524 York Road Town of Niagara-on-the-Lake

Multi-Development Transportation Impact Study

Paradigm Transportation Solutions Limited

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Project Summary

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524 York Road
Town of Niagara-on-the-Lake
Multi-Development Transportation Impact Study

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Limitations: Development of traffic impact and transportation planning studies, and reporting recommendations for associated transportation system improvements. **2025-02-18**

Association of Professional Engineers of Ontario

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Executive Summary

Content

Niagara York Road Inc. retained Paradigm Transportation Solutions Limited (Paradigm) to conduct this Multi-Development Transportation Impact Study (MD-TIS) for the Town of Niagara-on-the-Lake. This study intends to examine the effects of the expected developments around the Glendale Road and Queen Elizabeth Way (QEW) interchange in the Town of Niagara-on-the-Lake and determine any improvements as required.

Development Concepts

At the time of writing this report, there are currently 3 active development applications for the development area, including 524 York Road (Phase 2), proposed to be developed by Niagara York Road Inc. A summary of the expected developments includes approximately 2,095 residential units and 6,402 m^2 of commercial and retail space. The following provides details of each development:

- **253 Taylor Road** includes two mixed-use buildings, each containing two towers connected by a podium. A total of 810 residential units and 1,516 m^2 (16,313 sq. ft.) of ground floor commercial.

  Phase 1 (Block 2) consists of 390 residential units in 21-storey and 17-storey towers, and Phase 2 (Block 1) consists of 420 residential units in 25-storey and 18-storey towers and the 1,516 m^2 of ground floor commercial development. For assessment purposes, the proposed development is anticipated to be constructed in two phases, with the first phase opening in 2027 and full build-out of the site by 2030.

  Vehicle access to the overall site will be provided via the existing South and North driveways with Taylor Road. Closure of the Middle driveway is proposed with the planned site redevelopment. Access to the proposed residential buildings will be provided by constructing a new internal private roadway.

  Phase 2 is located at 524 York Road, on the northeast corner of Glendale Avenue and York Road in the Town of Niagara-on-the-Lake.

  The development proposes 207 hotel rooms and approximately 556 m^2 (5,985 sq. ft.) of restaurant uses served by a total parking supply of 247 vehicular and 11 bicycle parking spaces. Vehicle access is maintained via two driveway connections to

Counsell Street and Glendale Avenue through the existing shared east/west drive aisle bisecting the Phase 1 and 2 lands.

Build-out is anticipated to occur in one phase by 2030, but the timing is subject to market conditions.

- **Parcels 6 and 7** are located in the Town of Niagara-on-the-Lake. Parcel 6 is located at the northwest corner of York Road and Townline Road, and Parcel 7 is located at the southwest corner of York Road and Townline Road.

  Parcel 6 proposes 744 residential units, 2650 m^2 (28,524 sq. ft.) of retail use, and 1680 m^2 (18,083 sq. ft.) of commercial use. Vehicle access for Parcel 6 is proposed via two driveway connections to Townline Road, approximately 125 m and 240 m north of the intersection with York Road. A total of 800 vehicular parking spaces are provided.

  Parcel 7 is proposing 541 residential units. Vehicular access to Parcel 7 is proposed via a single driveway connection to York Road, approximately 105 m west of the intersection with Townline Road. A total of 522 vehicular parking spaces are provided.

  Build-out is anticipated to occur in three phases in 2030, 2032, and 2034, and the timing is subject to market conditions.

  Phase 1 includes 384 high-rise residential units, 690 m^2 (7,427 sq. ft.) of commercial use, and 1770 m^2 (19,052 sq. ft.) retail use in Parcel 6. Phase 2 includes 250 mid-rise residential units and 990 m^2 (10,656 sq. ft.) commercial use in Parcel 6. Parcel 7 contains 365 high-rise residential units. Phase 3 comprises 110 mid-rise residential units and 880 m^2 (9,472 sq. ft.) retail use in Parcel 6. Parcel 7 includes 176 mid-rise residential units.

Conclusion

The main findings and conclusions of this study are as follows:

- **Existing Traffic Operations:** During the AM and PM peak hours at York Road and Townline Road intersections, the northbound movement is expected to operate in the LOS D to LOS E range. In the Saturday peak hour, the westbound QEW Off-Ramp and eastbound QEW Off-Ramp movements operate at critical v/c ratios.
- **253 Taylor Road Site Generated Traffic:** Phase 1 is forecast to generate approximately 105, 125, and 140 new vehicle trips during the AM, PM, and Saturday peak hours, respectively. Upon full build-out, the site is estimated to generate 253 AM peak hour trips, 333 PM peak hour trips, and 365 Saturday peak hour trips.
- **524 York Road – Phase 2 Site Generated Traffic:** The subject site is forecast to generate approximately 153, 82, and 216 new vehicle trips during the AM, PM, and Saturday peak hours, respectively.
- **524 York Road – Parcel 6 Site Generated Traffic:** Phase 1 is forecast to generate approximately 170, 273, and 293 new vehicle trips during the AM, PM, and Saturday peak hours, respectively. Phase 2 is forecast to generate approximately 292, 397, and 400 new vehicle trips during the AM, PM, and Saturday peak hours, respectively. Phase 3 is forecast to generate approximately 65, 118, and 106 new vehicle trips during the AM, PM, and Saturday peak hours. Upon full build-out, the parcel is forecast to generate approximately 357, 515, and 506 new vehicle trips during the AM, PM, and Saturday peak hours, respectively.
- **524 York Road – Parcel 6 Site Generated Traffic:** Phase 2 is forecast to generate approximately 99, 118, and 140 new vehicle trips during the AM, PM, and Saturday peak hours, respectively. Phase 3 is forecast to generate approximately 66, 69, and 71 new vehicle trips during the AM, PM, and Saturday peak hours. Upon full build-out, the parcel is forecast to generate approximately 165, 187, and 211 new vehicle trips during the AM, PM, and Saturday peak hours, respectively.
- **Background Traffic Operations:** Accounting for background growth, the critical movements identified in the existing traffic horizon are forecast to further degrade with the anticipated increase in non-site related traffic. Additional new critical movements are noted at the York Road and Glendale Avenue,

York Road and Townline Road, Glendale Avenue North Signals and QEW Westbound Off-Ramp, Glendale Avenue (Southbound) and QEW Westbound Off-Ramp, Glendale Avenue (Northbound) and QEW Eastbound Off-Ramp, and Glendale Avenue South Signals intersections.

- **Total Traffic Operations:** With site-generated traffic, additional critical movements are noted at the York Road, Counsell Street Townline Road and South Site Driveway intersections.
- **Traffic Signal Control:** Traffic signals at York and Townline Road are warranted under 2044 Total Traffic conditions. Traffic signals are not warranted at any intersection in any other study area.
- **Auxiliary Turn Lanes:** Left turn lanes are warranted at the south site driveway and north site driveway on Townline Road under 2032 and 2039 conditions, respectively. The northbound left-turn lanes are recommended to provide a minimum of 25 metres for the intersection with the south site driveway and 15 metres for the intersection with the north site driveway to accommodate the forecast future traffic volumes based upon reported operations. Implementing a two-way left-turn lane would satisfy both storage requirements. An eastbound left turn lane is warranted under base year conditions on York Road at Townline Road. A left-turn lane is recommended if the preferred remedial measure of a roundabout is not implemented at this intersection.
- **Intersection Improvements:** The following intersection improvements are recommended to remediate the noted critical movements:
  - **York Road and Glendale Avenue:** Add a two-lane east leg to the existing roundabout under 2030 conditions.
  - **York Road and Counsell Street:** Restrict the southbound movement to right out only in 2034.
  - **York Road and Townline Road:** Convert the stop-controlled intersection to a roundabout under 2030 conditions.
  - **Glendale Avenue North Signals and QEW Westbound Off-Ramp:** Monitor traffic and adjust signal timing splits to reflect real-world changes in traffic volumes
  - **Glendale Avenue (Southbound) and QEW Westbound Off-Ramp:** Continue to monitor traffic volumes to determine if improvements to the traffic control are necessary.

- **Glendale Avenue (Northbound) and QEW Eastbound Off-Ramp:** Implementing an additional eastbound turning lane and converting the stop-controlled off-ramp to signal control is recommended under base-year conditions.
- **Glendale Avenue North Signals:** Monitor traffic and adjust signal timing splits to reflect real-world changes in traffic volumes.
- **York Road & Site Driveway:** Restrict the northbound site driveway to right-in/right-out.

Recommendations

Based on the findings of this study, it is recommended that:

- The Town of Niagara-on-the-Lake implement the active transportation and transit facilities identified within the *Glendale Secondary Plan*;
- Changes in real-world traffic volumes should be monitored, and
- The noted intersection improvements should be implemented to facilitate the developments.

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1 Introduction

1.1 Overview

Niagara York Road Inc. retained Paradigm Transportation Solutions Limited (Paradigm) to conduct this Multi-Development Transportation Impact Study (MD-TIS) for the Town of Niagara-on-the-Lake. This study intends to examine the effects of the expected developments around the Glendale Road and Queen Elizabeth Way (QEW) interchange in the Town of Niagara-on-the-Lake and determine any improvements as required.

At the time of writing this report, there are currently 3 active development applications for the development area, including 524 York Road (Phase 2), proposed to be developed by Niagara York Road Inc. A summary of the expected developments includes approximately 2,095 residential units and 6,402 m^2 of commercial and retail space. The following provides details of each development. **Figure 1.1** illustrates the site locations.

