %ile Green (s) 90th %ile Green (s) 70th %ile Term Code 50th %ile Green (s)	0.65 0.23 5.6 0.0 5.6 A 3.2 A 71.0 Coord	0.65 0.69 2.5 0.0 2.5	0.65 0.33 10.4 0.0	0.65 0.19	0.23		
v/c Ratio Control Delay Queue Delay Total Delay LOS Approach Delay Approach LOS 90th %ile Green (s) 90th %ile Term Code 70th %ile Term Code 50th %ile Green (s)	0.23 5.6 0.0 5.6 A 3.2 A 71.0 Coord	0.69 2.5 0.0 2.5	0.33 10.4 0.0	0.19			
v/c Ratio Control Delay Queue Delay Total Delay LOS Approach Delay Approach LOS 90th %ile Green (s) 90th %ile Green (s) 70th %ile Term Code 70th %ile Term Code 50th %ile Green (s)	5.6 0.0 5.6 A 3.2 A 71.0 Coord	2.5 0.0 2.5	10.4 0.0		0.62		
Queue Delay Total Delay LOS Approach Delay Approach LOS 90th %ile Green (s) 90th %ile Term Code 70th %ile Green (s) 70th %ile Term Code 50th %ile Green (s)	0.0 5.6 A 3.2 A 71.0 Coord	2.5 0.0 2.5	0.0				
Total Delay LOS Approach Delay Approach LOS 90th %ile Green (s) 90th %ile Term Code 70th %ile Green (s) 70th %ile Term Code 50th %ile Green (s)	5.6 A 3.2 A 71.0 Coord	2.5			42.6		
Approach Delay Approach LOS 90th %ile Green (s) 90th %ile Term Code 70th %ile Green (s) 70th %ile Term Code 50th %ile Green (s)	A 3.2 A 71.0 Coord		10.4	0.0	0.0		
LOS Approach Delay Approach LOS 90th %ile Green (s) 90th %ile Term Code 70th %ile Green (s) 70th %ile Term Code 50th %ile Green (s)	3.2 A 71.0 Coord			8.4	42.6		
Approach LOS 90th %ile Green (s) 90th %ile Term Code 70th %ile Green (s) 70th %ile Term Code 50th %ile Green (s)	A 71.0 Coord		В	Α	D		
Approach LOS 90th %ile Green (s) 90th %ile Term Code 70th %ile Green (s) 70th %ile Term Code 50th %ile Green (s)	71.0 Coord			9.4	42.6		
90th %ile Green (s) 90th %ile Term Code 70th %ile Green (s) 70th %ile Term Code 50th %ile Green (s)	Coord			Α	D		
90th %ile Term Code 70th %ile Green (s) 70th %ile Term Code 50th %ile Green (s)	Coord	71.0	71.0	71.0	25.7		
70th %ile Green (s) 70th %ile Term Code 50th %ile Green (s)		Coord	Coord	Coord	MaxR		
70th %ile Term Code 50th %ile Green (s)	71.0	71.0	71.0	71.0	25.7		
50th %ile Green (s)	Coord	Coord	Coord	Coord	MaxR		
,	71.0	71.0	71.0	71.0	25.7		
50th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
30th %ile Green (s)	71.0	71.0	71.0	71.0	25.7		
30th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
10th %ile Green (s)	71.0	71.0	71.0	71.0	25.7		
10th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
Queue Length 50th (m)	9.8	0.0	20.0	17.4	44.5		
Queue Length 95th (m)	m15.2	m0.0	33.3	27.4	71.0		
Internal Link Dist (m)	49.7			210.6	93.8		
Turn Bay Length (m)		30.0	85.0				
Base Capacity (vph)	1151	1297	687	1151	400		
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	0.69	0.33	0.19	0.62		
Intersection Summary							
Area Type: Othe	er						
Cycle Length: 110							
Actuated Cycle Length: 110	.CDT 1 (	CAMPTI CO	-4 -t O				
Offset: 4 (4%), Referenced to phase 2:	ERI and 6	o:WB1L, Sta	art of Green				
Natural Cycle: 65							
Control Type: Actuated-Coordinated							
Maximum v/c Ratio: 0.69							
Intersection Signal Delay: 10.0					ersection LOS:		
Intersection Capacity Utilization 86.3%	)			ICI	U Level of Serv	VICE E	
Analysis Period (min) 15 m Volume for 95th percentile queue i	is metered	l by upstrea	m signal.				
Splits and Phases: 10: 416 NB Ram			•				
	.po a rage	0.070113					
)							
4-						• .	
Ø6 (R)						32.4s	

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<u> </u>	LDIN	NDL NS	<u>₩Ы</u>	₩.	NDIX
Traffic Volume (vph)	627	6	<b>9 9</b> 643	<b>T</b> 501	6	630
Future Volume (vph)	627	6	643	501	6	630
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	1000	0.0	125.0	1300	0.0	0.0
Storage Lanes		0.0	2		1	1
Taper Length (m)			100.0		30.0	
Lane Util. Factor	1.00	1.00	0.97	1.00	1.00	0.95
Frt	0.999				0.853	0.850
Flt Protected			0.950		0.999	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Satd. Flow (prot)	1783	0	3288	1784	1520	1441
Flt Permitted			0.950		0.999	
Satd. Flow (perm)	1783	0	3288	1784	1520	1441
Right Turn on Red	1,00	Yes				Yes
Satd. Flow (RTOR)	1	. 30			315	315
Link Speed (k/h)	80			80	48	3.0
Link Distance (m)	191.8			211.8	133.2	
Travel Time (s)	8.6			9.5	10.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	627	6	643	501	6	630
Shared Lane Traffic (%)	UZI	- 0	UTU	J01	U	50%
Lane Group Flow (vph)	633	0	643	501	321	315
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4	Rigiil	Leit	7.4	3.7	Rigiil
	0.0			0.0	0.0	
Link Offset(m)	1.6			1.6	1.6	
Crosswalk Width(m)	1.0			1.0	1.0	
Two way Left Turn Lane	1.00	4.00	4.00	4.00	4.00	4.00
Headway Factor	1.06	1.06 14	1.06 24	1.06	1.06	1.06
Turning Speed (k/h)		14		^	24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	CI+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
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		Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases						8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0		5.0	20.0	10.0	10.0
Minimum Split (s)	26.1		14.5	26.1	29.0	29.0
Total Split (s)	50.0		31.0	81.0	29.0	29.0
Total Split (%)	45.5%		28.2%	73.6%	26.4%	26.4%
Maximum Green (s)	43.9		26.0	74.9	23.0	23.0
Yellow Time (s)	4.6		3.0	4.6	3.3	3.3
All-Red Time (s)	1.5		2.0	1.5	2.7	2.7
	0.0		0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.0					
Lost Time Adjust (s)	6.1		5.0	61	60	6.0
Lost Time Adjust (s) Total Lost Time (s) Lead/Lag	6.1 Lag		5.0 Lead	6.1	6.0	6.0

	-	<b>,</b>		•	4	~	
ane Group	EBT	EBR V	VBL	WBT	NBL	NBR	
ead-Lag Optimize?							
ehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	
lecall Mode	C-Max	N	lone	C-Max	None	None	
Valk Time (s)	7.0	.,	10110	7.0	7.0	7.0	
lash Dont Walk (s)	11.0			11.0	16.0	16.0	
redestrian Calls (#/hr)	0			0	0	0	
act Effct Green (s)	54.5		26.3	85.8	12.1	12.1	
ctuated g/C Ratio	0.50		0.24	0.78	0.11	0.11	
/c Ratio	0.72		0.82	0.36	0.72	0.72	
Control Delay	29.2		47.9	3.7	15.1	14.8	
Queue Delay	0.0		0.0	0.0	0.0	0.0	
otal Delay	29.2		47.9	3.7	15.1	14.8	
OS S	C C		T7.3	Α	В	В	
approach Delay	29.2			28.6	14.9	U	
pproach LOS	29.2 C			20.0 C	14.9 B		
Oth %ile Green (s)	43.9		30.2	79.1	18.8	18.8	
Oth %ile Term Code	Coord		Max	Coord	Gap	Gap	
Oth %ile Green (s)	52.1		29.0	86.1	11.8	11.8	
Oth %ile Term Code	Coord		Gap	Coord	Gap	Gap	
50th %ile Green (s)	56.1		26.8	87.9	10.0	10.0	
60th %ile Term Code	Coord		Gap	Coord	Min	Min	
30th %ile Green (s)	58.5		24.4	87.9	10.0	10.0	
60th %ile Term Code	Coord		Gap	Coord	Min	Min	
0th %ile Green (s)	62.0		20.9	87.9	10.0	10.0	
Oth %ile Term Code	Coord		Gap	Coord	Min	Min	
Queue Length 50th (m)	99.1		69.2	19.9	1.2	0.0	
Queue Length 95th (m)	#191.6		77.1	33.6	26.4	26.2	
nternal Link Dist (m)	167.8		11.1	187.8	109.2	20.2	
urn Bay Length (m)	107.0	1:	25.0	107.0	100.2		
Base Capacity (vph)	884		825	1391	566	550	
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	0.72	(	0.78	0.36	0.57	0.57	
itersection Summary							
rea Type:	Other						
Cycle Length: 110							
actuated Cycle Length: 110	bass O.EDT and C	MDT OLDER					
Offset: 0 (0%), Referenced to p	nase 2:EBT and 6	WB1, Start of G	reen				
Natural Cycle: 90	actod						
Control Type: Actuated-Coordin	lateu						
Maximum v/c Ratio: 0.82				11	orogotion I C	)C+ C	
ntersection Signal Delay: 25.1 ntersection Capacity Utilization	82 0%				ersection LO J Level of S		
nalysis Period (min) 15	02.370			ICI	Level OI S	CI VICE E	
95th percentile volume exce	ande canacity aug	ue may be long	Δr				
Queue shown is maximum a		ao may be luligi	<b>Ο</b> Ι.				
Splits and Phases: 16: East E	Employee Access	& Roger Steven	ıs				
<b>√</b> Ø1		→Ø2 (R) 50 s					
4		00 S					4
Ø6 (R)		I					<b>1</b> ₹ Ø8

	<b>→</b>	`	•	<b>—</b>	•	<b>/</b>
Mayamant	EDT	TDD.	WDI	WDT	NDI	NDD
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<b>1</b> 332	-	7	<b>^</b>	W	-
Traffic Volume (veh/h)		5	5	198	5	5
Future Volume (Veh/h)	332	5	5	198	5	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	332	5	5	198	5	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				351		
pX, platoon unblocked				501		
vC, conflicting volume			337		542	334
vC1, stage 1 conf vol			551		J42	JJ-1
vC2, stage 2 conf vol						
vCu, unblocked vol			337		542	334
tC, single (s)			5.1		7.4	7.2
tC, 2 stage (s)			J. I		1.4	1.2
			3.1		4.4	4.2
tF (s)					4.4	
p0 queue free %			99		99	99
cM capacity (veh/h)			830		365	530
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	337	5	198	10		
Volume Left	0	5	0	5		
Volume Right	5	0	0	5		
cSH	1700	830	1700	432		
Volume to Capacity	0.20	0.01	0.12	0.02		
Queue Length 95th (m)	0.0	0.1	0.0	0.5		
Control Delay (s)	0.0	9.4	0.0	13.5		
Lane LOS		Α		В		
Approach Delay (s)	0.0	0.2		13.5		
Approach LOS				В		
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			28.8%	ICI	J Level of S	envice
			15	100	7 FEAGI OI 9	OI VIOC
Analysis Period (min)			15			

		_		+	*	<i>&gt;</i>
	-	*	♥		7	- 7
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1.			4	W	
Traffic Volume (veh/h)	<b>1</b> 261	1	5	182	4	26
Future Volume (Veh/h)	261	1	5	182	4	26
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	261	1	5	182	4	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			262		454	262
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			262		454	262
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					•••	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	97
cM capacity (veh/h)			1302		562	777
	ED.	WD 4				
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	262	187	30			
Volume Left	0	5	4			
Volume Right	1	0	26			
cSH	1700	1302	739			
Volume to Capacity	0.15	0.00	0.04			
Queue Length 95th (m)	0.0	0.1	1.0			
Control Delay (s)	0.0	0.2	10.1			
Lane LOS		Α	В			
Approach Delay (s)	0.0	0.2	10.1			
Approach LOS			В			
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			24.6%	ICI	J Level of S	ervice
Analysis Period (min)			15			
randijolo i onod (min)			10			

AWITCH										(		
	۶	<b>→</b>	•	•	<b>←</b>	•	•	<b>†</b>	/	<b>\</b>	ļ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		43-			₽.			43-			43-	
Traffic Volume (veh/h)	11	282	5	4	176	15	8	4	23	12	3	2
Future Volume (Veh/h)	11	282	5	4	176	15	8	4	23	12	3	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	11	282	5	4	176	15	8	4	23	12	3	2
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	191			287			502	506	284	523	500	184
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	191			287			502	506	284	523	500	184
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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 %	99			100			98	99	97	97	99	100
cM capacity (veh/h)	1383			1275			473	464	754	444	467	859
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	298	195	35	17								
Volume Left	11	4	8	12								
Volume Right	5	15	23	2								
cSH	1383	1275	625	475								
Volume to Capacity	0.01	0.00	0.06	0.04								
Queue Length 95th (m)	0.2	0.1	1.4	0.8								
Control Delay (s)	0.4	0.2	11.1	12.9								
Lane LOS	A	A	В	В								
Approach Delay (s)	0.4	0.2	11.1	12.9								
Approach LOS	0.4	0.2	В	В								
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			31.9%	IC	U Level of Ser	rvice			Α			
Analysis Period (min)			15									

	<b>→</b>	•	•	•	•	~
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1	LDIX	7	<u>₩</u>	**	NDIX
Traffic Volume (veh/h)	323	13	317	190	13	310
Future Volume (Veh/h)	323	13	317	190	13	310
Sign Control	Free		• • • • • • • • • • • • • • • • • • • •	Free	Stop	0.0
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	323	13	317	190	13	310
Pedestrians	020		017	100		010
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)	140116			INOIIC		
Upstream signal (m)				192		
pX, platoon unblocked				132		
vC, conflicting volume			336		1154	330
vC1, stage 1 conf vol			330		1134	330
vC2, stage 2 conf vol						
vCu, unblocked vol			336		1154	330
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)			7.1		0.4	0.2
tF (s)			2.2		3.5	3.3
p0 queue free %			74		92	5.5 56
cM capacity (veh/h)			1223		162	712
civi capacity (veri/ii)			1223		102	112
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	336	317	190	323		
Volume Left	0	317	0	13		
Volume Right	13	0	0	310		
cSH	1700	1223	1700	626		
Volume to Capacity	0.20	0.26	0.11	0.52		
Queue Length 95th (m)	0.0	7.9	0.0	22.5		
Control Delay (s)	0.0	9.0	0.0	16.7		
Lane LOS		Α		С		
Approach Delay (s)	0.0	5.6		16.7		
Approach LOS				С		
Intersection Summary						
Average Delay			7.1			
Intersection Capacity Utilization			68.3%	ICI	J Level of S	ervice
Analysis Period (min)			15			
rinaryolo i onou (mm)			10			

	•	<b>→</b>	<b>←</b>	•	<b>\</b>	4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	LDL K	<u>LBI</u>	VVD1	₩DK	SDL K	77
Traffic Volume (vph)	159	1100	<b>T</b> 339	42	<b>4</b> 8	806
Future Volume (vph)	159	1100	339	42	48	806
deal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	60.0	. 300	. 300	30.0	110.0	110.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0				60.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1695	1784	1784	1517	1695	2669
Flt Permitted	0.544				0.950	
Satd. Flow (perm)	971	1784	1784	1517	1695	2669
Right Turn on Red	0.1.			Yes	. 550	Yes
Satd. Flow (RTOR)				42		806
Link Speed (k/h)		80	80	-12	50	500
Link Distance (m)		122.5	76.1		162.5	
Travel Time (s)		5.5	3.4		102.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1.00	1100	339	42	48	806
Shared Lane Traffic (%)	109	1100	333	42	40	000
	150	1100	339	42	48	806
Lane Group Flow (vph) Enter Blocked Intersection	159 No	1100 No	339 No	42 No	48 No	806 No
Lane Alignment	Left	Left	Left 3.7	Right	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	4.00	4.00	4.00	4.00	4.00	4.00
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+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
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		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	NA	Perm	Perm	Perm
Protected Phases		2	6			
Permitted Phases	2			6	4	4
Detector Phase	2	2	6	6	4	4
Switch Phase	_	_				
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	26.6	26.6	43.6	43.6	29.7	29.7
Total Split (s)	90.0	90.0	90.0	90.0	30.0	30.0
Total Split (%)	75.0%	75.0%	75.0%	75.0%	25.0%	25.0%
Maximum Green (s)	83.4	83.4	83.4	83.4	23.0 %	23.3
Yellow Time (s)	4.6	4.6	4.6	4.6	3.3	3.3
LEBOW THRE IST	2.0	2.0	2.0	2.0	3.4	3.3
		2.0	2.0	2.0		
All-Red Time (s)			0.0	0.0	0.0	0.0
All-Red Time (s) Lost Time Adjust (s) Total Lost Time (s)	0.0 6.6	0.0 6.6	0.0 6.6	0.0 6.6	0.0 6.7	0.0 6.7