The scope of the study includes:

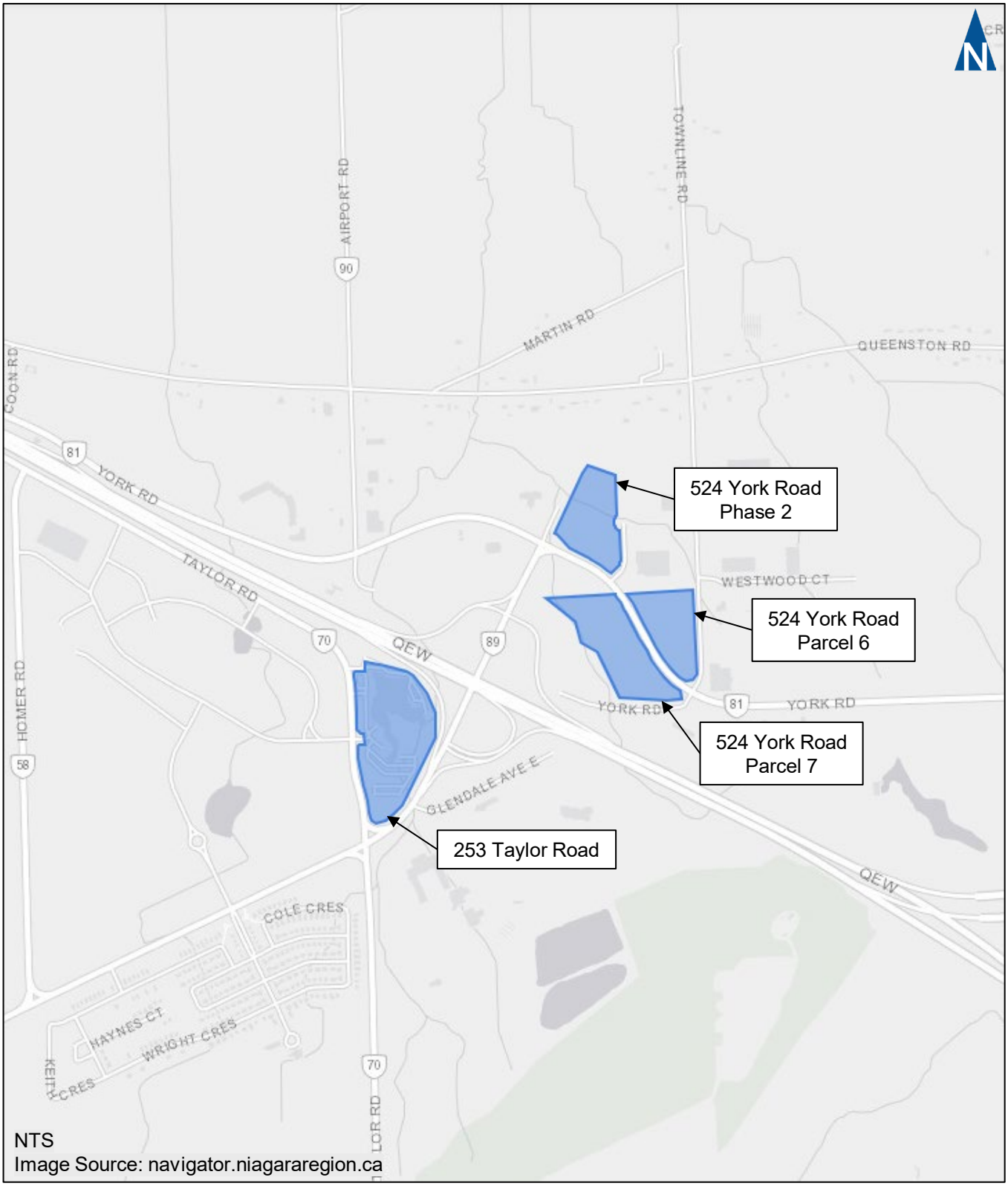
- An assessment of the current traffic and site conditions within the study area;
- Estimates of background traffic growth;
- Estimates of additional traffic generated by the subject site;
- Analyses of the impact of the future traffic on the surrounding road network; and
- Recommendations to mitigate the site-generated traffic in a satisfactory manner, if required.

Appendix A contains the pre-study consultation material and responses from the Town of Niagara-on-the-Lake, the Niagara Region, and the Ministry of Transportation, Ontario (MTO). The study generally follows the MTO's *Traffic Impact Study Guideline*[1] and the Niagara Region's *Transportation Impact Assessment Guidelines*.[2]

The study area intersections assessed in this study include:

- Glendale Avenue and Hotel Driveway (unsignalized);
- Counsell Street and Hotel Driveway (unsignalized);
- Glendale Avenue and York Road (roundabout);
- York Road and Counsell Street (unsignalized);
- York Road and Townline Road (unsignalized);
- QEW and Glendale Avenue North Ramp (signalized); and
- QEW and Glendale Avenue South Ramp (signalized).

1 *Traffic Impact Study Guideline*, Ministry of Transportation, Ontario, September 2014.
2 *Transportation Impact Assessment Guidelines*, Niagara Region, July 2023.



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Site Location

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

Figure 1.1

2 Existing Conditions

2.1 Road Network

The roadways of interest within the study area include:

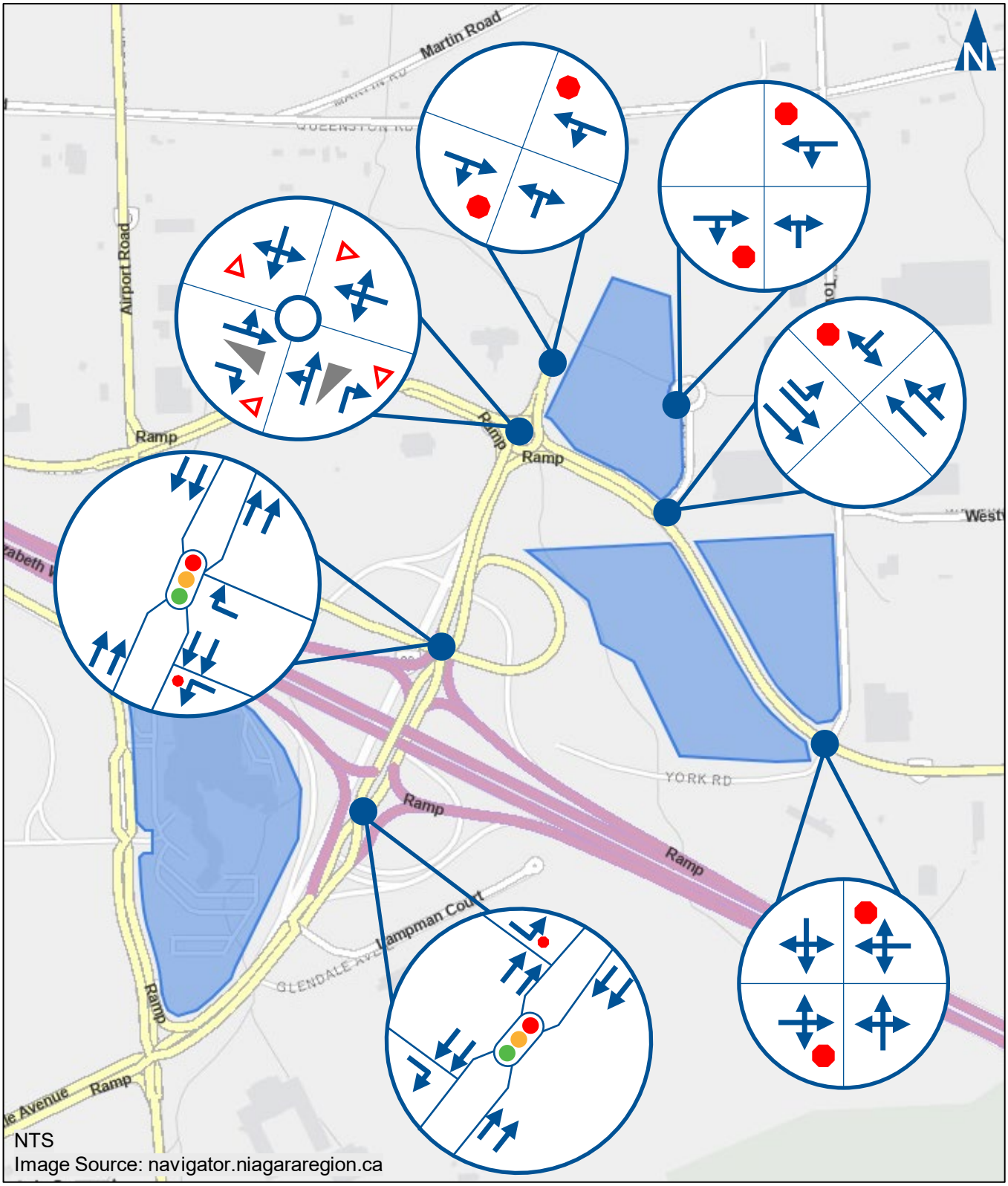
- **Glendale Avenue** is a north-south arterial road. The road has a four-lane urban cross-section, providing two travel lanes in each direction with a centre median south of the intersection with York Road. North of this intersection, the road has a two-lane urban cross-section. The road has a speed limit of 50 km/h. The road operates under the jurisdiction of the Niagara Region.
- **York Road** is an east-west arterial road. The road has an urban cross-section ranging from two to four lanes. The road has a posted speed limit of 60 km/h. The road operates under the jurisdiction of the Niagara Region.
- **Counsell Street** is a north-south local road. The road has a two-lane rural cross-section. The road has a statutory speed limit of 50 km/h. The road operates under the jurisdiction of the Town of Niagara-on-the-Lake.
- **Townline Road** is a north-south local road. The road has a two-lane rural cross-section. The road has a posted speed limit of 50 km/h. The road operates under the jurisdiction of the Town of Niagara-on-the-Lake.
- **Queen Elizabeth Way (QEW)** is a 400-series controlled access highway. The freeway has a six-lane, median-divided cross-section with three travel lanes in each direction. The road has a posted speed limit of 100 km/h. The road operates under the jurisdiction of the MTO.
- **Taylor Road** is a north-south arterial road. The road has a four-lane urban cross-section, providing two travel lanes with a centre median in each direction. The road has a speed limit of 60 km/h. The road operates under the jurisdiction of the Niagara Region.

Figure 2.1 illustrates the existing lane configurations and traffic control at the study area intersections.

The *Glendale Secondary Plan Transportation Assessment* completed by LEA Consulting Ltd. in November 2024 identifies a proposed extension of Counsell Street northward, eventually connecting to Townline Road to the east.[3] Due to the uncertain nature of the extension, this improvement was not considered in any of the operational analyses.

The plan also identifies the intersection of York Road and Glendale Avenue as a Major Gateway and identifies the intersection of York Road and Townline Road as a Character Gateway.

[3] LEA Consulting Ltd., *Glendale Secondary Plan Transportation Assessment*, (Markham, November 2024)



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Existing Lane Configuration

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

Figure 2.1

2.2 Pedestrian and Cycling Network

Pedestrian facilities are provided along the following roadways within the study area:

- **Glendale Avenue** has a multi-use path that originates on the west side of the road at the intersection with York Road. The multi-use path transitions to the boulevard's centre at the northern on/off ramps and then to the east side of the road at the southern on/off ramps.
- **Taylor Road**, north of Glendale Avenue, has a buffered sidewalk on the west side of the road.

Pedestrian signal heads, with push buttons and delineated crosswalks, are provided at the intersections of the signalized study area.

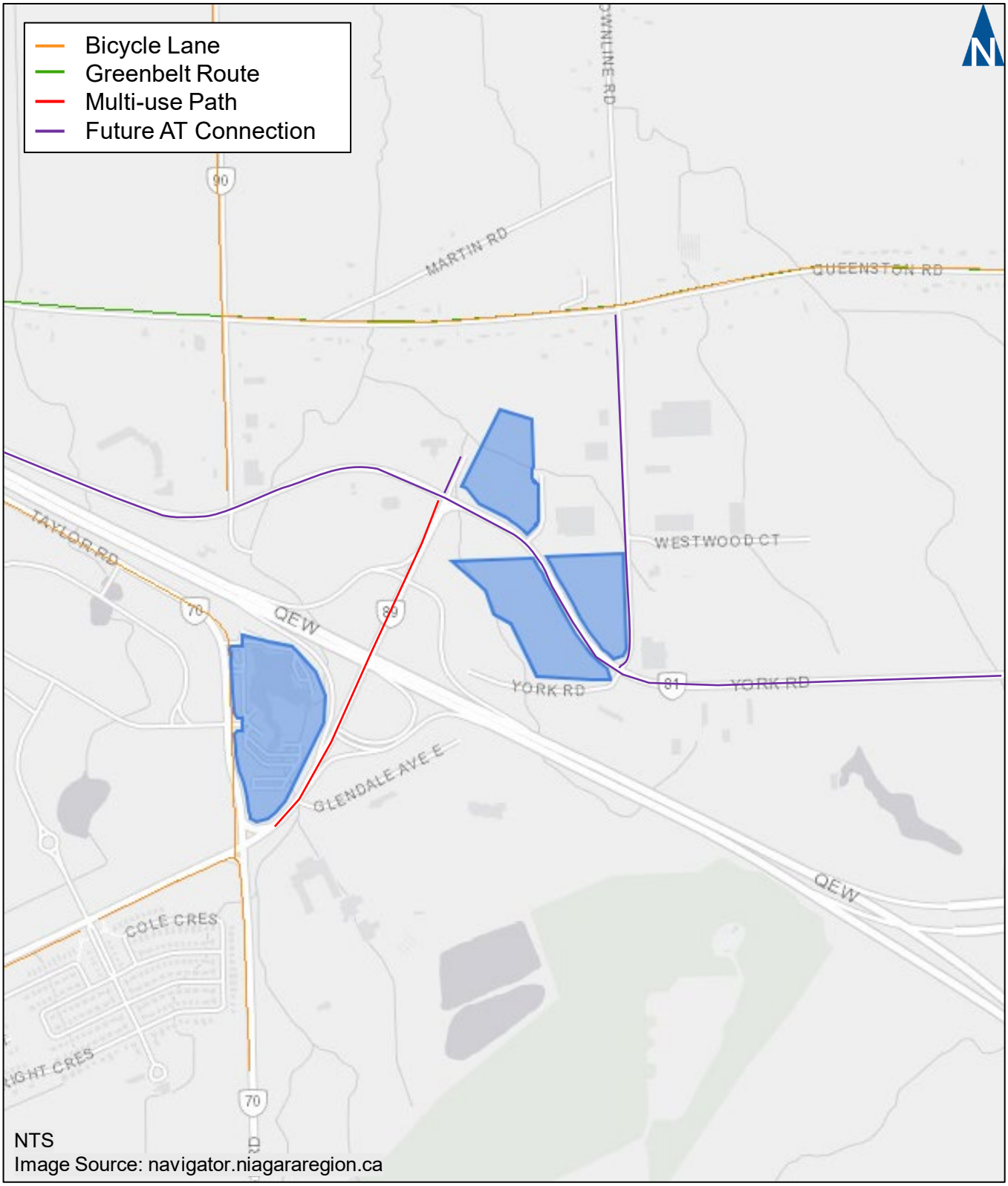
Cycling facilities are provided along the following roadways within the study area:

- **Glendale Avenue** has a multi-use path that originates on the west side of the road at the intersection with York Road. The multi-use path transitions to the boulevard's centre at the northern on/off ramps and then to the east side of the road at the southern on/off ramps.
- **Taylor Road**, north of Glendale Avenue, has bicycle lanes on both sides of the road.

The *Glendale Secondary Plan Transportation Assessment* identifies future active transportation facilities on York Road, Glendale Avenue north of York Road, and Townline Road.[4]

Figure 2.2 illustrates the existing and proposed cycling network for the area.

[4] LEA Consulting Ltd., *Glendale Secondary Plan Transportation Assessment*, (Markham, November 2024)



Existing and Proposed Cycling Network

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

Figure 2.2

2.3 Transit Service

Niagara Transit operates the public transit system in the Niagara Region. No fixed transit routes operate near the 524 York Road subject site. The subject site is served via the shared-ride service, microtransit, from 7:00 a.m. to 11:00 p.m. on weekdays and Saturdays.[5] **Figure 2.3** illustrates the Direct Service Zone.

Figure 2.4 illustrates the existing transit network near 253 Taylor Road.[6] Two transit routes serve the subject site:

- **Route 40** travels from Niagara Falls to St. Catherines. This route operates on weekdays and Saturdays from the early morning until late evening. Weekday and weekend headways operate in the order of approximately 15 to 60 minutes. Express routes run from Niagara Falls to the Niagara College, Daniel J. Patterson Campus in Niagara-on-the-Lake (NOTL) Campus and from the Niagara College NOTL Campus to St. Catherines.
- **Route 45** travels from St. Catherines to Niagara Falls. This route operates on weekdays and Saturdays from the early morning until late evening. Weekday and weekend headways operate in the order of approximately 5 to 60 minutes. Express routes run from Niagara Falls to the Niagara College NOTL Campus and from the Niagara College NOTL Campus to St. Catherines.

Two bus stops exist within a 500-metre radius of 253 Taylor Road. The closest bus stops are on the Niagara College NOTL Campus, south of the site.[7] The walking time to these stops is approximately fifteen minutes and can be accessed using the existing sidewalk infrastructure.

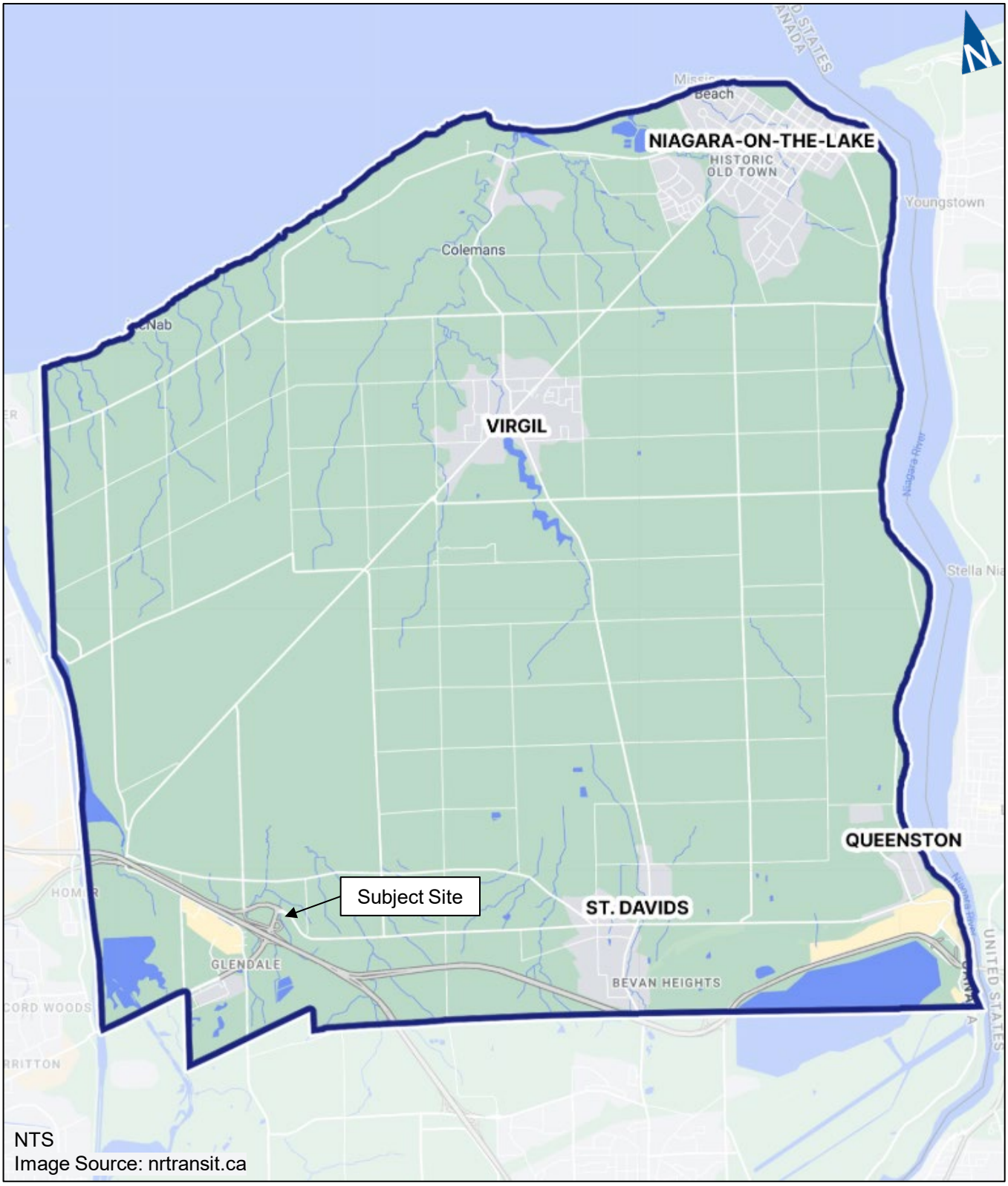
The *Glendale Secondary Plan Transportation Assessment* indicates that a future transit hub is being explored in the Glendale community. Potential locations include north of the QEW carpool lot and north of Lampman Court.[8]

5 "Microtransit", Niagara Transit, 2024, https://nrtransit.ca/microtransit/.

6 "Routes and Schedules", Niagara Transit, 2024, https://nrtransit.ca/routes/.

7 "Plan your route in the Greater Toronto and Hamilton Area," Triplinx, https://www.triplinx.ca/en/stop-finder/145/NearBy/search?Place=798488_7.