	•	<b>→</b>	<b>←</b>	4	<b>/</b>	4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead-Lag Optimize?	LUL	LUI	1101	WOIL	ODL	ODIX
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max
Walk Time (s)	O-IVIAX	O-IVIUX	7.0	7.0	7.0	7.0
Flash Dont Walk (s)			30.0	30.0	16.0	16.0
Pedestrian Calls (#/hr)			0	0	0.0	0.0
Act Effct Green (s)	83.4	83.4	83.4	83.4	23.3	23.3
Actuated g/C Ratio	0.70	0.70	0.70	0.70	0.19	0.19
v/c Ratio	0.70	0.70	0.70	0.70	0.19	0.19
Control Delay	3.9	17.8	4.9	0.04	41.6	6.3
	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay						
Total Delay	3.9	17.8	4.9	0.3	41.6	6.3
LOS	Α	B	A	Α	D	Α
Approach Delay		16.0	4.4		8.3	
Approach LOS		В	A		A	
90th %ile Green (s)	83.4	83.4	83.4	83.4	23.3	23.3
90th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR
70th %ile Green (s)	83.4	83.4	83.4	83.4	23.3	23.3
70th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR
50th %ile Green (s)	83.4	83.4	83.4	83.4	23.3	23.3
50th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR
30th %ile Green (s)	83.4	83.4	83.4	83.4	23.3	23.3
30th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR
10th %ile Green (s)	83.4	83.4	83.4	83.4	23.3	23.3
10th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR
Queue Length 50th (m)	5.6	227.3	13.9	0.0	9.5	0.0
Queue Length 95th (m)	m9.5	#68.2	21.0	m0.3	20.1	17.3
Internal Link Dist (m)	1113.3	98.5	52.1	1110.0	138.5	17.0
Turn Bay Length (m)	60.0	30.3	JZ. I	30.0	110.0	110.0
	674	1000	1239	1067	329	110.0
Base Capacity (vph)		1239				
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	0.24	0.89	0.27	0.04	0.15	0.69
Intersection Summary						
Area Type:	Other					
Cycle Length: 120						
Actuated Cycle Length: 120						
Offset: 102 (85%), Referenced t	to phase 2:EBTL	and 6:WBT	, Start of Gi	reen		
Natural Cycle: 90	•		,			
Control Type: Actuated-Coordin	nated					
Maximum v/c Ratio: 0.89						
Intersection Signal Delay: 11.6				Int	ersection L	∩S- B
Intersection Capacity Utilization	80.5%				U Level of S	
	1 00.5 /0			10	O LEVEI OI C	DELVICE D
Analysis Period (min) 15			lana.			
# 95th percentile volume exce		eue may be	longer.			
Queue shown is maximum a						
m Volume for 95th percentile	queue is metered	by upstrea	m signal.			
Calite and Dhases: 8: Deger 9	Stavans & 416 SE	Dames				
Splits and Phases: 8: Roger S	Stevens & 416 SE	Ramps				
# ·						

	<b>→</b>	•	•	•	•	~
Lane Group	EBT	EDD	\\/DI	\\/DT	NDI	NBR
Lane Group		EBR	WBL	WBT	NBL	INBK
Lane Configurations Traffic Volume (vph)	<b>↑</b> 262	<b>₹</b> 897	<b>ኝ</b> 226	<b>↑</b> 219	172	77
Future Volume (vph)	262	897 897	226	219	172	77
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	1000	30.0	85.0	1000	0.0	0.0
Storage Lanes		30.0	1		1	0.0
Taper Length (m)		1	100.0		30.0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.850	1.00	1.00	0.958	1.00
Flt Protected		0.000	0.950		0.967	
Satd. Flow (prot)	1784	1517	1695	1784	1653	0
Flt Permitted	1104	1017	0.594	1704	0.967	U U
Satd. Flow (perm)	1784	1517	1060	1784	1653	0
Right Turn on Red	1104	Yes	1000	1704	1000	Yes
Satd. Flow (RTOR)		897			18	1 63
Link Speed (k/h)	80	001		80	50	
Link Opeed (k/ll) Link Distance (m)	73.7			234.6	117.8	
Travel Time (s)	3.3			10.6	8.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
	262	897		219	1.00	77
Adj. Flow (vph)	202	097	226	219	172	- 11
Shared Lane Traffic (%)	200	007	200	240	240	0
Lane Group Flow (vph)	262 No.	897 No.	226	219 No.	249	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	4.00	4.00	4.00	4.00	4.00	4.00
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2	1	1	2	1	
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	
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	Ų. <b>L</b> ∧			JX		
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Prot	
Protected Phases	2	1 01111	1 01111	6	8	
Permitted Phases		2	6	U	U	
Detector Phase	2	2	6	6	8	
Switch Phase		L	U	U	U	
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	
Minimum Split (s)	38.6	38.6	26.6	26.6	22.5	
					35.0	
Total Split (s)	85.0	85.0	85.0	85.0		
Total Split (%)	70.8%	70.8%	70.8%	70.8%	29.2%	
Maximum Green (s)	78.4	78.4	78.4	78.4	28.3	
Yellow Time (s)	4.6	4.6	4.6	4.6	3.3	
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.7	
_ead/Lag						

	-	•	•	←	4	<b>/</b>	
ane Group	EBT	EBR	WBL	WBT	NBL	NBR	
ead-Lag Optimize?							
ehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max		
Valk Time (s)	7.0	7.0	O Max	O Max	Max		
lash Dont Walk (s)	25.0	25.0					
edestrian Calls (#/hr)	0	0					
ct Effct Green (s)	78.4	78.4	78.4	78.4	28.3		
ctuated g/C Ratio	0.65	0.65	0.65	0.65	0.24		
ctatio g/o rtatio	0.22	0.69	0.33	0.19	0.62		
ontrol Delay	2.8	1.7	10.7	8.7	45.6		
ueue Delay	0.0	0.0	0.0	0.0	0.0		
otal Delay	2.8	1.7	10.7	8.7	45.6		
OS	2.0 A	Α	В	Α	43.0 D		
pproach Delay	1.9	А	D	9.7	45.6		
pproach LOS	1.9 A			9.7 A	43.0 D		
Oth %ile Green (s)	78.4	78.4	78.4	78.4	28.3		
Oth %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
Oth %ile Green (s)	78.4	78.4	78.4	78.4	28.3		
Oth %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
Oth %ile Green (s)	78.4	78.4	78.4	78.4	28.3		
Oth %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
Oth %ile Green (s)	78.4	78.4	78.4	78.4	28.3		
Oth %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
Oth %ile Green (s)	78.4	78.4	78.4	78.4	28.3		
Oth %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
Queue Length 50th (m)	4.2	0.0	21.6	18.8	48.9		
ueue Length 95th (m)	m7.3	m0.0	35.2	29.0	76.5		
iternal Link Dist (m)	49.7	1110.0	33.2	210.6	93.8		
urn Bay Length (m)	43.1	30.0	85.0	210.0	33.0		
ase Capacity (vph)	1165	1302	692	1165	403		
tarvation Cap Reductn	0	0	092	0	0		
	0	0	0	0	0		
pillback Cap Reductn storage Cap Reductn	0	0	0	0	0		
educed v/c Ratio	0.22	0.69	0.33	0.19	0.62		
	0.22	0.09	0.33	0.19	0.02		
tersection Summary							
rea Type:	Other						
ycle Length: 120							
ctuated Cycle Length: 120							
ffset: 118 (98%), Referenced to	phase 2:EBT a	and 6:WBTL	, Start of Gr	een			
atural Cycle: 65							
ontrol Type: Actuated-Coordina	ited						
laximum v/c Ratio: 0.69							
ntersection Signal Delay: 9.7					ersection LOS:		
tersection Capacity Utilization 8	36.3%			ICI	U Level of Serv	rice E	
nalysis Period (min) 15							
Volume for 95th percentile q	ueue is metered	by upstrea	m signal.				
plits and Phases: 10: 416 NE	Ramps & Roge	er Stevens					
▼ Ø2 (R)							
35 s							
▼ø6 (R)							<b>↑</b> Ø8
₩ ₩0 (K)							1 20

	-	•	•	←	4	~
Lane Group	EBT	EDD	\//DI	\//DT	NDI	NDD
Lane Group		EBR	WBL	WBT	NBL	NBR
Lane Configurations Traffic Volume (vph)	<b>1</b> 627	e	643	<b>↑</b> 501	<b>**</b> 6	630
Future Volume (vph)	627 627	6 6	643	501 501	6	630 630
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	1000	0.0	125.0	1000	0.0	0.0
Storage Lanes		0.0	125.0		1	1
Taper Length (m)		0	100.0		30.0	
Lane Util. Factor	1.00	1.00	0.97	1.00	1.00	0.95
Frt	0.999	1.00	0.01	1.00	0.853	0.850
Flt Protected	0.333		0.950		0.999	0.000
Satd. Flow (prot)	1783	0	3288	1784	1520	1441
Flt Permitted	1700	U	0.950	1704	0.999	ודדו
Satd. Flow (perm)	1783	0	3288	1784	1520	1441
Right Turn on Red	1100	Yes	3200	.70-	1020	Yes
Satd. Flow (RTOR)	1	100			315	315
Link Speed (k/h)	80			80	48	010
Link Distance (m)	191.8			211.8	133.2	
Travel Time (s)	8.6			9.5	10.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	627	1.00	643	501	1.00	630
	021	0	043	501	0	50%
Shared Lane Traffic (%)	622	0	643	E01	204	315
Lane Group Flow (vph) Enter Blocked Intersection	633			501	321 No	
	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4			7.4	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	4.00	4.00	4.00	4.00	4.00	4.00
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24	,	24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	CI+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
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		Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases				-	-	8
Detector Phase	2		1	6	8	8
Switch Phase	_					
Minimum Initial (s)	20.0		5.0	20.0	10.0	10.0
Minimum Split (s)	26.1		14.5	26.1	29.0	29.0
Total Split (s)	58.0		33.0	91.0	29.0	29.0
Total Split (%)	48.3%		27.5%	75.8%	24.2%	24.2%
Maximum Green (s)	51.9		28.0	84.9	23.0	23.0
Yellow Time (s)	4.6		3.0	4.6	3.3	3.3
All-Red Time (s)	1.5		2.0	1.5	3.3 2.7	2.7
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
	6.1		5.0	6.1	6.0	6.0
Total Lost Time (a)			20	n I	D U	n u
Total Lost Time (s) Lead/Lag	Lag		Lead	<b>U.</b> .	0.0	0.0

	-	•	•	•	•		
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	
Recall Mode	C-Max		None	C-Max	None	None	
Walk Time (s)	7.0			7.0	7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	16.0	16.0	
Pedestrian Calls (#/hr)	0			0	0	0	
Act Effct Green (s)	62.5		28.1	95.6	12.3	12.3	
Actuated g/C Ratio	0.52		0.23	0.80	0.10	0.10	
v/c Ratio	0.68		0.84	0.35	0.73	0.73	
Control Delay	27.7		52.4	3.6	16.3	16.0	
Queue Delay	0.0		0.0	0.0	0.2	0.2	
Total Delay	27.7		52.4	3.6	16.5	16.2	
LOS	С		D	Α	В	В	
Approach Delay	27.7			31.0	16.3		
Approach LOS	С			С	В		
90th %ile Green (s)	51.9		31.6	88.5	19.4	19.4	
90th %ile Term Code	Coord		Max	Coord	Gap	Gap	
70th %ile Green (s)	59.6		31.2	95.8	12.1	12.1	
70th %ile Term Code	Coord		Gap	Coord	Gap	Gap	
50th %ile Green (s)	64.1		28.8	97.9	10.0	10.0	
50th %ile Term Code	Coord		Gap	Coord	Min	Min	
30th %ile Green (s)	66.6		26.3	97.9	10.0	10.0	
30th %ile Term Code	Coord		Gap	Coord	Min	Min	
10th %ile Green (s)	70.3		22.6	97.9	10.0	10.0	
10th %ile Term Code	Coord		Gap	Coord	Min	Min	
Queue Length 50th (m)	103.3		76.5	19.9	1.3	0.0	
Queue Length 95th (m)	#180.3		82.5	36.7	27.7	27.8	
Internal Link Dist (m)	167.8			187.8	109.2		
Turn Bay Length (m)			125.0				
Base Capacity (vph)	929		808	1421	545	530	
Starvation Cap Reductn	0		0	0	0	0	
Spillback Cap Reductn	0		0	0	19	18	
Storage Cap Reductn	0		0	0	0	0	
Reduced v/c Ratio	0.68		0.80	0.35	0.61	0.62	
Intersection Summary	0.11						
Area Type:	Other						
Cycle Length: 120							
Actuated Cycle Length: 120	( l 0 EDT	LOWDT O	- 1 - 1 0				
Offset: 104 (87%), Referenced to	to phase 2:EBT ar	na 6:WB1, St	art of Gre	en			
Natural Cycle: 90	ata d						
Control Type: Actuated-Coordin	iated						
Maximum v/c Ratio: 0.84						NO. O	
Intersection Signal Delay: 26.3	00.00/				ersection LC		
Intersection Capacity Utilization	82.9%			ICI	J Level of S	ervice E	
Analysis Period (min) 15							
# 95th percentile volume exce		ue may be lo	nger.				
Queue shown is maximum a	itter two cycles.						
Splits and Phases: 16: East E	Employee Access	& Roger Stev	vens				
1-	<u> </u>						
<b>√</b> Ø1		Ø2 (R	)				
33 s	5	8 s					
←							
Ø6 (R)							

	•	<b>→</b>	+	•	1	1
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	EDL K	<u> </u>	<u>₩</u>	VVDR.	SDL	3BR
Traffic Volume (vph)	178	<b>1</b> 044	<b>7</b> 399	97	<b>2</b> 67	867
Future Volume (vph)	178	1044	399	97	267	867
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	60.0	1000	1000	30.0	110.0	110.0
Storage Lanes	1			1	1	110.0
Taper Length (m)	100.0			-	60.0	-
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88
Frt	1.00	1.00	1.00	0.850	1.00	0.850
Flt Protected	0.950			0.000	0.950	0.000
Satd. Flow (prot)	1695	1784	1784	1517	1695	2669
Flt Permitted	0.500	1704	1704	1017	0.950	2003
Satd. Flow (perm)	892	1784	1784	1517	1695	2669
Right Turn on Red	092	1704	1704	Yes	1030	Yes
Satd. Flow (RTOR)				yes 97		867
		80	80	91	50	007
Link Speed (k/h)			76.1			
Link Distance (m)		122.5			162.5	
Travel Time (s)	4.00	5.5	3.4	4.00	11.7	4.00
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	178	1044	399	97	267	867
Shared Lane Traffic (%)		42				
Lane Group Flow (vph)	178	1044	399	97	267	867
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	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	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	Cl+Ex	CI+Ex	CI+Ex	Cl+Ex
Detector 1 Channel				<u>-</u>		
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	0.0	28.7	28.7	0.0	0.0	0.0
D ( ( 0 0) ( )		4.0	4.0			
Detector 2 Size(m) Detector 2 Type		1.8 Cl+Ex	1.8 CI+Ex			
Detector 2 Type  Detector 2 Channel		CITEX	CITLX			
		0.0	0.0			
Detector 2 Extend (s)	D			D	D	D
Turn Type	Perm	NA	NA	Perm	Perm	Perm
Protected Phases		2	6	_	,	
Permitted Phases	2	^	^	6	4	4
Detector Phase	2	2	6	6	4	4
Switch Phase	•••				4	
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	26.6	26.6	43.6	43.6	29.7	29.7
Total Split (s)	80.0	80.0	80.0	80.0	30.0	30.0
Total Split (%)	72.7%	72.7%	72.7%	72.7%	27.3%	27.3%
Maximum Green (s)	73.4	73.4	73.4	73.4	23.3	23.3
Yellow Time (s)	4.6	4.6	4.6	4.6	3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.7	6.7
Lead/Lag						
oud/Lag						