8 LEA Consulting Ltd., *Glendale Secondary Plan Transportation Assessment*, (Markham, November 2024)



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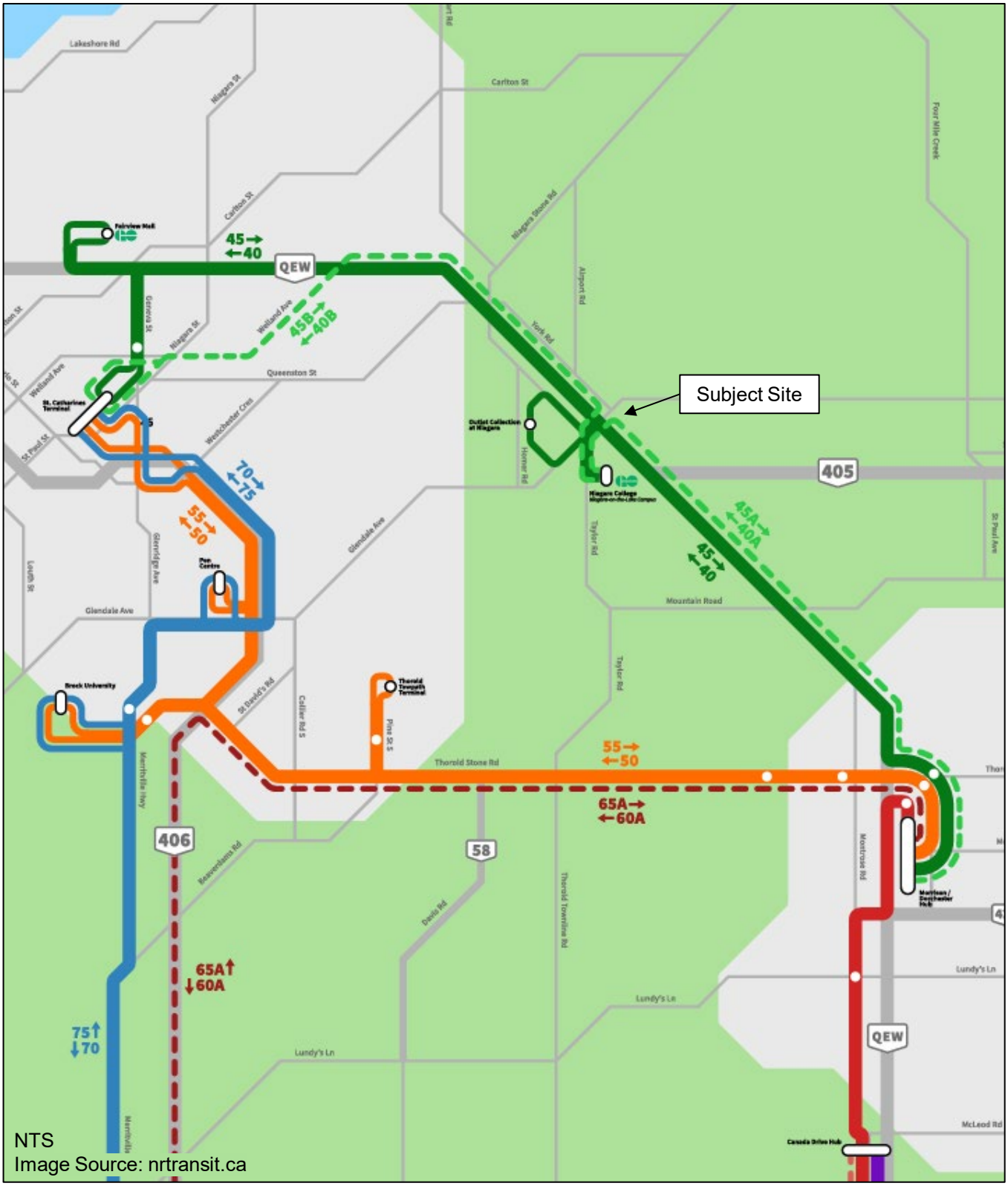
Direct Service Zone

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

Figure 2.3



NTS
Image Source: nrtransit.ca

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Existing Transit Network

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
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Figure 2.4

2.4 Traffic Volumes

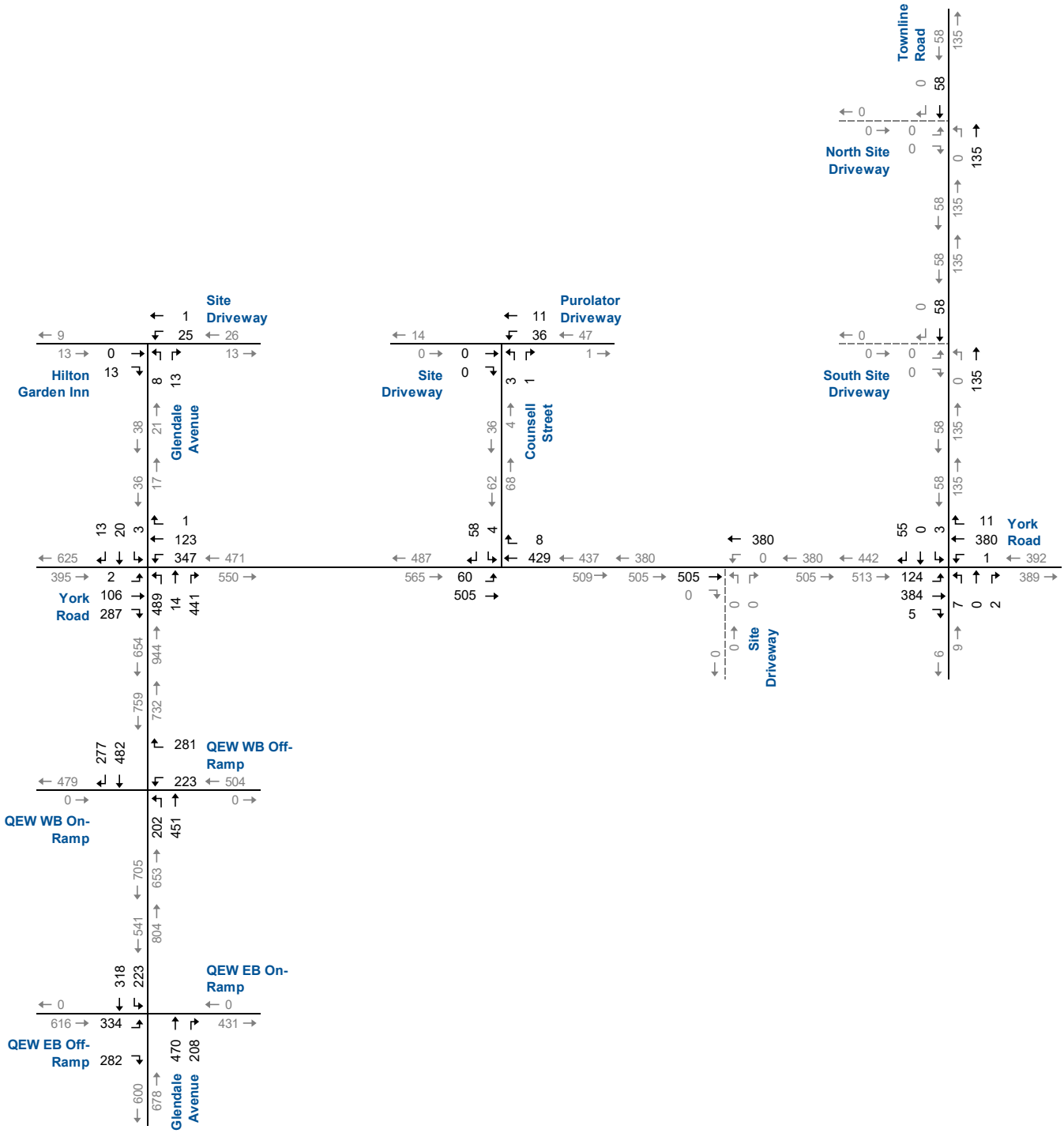
Paradigm collected existing traffic counts at the diverging diamond interchange on Thursday, January 25, 2024, and Saturday, February 3, 2024. During data collection, the left-turning on-ramps were closed. Volumes for these movements are referenced from the *White Oaks Village, 253 Taylor Road Transportation Impact & Parking Study Update* completed by Paradigm in February 2024.[9]

Pyramid Traffic Inc. collected existing traffic counts at the other study area intersections on Thursday, November 14, 2024, and Saturday, November 16, 2024. It is noted that movements travelling to and from Counsell Street cul-de-sac have been reclassified to reflect their true movement patterns more accurately.

Figure 2.5, **Figure 2.6**, and **Figure 2.7** illustrate the base weekday AM PM and Saturday peak hour volumes.

Appendix B contains the existing count data and signal timing plan.

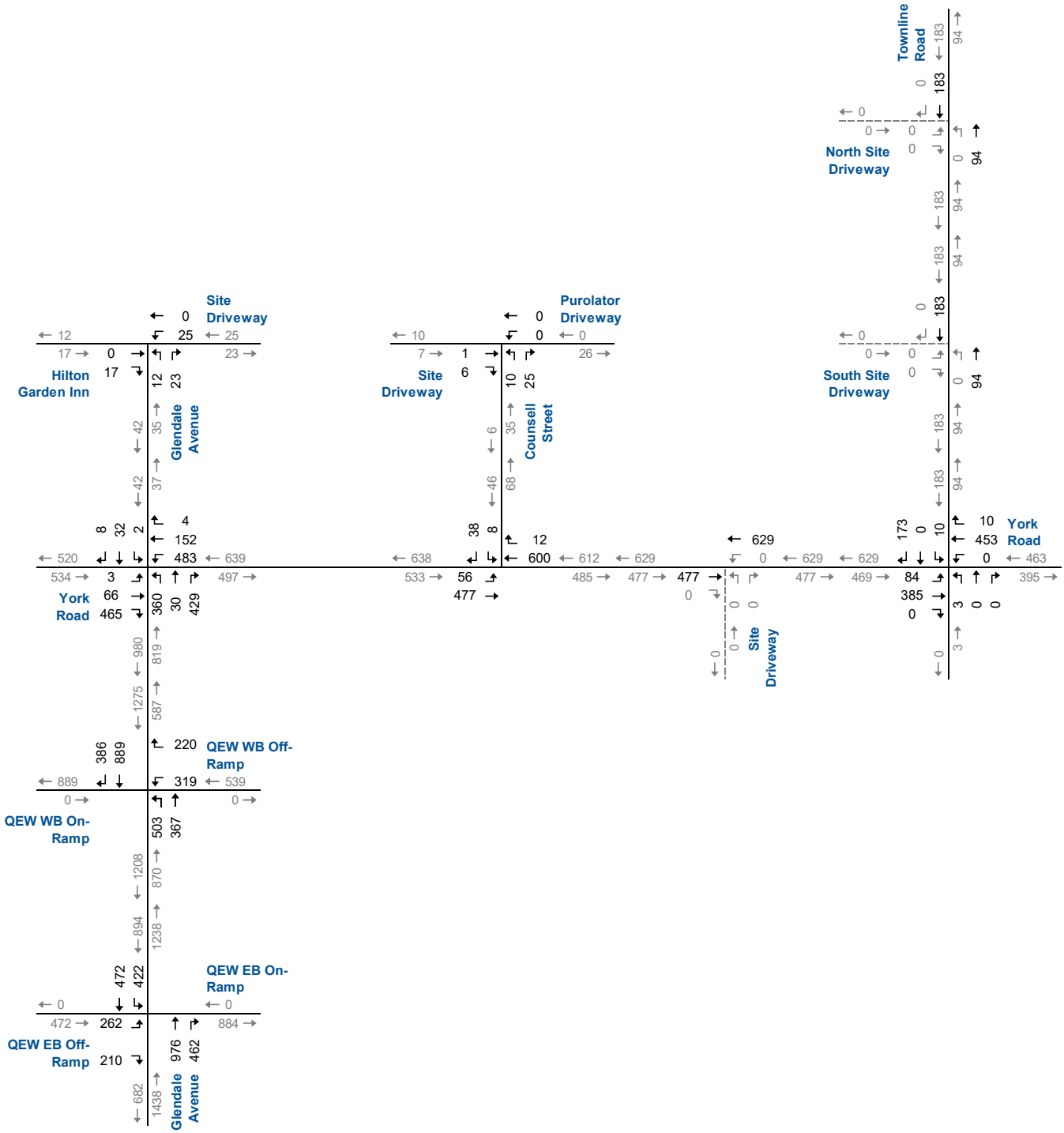
[9] Paradigm Transportation Solutions Limited, *3399 Appleby Line, City of Burlington, Transportation Impact Study*, (Cambridge, October 2022)