	•	<b>→</b>	<b>←</b>	•	<b>\</b>	4	
ane Group	EBL	EBT	WBT	WBR	SBL	SBR	
ead-Lag Optimize?							
/ehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	
Valk Time (s)	o max	o max	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)			30.0	30.0	16.0	16.0	
Pedestrian Calls (#/hr)			0	0	0	0	
Act Effct Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.21	0.21	
/c Ratio	0.30	0.88	0.34	0.09	0.74	0.69	
Control Delay	6.5	16.5	5.9	0.3	54.5	5.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	6.5	16.5	5.9	0.3	54.5	5.9	
.OS	A	В	A	A	D	A	
Approach Delay		15.0	4.8	,,	17.3	**	
Approach LOS		В	Α.		В		
Oth %ile Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
90th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	
70th %ile Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
70th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	
50th %ile Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
50th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	
30th %ile Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
30th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	
0th %ile Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
0th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	
Queue Length 50th (m)	7.2	54.9	17.2	0.1	54.0	0.0	
Queue Length 95th (m)	19.1	#109.8	24.2	1.0	#89.3	16.8	
nternal Link Dist (m)	10.1	98.5	52.1	1.0	138.5	10.0	
Furn Bay Length (m)	60.0	00.0	02.1	30.0	110.0	110.0	
Base Capacity (vph)	595	1190	1190	1044	359	1248	
Starvation Cap Reductn	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	Ö	0	0	0	0	0	
Reduced v/c Ratio	0.30	0.88	0.34	0.09	0.74	0.69	
ntersection Summary					• • • •		
rea Type:	Other						
Cycle Length: 110							
Actuated Cycle Length: 110	hara O EDTI	and CAMPT	O1 = 11 = 1 O				
Offset: 96 (87%), Referenced to p	onase z:EBTL a	and 6:WB1,	Start of Gre	en			
Natural Cycle: 90	tod						
Control Type: Actuated-Coordinat Maximum v/c Ratio: 0.88	led						
				1-4	oro o office 1.4	10. D	
ntersection Signal Delay: 14.2 ntersection Capacity Utilization 8	1 70/				ersection LO		
	4.170			IC	U Level of S	ELVICE E	
nalysis Period (min) 15	do conceitu	ouo may be	longer				
95th percentile volume exceed Queue shown is maximum after		eue may be	ionger.				
Splits and Phases: 8: Roger St	evens & 416 S	R Ramns					
pino ana i nasos. O. Nogel St	01010 0 710 0	- Namps					.h
- <b>4</b> ø2 (R)							Ø4
22 (N)							30 s
							NU S
50 S							50 3

	-	•	•	←	•	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<u></u>	LDK	YVDL	<u>₩Ы</u>	NDL W	NUIN
Traffic Volume (vph)	<b>4</b> 58	861	86	338	168	47
Future Volume (vph)	458	861	86	338	168	47
deal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		30.0	85.0		0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			100.0		30.0	-
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.970	
Flt Protected			0.950		0.962	
Satd. Flow (prot)	1784	1517	1695	1784	1665	0
Flt Permitted			0.453		0.962	
Satd. Flow (perm)	1784	1517	808	1784	1665	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		861			12	
Link Speed (k/h)	80			80	50	
Link Distance (m)	73.7			234.6	117.8	
Travel Time (s)	3.3			10.6	8.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	458	861	86	338	168	47
Shared Lane Traffic (%)	400	001	00	000	100	71
Lane Group Flow (vph)	458	861	86	338	215	0
Enter Blocked Intersection	456 No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7	Rigili	Leit	3.7	Leπ 3.7	Rigiil
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	
	1.06	1.06	1.06	1.06	1.06	1.06
Headway Factor	1.06	1.06	1.06	1.06		
Turning Speed (k/h)	^			^	24	14
Number of Detectors	2 Th	1	1	2	1	
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	
Detector 1 Type	CI+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	
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	Perm	Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases		2	6			
Detector Phase	2	2	6	6	8	
Switch Phase			-	•		
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	
Minimum Split (s)	38.6	38.6	26.6	26.6	22.5	
Total Split (s)	78.0	78.0	78.0	78.0	32.0	
Total Split (%)	70.9%	70.9%	70.9%	70.9%	29.1%	
Maximum Green (s)	71.4	71.4	71.4	71.4	25.3	
Yellow Time (s)	4.6	4.6	4.6	4.6	3.3	
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
	6.6	6.6			6.7	
Total Lost Time (s)	0.0	0.0	6.6	6.6	0.7	
Lead/Lag						

Lane Group Lead-Lag Optimize? Vehicle Extension (s) Recall Mode Walk Time (s)	3.0 C-Max	EBR	WBL	WBT				
Lead-Lag Optimize? /ehicle Extension (s) Recall Mode	3.0 C-Max			VVDI	NBL	NBR		
ehicle Extension (s) lecall Mode	C-Max							
ecall Mode	C-Max	3.0	3.0	3.0	3.0			
		C-Max	C-Max	C-Max	Max			
	7.0	7.0	O Max	O Max	Max			
Flash Dont Walk (s)	25.0	25.0						
edestrian Calls (#/hr)	0	0						
ct Effct Green (s)	71.4	71.4	71.4	71.4	25.3			
actuated g/C Ratio	0.65	0.65	0.65	0.65	0.23			
/c Ratio	0.40	0.67	0.16	0.29	0.55			
Control Delay	6.5	1.9	8.5	9.2	41.3			
Queue Delay	0.0	0.0	0.0	0.0	0.0			
otal Delay	6.5	1.9	8.5	9.2	41.3			
OS S	0.5 A	Α.	Α	Α.Δ	D D			
pproach Delay	3.5	Λ	Λ	9.0	41.3			
pproach LOS	3.5 A			9.0 A	41.3 D			
10th %ile Green (s)	71.4	71.4	71.4	71.4	25.3			
10th %ile Green (s)		Coord	Coord	Coord	Zo.3 MaxR			
	Coord 71.4	71.4	71.4	71.4	25.3			
Oth %ile Green (s)								
Oth %ile Term Code Oth %ile Green (s)	Coord 71.4	Coord 71.4	Coord 71.4	Coord 71.4	MaxR 25.3			
(-)								
Oth %ile Term Code	Coord	Coord	Coord	Coord	MaxR			
Oth %ile Green (s)	71.4	71.4	71.4	71.4	25.3			
Oth %ile Term Code	Coord	Coord	Coord	Coord	MaxR			
Oth %ile Green (s)	71.4	71.4	71.4	71.4	25.3			
Oth %ile Term Code	Coord	Coord	Coord	Coord	MaxR			
Queue Length 50th (m)	23.9	6.6	6.6	28.7	38.6			
Queue Length 95th (m)	m31.4	m3.7	13.3	42.7	62.7			
nternal Link Dist (m)	49.7	00.0	05.0	210.6	93.8			
furn Bay Length (m)		30.0	85.0	44.55	200			
Base Capacity (vph)	1157	1286	524	1157	392			
Starvation Cap Reductn	0	0	0	0	0			
Spillback Cap Reductn	0	0	0	0	0			
Storage Cap Reductn	0	0	0	0	0			
leduced v/c Ratio	0.40	0.67	0.16	0.29	0.55			
tersection Summary								
rea Type:	Other							
Cycle Length: 110								
ctuated Cycle Length: 110								
Offset: 2 (2%), Referenced to pha	ase 2:EBT and 6	6:WBTL, Sta	art of Green					
latural Cycle: 65								
Control Type: Actuated-Coordina	ted							
Maximum v/c Ratio: 0.67								
ntersection Signal Delay: 8.8					ersection LOS:			
ntersection Capacity Utilization 8	33.9%			IC	U Level of Servi	ce E		
nalysis Period (min) 15								
Volume for 95th percentile qu	ueue is metered	l by upstrea	m signal.					
plits and Phases: 10: 416 NB	Ramps & Roge	er Stevens						
	,							
78 s								
75 (D)							<b>→</b> @0	
♥ Ø6 (R)							√ Ø8	

	<b>→</b>	•	•	<b>←</b>	4	<i>&gt;</i>
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<u> </u>	LDIT	777		W.	₩ NOK
Traffic Volume (vph)	558	5	630	<b>6</b> 34	7	663
Future Volume (vph)	558	5	630	634	7	663
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	125.0		0.0	0.0
Storage Lanes		0	2		1	1
Taper Length (m)			100.0		30.0	
Lane Util. Factor	1.00	1.00	0.97	1.00	1.00	0.95
Frt	0.999				0.853	0.850
Flt Protected			0.950		0.999	
Satd. Flow (prot)	1783	0	3288	1784	1520	1441
Flt Permitted			0.950		0.999	
Satd. Flow (perm)	1783	0	3288	1784	1520	1441
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					332	331
Link Speed (k/h)	80			80	48	
Link Distance (m)	191.8			211.8	133.2	
Travel Time (s)	8.6			9.5	10.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	558	5	630	634	7	663
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	563	0	630	634	339	331
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4			7.4	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	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	CI+Ex		CI+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	3.0	3.0
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel	OITEX			JI. LA		
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	i Giiii
Permitted Phases	L				0	8
Detector Phase	2		1	6	8	8
Switch Phase	L			0	U	U
Minimum Initial (s)	20.0		5.0	20.0	10.0	10.0
Minimum Split (s)	26.1		14.5	26.1	29.0	29.0
Total Split (s)	50.0		31.0	81.0	29.0	29.0
Total Split (%)	45.5%		28.2%	73.6%	26.4%	26.4%
Maximum Green (s)	45.5% 43.9		26.2%	73.6%	20.4%	20.4%
iviaxiiiiuiii Gleeli (S)			3.0	74.9 4.6		
Vollow Time (a)	10		ა.0		3.3	3.3
Yellow Time (s)	4.6		2.0	1 5		
All-Red Time (s)	1.5		2.0	1.5	2.7	2.7
All-Red Time (s) Lost Time Adjust (s)	1.5 0.0		0.0	0.0	0.0	0.0
All-Red Time (s)	1.5					

	<b>→</b>	<b>Y</b>	<b>←</b>	<b>1</b>	/	
ane Group	EBT	EBR WBL	WBT	NBL	NBR	
ead-Lag Optimize?						
ehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	None	C-Max	None	None	
Valk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	11.0		11.0	16.0	16.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effct Green (s)	54.9	25.8	85.7	12.2	12.2	
Actuated g/C Ratio	0.50	0.23	0.78	0.11	0.11	
//c Ratio	0.63	0.82	0.46	0.73	0.73	
Control Delay	26.0	49.8	4.8	15.2	14.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	26.0	49.8		15.2	14.8	
_OS	С	D		В	В	
Approach Delay	26.0		27.2	15.0		
Approach LOS	C		C	В		
90th %ile Green (s)	43.9	29.8		19.2	19.2	
90th %ile Term Code	Coord	Max		Gap	Gap	
70th %ile Green (s)	52.4	28.5		12.0	12.0	
70th %ile Term Code	Coord	Gap		Gap	Gap	
50th %ile Green (s)	56.6	26.3		10.0	10.0	
50th %ile Term Code	Coord	Gap		Min	Min	
30th %ile Green (s)	59.0	23.9		10.0	10.0	
B0th %ile Term Code	Coord	Gap		Min	Min	
10th %ile Green (s)	62.5	20.4		10.0	10.0	
10th %ile Term Code	Coord	Gap		Min	Min	
Queue Length 50th (m)	82.4	69.3		1.4	0.0	
Queue Length 95th (m)	148.7	86.6		27.1	26.9	
nternal Link Dist (m)	167.8	00.0	187.8	109.2	20.0	
Turn Bay Length (m)	107.0	125.0		100.2		
Base Capacity (vph)	889	816		580	563	
Starvation Cap Reductn	0	0.0		0	0	
Spillback Cap Reductn	0	C		0	0	
Storage Cap Reductn	Ŏ	Č		0	0	
Reduced v/c Ratio	0.63	0.77		0.58	0.59	
	0.00	5.77	0.70	0.00	0.00	
ntersection Summary						
rea Type:	Other					
Cycle Length: 110						
Actuated Cycle Length: 110						
Offset: 0 (0%), Referenced to pl	nase 2:EBT and 6:\	NBT, Start of Gree	n			
latural Cycle: 90						
Control Type: Actuated-Coordin	ated					
Maximum v/c Ratio: 0.82						
ntersection Signal Delay: 23.7				tersection L		
ntersection Capacity Utilization	79.4%		IC	CU Level of S	Service D	
nalysis Period (min) 15						
plits and Phases: 16: East E	Employee Access 8	Roger Stevens				
_		- J				
ÿ1	•	→Ø2 (R)				
31s	5	0 s				
_						
Ø6 (D)	_					<b>1</b> ï8
Ø6 (R)						29 s

	<b>→</b>	•	•	←	4	~
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	î,		ች	<b>A</b>	W	
Traffic Volume (veh/h)	235	5	15	329	5	15
Future Volume (Veh/h)	235	5	15	329	5	15
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	235	5	15	329	5	15
Pedestrians			.,	020		.,
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)				351		
pX, platoon unblocked				001		
vC, conflicting volume			240		596	238
vC1, stage 1 conf vol			240		550	200
vC2, stage 2 conf vol						
vCu, unblocked vol			240		596	238
tC, single (s)			5.1		7.4	7.2
tC, 2 stage (s)			J. 1		1.7	1.4
tF (s)			3.1		4.4	4.2
p0 queue free %			98		98	98
cM capacity (veh/h)			915		333	610
civi capacity (veri/ii)					333	010
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	240	15	329	20		
Volume Left	0	15	0	5		
Volume Right	5	0	0	15		
cSH	1700	915	1700	505		
Volume to Capacity	0.14	0.02	0.19	0.04		
Queue Length 95th (m)	0.0	0.4	0.0	0.9		
Control Delay (s)	0.0	9.0	0.0	12.4		
Lane LOS		Α		В		
Approach Delay (s)	0.0	0.4		12.4		
Approach LOS				В		
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			28.3%	ICI	J Level of S	ervice
Analysis Period (min)			15			

	<b>→</b>	•	•	+	•	<b>/</b>
Mayamant	FDT	TDD.	WDI	WDT	NDL	NDD
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<b>1</b> 219	_	05	4	¥	-
Traffic Volume (veh/h)		5	25	329	0	5
Future Volume (Veh/h)	219	5	25	329	0	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	219	5	25	329	0	5
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			224		600	222
vC1, stage 1 conf vol			227		500	
vC2, stage 2 conf vol						
vCu, unblocked vol			224		600	222
			4.1		6.4	6.2
tC, single (s)			4.1		0.4	0.2
tC, 2 stage (s)			0.0		2.5	2.0
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	99
cM capacity (veh/h)			1345		455	818
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	224	354	5			
Volume Left	0	25	0			
Volume Right	5	0	5			
cSH	1700	1345	818			
Volume to Capacity	0.13	0.02	0.01			
Queue Length 95th (m)	0.0	0.4	0.1			
Control Delay (s)	0.0	0.7	9.4			
Lane LOS	3.3	A	A			
Approach Delay (s)	0.0	0.7	9.4			
Approach LOS	0.0	0.1	3.4 A			
••						
Intersection Summary			0.5			
Average Delay			0.5			
Intersection Capacity Utilization			45.6%	IC	U Level of S	ervice
Analysis Period (min)			15			

Movement   EBL   EBT   EBR   WBL   WBT   WBR   NBL   NBT   NBR   SBL   SBT   SBF	1 W T Car	•		$\overline{}$		_	4	_	•	_	<u> </u>	ı	J
Lane Configurations Traffic Volume (vehir)  2 217 11 15 329 10 1 7 8 10 9 14 Sign Control Free Free Free Stop Stop Grade 0 % 0% 0% 0% 0% Free Hourly flow rate (vph) 2 217 11 15 329 10 1 7 8 10 9 14 Sign Control Grade 0 % 0% 0% 0% 0% Free Hourly flow rate (vph) 2 217 11 15 329 10 1 7 8 10 9 14 Sign Control Grade 0 % 0% 0% 0% 0 % 0 % 0 % 0 % 0 % 0 % 0			<b>→</b>	*	- €	•	_	7	ı		*	*	*
Traffic Volume (veh/h)	Movement	EBL	EBT	EBR	WBL		WBR	NBL	NBT	NBR	SBL	SBT	SBR
Future Volume (Vehith)  2 217 11 15 329 10 1 7 8 10 9 14 Sitop Grade 00% 0% 0% 0% 0% 0% 0% Peak Hour Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	Lane Configurations		43-			43-			43-			43-	
Sign Control   Free	Traffic Volume (veh/h)	2	217	11	15			1		8	10	9	14
Sign Control   Free	Future Volume (Veh/h)	2	217	11	15	329	10	1	7	8	10	9	14
Peak Hour Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	Sign Control		Free			Free			Stop			Stop	
Hourly flow rate (vph) 2 2 217 11 15 329 10 1 7 8 10 9 14 Pedestrians   Lane Width (m)  Walking Speed (m/s)  Percent Blockage  Right turn flare (veh)  Wedian storage veh)  Upstream signal (m)  XC, conflicting volume	Grade		0%			0%			0%			0%	
Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type	Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type	Hourly flow rate (vph)	2	217	11	15	329	10	1	7	8	10	9	14
Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median storage veh) Upstream signal (m) XX, platon unblocked VC2, stage 1 conf vol VC2, stage 2 conf vol VC2, stage 2 conf vol VC3, stage 1 conf vol VC4, unblocked vol Upstream signal (m) XC5, plate 2 conf vol VC5, stage 2 conf vol VC6, unblocked vol Upstream signal (m) XC6, conflicting volume XC7, stage 1 conf vol XC7, stage 1 conf vol XC8, stage 2 conf vol XC9, stage (s) XC1, stage 1 conf vol XC9, stage (s) XC1, stage (s) XC1, stage (s) XC1, stage (s) XC2, stage (s) XC3, stage (s) XC3, stage (s) XC4, stage (s) XC5, stage (s) XC6, stage (s) XC7, stage (s) XC8, stage (s) XC9, stage (s) XC9, stage (s) XC9, stage (s) XC1, stage (s) XC1, stage (s) XC2, stage (s) XC3, stage (s) XC4, stage (s) XC5, stage (s) XC6, stage (s) XC7, stage (s) XC8, stage (s) XC9, stage (s)	Pedestrians												
Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median storage veh) Upstream signal (m) XX, platon unblocked VC2, stage 1 conf vol VC2, stage 2 conf vol VC2, stage 2 conf vol VC3, stage 1 conf vol VC4, unblocked vol Upstream signal (m) XC5, plate 2 conf vol VC5, stage 2 conf vol VC6, unblocked vol Upstream signal (m) XC6, conflicting volume XC7, stage 1 conf vol XC7, stage 1 conf vol XC8, stage 2 conf vol XC9, stage (s) XC1, stage 1 conf vol XC9, stage (s) XC1, stage (s) XC1, stage (s) XC1, stage (s) XC2, stage (s) XC3, stage (s) XC3, stage (s) XC4, stage (s) XC5, stage (s) XC6, stage (s) XC7, stage (s) XC8, stage (s) XC9, stage (s) XC9, stage (s) XC9, stage (s) XC1, stage (s) XC1, stage (s) XC2, stage (s) XC3, stage (s) XC4, stage (s) XC5, stage (s) XC6, stage (s) XC7, stage (s) XC8, stage (s) XC9, stage (s)	Lane Width (m)												
Percent Blockage Right turn flare (veh) Median type													
Right turn flare (veh) Median type None None Median strage veh) Upstream signal (m) XX, platon unblocked VC2, orflicting volume VC2, stage 2 conf vol VC2, stage (s) Upstream signal (m) XD, platon unblocked vol Upstream signal (m) VC2, stage 2 conf vol VC3, stage 2 conf vol VC4, unblocked vol Upstream signal (m) Upstream signal (m) VC2, stage 2 conf vol VC3, stage 2 conf vol VC2, stage 2 conf v													
Median type None None None Median storage veh) Upstream signal (m) pX, platoon unblocked VC, conflicting volume 339 228 609 596 222 602 596 334 VC1, stage 1 conf vol VC2, stage 2 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 VC5, stage 2 conf vol VC5, stage 2 conf vol VC6, stage 2 conf vol VC7, stage 2 conf vol VC8, stage 2 conf vol VC9, stage													
Median storage veh) Upstream signal (m) Dpstream signal (m) Dpst. platoon unblocked VC, conflicting volume 339 228 609 596 222 602 596 334 VC1, stage 1 conf vol VC2, stage 2 conf vol VC2, stage 2 conf vol VC2, stage 1 C, single (s) 4.1 4.1 7.1 6.5 6.2 7.1 6.			None			None							
Upstream signal (m) px, platon unblocked vC, conflicting volume 339 228 609 596 222 602 596 334 vC1, stage 2 conf vol vC2, stage 2 conf vol vC3, stage 2 conf vol vC4, stage 2 conf vol vC5, stage 2 conf vol vC6, single (s) 4.1 4.1 7.1 6.5 6.2 7. 6.2 8. 8. 8. 8. 8. 8. 8.						. 100							
DX, platoon unblocked VC, conflicting volume 339 228 609 596 222 602 596 334 VC1, stage 1 conf vol VC2, stage 2 conf vol VC2, stage 2 conf vol VC2, unblocked vol 339 228 609 596 222 602 596 334 VC2, stage (s) 4.1 4.1 7.1 6.5 6.2 7.1 6.5 6.2 (c. stage (s) VC2, stage (s) VC3, stage (s) VC4, stage (s) VC5, stage (s) VC5, stage (s) VC6, stage (s) VC7, stage (s) VC7, stage (s) VC8, stage (s) VC9, s													
VC, conflicting volume 339 228 609 596 222 602 596 334 VC1, stage 1 conf vol vC2, stage 2 conf vol VC2, stage (s) 4.1 4.1 7.1 6.5 6.2 7.1 6.5 6.2 (c. 2 stage (s) VC2, stage (s) VC3, stage (s) VC3, stage (s) VC4, stage (s) VC5, stage (s) VC6, stage (s) VC7, stage (s) VC7, stage (s) VC8, stage (s) VC9, stage (													
VC1, stage 1 conf vol VC2, stage 2 conf vol VC2, stage 2 conf vol VC3, stage 8 609 596 222 602 596 334 VC3, single (s) 4.1 4.1 7.1 6.5 6.2 7.1 6.5 6.2 VC2, stage (s) VC3, stage (s) VC4, unblocked vol VC5, stage (s) VC5, stage (s) VC6, stage (s) VC7, stage (s) VC7, stage (s) VC8, stage (s) VC9, stage		330			228			609	596	222	602	596	334
VCQ, stage 2 conf vol VCQ, unblocked vol 339		000			220			003	330	LLL	002	330	554
VCU, unblocked vol 339													
IC, single (s) 4.1 4.1 7.1 6.5 6.2 7.1 6.5 6.2 (C. 2 stage (s))  IF (s) 2.2 2.2 3.5 4.0 3.3 3.5 4.0 3.3 (b) QD Queue free % 100 99 100 98 99 97 98 98 98 99 97 98 98 98 99 97 98 98 98 99 97 98 98 98 99 97 98 98 99 97 98 98 99 97 98 98 98 98 99 97 98 98 98 98		330			228			600	506	222	602	506	33/
IC, 2 stage (s)  IF (s) 2.2 2.3.5 4.0 3.3 3.5 4.0 3.3  p0 queue free % 100 99 100 98 99 97 98 98  cM capacity (veh/h) 1220 1340 389 412 817 398 412 708  Direction, Lane # EB 1 WB 1 NB 1 SB 1  Volume Total 230 354 16 33  Volume Left 2 15 1 10  Volume Right 11 10 8 14  cSH 1220 1340 545 494  Volume to Capacity 0.00 0.01 0.03 0.07  Queue Length 95th (m) 0.0 0.3 0.7 1.6  Control Delay (s) 0.1 0.4 11.8 12.8  Lane LOS A A B B B  Approach Delay (s) 0.1 0.4 11.8 12.8  Approach Delay (s) 0.1 0.4 11.8 12.8  Approach LOS B B B  Intersection Summary  Average Delay  Intersection Capacity Utilization 41.4% ICU Level of Service A													
tF (s)     2.2     2.2     3.5     4.0     3.3     3.5     4.0     3.3       p0 queue free %     100     99     100     98     99     97     98     98       cM capacity (veh/h)     1220     1340     389     412     817     398     412     708       Direction, Lane #     EB 1     WB 1     NB 1     SB 1       Volume Total     230     354     16     33       Volume Right     2     15     1     10       Volume Right     11     10     8     14       CSH     1220     1340     545     494       Volume to Capacity       0.00     0.01     0.03     0.07       Queue Length 95th (m)     0.0     0.3     0.7     1.6       Control Delay (s)     0.1     0.4     11.8     12.8       Lane LOS     A     A     B     B       Approach Delay (s)     0.1     0.4     11.8     12.8       Approach LOS     B     B     B       Intersection Summary       Average Delay     1.2       Intersection Capacity Utilization     41.4%     ICU Level of Service     A <td></td> <td>4.1</td> <td></td> <td></td> <td>4.1</td> <td></td> <td></td> <td>7.1</td> <td>0.5</td> <td>0.2</td> <td>7.1</td> <td>0.5</td> <td>0.2</td>		4.1			4.1			7.1	0.5	0.2	7.1	0.5	0.2
p0 queue free % 100 99 100 98 99 97 98 98		2.2			2.2			3.5	4.0	2 2	3.5	4.0	3 3
Table   Tabl													
Direction, Lane # EB 1 WB 1 NB 1 SB 1  Volume Total 230 354 16 33  Volume Left 2 15 1 10  Volume Right 11 10 8 14  cSH 1220 1340 545 494  Volume to Capacity 0.00 0.01 0.03 0.07  Queue Length 95th (m) 0.0 0.3 0.7 1.6  Control Delay (s) 0.1 0.4 11.8 12.8  Lane LOS A A B B  Approach Delay (s) 0.1 0.4 11.8 12.8  Approach Delay (s) 0.1 0.4 11.8 12.8  Approach LOS B B  Intersection Summary  Average Delay  Intersection Capacity Utilization 41.4% ICU Level of Service A													
Volume Total     230     354     16     33       Volume Left     2     15     1     10       Volume Right     11     10     8     14       cSH     1220     1340     545     494       Volume to Capacity     0.00     0.01     0.03     0.07       Queue Length 95th (m)     0.0     0.3     0.7     1.6       Control Delay (s)     0.1     0.4     11.8     12.8       Lane LOS     A     A     B     B       Approach Delay (s)     0.1     0.4     11.8     12.8       Approach LOS     B     B     B       Intersection Summary       Average Delay     1.2       Intersection Capacity Utilization     41.4%     ICU Level of Service     A								309	412	017	390	412	700
Volume Left     2     15     1     10       Volume Right     11     10     8     14       cSH     1220     1340     545     494       Volume to Capacity     0.00     0.01     0.03     0.07       Queue Length 95th (m)     0.0     0.3     0.7     1.6       Control Delay (s)     0.1     0.4     11.8     12.8       Lane LOS     A     A     B     B       Approach Delay (s)     0.1     0.4     11.8     12.8       Approach LOS     B     B     B       Intersection Summary       Average Delay     1.2       Intersection Capacity Utilization     41.4%     ICU Level of Service     A													
Volume Right     11     10     8     14       cSH     1220     1340     545     494       Volume to Capacity     0.00     0.01     0.03     0.07       Queue Length 95th (m)     0.0     0.3     0.7     1.6       Control Delay (s)     0.1     0.4     11.8     12.8       Lane LOS     A     A     B     B       Approach Delay (s)     0.1     0.4     11.8     12.8       Approach LOS     B     B       Intersection Summary       Average Delay     1.2       Intersection Capacity Utilization     41.4%     ICU Level of Service     A													
CSH 1220 1340 545 494 Volume to Capacity 0.00 0.01 0.03 0.07 Queue Length 95th (m) 0.0 0.3 0.7 1.6 Control Delay (s) 0.1 0.4 11.8 12.8 Lane LOS A A B B B Approach Delay (s) 0.1 0.4 11.8 12.8 Approach LOS B B  Intersection Summary Average Delay Intersection Capacity Utilization 41.4% ICU Level of Service A				•									
Volume to Capacity         0.00         0.01         0.03         0.07           Queue Length 95th (m)         0.0         0.3         0.7         1.6           Control Delay (s)         0.1         0.4         11.8         12.8           Lane LOS         A         A         B         B           Approach Delay (s)         0.1         0.4         11.8         12.8           Approach LOS         B         B         B           Intersection Summary           Average Delay         1.2         Intersection Capacity Utilization         41.4%         ICU Level of Service         A													
Queue Length 95th (m)       0.0       0.3       0.7       1.6         Control Delay (s)       0.1       0.4       11.8       12.8         Lane LOS       A       A       B       B         Approach Delay (s)       0.1       0.4       11.8       12.8         Approach LOS       B       B       B         Intersection Summary         Average Delay       1.2         Intersection Capacity Utilization       41.4%       ICU Level of Service       A	cSH												
Control Delay (s)       0.1       0.4       11.8       12.8         Lane LOS       A       A       B       B         Approach Delay (s)       0.1       0.4       11.8       12.8         Approach LOS       B       B         Intersection Summary         Average Delay       1.2         Intersection Capacity Utilization       41.4%       ICU Level of Service       A													
Lane LOS       A       A       B       B         Approach Delay (s)       0.1       0.4       11.8       12.8         Approach LOS       B       B         Intersection Summary         Average Delay       1.2         Intersection Capacity Utilization       41.4%       ICU Level of Service       A	Queue Length 95th (m)	0.0	0.3	0.7									
Approach Delay (s)       0.1       0.4       11.8       12.8         Approach LOS       B       B         Intersection Summary         Average Delay       1.2         Intersection Capacity Utilization       41.4%       ICU Level of Service       A	Control Delay (s)	0.1	0.4	11.8	12.8								
Approach LOS         B         B           Intersection Summary         Intersection Summary           Average Delay         1.2           Intersection Capacity Utilization         41.4%         ICU Level of Service         A	Lane LOS	Α	Α	В	В								
Approach LOS         B         B           Intersection Summary         Intersection Summary           Average Delay         1.2           Intersection Capacity Utilization         41.4%         ICU Level of Service         A	Approach Delay (s)	0.1	0.4	11.8	12.8								
Average Delay 1.2 Intersection Capacity Utilization 41.4% ICU Level of Service A	Approach LOS			В	В								
Intersection Capacity Utilization 41.4% ICU Level of Service A	Intersection Summary												
Intersection Capacity Utilization 41.4% ICU Level of Service A	Average Delay												
	Intersection Capacity Utilization				IC	U Level of Sen	vice			Α			
	Analysis Period (min)			15									

		_	_	•	•	<b>&gt;</b>
		•	▼		١,	
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	î,		7	•	W	
Traffic Volume (veh/h)	237	13	310	331	14	327
Future Volume (Veh/h)	237	13	310	331	14	327
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	237	13	310	331	14	327
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)				192		
pX, platoon unblocked				132		
vC, conflicting volume			250		1194	244
vC1, stage 1 conf vol			200		1134	244
vC1, stage 1 conf vol						
vCu, unblocked vol			250		1194	244
			250 4.1		6.4	6.2
tC, single (s)			4.1		0.4	0.2
tC, 2 stage (s)			0.0		2.5	2.2
tF (s)			2.2		3.5	3.3
p0 queue free %			76		91	59
cM capacity (veh/h)			1316		157	795
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	250	310	331	341		
Volume Left	0	310	0	14		
Volume Right	13	0	0	327		
cSH	1700	1316	1700	682		
Volume to Capacity	0.15	0.24	0.19	0.50		
Queue Length 95th (m)	0.0	7.0	0.0	21.4		
Control Delay (s)	0.0	8.6	0.0	15.4		
Lane LOS		A		C		
Approach Delay (s)	0.0	4.1		15.4		
Approach LOS	0.0	7.1		C		
Intersection Summary						
Average Delay			6.4			
Intersection Capacity Utilization			64.3%	ICI	J Level of S	nnion
				ICC	Level of S	ervice
Analysis Period (min)			15			

	•	<b>→</b>	<b>←</b>	•	<b>\</b>	4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	T T	<u> </u>	₩Ы	₩DIX	SDL N	77
Traffic Volume (vph)	178	1044	<b>3</b> 99	97	267	867
Future Volume (vph)	178	1044	399	97	267	867
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	60.0	1000	1000	30.0	110.0	110.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0				60.0	•
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88
Frt	1.00	1.00	1.00	0.850	1.00	0.850
FIt Protected	0.950			0.000	0.950	0.000
Satd. Flow (prot)	1695	1784	1784	1517	1695	2669
Flt Permitted	0.500	1704	1704	1017	0.950	2003
Satd. Flow (perm)	892	1784	1784	1517	1695	2669
	092	1/04	1/04	Yes	1090	Yes
Right Turn on Red				Yes 97		967
Satd. Flow (RTOR)		00	00	91	<b>F</b> 0	807
Link Speed (k/h)		80	80		50	
Link Distance (m)		122.5	76.1		162.5	
Travel Time (s)		5.5	3.4	,	11.7	,
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	178	1044	399	97	267	867
Shared Lane Traffic (%)						
Lane Group Flow (vph)	178	1044	399	97	267	867
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	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	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.1	0.1	0.1
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Size(m)						
Detector 1 Type	Cl+Ex	CI+Ex	CI+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel		^ ^	^ ^		0.0	
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		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	NA	Perm	Perm	Perm
Protected Phases		2	6		*****	*****
Permitted Phases	2	_		6	4	4
Detector Phase	2	2	6	6	4	4
Switch Phase		L	0	0	Т	7
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	26.6	26.6	43.6	43.6	29.7	29.7
Total Split (s)	80.0	80.0	80.0	80.0	30.0	30.0
Total Split (%)	72.7%	72.7%	72.7%	72.7%	27.3%	27.3%
Maximum Green (s)	73.4	73.4	73.4	73.4	23.3	23.3
Yellow Time (s)	4.6	4.6	4.6	4.6	3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
		~ ~	C C	6.6	6.7	6.7
Total Lost Time (s)	6.6	6.6	6.6	6.6	0.7	0.7