Base Traffic Volumes
AM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

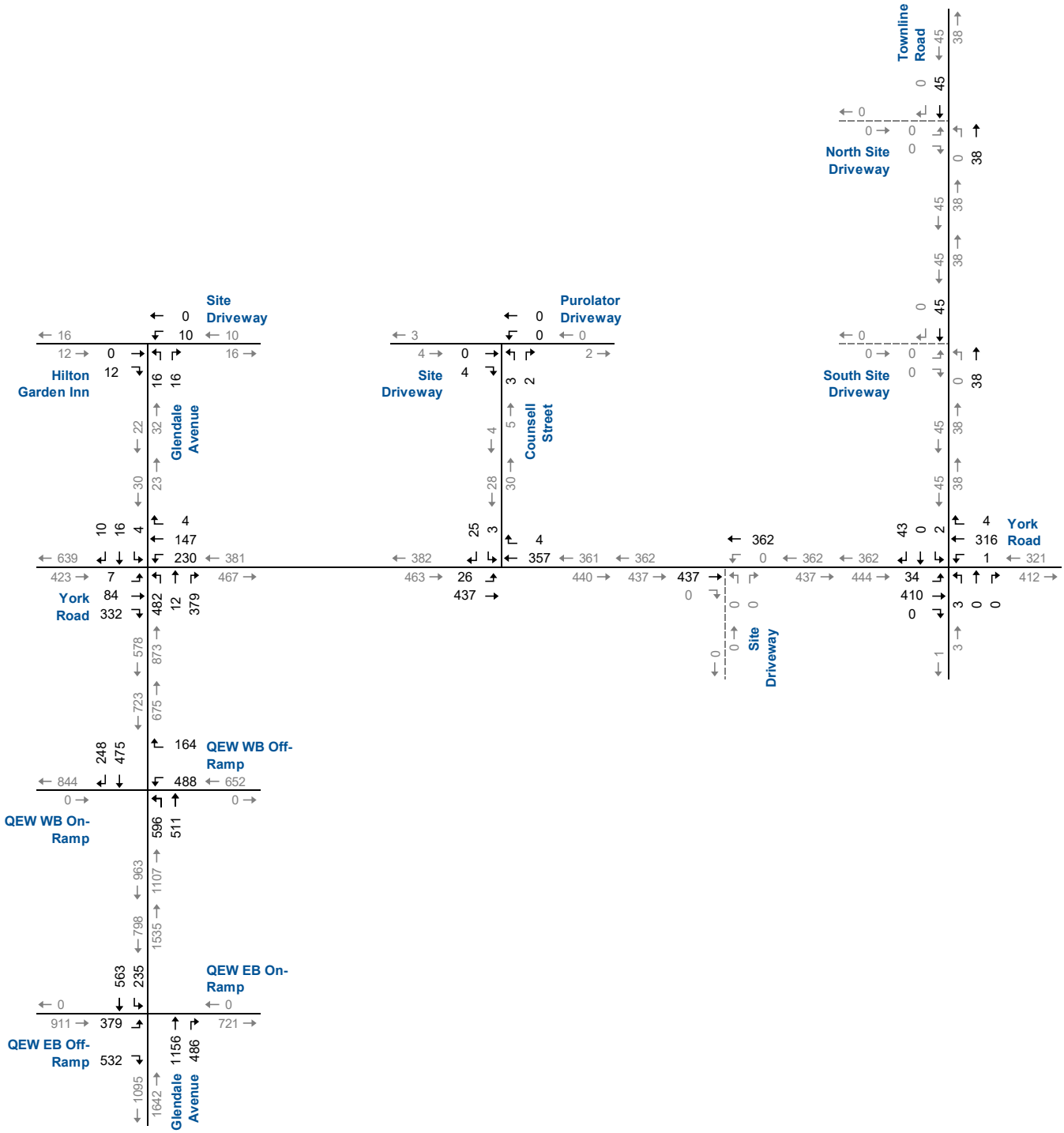
Figure 2.5



Base Traffic Volumes
PM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

Figure 2.6



Base Traffic Volumes
Saturday Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

Figure 2.7

2.5 Traffic Operations

Intersection level of service (LOS) is a recognized method of quantifying the efficiency of traffic flow at intersections. It is based on the delay experienced by individual vehicles executing the various movements. The delay is related to the number of vehicles wanting to make a movement, compared to the estimated capacity for that movement. The capacity is based on several criteria related to the opposing traffic flows.

The highest possible rating is LOS A, under which the average total delay is equal or less than 10 seconds per vehicle. When the average delay exceeds 80 seconds at signalized intersections (50 seconds at unsignalized intersections), the movement is considered to have a LOS F, and remedial measures are usually implemented if they are feasible.

The intersection analysis considered three separate measures of performance:

- The LOS for each turning movement. LOS is based on the average control delay per vehicle;
- The volume to capacity (v/c) ratio for movements and overall intersection; and
- 95th percentile queue length (metres).

Under the Region's TIS Guidelines, the operational analysis must include identification of signalized and unsignalized intersections where:

- v/c ratios movements that exceed 0.85 and/or LOS E at a signalized intersection;
- LOS, based on average delay per vehicle on individual movements, which operate at LOS D or greater for unsignalized intersections; and
- The 95th percentile queues for an individual movement that are projected to exceed the available turning lane storage.

The MTO TIS Guidelines stipulates that:

- The critical threshold for ramp terminal movements is a v/c ratio threshold of 0.75 for the consideration of mitigation measures.
- At signalized intersections, movements with a volume/capacity (v/c) ratio greater than 0.85 are deemed to be "critical" in terms of operations.

The evaluation criteria used to analyze signalized and unsignalized intersections are based on the Highway Capacity Manual (HCM)[10] 2000 procedures output from Synchro 12 software.

The operations of the intersections in the study area were evaluated using the existing lane configuration, signal timings, and traffic control along with the existing traffic volumes, including the calculated crossing pedestrians and heavy vehicle percentages. The diverging diamond interchange utilized the lane configurations and parameters from the *White Oaks Village, 253 Taylor Road Transportation Impact & Parking Study Update*.

Table 2.1, **Table 2.2**, and **Table 2.3** summarize the level of service conditions. In general, the study area intersections operate with an acceptable level of service, and all movements are within capacity. The following exceptions are noted:

AM Peak Hour:

- York Road & Townline Road (Unsignalized)
  - Northbound: A v/c ratio of 0.06, 28-second delay, LOS D.

PM Peak Hour:

- York Road & Townline Road (Unsignalized)
  - Northbound: A v/c ratio of 0.03, 47-second delay, LOS E.

Saturday Peak Hour:

- Glendale SB & QEW Off-Ramp (Unsignalized)
  - Westbound Left: A v/c ratio of 0.75, 24-second delay, LOS C.
- Glendale NB & QEW Off-Ramp (Unsignalized)
  - Eastbound Left: A v/c ratio of 0.99, 74-second delay, LOS F.

Appendix C contains the detailed Synchro 12 reports.

[10] Transportation Research Board, *Highway Capacity Manual*, Washington, D.C. 2003.

TABLE 2.1: EXISTING TRAFFIC OPERATIONS – AM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Glendale Avenue & Hilton Garden Inn/Site Driveway	TWSC	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
			Delay		8	>	**8**	<	9		**9**	3		>	**3**					**7**
			V/C		0.01	>		<	0.03			0.01		>						
			Q		0	>		<	1			0		>						
	Counsell Street & Site Driveway/Purolator Driveway	TWSC	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
			Delay		0	>	**0**	<	9		**9**	5		>	**5**					**9**
			V/C		0.00	>		<	0.05			0.00		>						
			Q		0	>		<	1			0		>						
	York Road & Glendale Avenue	RBT	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	4	>	**4**	<	8	>	**8**	<	5	>	**5**	<	6	>	**6**	**6**
			V/C	<	0.1	>		<	0.49	>		<	0.42	>		<	0.05	>		
			Q	<	1	>		<	1	>		<	1	>		<	1	>		
	York Road & Counsell Street	TWSC	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
			Delay	8	0		**1**		0	>	**0**					11		>	**11**	**1**
			V/C	0.06	0.16				0.18	>						0.10		>		
			Q	2	0				0	>						2		>		
			Stor.	20	-				-	>						-		>		
			Avail.	18	-				-	>						-		>		
	York Road & Townline Road	TWSC	LOS	<	A	>	**A**	<	A	>	**A**	<	D	>	**D**	<	B	>	**B**	**A**
			Delay	<	3	>	**3**	<	0	>	**0**	<	28	>	**28**	<	12	>	**12**	**3**
			V/C	<	0.12	>		<	0.00	>		<	0.06	>		<	0.11	>		
			Q	<	3	>		<	0	>		<	2	>		<	3	>		
	Glendale Avenue North Signals & QEW WB Off-Ramp	TCS	LOS							C	**C**		B		**B**		C		**C**	**C**
			Delay							34	**34**		10		**10**		29		**29**	**23**
			V/C							0.69	**0.69**		0.28		**0.28**		0.58		**0.58**	**0.42**
			Q							70			41				52			
	Glendale Avenue SB & QEW WB Off-Ramp	TWSC	LOS					B			**B**						A		**A**	**A**
			Delay					13			**13**						0		**0**	**4**
			V/C					0.34									0.15			
			Q					12									0			
	Glendale Avenue NB & QEW EB Off-Ramp	TWSC	LOS	C			**C**						A		**A**					**A**
			Delay	15			**15**						0		**0**					**6**
			V/C	0.51									0.15							
			Q	23									0							
	Glendale Avenue South Signals	TCS	LOS										A		**A**		D		**D**	**B**
			Delay										6		**6**		40		**40**	**20**
			V/C										0.23		**0.23**		0.64		**0.64**	**0.2**
			Q										28				46			

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement
RBT - Roundabout

TABLE 2.2: EXISTING TRAFFIC OPERATIONS – PM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Glendale Avenue & Hilton Garden Inn/Site Driveway	TWSC	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
			Delay		8	>	**8**	<	9		**9**	2		>	**2**					**6**
			V/C		0.02	>		<	0.03			0.01		>						
			Q		0	>		<	1			0		>						
	Counsell Street & Site Driveway/Purolator Driveway	TWSC	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
			Delay		8	>	**8**	<	0		**0**	2		>	**2**					**3**
			V/C		0.01	>		<	0.00			0.01		>						
			Q		0	>		<	0			0		>						
	York Road & Glendale Avenue	RBT	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	4	>	**4**	<	9	>	**9**	<	5	>	**5**	<	5	>	**5**	**6**
			V/C	<	0.07	>		<	0.63	>		<	0.32	>		<	0.06	>		
			Q	<	1	>		<	2	>		<	1	>		<	1	>		
	York Road & Counsell Street	TWSC	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
			Delay	9	0		**1**		0	>	**0**					13		>	**13**	**1**
			V/C	0.07	0.15				0.26	>						0.10		>		
			Q	2	0				0	>						3		>		
			Stor.	20	-				-	>						-		>		
			Avail.	18	-				-	>						-		>		
	York Road & Townline Road	TWSC	LOS	<	A	>	**A**	<	A	>	**A**	<	E	>	**E**	<	C	>	**C**	**A**
			Delay	<	2	>	**2**	<	0	>	**0**	<	47	>	**47**	<	16	>	**16**	**4**
			V/C	<	0.09	>		<	0.00	>		<	0.03	>		<	0.39	>		
			Q	<	2	>		<	0	>		<	1	>		<	15	>		
	Glendale Avenue North Signals & QEW WB Off-Ramp	TCS	LOS							C	**C**		B		**B**		C		**C**	**C**
			Delay							20	**20**		15		**15**		28		**28**	**24**
			V/C							0.40	**0.40**		0.28		**0.28**		0.78		**0.78**	**0.35**
			Q							46			38				96			
	Glendale Avenue SB & QEW WB Off-Ramp	TWSC	LOS					D			**D**						A		**A**	**A**
			Delay					26			**26**						0		**0**	**7**
			V/C					0.68									0.28			
			Q					40									0			
	Glendale Avenue NB & QEW EB Off-Ramp	TWSC	LOS	C			**C**						A		**A**					**A**
			Delay	23			**23**						0		**0**					**5**
			V/C	0.60									0.31							
			Q	30									0							
	Glendale Avenue South Signals	TCS	LOS										B		**B**		D		**D**	**C**
			Delay										14		**14**		36		**36**	**22**
			V/C										0.64		**0.64**		0.74		**0.74**	**0.41**
			Q										117				70			

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement
RBT - Roundabout

TABLE 2.3: EXISTING TRAFFIC OPERATIONS – SATURDAY PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
Saturday Peak Hour	Glendale Avenue & Hilton Garden Inn/Site Driveway	TWSC	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
			Delay		8	>	**8**	<	9		**9**	4		>	**4**					**6**
			V/C		0.01	>		<	0.01			0.01		>						
			Q		0	>		<	0			0		>						
	Counsell Street & Site Driveway/Purolator Driveway	TWSC	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
			Delay		8	>	**8**	<	0		**0**	4		>	**4**					**6**
			V/C		0.00	>		<	0.00			0.00		>						
			Q		0	>		<	0			0		>						
	York Road & Glendale Avenue	RBT	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	3	>	**3**	<	6	>	**6**	<	5	>	**5**	<	5	>	**5**	**5**
			V/C	<	0.08	>		<	0.4	>		<	0.41	>		<	0.04	>		
			Q	<	1	>		<	1	>		<	1	>		<	1	>		
	York Road & Counsell Street	TWSC	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
			Delay	8	0		**0**		0	>	**0**					10		>	**10**	**1**
			V/C	0.02	0.14				0.15	>						0.04		>		
			Q	1	0				0	>						1		>		
			Stor.	20	-				-	>						-		>		
			Avail.	19	-				-	>						-		>		
	York Road & Townline Road	TWSC	LOS	<	A	>	**A**	<	A	>	**A**	<	C	>	**C**	<	B	>	**B**	**A**
			Delay	<	1	>	**1**	<	0	>	**0**	<	21	>	**21**	<	11	>	**11**	**1**
			V/C	<	0.03	>		<	0.00	>		<	0.01	>		<	0.07	>		
			Q	<	1	>		<	0	>		<	0	>		<	2	>		
	Glendale Avenue North Signals & QEW WB Off-Ramp	TCS	LOS							C	**C**		A		**A**		C		**C**	**C**
			Delay							31	**31**		8		**8**		34		**34**	**22**
			V/C							0.47	**0.47**		0.29		**0.29**		0.66		**0.66**	**0.35**
			Q							45			39				58			
	Glendale Avenue SB & QEW WB Off-Ramp	TWSC	LOS					C			**C**						A		**A**	**B**
			Delay					24			**24**						0		**0**	**12**
			V/C					0.75									0.15			
			Q					54									0			
	Glendale Avenue NB & QEW EB Off-Ramp	TWSC	LOS	F									A		**A**					**C**
			Delay	74			**74**						0		**0**					**18**
			V/C	0.99									0.37							
			Q	98									0							
	Glendale Avenue South Signals	TCS	LOS											A	**A**			D	**D**	**B**
			Delay											6	**6**			38	**38**	**17**
			V/C											0.57	**0.57**			0.26	**0.26**	**0.48**
			Q											0				0		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement
RBT - Roundabout

3 Development Concepts

At the time of writing this report, there are currently 3 active development applications for the development area, including 524 York Road (Phase 2), proposed to be developed by Niagara York Road Inc. A summary of the expected developments includes approximately 2,095 residential units and 6,402 m^2 of commercial and retail space. The following section provides details of each development:

3.1 253 Taylor Road

3.1.1 Description

253 Taylor Road in the Town of Niagara-on-the-Lake. White Oaks Resort and Spa is a luxury hotel and conference centre. The site is generally located in the northeast quadrant of the Glendale Avenue and Taylor Road intersection.

The White Oaks Resort and Spa is accessed by three private driveway connections to Taylor Road, referred to as the North, Middle, and South. The North and Middle driveways are full-movement unsignalized intersections with stop-control on the private site driveway approaches. The South driveway is a full-movement signalized intersection, and the east leg of the intersection functions as the main access driveway to the White Oaks Resort and Spa with direct access to the hotel drop-off/pick-up area. The west leg of the intersection currently functions as the de facto main site access to the Outlet Collection at Niagara retail shopping complex.

The property owner proposes to intensify the southern half of the property by introducing new residential and commercial uses, while maintaining the existing hotel land use. The existing at-grade parking area along the front of the hotel (that is, across the Taylor Road site frontage) will be revised and reconfigured. A portion of hotel-designated parking spaces is proposed to be accommodated within a new parking garage structure to be constructed at the rear of the property.

The concept plan includes two mixed-use buildings, each containing two towers connected by a podium—810 residential units and 1,516 m^2 (16,313 sq. ft.) of ground floor commercial.

Phase 1 (Block 2) consists of 390 residential units in 21-storey and 17-storey towers, and Phase 2 (Block 1) consists of 420 residential units in 25-storey and 18-storey towers and the 1,516 m^2 of ground floor commercial development.

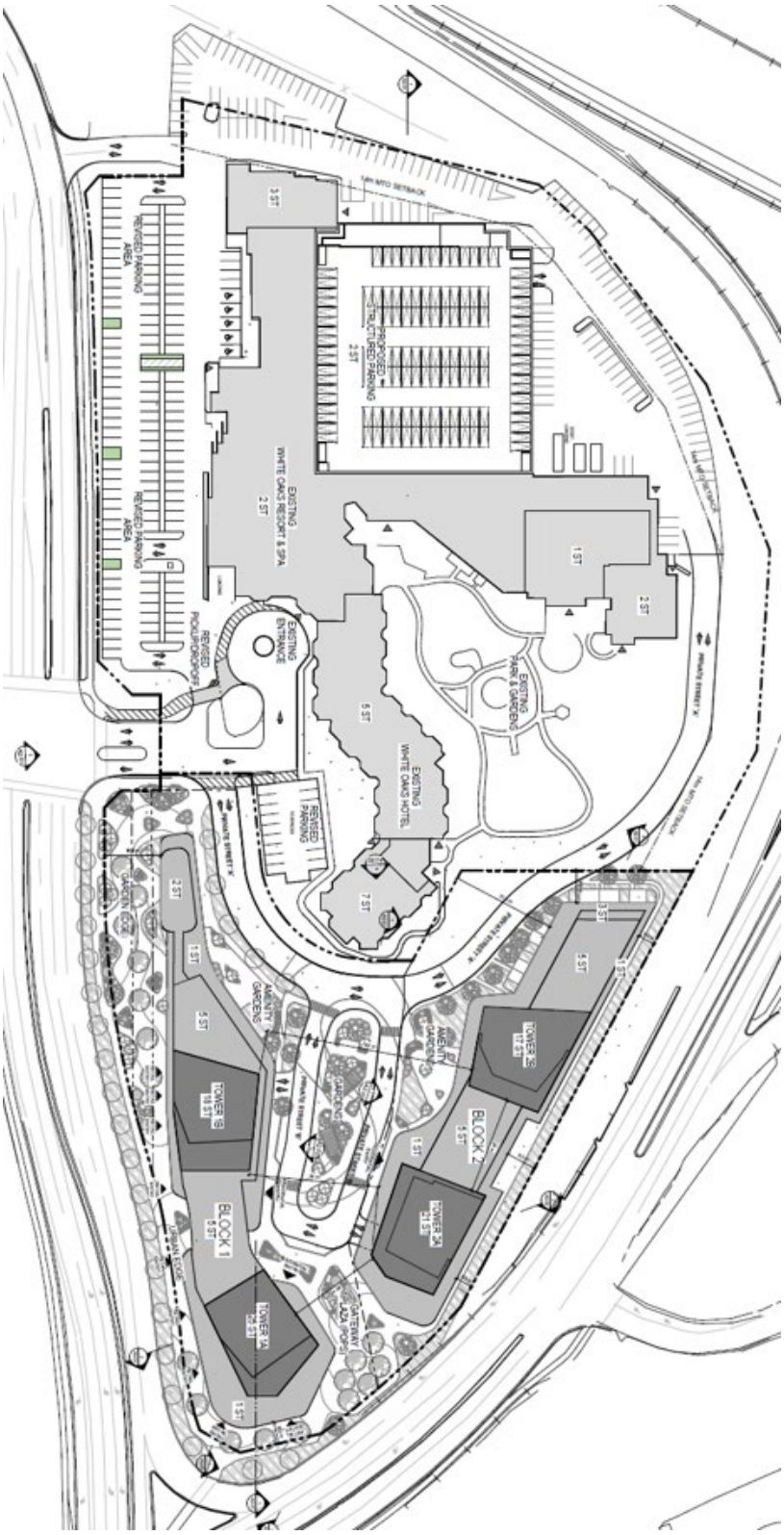
For assessment purposes, the proposed development is anticipated to be constructed in two phases, with the first phase opening in 2027 and full build-out of the site by 2030. It is acknowledged these horizon years are dependent on market conditions and approvals.