	•	<b>→</b>	<b>←</b>	•	<b>\</b>	1	
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	
Walk Time (s)			7.0	7.0	7.0	7.0	
Flash Dont Walk (s)			30.0	30.0	16.0	16.0	
Pedestrian Calls (#/hr)			0	0	0	0	
Act Effct Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.21	0.21	
v/c Ratio	0.30	0.88	0.34	0.09	0.74	0.69	
Control Delay	6.5	16.5	5.9	0.3	54.5	5.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	6.5	16.5	5.9	0.3	54.5	5.9	
LOS	Α	В	Α	Α	D	Α	
Approach Delay		15.0	4.8		17.3		
Approach LOS		В	Α		В		
90th %ile Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
90th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	
70th %ile Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
70th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	
50th %ile Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
50th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	
30th %ile Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
30th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	
10th %ile Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
10th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	
Queue Length 50th (m)	7.2	54.9	17.2	0.1	54.0	0.0	
Queue Length 95th (m)	19.1	#109.8	24.2	1.0	#89.3	16.8	
Internal Link Dist (m)		98.5	52.1		138.5		
Turn Bay Length (m)	60.0			30.0	110.0	110.0	
Base Capacity (vph)	595	1190	1190	1044	359	1248	
Starvation Cap Reductn	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.30	0.88	0.34	0.09	0.74	0.69	
Intersection Summary	Other						
Area Type: Cycle Length: 110	Otriei						
Actuated Cycle Length: 110							
Offset: 96 (87%), Referenced to	nhase 2:ERTL	and 6·WRT	Start of Gro	an .			
Natural Cycle: 90	priase Z.LDTL	aliu o.wbi,	Start of Gre	CII			
Control Type: Actuated-Coordinated	atad						
Maximum v/c Ratio: 0.88	aleu						
Intersection Signal Delay: 14.2				Int	ersection L	16. B	
Intersection Capacity Utilization	8/1 7%				U Level of S		
Analysis Period (min) 15	04.7 /0			10	O Level of C	DEI VICE L	
# 95th percentile volume exce	eds canacity ou	ielie mav he	longer				
Queue shown is maximum af		icuc may bo	longer.				
Splits and Phases: 8: Roger S	Stevens & 416 S	B Ramps					
Spino unu i nuoco. O. noger c	7.0 VOIIO Q T IO O	D I Kurripo					A.
<b>→</b> Ø2 (R)							Ø4
80 s							30 s
4							
Ø6 (R)							
80 s							

	<b>→</b>	•	•	←	4	<i>&gt;</i>
Lane Group	EDT	EDD	\\/DI	\M/DT	NDI	NBR
Lane Group	EBT	EBR	WBL	WBT	NBL	INBK
Lane Configurations Traffic Volume (vph)	<b>↑</b> 458	<b>₹</b> 861	<b>ኝ</b> 86	<b>↑</b> 338	168	47
Future Volume (vph)	458 458	861	86	338	168	47
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	1000	30.0	85.0	1000	0.0	0.0
Storage Lanes		1	1		1	0.0
Taper Length (m)			100.0		30.0	U
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.850	1.00	1.00	0.970	1.00
Flt Protected		0.000	0.950		0.962	
Satd. Flow (prot)	1784	1517	1695	1784	1665	0
Flt Permitted	1704	1017	0.453	1704	0.962	U
Satd. Flow (perm)	1784	1517	808	1784	1665	0
Right Turn on Red	1704	Yes	000	1704	1000	Yes
Satd. Flow (RTOR)		861			12	168
	80	001		80	50	
Link Speed (k/h)						
Link Distance (m)	73.7			234.6	117.8	
Travel Time (s)	3.3	4.00	4.00	10.6	8.5	4.00
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	458	861	86	338	168	47
Shared Lane Traffic (%)	,	20.1		000	0.1=	
Lane Group Flow (vph)	458	861	86	338	215	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	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2	1	1	2	1	
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	
Detector 1 Type	CI+Ex	CI+Ex	Cl+Ex	CI+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	0.0	0.0	28.7	0.0	
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel	OITLX			OFFLA		
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Prot	
Protected Phases	NA 2	reilli	reilli	NA 6	Prot 8	
	Z	2	c	0	0	
Permitted Phases	0	2	6		0	
Detector Phase	2	2	6	6	8	
Switch Phase	00.0	00.0	00.0	00.0	40.0	
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	
Minimum Split (s)	38.6	38.6	26.6	26.6	22.5	
Total Split (s)	78.0	78.0	78.0	78.0	32.0	
Total Split (%)	70.9%	70.9%	70.9%	70.9%	29.1%	
Maximum Green (s)	71.4	71.4	71.4	71.4	25.3	
Yellow Time (s)	4.6	4.6	4.6	4.6	3.3	
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s) Lead/Lag	6.6	6.6	6.6	6.6	6.7	

	<b>→</b>	•	•	←	4	<b>/</b>	
ane Group	EBT	EBR	WBL	WBT	NBL	NBR	
ead-Lag Optimize?							
ehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		
lecall Mode	C-Max	C-Max	C-Max	C-Max	Max		
/alk Time (s)	7.0	7.0	O Max	O Max	max		
lash Dont Walk (s)	25.0	25.0					
edestrian Calls (#/hr)	0	0					
ct Effct Green (s)	71.4	71.4	71.4	71.4	25.3		
ctuated g/C Ratio	0.65	0.65	0.65	0.65	0.23		
/c Ratio	0.40	0.67	0.16	0.29	0.55		
Control Delay	6.5	1.9	8.5	9.2	41.3		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
otal Delay	6.5	1.9	8.5	9.2	41.3		
OS S	0.5 A	Α	0.5 A	Α.2	D D		
pproach Delay	3.5	А	А	9.0	41.3		
pproach LOS	3.3 A			9.0 A	41.3 D		
Oth %ile Green (s)	71.4	71.4	71.4	71.4	25.3		
10th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
70th %ile Green (s)	71.4	71.4	71.4	71.4	25.3		
70th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
60th %ile Green (s)	71.4	71.4	71.4	71.4	25.3		
50th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
30th %ile Green (s)	71.4	71.4	71.4	71.4	25.3		
10th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
Oth %ile Green (s)	71.4	71.4	71.4	71.4	25.3		
Oth %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
Queue Length 50th (m)	23.9	6.6	6.6	28.7	38.6		
Queue Length 95th (m)	m31.4	m3.7	13.3	42.7	62.7		
nternal Link Dist (m)	49.7	1113.7	13.3	210.6	93.8		
Furn Bay Length (m)	45.1	30.0	85.0	210.0	33.0		
Base Capacity (vph)	1157	1286	524	1157	392		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.40	0.67	0.16	0.29	0.55		
	0.40	0.07	0.10	0.29	0.55		
tersection Summary							
rea Type:	Other						
Cycle Length: 110							
ctuated Cycle Length: 110	hann O.EDT - L	CAMPTI C	- 4 - t O · ·				
Offset: 2 (2%), Referenced to ph	liase Ziebi and	o.WBTL, St	art of Green				
latural Cycle: 65	atad						
ontrol Type: Actuated-Coordin	ated						
laximum v/c Ratio: 0.67							
ntersection Signal Delay: 8.8	02.00/				ersection LOS:		
ntersection Capacity Utilization	<b>ช</b> 3.9%			IC	U Level of Serv	rice E	
nalysis Period (min) 15							
Volume for 95th percentile of	queue is metered	ı by upstrea	m signal.				
plits and Phases: 10: 416 N	B Ramps & Roge	er Stevens					
▼ Ø2 (R)							
78 s							
▼ Ø6 (R)							<b>★</b> Ø8
10 -							32 s

	<b>→</b>	•	•	<b>←</b>	4	-
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations		LDK	NA PA		NBL W	NDK 7
Traffic Volume (vph)	<b>1</b> 558	5	ባ <b>ባ</b> 630	<b>↑</b> 634	7	663
Future Volume (vph)	558	5	630	634	7	663
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	1000	0.0	125.0	1000	0.0	0.0
Storage Lanes		0.0	2		1	1
Taper Length (m)			100.0		30.0	•
Lane Util. Factor	1.00	1.00	0.97	1.00	1.00	0.95
Frt	0.999				0.853	0.850
Flt Protected			0.950		0.999	
Satd. Flow (prot)	1783	0	3288	1784	1520	1441
Flt Permitted			0.950		0.999	
Satd. Flow (perm)	1783	0	3288	1784	1520	1441
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					332	331
Link Speed (k/h)	80			80	48	
Link Distance (m)	191.8			211.8	133.2	
Travel Time (s)	8.6			9.5	10.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	558	5	630	634	7	663
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	563	0	630	634	339	331
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4		_010	7.4	3.7	· ign
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	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	1.00	14	24	1.00	24	14
Number of Detectors	2	17	1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.1	0.1
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	Cl+Ex
	UI+EX		UI+EX	UI+EX	UI+EX	∪I+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		Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases	_					8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0		5.0	20.0	10.0	10.0
Minimum Split (s)	26.1		14.5	26.1	29.0	29.0
Total Split (s)	50.0		31.0	81.0	29.0	29.0
Total Split (%)	45.5%		28.2%	73.6%	26.4%	26.4%
Maximum Green (s)	43.9		26.0	74.9	23.0	23.0
Yellow Time (s)	4.6		3.0	4.6	3.3	3.3
All-Red Time (s)	1.5		2.0	1.5	2.7	2.7
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1		5.0	6.1	6.0	6.0
Lead/Lag	Lag		Lead			
2000,209						

	<b>→</b>	<b>Y</b>	<b>←</b>	<b>1</b>	/	
ane Group	EBT	EBR WBL	WBT	NBL	NBR	
ead-Lag Optimize?						
ehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	None	C-Max	None	None	
Valk Time (s)	7.0		7.0	7.0	7.0	
Flash Dont Walk (s)	11.0		11.0	16.0	16.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effct Green (s)	54.9	25.8	85.7	12.2	12.2	
Actuated g/C Ratio	0.50	0.23	0.78	0.11	0.11	
//c Ratio	0.63	0.82	0.46	0.73	0.73	
Control Delay	26.0	49.8	4.8	15.2	14.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	26.0	49.8		15.2	14.8	
_OS	С	D		В	В	
Approach Delay	26.0		27.2	15.0		
Approach LOS	C		C	В		
90th %ile Green (s)	43.9	29.8		19.2	19.2	
90th %ile Term Code	Coord	Max		Gap	Gap	
70th %ile Green (s)	52.4	28.5		12.0	12.0	
70th %ile Term Code	Coord	Gap		Gap	Gap	
50th %ile Green (s)	56.6	26.3		10.0	10.0	
50th %ile Term Code	Coord	Gap		Min	Min	
30th %ile Green (s)	59.0	23.9		10.0	10.0	
B0th %ile Term Code	Coord	Gap		Min	Min	
10th %ile Green (s)	62.5	20.4		10.0	10.0	
10th %ile Term Code	Coord	Gap		Min	Min	
Queue Length 50th (m)	82.4	69.3		1.4	0.0	
Queue Length 95th (m)	148.7	86.6		27.1	26.9	
nternal Link Dist (m)	167.8	00.0	187.8	109.2	20.0	
Turn Bay Length (m)	107.0	125.0		100.2		
Base Capacity (vph)	889	816		580	563	
Starvation Cap Reductn	0	0.0		0	0	
Spillback Cap Reductn	0	C		0	0	
Storage Cap Reductn	Ŏ	Č		0	0	
Reduced v/c Ratio	0.63	0.77		0.58	0.59	
	0.00	5.77	0.70	0.00	0.00	
ntersection Summary						
rea Type:	Other					
Cycle Length: 110						
Actuated Cycle Length: 110						
Offset: 0 (0%), Referenced to pl	nase 2:EBT and 6:\	NBT, Start of Gree	n			
latural Cycle: 90						
Control Type: Actuated-Coordin	ated					
Maximum v/c Ratio: 0.82						
ntersection Signal Delay: 23.7				tersection L		
ntersection Capacity Utilization	79.4%		IC	CU Level of S	Service D	
nalysis Period (min) 15						
plits and Phases: 16: East E	Employee Access 8	Roger Stevens				
_		- J				
ÿ1	•	→Ø2 (R)				
31s	5	0 s				
_						
Ø6 (D)	_					<b>1</b> ï8
Ø6 (R)						29 s

	•	<b>→</b>	-	•	<u> </u>	4
Lano Group	FDI	EDT	WDT	WDD	CDI	epp
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	160	1115	246	74	<b>\</b>	<b>77</b> 77
Traffic Volume (vph)	160 160	1115	346 346	44 44	50 50	808 808
Future Volume (vph)	1800	1115 1800	1800	1800	1800	1800
Ideal Flow (vphpl)	1800	1800	1800	30.0	110.0	110.0
Storage Length (m)	60.0			30.0	110.0	110.0
Storage Lanes	•			1		T
Taper Length (m)	100.0	4.00	4.00	1.00	60.0	0.00
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88
Frt	0.050			0.850	0.050	0.850
Flt Protected	0.950	4=0.4	4=0.4	4-1-	0.950	0000
Satd. Flow (prot)	1695	1784	1784	1517	1695	2669
Flt Permitted	0.539	4=0.4	4=0.4	4-1-	0.950	0000
Satd. Flow (perm)	962	1784	1784	1517	1695	2669
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				44		808
Link Speed (k/h)		80	80		50	
Link Distance (m)		122.5	76.1		162.5	
Travel Time (s)		5.5	3.4		11.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	1115	346	44	50	808
Shared Lane Traffic (%)						
Lane Group Flow (vph)	160	1115	346	44	50	808
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)	LGIL	3.7	3.7	rtigiit	3.7	ragni
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	
	1.00	1.00	1.00	1.00	1.00	1.00
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel					التتريية	
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
, ,	0.0	28.7	28.7	0.0	0.0	0.0
Detector 2 Position(m)						
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	NA	Perm	Perm	Perm
Protected Phases		2	6			
Permitted Phases	2			6	4	4
Detector Phase	2	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	26.6	26.6	43.6	43.6	29.7	29.7
Total Split (s)	90.0	90.0	90.0	90.0	30.0	30.0
Total Split (%)	75.0%	75.0%	75.0%	75.0%	25.0%	25.0%
	75.0% 83.4	83.4	83.4			23.3
Maximum Green (s)				83.4	23.3	
	4.6	4.6	4.6	4.6	3.3	3.3
		2.0	2.0	2.0	3.4	3.4
All-Red Time (s)	2.0					
All-Red Time (s) Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Yellow Time (s) All-Red Time (s) Lost Time Adjust (s) Total Lost Time (s) Lead/Lag			0.0 6.6	0.0 6.6	0.0 6.7	0.0 6.7

	•	-	•	•	<b>\</b>	1
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead-Lag Optimize?						05.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max
Walk Time (s)	J-IVIUX	UIVIUN	7.0	7.0	7.0	7.0
Flash Dont Walk (s)			30.0	30.0	16.0	16.0
Pedestrian Calls (#/hr)			0	0	0	0
Act Effct Green (s)	83.4	83.4	83.4	83.4	23.3	23.3
Actuated g/C Ratio	0.70	0.70	0.70	0.70	0.19	0.19
v/c Ratio	0.70	0.70	0.70	0.70	0.19	0.19
Control Delay	3.9	18.7	5.0	0.04	41.7	6.4
	0.0	0.0	0.0	0.0	0.0	0.4
Queue Delay						
Total Delay	3.9	18.7	5.0	0.3	41.7	6.4
LOS	Α	В	A	Α	D	Α
Approach Delay		16.8	4.4		8.4	
Approach LOS		В	Α		Α	
90th %ile Green (s)	83.4	83.4	83.4	83.4	23.3	23.3
90th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR
70th %ile Green (s)	83.4	83.4	83.4	83.4	23.3	23.3
70th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR
50th %ile Green (s)	83.4	83.4	83.4	83.4	23.3	23.3
50th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR
30th %ile Green (s)	83.4	83.4	83.4	83.4	23.3	23.3
30th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR
10th %ile Green (s)	83.4	83.4	83.4	83.4	23.3	23.3
10th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR
Queue Length 50th (m)	5.6	236.2	14.7	0.0	9.9	0.0
Queue Length 95th (m)	m9.3	#291.0	21.7	m0.3	21.0	17.3
Internal Link Dist (m)	1113.3	98.5	52.1	1110.3	138.5	17.3
\ /	60.0	30.3	JZ. I	30.0	110.0	110.0
Turn Bay Length (m)		1000	1020			
Base Capacity (vph)	668	1239	1239	1067	329	1169
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	0.24	0.90	0.28	0.04	0.15	0.69
Intersection Summary						
Area Type:	Other					
Cycle Length: 120						
Actuated Cycle Length: 120						
Offset: 102 (85%), Referenced to	o phase 2:EBTL	and 6:WBT	. Start of G	reen		
Natural Cycle: 90	o p	u 0	, σιαπτοποι	••••		
Control Type: Actuated-Coordina	ated					
Maximum v/c Ratio: 0.90	utou					
Intersection Signal Delay: 12.0				Int	ersection L	∩e.
Intersection Capacity Utilization	Q1 /10/.				U Level of S	
	01.470			10	o Level of 3	belvice D
Analysis Period (min) 15			lana.			
# 95th percentile volume exce	1 7/ 1	eue may be	longer.			
Queue shown is maximum af	•					
m Volume for 95th percentile of	queue is metered	d by upstrea	m signal.			

Splits and Phases: 8: Roger Stevens & 416 SB Ramps

90 s 30 s 30 s 90 s

	<b>→</b>	•	•	<b>←</b>	4	/
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<u></u>	7	7		**	HUIT
Traffic Volume (vph)	273	905	238	228	173	81
Future Volume (vph)	273	905	238	228	173	81
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		30.0	85.0		0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			100.0		30.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.957	
Flt Protected			0.950		0.967	
Satd. Flow (prot)	1784	1517	1695	1784	1651	0
Flt Permitted			0.585		0.967	
Satd. Flow (perm)	1784	1517	1044	1784	1651	0
Right Turn on Red		Yes	. •			Yes
Satd. Flow (RTOR)		905			18	100
Link Speed (k/h)	80	300		80	50	
Link Distance (m)	73.7			234.6	117.8	
Travel Time (s)	3.3			10.6	8.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
	273	905	238	228	1.00	81
Adj. Flow (vph)	213	300	230	220	113	01
Shared Lane Traffic (%)	072	005	238	220	054	0
Lane Group Flow (vph)	273 No.	905 No		228 No.	254 No.	0
Enter Blocked Intersection	No Loff	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	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2	1	1	2	1	
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	
Detector 1 Type	CI+Ex	CI+Ex	Cl+Ex	CI+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	OI LX			OI. EX		
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Prot	
Protected Phases	2	1 61111	ı Gilli	6	8	
Permitted Phases		2	6	U	0	
Detector Phase	2	2	6	6	8	
Switch Phase			U	U	0	
	20.0	20.0	20.0	20.0	10.0	
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0 22.5	
Minimum Split (s)	38.6	38.6	26.6	26.6		
Total Split (s)	85.0	85.0	85.0	85.0	35.0	
Total Split (%)	70.8%	70.8%	70.8%	70.8%	29.2%	
Maximum Green (s)	78.4	78.4	78.4	78.4	28.3	
Yellow Time (s)	4.6	4.6	4.6	4.6	3.3	
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.7	
Lead/Lag						

	-	•	•	<b>←</b>	•	<i>&gt;</i>	
ane Group	EBT	EBR	WBL	WBT	NBL	NBR	
_ead-Lag Optimize?							
ehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		
lecall Mode	C-Max	C-Max	C-Max	C-Max	Max		
/alk Time (s)	7.0	7.0	o max	o max	111007		
lash Dont Walk (s)	25.0	25.0					
edestrian Calls (#/hr)	0	0					
ct Effct Green (s)	78.4	78.4	78.4	78.4	28.3		
ctuated g/C Ratio	0.65	0.65	0.65	0.65	0.24		
/c Ratio	0.23	0.69	0.35	0.20	0.63		
Control Delay	2.9	1.7	11.1	8.8	46.1		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
otal Delay	2.9	1.7	11.1	8.8	46.1		
OS STATE OF THE PROPERTY OF TH	A	A	В	A	D		
pproach Delay	2.0	/ \		10.0	46.1		
pproach LOS	2.0 A			Α	D D		
Oth %ile Green (s)	78.4	78.4	78.4	78.4	28.3		
Oth %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
Oth %ile Green (s)	78.4	78.4	78.4	78.4	28.3		
Oth %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
60th %ile Green (s)	78.4	78.4	78.4	78.4	28.3		
50th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
Oth %ile Green (s)	78.4	78.4	78.4	78.4	28.3		
10th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
0th %ile Green (s)	78.4	78.4	78.4	78.4	28.3		
Oth %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
Queue Length 50th (m)	4.4	0.0	23.2	19.6	50.2		
Queue Length 95th (m)	m7.6	m0.0	37.8	30.2	78.3		
nternal Link Dist (m)	49.7	1110.0	37.0	210.6	93.8		
urn Bay Length (m)	43.1	30.0	85.0	210.0	93.0		
Base Capacity (vph)	1165	1304	682	1165	403		
Starvation Cap Reductn	0	0	002	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.23	0.69	0.35	0.20	0.63		
	0.23	0.09	0.55	0.20	0.03		
tersection Summary	0.11						
rea Type:	Other						
cycle Length: 120							
ctuated Cycle Length: 120	O.EDT .		011-10				
Offset: 118 (98%), Referenced to	o pnase 2:EBT a	and 6:WBIL	, Start of Gr	een			
latural Cycle: 65	-1l						
ontrol Type: Actuated-Coordina	ated						
laximum v/c Ratio: 0.69						Λ	
ntersection Signal Delay: 9.8	00.00/				ersection LOS:		
itersection Capacity Utilization	<b>შ</b> 0.8%			IC	U Level of Servi	ce E	
nalysis Period (min) 15		I h	!				
Volume for 95th percentile of	queue is metered	ı by upstrea	m signal.				
plits and Phases: 10: 416 NE	B Ramps & Roge	er Stevens					
➡• Ø2 (R)							
5 s							
Ø6 (R)							<b>↑</b> ø8
RE 6							25 a

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations		LDR	NDL NN		INDL W	NDK 7
Traffic Volume (vph)	<b>1</b> 643	6	ካካ 643	<b>↑</b> 510	6	630
Future Volume (vph)	643	6	643	510	6	630
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	1000	0.0	125.0	1000	0.0	0.0
Storage Lanes		0.0	123.0		1	1
Taper Length (m)		U	100.0		30.0	
Lane Util. Factor	1.00	1.00	0.97	1.00	1.00	0.95
Frt	0.999	1.00	0.31	1.00	0.853	0.95
Flt Protected	0.999		0.950		0.853	0.000
	1783	0	3288	1784	1520	1441
Satd. Flow (prot)	1/03	U	0.950	1/04	0.999	1441
Flt Permitted	1783	0	3288	1784	1520	1441
Satd. Flow (perm)	1/83		3 <b>2</b> 00	1/04	1320	
Right Turn on Red		Yes			245	Yes
Satd. Flow (RTOR)	00			00	315	315
Link Speed (k/h)	80			80	48	
Link Distance (m)	191.8			211.8	133.2	
Travel Time (s)	8.6			9.5	10.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	643	6	643	510	6	630
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	649	0	643	510	321	315
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4			7.4	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	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel	OI+EX		∪I+ĽX	∪I+EX	OITEX	∪I+⊏X
	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		Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases						8
Detector Phase	2		1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0		5.0	20.0	10.0	10.0
Minimum Split (s)	26.1		14.5	26.1	29.0	29.0
Total Split (s)	58.0		33.0	91.0	29.0	29.0
Total Split (%)	48.3%		27.5%	75.8%	24.2%	24.2%
Maximum Green (s)	51.9		28.0	84.9	23.0	23.0
Yellow Time (s)	4.6		3.0	4.6	3.3	3.3
All-Red Time (s)	1.5		2.0	1.5	2.7	2.7
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
			5.0	6.1	6.0	6.0
Total Last Time (a)			- 10	0	0.0	O.U
Total Lost Time (s) Lead/Lag	6.1 Lag		Lead	<b>U.</b> .		

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead-Lag Optimize?						
/ehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	None	None
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	11.0			11.0	16.0	16.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	62.5		28.1	95.6	12.3	12.3
Actuated g/C Ratio	0.52		0.23	0.80	0.10	0.10
v/c Ratio	0.70		0.84	0.36	0.73	0.73
Control Delay	28.4		52.4	3.6	16.3	16.0
Queue Delay	0.0		0.0	0.0	0.2	0.2
Total Delay	28.4		52.4	3.6	16.5	16.2
LOS	С		D	Α	В	В
Approach Delay	28.4			30.8	16.4	
Approach LOS	С			С	В	
90th %ile Green (s)	51.9		31.6	88.5	19.4	19.4
90th %ile Term Code	Coord		Max	Coord	Gap	Gap
70th %ile Green (s)	59.6		31.2	95.8	12.1	12.1
70th %ile Term Code	Coord		Gap	Coord	Gap	Gap
50th %ile Green (s)	64.1		28.8	97.9	10.0	10.0
50th %ile Term Code	Coord		Gap	Coord	Min	Min
30th %ile Green (s)	66.6		26.3	97.9	10.0	10.0
30th %ile Term Code	Coord		Gap	Coord	Min	Min
10th %ile Green (s)	70.3		22.6	97.9	10.0	10.0
10th %ile Term Code	Coord		Gap	Coord	Min	Min
Queue Length 50th (m)	107.5		76.4	20.4	1.3	0.0
Queue Length 95th (m)	#198.7		82.6	37.9	27.7	27.8
Internal Link Dist (m)	167.8			187.8	109.2	
Turn Bay Length (m)			125.0			
Base Capacity (vph)	928		808	1421	545	530
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	22	21
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.70		0.80	0.36	0.61	0.62
Intersection Summary Area Type:	Other					
Cycle Length: 120	Outo					
Actuated Cycle Length: 120						
Offset: 104 (87%), Referenced	I to phase 2.FRT ar	nd 6:WBT S	Start of Gre	en		
Natural Cycle: 90	p 2.127 (II					
Control Type: Actuated-Coordi	inated					
Maximum v/c Ratio: 0.84						
Intersection Signal Delay: 26.4				Int	ersection LO	os· c
Intersection Capacity Utilization					U Level of S	
Analysis Period (min) 15				10	2 20,01010	J. 7100 L
# 95th percentile volume exc	eeds canacity oue	ue may he l	onger			
Queue shown is maximum		may bo i	ongoi.			
Splits and Phases: 16: East	Employee Access	& Roger Sta	evens			
		w reader of	,,,,,,,,			
<b>√</b> Ø1	<u>.</u>	<b>→</b> Ø2 (F	3)			
22 -		- WZ (F	<b>V</b>			
33 S	5	) o S				
<b>←</b>	_					
Ø6 (R)						

	<b>→</b>	•	•	•	•	<i>&gt;</i>
Movement	EBT	EBR	WBL	WBT	NBL	• NBR
Lane Configurations		LDIX	7	<u>₩</u>	W	NUIX
Traffic Volume (veh/h)	<b>1</b> 348	5	<b>1</b> 5	<b>7</b> 207	<b>Y</b> 5	5
Future Volume (Veh/h)	348	5	5	207	5	5
Sign Control	Free	J	J	Free	Stop	J
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
	348			207	1.00	
Hourly flow rate (vph) Pedestrians	348	5	5	207	3	5
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				351		
pX, platoon unblocked						
vC, conflicting volume			353		568	350
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			353		568	350
tC, single (s)			5.1		7.4	7.2
tC, 2 stage (s)						
tF (s)			3.1		4.4	4.2
p0 queue free %			99		99	99
cM capacity (veh/h)			817		351	518
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	353	5	207	10		
Volume Left	0	5	0	5		
Volume Right	5	0	0	5		
cSH	1700	817	1700	419		
Volume to Capacity	0.21	0.01	0.12	0.02		
	0.0		0.12	0.02		
Queue Length 95th (m)		0.1				
Control Delay (s)	0.0	9.4	0.0	13.8		
Lane LOS		A		В		
Approach Delay (s)	0.0	0.2		13.8		
Approach LOS				В		
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			29.7%	ICI	J Level of S	ervice
Analysis Period (min)			15			
Joio i onou (min)			10			

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	-	*	•		)	1
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<b>1</b> 273			र्	W	
Traffic Volume (veh/h)	273	1	5	190	4	26
Future Volume (Veh/h)	273	1	5	190	4	26
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	273	1	5	190	4	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			274		474	274
vC1, stage 1 conf vol					** 1	
vC2, stage 2 conf vol						
vCu, unblocked vol			274		474	274
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)			1.1		V. 1	J.L
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	97
cM capacity (veh/h)			1289		547	765
	ED.	MD 4			0	
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	274	195	30			
Volume Left	0	5	4			
Volume Right	1	0	26			
cSH	1700	1289	727			
Volume to Capacity	0.16	0.00	0.04			
Queue Length 95th (m)	0.0	0.1	1.0			
Control Delay (s)	0.0	0.2	10.2			
Lane LOS		Α	В			
Approach Delay (s)	0.0	0.2	10.2			
Approach LOS			В			
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			25.2%	ICI	J Level of S	ervice
Analysis Period (min)			15	100		
Analysis i Gilou (IIIII)			10			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		₽.			412			Δħ			Δ	
Traffic Volume (veh/h)	11	295	5	4	<b>4</b> 183	15	8	4	23	12	<b>4</b>	2
Future Volume (Veh/h)	11	295	5	4	183	15	8	4	23	12	3	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	11	295	5	4	183	15	8	4	23	12	3	2
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	198			300			522	526	298	543	520	190
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	198			300			522	526	298	543	520	190
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
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 %	99			100			98	99	97	97	99	100
cM capacity (veh/h)	1375			1261			458	452	742	430	455	851
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	311	202	35	17								
Volume Left	11	4	8	12								
Volume Right	5	15	23	2								
cSH	1375	1261	611	461								
Volume to Capacity	0.01	0.00	0.06	0.04								
Queue Length 95th (m)	0.01	0.00	1.4	0.04								
Control Delay (s)	0.2	0.1	11.3	13.1								
Lane LOS	0.5 A	0.2 A	В	В								
Approach Delay (s)	0.3	0.2	11.3	13.1								
Approach LOS	0.3	0.2	В	В								
Intersection Summary												
Average Delay			1.3									
Intersection Capacity Utilization			32.7%	IC	U Level of Sen	vice			Α			
Analysis Period (min)			15									

	<b>→</b>	•	•	•	4	~
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<b>1</b>	LUIX	VVDL	<u>₩Ы</u>	NDL W	וטוז
Traffic Volume (veh/h)	339	13	317	<b>1</b> 99	13	310
Future Volume (Veh/h)	339	13	317	199	13	310
Sign Control	Free	10	017	Free	Stop	010
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	339	13	317	199	13	310
Pedestrians	333	10	017	100	10	310
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)	NOHE			NONE		
Upstream signal (m)				192		
pX, platoon unblocked				132		
vC, conflicting volume			352		1178	346
vC1, stage 1 conf vol			332		11/0	340
vC1, stage 1 conf vol						
vCu, unblocked vol			352		1178	346
			352 4.1		6.4	6.2
tC, single (s)			4.1		0.4	0.2
tC, 2 stage (s)			0.0		2.5	2.2
tF (s)			2.2		3.5	3.3
p0 queue free %			74		92	56
cM capacity (veh/h)			1207		155	697
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	352	317	199	323		
Volume Left	0	317	0	13		
Volume Right	13	0	0	310		
cSH	1700	1207	1700	612		
Volume to Capacity	0.21	0.26	0.12	0.53		
Queue Length 95th (m)	0.0	8.0	0.0	23.5		
Control Delay (s)	0.0	9.0	0.0	17.3		
Lane LOS		Α		С		
Approach Delay (s)	0.0	5.6		17.3		
Approach LOS				С		
Intersection Summary						
Average Delay			7.1			
Intersection Capacity Utilization			69.2%	ICI	J Level of S	ervice
Analysis Period (min)			15		2010. 0. 0	0.1.00
rinaryolo i onou (mm)			10			