Vehicle access to the overall site will be provided via the existing South and North driveways with Taylor Road. Closure of the Middle driveway is proposed with the planned site redevelopment. Access to the proposed residential buildings will be provided by constructing a new internal private roadway.

The private driveway connection at the rear of the site will be secondary in design and function; however, it is still required as a fire route to the rear of the building. This roadway will be constructed immediately, along with the rest of the needed upgrades to the White Oaks facility (parking structure, parking lots, hotel entrance, etc.).

A two-level underground parking structure will serve the proposed residential buildings. In contrast, the existing White Oaks Resort and Spa will be further complemented by constructing a two-level above-grade parking structure.

Figure 3.1 illustrates the site concept plan.



NTS

253 Taylor Road
Site Concept Plan

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

Figure 3.1

3.1.2 Site Trip Generation

Trip generation for the site is based on the *White Oaks Village, 253 Taylor Road Transportation Impact & Parking Study Update*.

The Institute of Transportation Engineers (ITE) Trip Generation[11] is referenced to estimate the vehicular site trip generation. Land Use Code (LUC) 222 – Multifamily Housing (High-Rise) and LUC 822 – Strip Retail Plaza (<40k) were used to estimate the vehicle trips generated. Vehicle trips were calculated using an average rate.

No modal split adjustments have been applied to the trip generation estimate to account for active transportation or transit-oriented trips.

Table 3.1 summarizes the estimated trip generation for the development.

Phase 1 is forecast to generate approximately 105, 125, and 140 new vehicle trips during the AM, PM, and Saturday peak hours.

Phase 2 is forecast to generate approximately 151 trips in the AM peak hour, 242 in the PM peak hour, and 258 in the Saturday peak hour. It is noted that pass-by trips for the commercial land use in PM and Saturday peak hours were obtained from Land Use Code 820 (Shopping Centre) from the ITE *Trip Generation Handbook*[12] as pass-by trips for LUC 822 (Strip Plaza, <40K) are not available. At the request and following the guidance provided by the Region, only a portion of the LUC 820 pass-by rates were used. A 27% pass-by rate has been employed during the PM and Saturday peak hours. The resulting net trip generation is 148 AM peak hour trips, 208 PM peak hour trips, and 225 Saturday peak hour trips.

Upon full build-out, the site is estimated to generate 253 AM peak hour trips, 333 PM peak hour trips, and 365 Saturday peak hour trips.

[11] Institute of Transportation Engineers, *Trip Generation Manual, 11th ed.*, (Washington DC: ITE, 2021).

[12] Institute of Transportation Engineers, *Trip Generation Handbook, 3rd ed.,* (Washington, DC: ITE, 2017).

TABLE 3.1: 253 TAYLOR ROAD – ESTIMATED SITE GENERATED TRAFFIC

Land Use	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Phase 1 (2027)									
LUC 222 – 390 Units	27	78	**105**	77	48	**125**	80	60	**140**
Phase 1 Subtotal	**27**	**78**	**105**	**77**	**47**	**125**	**80**	**60**	**140**
Phase 2 (2030)									
LUC 222-420 Units	29	84	**113**	83	51	**134**	86	65	**151**
LUC 822 – 16.31k sq. ft.	24	14	**38**	52	56	**108**	55	52	**107**
Phase 2 Subtotal	**53**	**98**	**151**	**135**	**107**	**242**	**141**	**117**	**258**
Internal	*-1*	*-2*	*-3*	*-3*	*-2*	*-5*	*-3*	*-2*	*-5*
Pass-by	*0*	*0*	*0*	*-15*	*-15*	*-29*	*-14*	*-14*	*-28*
Phase 2 Net Subtotal	**52**	**96**	**148**	**117**	**90**	**208**	**124**	**101**	**225**
Total	**79**	**174**	**253**	**194**	**137**	**333**	**204**	**161**	**365**

LUC 222: AM – T = 0.27(X) | PM – T = 0.32(X) | SAT – T = 0.36(X)
LUC 822: AM – T = 2.36(X) | PM – T = 6.59(X) | SAT – T = 6.57(X)
Internal Trip Rate: 2%
LUC 822 Pass by: AM – 0% | PM – 27% | SAT – 27%

The site-generated trips were assigned to the road network based on origin/destination information extracted from the 2016 Transportation Tomorrow Survey and a review of existing traffic patterns at the study intersections. Data was extracted from TAZ 6052. The estimated distribution will be used for the weekday AM, PM, and Saturday peak hours.

Table 3.2 summarizes the estimated trip distribution.

TABLE 3.2: 253 TAYLOR ROAD – ESTIMATED TRIP DISTRIBUTION

Route	Weekday AM and PM, and Saturday	
	To	From
QEW via Toronto	34%	36%
QEW via Niagara Falls	12%	10%
Glendale Avenue via Niagara-on-the-Lake	7%	7%
Glendale Avenue via St. Catharines	22%	21%
Taylor Road Southwards	17%	20%
Taylor Road Northwards	8%	6%
Total	**100%**	**100%**

The new site-generated trips have been assigned to the existing White Oak Resort and Spa South driveway, as this provides the most direct access to the proposed land uses.

3.2 524 York Road – Phase 2

3.2.1 Description

524 York Road (Phase 2), located on the northeast corner of Glendale Avenue and York Road in the Town of Niagara-on-the-Lake.

The development proposes 207 hotel rooms and approximately 556 m2 (5,985 sq. ft.) of restaurant uses served by a total parking supply of 247 vehicular and 11 bicycle parking spaces. Vehicle access is maintained via two driveway connections to Counsell Street and Glendale Avenue through the existing shared east/west drive aisle bisecting the Phase 1 and 2 lands.

Build-out is anticipated to occur in one phase by 2030, but the timing is subject to market conditions.

Appendix D contains the AutoTURN assessment.

Figure 3.2 illustrates the site concept plan.

NTS

524 York Road – Phase 2
Site Concept Plan

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

Figure 3.2

3.2.2 Site Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation [13] is referenced to estimate the vehicular site trip generation. LUC 310 – Hotel and LUC 932 – High-Turnover (Sit-Down) Restaurant were used to estimate the vehicle trips generated.

No modal split adjustments have been applied to the trip generation estimate to account for active transportation or transit-oriented trips.

Table 3.3 summarizes the estimated trip generation for the development. The subject site is forecast to generate approximately 153, 82, and 216 new vehicle trips during the AM, PM, and Saturday peak hours, respectively.

TABLE 3.3: 524 YORK ROAD – PHASE 2 – ESTIMATED SITE GENERATED TRAFFIC

Land Use	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
LUC 310 – 207 Units	54	42	**96**	64	61	**125**	83	66	**149**
LUC 932 – 5.98k sq. ft.	31	26	**57**	33	21	**54**	34	33	**67**
Total	**85**	**68**	**153**	**97**	**82**	**179**	**117**	**99**	**216**

LUC 310: AM – T = 0.50(X) - 7.45 | PM – T = 0.74(X) - 27.89 | SAT – T = 0.69(X) + 5.95
LUC 932: AM – T = 9.57(X) | PM – T = 9.05(X) | SAT – T = 11.19(X)

Table 3.4 summarizes the estimated trip distribution. The distribution is based on a review of existing travel patterns. The patterns capture the typical traffic patterns reflective of existing hotels. The methodology was confirmed during pre-consultation.

[13] Institute of Transportation Engineers, *Trip Generation Manual, 11th ed.*, (Washington DC: ITE, 2021).

TABLE 3.4: 524 YORK ROAD – PHASE 2 – ESTIMATED TRIP DISTRIBUTION

Origin/Destination	AM Peak Hour		PM Peak Hour		Sat Peak Hour	
	In	Out	In	Out	In	Out
North via Townline Road	<5%	5%	<5%	<5%	<5%	<5%
East via York Road	5%	5%	10%	10%	15%	10%
West via York Road	15%	20%	10%	10%	30%	35%
South via Glendale Ave.	30%	25%	40%	30%	30%	25%
East via QEW	30%	25%	30%	25%	15%	20%
West via QEW	20%	20%	10%	25%	10%	10%
North via Townline Road	0%	5%	0%	0%	0%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

3.3 Parcels 6 & 7

3.3.1 Description

Parcel 6 is located at the northwest corner of York Road and Townline Road, and Parcel 7 is located at the southwest corner of York Road and Townline Road.

Parcel 6 proposes 744 residential units, 2650 m^2 (28,524 sq. ft.) of retail use, and 1680 m^2 (18,083 sq. ft.) of commercial use. Vehicle access for Parcel 6 is proposed via two driveway connections to Townline Road, approximately 125 m and 240 m north of the intersection with York Road. A total of 800 vehicular parking spaces are provided.

Parcel 7 is proposing 541 residential units. Vehicular access to Parcel 7 is proposed via a single driveway connection to York Road, approximately 105 m west of the intersection with Townline Road. A total of 522 vehicular parking spaces are provided.

Build-out is anticipated in three phases: 2030, 2032, and 2034. Timing is subject to market conditions.

Phase 1 includes 384 high-rise residential units, 690 m^2 (7,427 sq. ft.) of commercial use, and 1770 m^2 (19,052 sq. ft.) retail use in Parcel 6.

Phase 2 includes 250 mid-rise residential units and 990 m^2 (10,656 sq. ft.) commercial use in Parcel 6. Parcel 7 contains 365 high-rise residential units.

Phase 3 includes 110 mid-rise residential units and 880 m^2 (9,472 sq. ft.) retail use in Parcel 6. Parcel 7 contains 176 mid-rise residential units.

Figure 3.3 illustrates the site concept plan.

524 York Road – Parcel 6 & 7
Site Concept Plan

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

Figure 3.3

3.3.2 Site Trip Generation – Parcel 6

The Institute of Transportation Engineers (ITE) Trip Generation[14] is referenced to estimate the vehicular site trip generation. LUC 221 – Multifamily Housing (Mid-Rise), LUC 222 – Multifamily Housing (High-Rise), LUC 710 – General Office Building, LUC 720 – Medical- Dental Office Building, and LUC 822 Strip Retail Plaza (<40k) were used to estimate the vehicle trips generated.

No modal split adjustments have been applied to the trip generation estimate to account for active transportation or transit-oriented trips.

Table 3.5 summarizes the estimated trip generation for the parcel.

Phase 1 is forecast to generate approximately 170, 273, and 293 new vehicle trips during the AM, PM, and Saturday peak hours.

Phase 2 is forecast to generate approximately 292, 397, and 400 new vehicle trips during the AM, PM, and Saturday peak hours, respectively.

Phase 3 is forecast to generate approximately 65, 118, and 106 new vehicle trips during the AM, PM, and Saturday peak hours.

Upon full build-out, the parcel is forecast to generate approximately 357, 515, and 506 new vehicle trips during the AM, PM, and Saturday peak hours, respectively.

[14] Institute of Transportation Engineers, *Trip Generation Manual, 11th ed.*, (Washington DC: ITE, 2021).