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	<u> </u>	<u>LBI</u>	VVD1	WDK 7	SDL *	77
Traffic Volume (vph)	179	1054	<b>4</b> 09	102	281	873
Future Volume (vph)	179	1054	409	102	281	873
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	60.0			30.0	110.0	110.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0				60.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1695	1784	1784	1517	1695	2669
Flt Permitted	0.493				0.950	
Satd. Flow (perm)	880	1784	1784	1517	1695	2669
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				102		873
Link Speed (k/h)		80	80		50	
Link Distance (m)		122.5	76.1		162.5	
Travel Time (s)		5.5	3.4		11.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	179	1054	409	102	281	873
Shared Lane Traffic (%)						
Lane Group Flow (vph)	179	1054	409	102	281	873
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7	.3	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		1.0	1.0		1.0	
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24	1.00	1.00	14	24	14
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	6.1	30.5	30.5	6.1	6.1	6.1
Trailing Detector (m)	0.1	0.0	0.0	0.1	0.0	0.1
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8	6.1	6.1	6.1
Detector 1 Type	Cl+Ex	CI+Ex	CI+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Type Detector 1 Channel	UI+EX	UI+EX	UI+EX	OI+EX	UI+EX	UI+EX
	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Extend (s) Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		CI+Ex	Cl+Ex			
Detector 2 Channel		2.2				
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA	Perm	Perm	Perm
Protected Phases		2	6			
Permitted Phases	2			6	4	4
Detector Phase	2	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	26.6	26.6	43.6	43.6	29.7	29.7
Total Split (s)	80.0	80.0	80.0	80.0	30.0	30.0
Total Split (%)	72.7%	72.7%	72.7%	72.7%	27.3%	27.3%
Maximum Green (s)	73.4	73.4	73.4	73.4	23.3	23.3
Yellow Time (s)	4.6	4.6	4.6	4.6	3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
				0.0	0.7	0.7
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.7	6.7

	•	<b>→</b>	<b>←</b>	•	-	1	
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	
Walk Time (s)	o max	o max	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)			30.0	30.0	16.0	16.0	
Pedestrian Calls (#/hr)			0	0	0	0	
Act Effct Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.21	0.21	
v/c Ratio	0.30	0.89	0.34	0.10	0.78	0.70	
Control Delay	6.5	17.1	5.8	0.3	57.5	5.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	6.5	17.1	5.8	0.3	57.5	5.9	
LOS	A	В	Α	Α.5	57.5 E	A	
Approach Delay	А	15.6	4.7	Д	18.5	А	
Approach LOS		15.0 B	4.7 A		10.5 B		
90th %ile Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
90th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	Z3.3 MaxR	
70th %ile Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
70th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	Z3.3 MaxR	
50th %ile Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
50th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	
80th %ile Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
30th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	Z3.3 MaxR	
10th %ile Green (s)	73.4	73.4	73.4	73.4	23.3	23.3	
10th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	Z3.3 MaxR	
Queue Length 50th (m)	7.1	55.1	17.2	0.1	57.4	0.0	
Queue Length 95th (m)	19.1	#279.2	23.9	m0.7	#96.5	16.8	
Internal Link Dist (m)	19.1	98.5	52.1	1110.7	138.5	10.0	
	60.0	90.5	32.1	30.0	110.0	110.0	
Furn Bay Length (m) Base Capacity (vph)	587	1190	1190	1046	359	1253	
Starvation Cap Reductn	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0 20	0	0	0	0 70	0 70	
Reduced v/c Ratio	0.30	0.89	0.34	0.10	0.78	0.70	
ntersection Summary	Other						
Area Type:	Other						
Cycle Length: 110							
Actuated Cycle Length: 110 Offset: 96 (87%), Referenced t	to phase 2:EBTL a	and 6:WBT,	Start of Gre	een			
latural Cycle: 90							
Control Type: Actuated-Coordi	nated						
/laximum v/c Ratio: 0.89							
ntersection Signal Delay: 14.8				Int	ersection L	OS: B	
ntersection Capacity Utilization	n 86.1%			IC	U Level of S	Service E	
Analysis Period (min) 15							
# 95th percentile volume exc	eeds capacity, qu	eue may be	longer.				
Queue shown is maximum		·					
m Volume for 95th percentile		d by upstrea	m signal.				
Splits and Phases: 8: Roger	Stevens & 416 S	B Dames					
opiilo aliu Filases. 0. Rogel	O(EVEIIS & 410 S	naiiih2					L.A.
The second secon							

	<b>→</b>	•	•	←	4	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<u> </u>	₹	YVDL K	<u>₩</u>	₩.	HUIT
Traffic Volume (vph)	<b>4</b> 79	864	90	<b>T</b> 353	189	49
Future Volume (vph)	479	864	90	353	189	49
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	. 300	30.0	85.0	.000	0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			100.0		30.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.972	.,,,,
FIt Protected		3.300	0.950		0.962	
Satd. Flow (prot)	1784	1517	1695	1784	1668	0
Flt Permitted	1101	.511	0.439		0.962	
Satd. Flow (perm)	1784	1517	783	1784	1668	0
Right Turn on Red	1104	Yes	700	170-	1300	Yes
Satd. Flow (RTOR)		832			11	100
Link Speed (k/h)	80	302		80	50	
Link Distance (m)	73.7			234.6	117.8	
Travel Time (s)	3.3			10.6	8.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	479	864	90	353	189	49
	419	004	90	333	109	49
Shared Lane Traffic (%)	470	064	00	252	020	0
Lane Group Flow (vph)	479	864 No.	90 No	353	238 No.	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	4.00	4.00	4.00	4.00	4.00	4.00
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2	1	1	2	1	
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	
Detector 1 Type	CI+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	
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	Perm	Perm	NA	Prot	
Protected Phases	2	. 0.111	. 01111	6	8	
Permitted Phases		2	6	-	0	
Detector Phase	2	2	6	6	8	
Switch Phase	_	L		U	U	
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	
Minimum Split (s)	38.6	38.6	26.6	26.6	22.5	
Total Split (s)	78.0	78.0	78.0	78.0	32.0	
Total Split (%)	78.0	78.0	78.0	78.0	29.1%	
	70.9%				25.3	
Maximum Green (s)		71.4	71.4	71.4		
Yellow Time (s)	4.6	4.6	4.6	4.6	3.3	
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	
Lost Time Adjust (s)	0.0 6.6	0.0 6.6	0.0	0.0	0.0 6.7	
	h h	hh	6.6	6.6	b /	
Total Lost Time (s) Lead/Lag	0.0	0.0	0.0	0.0	<b>U</b>	

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
ead-Lag Optimize?							
/ehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max		
Valk Time (s)	7.0	7.0					
Flash Dont Walk (s)	25.0	25.0					
Pedestrian Calls (#/hr)	0	0					
Act Effct Green (s)	71.4	71.4	71.4	71.4	25.3		
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.23		
//c Ratio	0.41	0.68	0.18	0.31	0.61		
Control Delay	6.7	2.0	8.7	9.3	43.6		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	6.7	2.0	8.7	9.3	43.6		
.OS	Α	A	Α	Α	D		
Approach Delay	3.7			9.2	43.6		
Approach LOS	Α			Α	D		
90th %ile Green (s)	71.4	71.4	71.4	71.4	25.3		
90th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
70th %ile Green (s)	71.4	71.4	71.4	71.4	25.3		
70th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
50th %ile Green (s)	71.4	71.4	71.4	71.4	25.3		
50th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
30th %ile Green (s)	71.4	71.4	71.4	71.4	25.3		
30th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
10th %ile Green (s)	71.4	71.4	71.4	71.4	25.3		
10th %ile Term Code	Coord	Coord	Coord	Coord	MaxR		
Queue Length 50th (m)	26.8	7.7	7.0	30.3	43.8		
Queue Length 95th (m)	m34.5	m6.2	14.0	44.9	69.7		
Internal Link Dist (m)	49.7	1110.2	17.0	210.6	93.8		
Turn Bay Length (m)	73.1	30.0	85.0	210.0	55.0		
Base Capacity (vph)	1157	1276	508	1157	392		
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	0.68	0.18	0.31	0.61		
	0.41	0.00	0.10	0.01	0.01		
tersection Summary	Olle						
rea Type:	Other						
ycle Length: 110							
ctuated Cycle Length: 110	0.555	NAIDTI O					
Offset: 2 (2%), Referenced to ph	nase 2:EBT and 6	o:WBTL, Sta	art of Green				
latural Cycle: 65	-11						
Control Type: Actuated-Coordin	ated						
Maximum v/c Ratio: 0.68							
ntersection Signal Delay: 9.6					ersection LOS		
ntersection Capacity Utilization	84.1%			IC	U Level of Se	rvice E	
nalysis Period (min) 15							
n Volume for 95th percentile of	queue is metered	by upstrea	m signal.				
Splits and Phases: 10: 416 N	B Ramps & Roge	r Stevens					
	1 0						
▼ Ø2 (R) ⁄8 s							
<del>•</del>							
♥ Ø6 (R)							<sup>3</sup> \ Ø8
70 -							22.6

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	î,	LDI	NDL NN	VVD1	NDL W	NDK
Traffic Volume (vph)	569	6	630	<b>7</b> 650	7	663
Future Volume (vph)	569	6	630	650	7	663
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	1000	0.0	125.0	1000	0.0	0.0
Storage Lanes		0.0	2		1	1
Taper Length (m)			100.0		30.0	•
Lane Util. Factor	1.00	1.00	0.97	1.00	1.00	0.95
Frt	0.999				0.853	0.850
Flt Protected	0.000		0.950		0.999	3.000
Satd. Flow (prot)	1783	0	3288	1784	1520	1441
Flt Permitted	.,,	<u> </u>	0.950		0.999	
Satd. Flow (perm)	1783	0	3288	1784	1520	1441
Right Turn on Red	11.00	Yes	3200	.,,,,	.520	Yes
Satd. Flow (RTOR)	1	100			332	331
Link Speed (k/h)	80			80	48	001
Link Distance (m)	191.8			211.8	133.2	
Travel Time (s)	8.6			9.5	10.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	569	1.00	630	650	7.00	663
Shared Lane Traffic (%)	309	U	030	000	I	50%
	E7E	0	620	GEO.	220	331
Lane Group Flow (vph)	575	0	630	650	339 No	
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4			7.4	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	4.00	4.00	4.00	4.00	4.00	4.00
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
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		Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	. 01111
Permitted Phases						8
Detector Phase	2		1	6	8	8
Switch Phase					-	-
Minimum Initial (s)	20.0		5.0	20.0	10.0	10.0
Minimum Split (s)	26.1		14.5	26.1	29.0	29.0
Total Split (s)	50.0		31.0	81.0	29.0	29.0
Total Split (%)	45.5%		28.2%	73.6%	26.4%	26.4%
	43.5%		26.2%	74.9	23.0	23.0
Maximum Green (c)	43.3		3.0	4.6	3.3	3.3
Maximum Green (s)	16		o U	4.0		
Yellow Time (s)	4.6 1.5			1.5	7) 7	7) 7
Yellow Time (s) All-Red Time (s)	1.5		2.0	1.5	2.7	2.7
Yellow Time (s) All-Red Time (s) Lost Time Adjust (s)	1.5 0.0		2.0 0.0	0.0	0.0	0.0
Yellow Time (s) All-Red Time (s)	1.5		2.0			

Lead-Lag Optimize?    Lead-Lag Optimize?   Service   Se		-	<b>→</b> ✓	•	1	/	
Lead-Lag Optimize?  Vehicle Extension (s) 3.0 3.0 3.0 3.0 3.0  Recall Mode C-Max None C-Max None C-Max None Port No	Lane Group	EBT	EBR WBL	WBT	NBL	NBR	
Vehicle Extension (s)							
Recall Mode   C-Max   None   C-Max   None		3.0	3.0	3.0	3.0	3.0	
Malk Time (s) 7.0 7.0 7.0 7.0 7.0 7.0 1.1							
Tesh Dont Walk (s) 11.0 11.0 16.0 16.0 Pedestrian Calls (fflm) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0							
Padestrian Calls (#thr) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0							
Ast Effet Green (s)							
Actuated g/C Ratio			25.8				
vic Ratio     0.85     0.82     0.47     0.73     0.73       Control Delay     26.4     50.0     4.9     15.2     14.8       Queue Delay     20.0     0.0     0.0     0.0     0.0       Total Delay     26.4     50.0     4.9     15.2     14.8       LOS     C     D     A     B     B       Approach LOS     C     C     C     B       90th Wile Green (s)     43.9     29.8     78.7     19.2     19.2       90th Wile Green (s)     43.9     29.8     78.7     19.2     19.2       90th Wile Green (s)     52.4     28.5     85.9     12.0     12.0       70th Wile Green (s)     52.4     28.5     85.9     12.0     12.0       70th Wile Green (s)     56.6     26.3     87.9     10.0     10.0       90th Wile Green (s)     59.0     23.9     87.9     10.0     10.0       90th Wile Green (s)     59.0     23.9     87.9     10.0     10.0       90th Wile Green (s)     62.5     20.4     87.9     10.0     10.0       10th Wile Green (s)     62.5     20.4     87.9     10.0     10.0       10th Wile Green (s)     62.5     20.4							
Control Delay   26.4   50.0   4.9   15.2   14.8   20   20   20   20   20   20   20   2							
Dueue Delay							
Total Delay							
LOS C D A B B Approach Delay 26.4 27.1 15.0 Approach LOS C C B S Oth %ile Green (s) 43.9 29.8 78.7 19.2 19.2 Oth %ile Green (s) 43.9 29.8 78.7 19.2 19.2 Oth %ile Green (s) 52.4 28.5 85.9 12.0 12.0 Toth %ile Green (s) 52.4 28.5 85.9 12.0 12.0 Toth %ile Green (s) 56.6 26.3 87.9 10.0 10.0 Storage Coord Gap Gap Coord Gap Coord Gap Coord Gap Coord Gap Coord Gap Coord Min Min Min Oth %ile Green (s) 59.0 23.9 87.9 10.0 10.0 Storage Coord Gap Coord Min Min Oth %ile Green (s) 59.0 23.9 87.9 10.0 10.0 Storage Coord Min Min Oth %ile Green (s) 59.0 23.9 87.9 10.0 10.0 Storage Coord Min Min Oth %ile Green (s) 62.5 20.4 87.9 10.0 10.0 Storage Coord Min Min Oth %ile Green (s) 62.5 20.4 87.9 10.0 10.0 Storage Coord Min Min Oth %ile Green (s) 62.5 20.4 87.9 10.0 10.0 Storage Coord Min Min Oth %ile Green (s) 62.5 20.4 87.9 10.0 10.0 Storage Coord Min Min Oth %ile Green (s) 62.5 20.4 87.9 10.0 10.0 Storage Coord Min Min Oth %ile Green (s) 62.5 20.4 87.9 10.0 10.0 Storage Coord Min Min Oth %ile Green (s) 62.5 20.4 87.9 10.0 10.0 Storage Coord Min Min Oth %ile Green (s) 62.5 20.4 87.9 10.0 10.0 Storage Coord Min Min Oth %ile Green (s) 62.5 20.4 87.9 10.0 10.0 Storage Coord Min Min Oth %ile Green (s) 62.5 20.4 87.9 10.0 10.0 Storage Coord Min Min Oth %ile Green (s) 62.5 20.4 87.9 10.0 10.0 Storage Coord Min Min Oth %ile Green (s) 62.5 20.4 87.9 10.0 10.0 Storage Coord Min Min Oth %ile Green (s) 62.5 20.4 87.9 10.0 10.0 Storage Coord Min Min Oth %ile Green (s) 62.5 20.4 87.9 10.0 10.0 Storage Coord Min Min Min Oth %ile Green (s) 62.5 20.4 87.9 10.0 10.0 Storage Coord Min Min Min Oth %ile Green (s) 62.5 20.4 87.9 10.0 10.0 Storage Coord Min Min Min Oth %ile Green (s) 62.5 20.7 0.7 0.47 0.58 0.59 Intersection Storage Coord Min Min Min Oth %ile Green (s) 62.5 20.7 0.7 0.47 0.58 0.59 Intersection Storage Coord Min Min Min Min Min Min Oth %ile Green (s) 62.5 20.7 0.7 0.47 0.58 0.59 Intersection Storage Coord Min							
Approach Delay 26.4 27.1 15.0 Approach LOS C C B B 90th %ile Green (s) 43.9 29.8 78.7 19.2 19.2 19.2 19.2 19.2 19.2 19.2 19.2							
Approach LOS C C B 90th %ile Green (s) 43.9 29.8 78.7 19.2 19.2 90th %ile Green (s) 52.4 28.5 85.9 12.0 12.0 70th %ile Green (s) 52.4 28.5 85.9 12.0 12.0 70th %ile Green (s) 52.4 28.5 85.9 12.0 12.0 70th %ile Green (s) 56.6 26.3 87.9 10.0 10.0 90th %ile Green (s) 56.6 26.3 87.9 10.0 10.0 90th %ile Green (s) 56.6 26.3 87.9 10.0 10.0 90th %ile Green (s) 59.0 23.9 87.9 10.0 10.0 90th %ile Green (s) 59.0 23.9 87.9 10.0 10.0 90th %ile Green (s) 62.5 20.4 87.9 10.0 10.0 90th %ile Green (s) 62.5 20.4 87.9 10.0 10.0 90th %ile Green (s) 62.5 20.4 87.9 10.0 10.0 10th %ile Green (s) 62.5 20.4 87.9 10.0 10.0 10th %ile Green (s) 62.5 20.4 87.9 10.0 10.0 10th %ile Green (s) 62.5 20.4 87.9 10.0 10.0 10th %ile Term Code Coord Gap Coord Min Min Olin Olith %ile Term Code Coord Gap Coord Min Min Olin Olith %ile Term Code Coord Gap Coord Min Min Olin Olith %ile Term Code Coord Gap Coord Min Min Olin Olith %ile Term Code Coord Gap Coord Min Min Olin Olith %ile Term Code Coord Gap Coord Min Min Olin Olith %ile Term Code Coord Gap Coord Min Min Olin Olith %ile Term Code Coord Gap Coord Min Min Olin Olith %ile Term Code Coord Gap Coord Min Min Olin Olith %ile Term Code Coord Gap Coord Min Min Olin Olith %ile Term Code Coord Gap Coord Min Min Olith %ile Term Code Coord Gap Coord Min Min Olith %ile Term Code Coord Gap Coord Min Min Olith %ile Term Code Coord Gap Coord Min Min Olith %ile Term Code Coord Gap Coord Min Min Olith %ile Term Code Coord Gap Coord Min Min Olith %ile Term Code Coord Gap Coord Min Min Olith %ile Term Code Coord Gap Coord Min Min Min Olith %ile Term Code Coord Gap Coord Min Min Min Olith %ile Term Code Coord Gap Coord Min Min Min Olith %ile Term Code Coord Gap Coord Min Min Min Olith %ile Term Code Coord Gap Coord Min Min Min Olith %ile Term Code Coord Min Min Min Min Olith %ile Term Code Coord Min Min Min Min Min Min Olith %ile Term Code Coord Min							
20th %ile Green (s)							
90th %ile Term Code			20.8			10.2	
70th %ile Green (s) 52.4 28.5 85.9 12.0 12.0 70th %ile Term Code Coord Gap Coord Gap Gap Solth %ile Green (s) 56.6 26.3 87.9 10.0 10.0 50th %ile Green (s) 56.6 26.3 87.9 10.0 10.0 50th %ile Green (s) 59.0 23.9 87.9 10.0 10.0 30th %ile Term Code Coord Gap Coord Min Min 30th %ile Term Code Coord Gap Coord Min Min Min 10th %ile Green (s) 59.0 23.9 87.9 10.0 10.0 10.0 30th %ile Green (s) 62.5 20.4 87.9 10.0 10.0 10.0 10th %ile Green (s) 62.5 20.4 87.9 10.0 10.0 10.0 10th %ile Term Code Coord Gap Coord Min Min 20th %ile Term Code Coord Gap Coord Min Min 20th %ile Term Code Coord Gap Coord Min Min 20th %ile Term Code Coord Gap Coord Min Min 20th %ile Term Code Coord Gap Coord Min Min 20th %ile Term Code Coord Gap Coord Min Min 20th %ile Term Code Coord Gap Coord Min Min 20th %ile Term Code Coord Gap Coord Min Min 20th %ile Term Code Coord Gap Coord Min Min 20th %ile Term Code Coord Gap Coord Min Min 20th %ile Term Code Coord Gap Coord Min Min 20th %ile Term Code Coord Gap Coord Min Min 20th %ile Term Code Coord Gap Coord Min Min 20th %ile Term Code Coord Gap Coord Min Min 20th %ile Term Code Coord Gap Coord Min Min 20th %ile Term Code Coord Gap Coord Min Min 20th %ile Term Code Coord Min 20th %							
70th %ile Term Code							
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50th %ile Term Code							
30th %ile Green (s)   59.0   23.9   87.9   10.0   10.0							
Solth %ile Term Code							
10th %ile Green (s) 62.5 20.4 87.9 10.0 10.0 10.0 10th %ile Term Code Coord Gap Coord Min Min Queue Length 50th (m) 84.8 69.4 29.4 1.4 0.0 Queue Length 95th (m) #156.9 86.7 59.7 27.1 26.9 Internal Link Dist (m) 167.8 187.8 109.2 Turn Bay Length (m) 125.0 Base Capacity (vph) 889 816 1389 580 563 Starvation Cap Reductn 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0							
10th %ile Term Code							
Queue Length 50th (m)							
Queue Length 95th (m) #156.9 86.7 59.7 27.1 26.9 Internal Link Dist (m) 167.8 187.8 109.2 Turn Bay Length (m) 125.0 Base Capacity (vph) 889 816 1389 580 563 Starvation Cap Reductn 0 0 0 0 0 0 Spillback 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 Storage Cap Reductn 0 0 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0 0 0 0 0 Storage 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 0 0 Storage Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0							
Internal Link Dist (m) 167.8 187.8 109.2  Turn Bay Length (m) 125.0  Base Capacity (vph) 889 816 1389 580 563  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 0.65 0.77 0.47 0.58 0.59  Intersection Summary  Area Type: Other  Cycle Length: 110  Actuated Cycle Length: 110  Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green Natural Cycle: 90  Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.82  Intersection Signal Delay: 23.7 Intersection LOS: C intersection Capacity Utilization 80.1%  Analysis Period (min) 15  # 95th percentile volume exceeds capacity, queue may be longer.  Queue shown is maximum after two cycles.  Splits and Phases: 16: East Employee Access & Roger Stevens							
Turn Bay Length (m) 125.0  Base Capacity (vph) 889 816 1389 580 563  Starvation Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			80.7			20.9	
Base Capacity (vph) 889 816 1389 580 563  Starvation Cap Reductn 0 0 0 0 0 0  Spillback Cap Reductn 0 0 0 0 0 0 0  Reduced Vc Ratio 0.65 0.77 0.47 0.58 0.59  Intersection Summary  Area Type: Other  Cycle Length: 110  Actuated Cycle Length: 110  Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green  Natural Cycle: 90  Control Type: Actuated-Coordinated  Maximum v/c Ratio: 0.82  Intersection Signal Delay: 23.7 Intersection LOS: C  Intersection Capacity Utilization 80.1% ICU Level of Service D  Analysis Period (min) 15  # 95th percentile volume exceeds capacity, queue may be longer.  Queue shown is maximum after two cycles.	` ,	107.8	405.0	187.8	109.2		
Starvation Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		000		4200	F00	F00	
Spillback Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0							
Storage Cap Reductn 0 0 0 0 0 0 0 0 0 Reduced v/c Ratio 0.65 0.77 0.47 0.58 0.59  Intersection Summary  Area Type: Other Cycle Length: 110  Actuated Cycle Length: 110  Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green Natural Cycle: 90  Control Type: Actuated-Coordinated  Maximum v/c Ratio: 0.82 Intersection Signal Delay: 23.7 Intersection LOS: C Intersection Capacity Utilization 80.1% ICU Level of Service D  Analysis Period (min) 15  # 95th percentile volume exceeds capacity, queue may be longer.  Queue shown is maximum after two cycles.							
Reduced v/c Ratio 0.65 0.77 0.47 0.58 0.59  Intersection Summary  Area Type: Other  Cycle Length: 110  Actuated Cycle Length: 110  Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green  Natural Cycle: 90  Control Type: Actuated-Coordinated  Maximum v/c Ratio: 0.82  Intersection Signal Delay: 23.7 Intersection LOS: C  Intersection Capacity Utilization 80.1% ICU Level of Service D  Analysis Period (min) 15  # 95th percentile volume exceeds capacity, queue may be longer.  Queue shown is maximum after two cycles.  Splits and Phases: 16: East Employee Access & Roger Stevens							
Area Type: Other Cycle Length: 110 Actuated Cycle Length: 110 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green Natural Cycle: 90 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.82 Intersection Signal Delay: 23.7 Intersection LOS: C Intersection Capacity Utilization 80.1% ICU Level of Service D Analysis Period (min) 15 # 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.  Splits and Phases: 16: East Employee Access & Roger Stevens	0 1						
Area Type: Other  Cycle Length: 110  Actuated Cycle Length: 110  Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green  Natural Cycle: 90  Control Type: Actuated-Coordinated  Maximum v/c Ratio: 0.82  Intersection Signal Delay: 23.7 Intersection LOS: C  Intersection Capacity Utilization 80.1% ICU Level of Service D  Analysis Period (min) 15  # 95th percentile volume exceeds capacity, queue may be longer.  Queue shown is maximum after two cycles.  Splits and Phases: 16: East Employee Access & Roger Stevens	Reduced v/c Ratio	0.65	0.77	0.47	0.58	0.59	
Area Type: Other  Cycle Length: 110  Actuated Cycle Length: 110  Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green  Natural Cycle: 90  Control Type: Actuated-Coordinated  Maximum v/c Ratio: 0.82  Intersection Signal Delay: 23.7 Intersection LOS: C  Intersection Capacity Utilization 80.1% ICU Level of Service D  Analysis Period (min) 15  # 95th percentile volume exceeds capacity, queue may be longer.  Queue shown is maximum after two cycles.  Splits and Phases: 16: East Employee Access & Roger Stevens	Intersection Summary						
Cycle Length: 110 Actuated Cycle Length: 110 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green Natural Cycle: 90 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.82 Intersection Signal Delay: 23.7 Intersection LOS: C Intersection Capacity Utilization 80.1% ICU Level of Service D Analysis Period (min) 15  # 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.  Splits and Phases: 16: East Employee Access & Roger Stevens		Other					
Actuated Cycle Length: 110 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green Natural Cycle: 90 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.82 Intersection Signal Delay: 23.7 Intersection Capacity Utilization 80.1% ICU Level of Service D Analysis Period (min) 15 # 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.  Splits and Phases: 16: East Employee Access & Roger Stevens							
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green  Natural Cycle: 90  Control Type: Actuated-Coordinated  Maximum v/c Ratio: 0.82  Intersection Signal Delay: 23.7  Intersection Capacity Utilization 80.1%  Analysis Period (min) 15  # 95th percentile volume exceeds capacity, queue may be longer.  Queue shown is maximum after two cycles.  Splits and Phases: 16: East Employee Access & Roger Stevens							
Natural Cycle: 90 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.82 Intersection Signal Delay: 23.7 Intersection Capacity Utilization 80.1% Analysis Period (min) 15 # 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.  Splits and Phases: 16: East Employee Access & Roger Stevens		hase 2.FRT and 6	·WRT Start of Green	1			
Control Type: Actuated-Coordinated  Maximum v/c Ratio: 0.82  Intersection Signal Delay: 23.7  Intersection Capacity Utilization 80.1%  Analysis Period (min) 15  # 95th percentile volume exceeds capacity, queue may be longer.  Queue shown is maximum after two cycles.  Splits and Phases: 16: East Employee Access & Roger Stevens	Natural Cycle: 90			•			
Maximum v/c Ratio: 0.82 Intersection Signal Delay: 23.7 Intersection Capacity Utilization 80.1% ICU Level of Service D  Analysis Period (min) 15 # 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.  Splits and Phases: 16: East Employee Access & Roger Stevens		nated					
Intersection Signal Delay: 23.7 Intersection LOS: C Intersection Capacity Utilization 80.1% ICU Level of Service D  Analysis Period (min) 15 # 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.  Splits and Phases: 16: East Employee Access & Roger Stevens							
Intersection Capacity Utilization 80.1%  Analysis Period (min) 15  # 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.  Splits and Phases: 16: East Employee Access & Roger Stevens				In	tersection L	os∙ c	
Analysis Period (min) 15 # 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.  Splits and Phases: 16: East Employee Access & Roger Stevens	Intersection Capacity Utilization	80.1%					
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.  Splits and Phases: 16: East Employee Access & Roger Stevens		. 55.170		10	2 20,01010		
Queue shown is maximum after two cycles.  Splits and Phases: 16: East Employee Access & Roger Stevens  Ø1   Ø2 (R)		eds capacity que	ue may be longer				
Splits and Phases: 16: East Employee Access & Roger Stevens  ✓Ø1  ✓Ø2 (R)			as may so longor.				
√ø1 →ø2 (R)	Quodo onown is maximum c	intor two by blob.					
	Splits and Phases: 16: East I	Employee Access	& Roger Stevens				
	601		722 (0)				
31s 50 s	▼ Ø1						
<u>.                                      </u>	31 s		50 s				
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	_	•	•		`	1
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	ĵ.		7	<b>*</b>	W	
Traffic Volume (veh/h)	246	5	15	345	5	15
Future Volume (Veh/h)	246	5	15	345	5	15
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	246	5	15	345	5	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)				351		
pX, platoon unblocked						
vC, conflicting volume			251		624	248
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			251		624	248
tC, single (s)			5.1		7.4	7.2
tC, 2 stage (s)						
tF (s)			3.1		4.4	4.2
p0 queue free %			98		98	98
cM capacity (veh/h)			905		319	601
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	251	15	345	20		
Volume Left	0	15	0	5		
Volume Right	5	0	0	15		
cSH	1700	905	1700	492		
Volume to Capacity	0.15	0.02	0.20	0.04		
Queue Length 95th (m)	0.13	0.02	0.20	1.0		
Control Delay (s)	0.0	9.0	0.0	12.6		
Lane LOS	0.0	9.0 A	0.0	12.0 B		
Approach Delay (s)	0.0	0.4		12.6		
Approach LOS	0.0	0.4		12.0 B		
				ь		
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			29.2%	ICU	J Level of S	ervice
Analysis Period (min)			15			

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				4	W	
Traffic Volume (veh/h)	<b>1</b> 229	5	25	345	0	5
Future Volume (Veh/h)	229	5	25	345	0	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	229	5	25	345	0	5
Pedestrians	223	J	25	J <del>1</del> J	U	J
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
	None			None		
Median type	None			None		
Median storage veh)						
Upstream signal (m) pX, platoon unblocked						
			234		000	000
vC, conflicting volume			234		626	232
vC1, stage 1 conf vol						
vC2, stage 2 conf vol			00.4		000	000
vCu, unblocked vol			234		626	232
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	99
cM capacity (veh/h)			1333		439	808
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	234	370	5			
Volume Left	0	25	0			
Volume Right	5	0	5			
cSH	1700	1333	808			
Volume to Capacity	0.14	0.02	0.01			
Queue Length 95th (m)	0.0	0.4	0.1			
Control Delay (s)	0.0	0.7	9.5			
Lane LOS		Α	Α			
Approach Delay (s)	0.0	0.7	9.5			
Approach LOS			A			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			47.0%	IC	U Level of S	envice
			15	10	O LEVEI OI S	el vice
Analysis Period (min)			15			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		₽.			₽.			₼			₽.	
Traffic Volume (veh/h)	2	227	11	15	345	10	1	7	8	10	9	14
Future Volume (Veh/h)	2	227	11	15	345	10	1	7	8	10	9	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	227	11	15	345	10	1	7	8	10	9	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)												
pX, platoon unblocked												
vC, conflicting volume	355			238			635	622	232	628	622	350
vC1, stage 1 conf vol								V	v_	V-V	V	
vC2, stage 2 conf vol												
vCu, unblocked vol	355			238			635	622	232	628	622	350
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							•••	0.0	0.2		0.0	0.2
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	98	99	97	98	98
cM capacity (veh/h)	1204			1329			373	398	807	382	398	693
		WD 4	NB 1				0.0			002		
Direction, Lane #	EB 1	WB 1		SB 1								
Volume Total	240	370	16	33								
Volume Left	2	15	1	10								
Volume Right	11	10	8	14								
cSH	1204	1329	530	478								
Volume to Capacity	0.00	0.01	0.03	0.07								
Queue Length 95th (m)	0.0	0.3	0.7	1.7								
Control Delay (s)	0.1	0.4	12.0	13.1								
Lane LOS	Α	Α	В	В								
Approach Delay (s)	0.1	0.4	12.0	13.1								
Approach LOS			В	В								
Intersection Summary												
Average Delay			1.2									
Intersection Capacity Utilization			42.3%	IC	U Level of Ser	vice			Α			
Analysis Period (min)			15									

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1,		*	<b>A</b>	W	
Traffic Volume (veh/h)	248	13	310	347	14	327
Future Volume (Veh/h)	248	13	310	347	14	327
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	248	13	310	347	14	327
Pedestrians	2.10	10	010	017		<u> </u>
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)				192		
pX, platoon unblocked				192		
			261		1222	254
vC, conflicting volume			261		1222	254
vC1, stage 1 conf vol						
vC2, stage 2 conf vol			004		4000	054
vCu, unblocked vol			261		1222	254
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			76		91	58
cM capacity (veh/h)			1303		151	784
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	261	310	347	341		
Volume Left	0	310	0	14		
Volume Right	13	0	0	327		
cSH	1700	1303	1700	669		
Volume to Capacity	0.15	0.24	0.20	0.51		
Queue Length 95th (m)	0.0	7.1	0.0	22.1		
Control Delay (s)	0.0	8.6	0.0	15.8		
Lane LOS	0.0	A	0.0	C		
Approach Delay (s)	0.0	4.1		15.8		
Approach LOS	0.0			C		
•						
Intersection Summary						
Average Delay			6.4			
Intersection Capacity Utilization			64.9%	IC	U Level of S	ervice
Analysis Period (min)			15			
()						