TABLE 3.5: 524 YORK ROAD – PARCEL 6 – ESTIMATED SITE GENERATED TRAFFIC

Land Use	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Phase 1 (2030)									
LUC 222 – 384 Units	27	76	**103**	76	47	**123**	83	63	**146**
LUC 720 – 7.43k sq. ft.	18	5	**23**	8	19	**27**	13	9	**22**
LUC 822 – 19.05k sq. ft.	26	18	**44**	62	61	**123**	64	61	**125**
Phase 1 Subtotal	**71**	**99**	**170**	**146**	**127**	**273**	**160**	**133**	**293**
Phase 2 (2032)									
LUC 221 – 250 Units	23	75	**98**	60	38	**98**	52	49	**101**
LUC 710 – 10.66k sq. ft.	21	3	**24**	4	22	**26**	3	3	**6**
Phase 2 Subtotal	44	78	**122**	64	60	**124**	52	49	**101**
Cumulative Subtotal	115	177	**292**	210	187	**397**	215	185	**400**
Phase 3 (2034)									
LUC 221 – 110 Units	9	28	**37**	26	17	**43**	22	22	**44**
LUC 822 – 9.47k sq. ft.	17	11	**28**	38	37	**75**	32	30	**62**
Phase 3 Subtotal	**26**	**39**	**65**	**64**	**54**	**118**	**54**	**52**	**106**
Total	**141**	**216**	**357**	**274**	**241**	**515**	**269**	**237**	**506**

LUC 221: AM – T = 0.44(X) - 11.61 | PM – T = 0.39(X) + 0.34 | SAT – Ln(T) = Ln(X) - 0.91
LUC 222: AM – T = 0.22(X) + 18.85 | PM – T = 0.26(X) + 23.12 | SAT – T = 0.30(X) + 30.34
LUC 710: AM – Ln(T) = 0.86 Ln(X) + 1.16 | PM – Ln(T) = 0.83 Ln(X) + 1.29 | SAT – T = 0.53(X)
LUC 720: AM – Ln(T) = 0.90 Ln(X) + 1.34 | PM – T =4.07(X) - 3.17 | SAT – T = 3.02(X)
LUC 822: AM – Ln(T) = 0.66 Ln(X) + 1.84 | PM – Ln(T) =0.71 Ln(X) + 2.72 | SAT – T = 6.57(X)

Table 3.6 summarizes the estimated trip distribution. The distribution is based on a review of existing travel patterns. The patterns capture the typical traffic patterns reflective of the surrounding area. The methodology was confirmed during pre-consultation.

TABLE 3.6: 524 YORK ROAD – PARCEL 6 – ESTIMATED TRIP DISTRIBUTION

Origin/Destination	AM Peak Hour		PM Peak Hour		Sat Peak Hour	
	In	Out	In	Out	In	Out
North via Townline Road	5%	5%	5%	5%	0%	0%
East via York Road	20%	15%	15%	10%	10%	10%
West via York Road	20%	15%	20%	15%	15%	15%
South via Glendale Ave.	30%	25%	45%	20%	55%	30%
East via QEW	10%	20%	5%	25%	5%	25%
West via QEW	15%	20%	10%	25%	15%	20%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

3.3.3 Site Trip Generation – Parcel 7

The Institute of Transportation Engineers (ITE) Trip Generation[15] is referenced to estimate the vehicular site trip generation. LUC 221 – Multifamily Housing (Mid-Rise) and LUC 222 – Multifamily Housing (High-Rise) were used to estimate the vehicle trips generated.

No modal split adjustments have been applied to the trip generation estimate to account for active transportation or transit-oriented trips.

Table 3.7 summarizes the estimated trip generation for the parcel.

Phase 2 is forecast to generate approximately 99, 118, and 140 new vehicle trips during the AM, PM, and Saturday peak hours.

Phase 3 is forecast to generate approximately 66, 69, and 71 new vehicle trips during the AM, PM, and Saturday peak hours.

Upon full build-out, the parcel is forecast to generate approximately 165, 187, and 211 new vehicle trips during the AM, PM, and Saturday peak hours, respectively.

[15] Institute of Transportation Engineers, *Trip Generation Manual, 11th ed.*, (Washington DC: ITE, 2021).

TABLE 3.7: 524 YORK ROAD – PARCEL 7 – ESTIMATED SITE GENERATED TRAFFIC

Land Use	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Phase 2 (2032)									
LUC 222 – 365 Units	26	73	**99**	73	45	**118**	80	60	**140**
Phase 2 Subtotal	26	73	**99**	73	45	**118**	80	60	**140**
Phase 3 (2034)									
LUC 221 – 176 Units	15	51	**66**	42	27	**69**	36	35	**71**
Phase 3 Subtotal	15	51	**66**	42	27	**69**	36	35	**71**
Total	**41**	**124**	**165**	**115**	**72**	**187**	**116**	**95**	**211**

LUC 221: AM – T = 0.44(X) - 11.61 | PM – T = 0.39(X) + 0.34 | SAT – Ln(T) = Ln(X) - 0.91
LUC 222: AM – T = 0.22(X) + 18.85 | PM – T = 0.26(X) + 23.12 | SAT – T = 0.30(X) + 30.34

Table 3.8 summarizes the estimated trip distribution. The distribution is based on a review of existing travel patterns. The patterns capture the typical traffic patterns reflective of the surrounding area. The methodology was confirmed during pre-consultation.

TABLE 3.8: 524 YORK ROAD – PARCEL 7 – ESTIMATED TRIP DISTRIBUTION

Origin/Destination	AM Peak Hour		PM Peak Hour		Sat Peak Hour	
	In	Out	In	Out	In	Out
North via Townline Road	5%	5%	5%	5%	0%	0%
East via York Road	20%	15%	15%	10%	10%	10%
West via York Road	20%	15%	20%	15%	15%	15%
South via Glendale Ave.	30%	25%	45%	20%	55%	30%
East via QEW	10%	20%	5%	25%	5%	25%
West via QEW	15%	20%	10%	25%	15%	20%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

3.4 Developments Summary

Between the three developments, four unique build-out years were identified. **Table 3.9** summarizes the phasing for each development.

TABLE 3.9: DEVELOPMENT PHASING

Year	253 Taylor Road	524 York Road – Phase 2	524 York Road – Parcel 6	524 York Road – Parcel 7
2027	Phase 1	-	-	-
2030	Build-Out	Build-Out	Phase 1	-
2032	Build-Out	Build-Out	Phase 2	Phase 2
2034	Build-Out	Build-Out	Phase 3	Phase 3

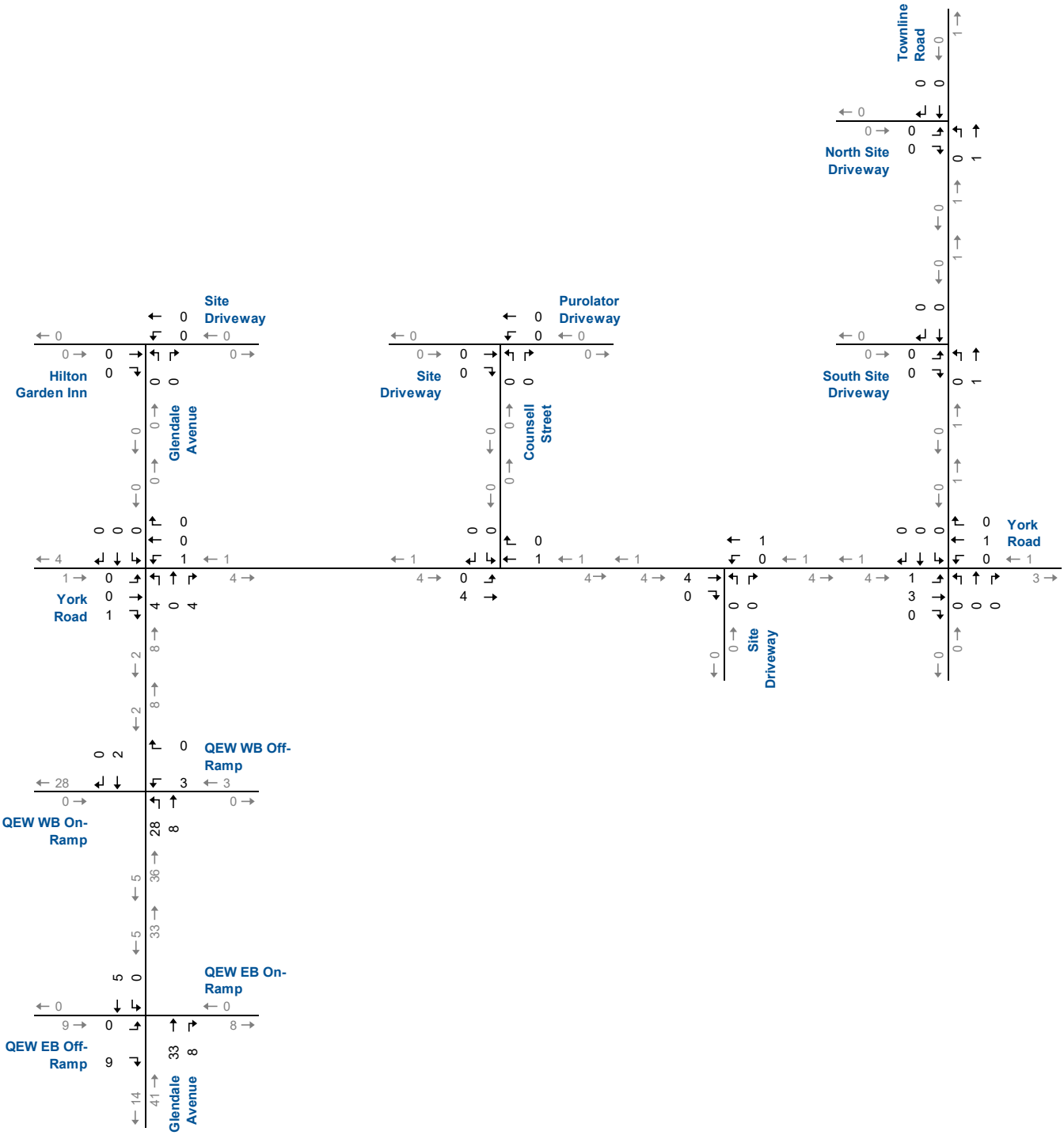
Figure 3.4, **Figure 3.5**, and **Figure 3.6** illustrate the 2027 site-generated traffic for the AM, PM, and Saturday peak hours respectively.

Figure 3.7, **Figure 3.8**, and **Figure 3.9** illustrate the 2030 site-generated traffic for the AM, PM, and Saturday peak hours respectively.

Figure 3.10, **Figure 3.11**, and **Figure 3.12** illustrate the 2032 site-generated traffic for the AM, PM, and Saturday peak hours respectively.

Figure 3.13, **Figure 3.14**, and **Figure 3.15** illustrate the 2034 site-generated traffic for the AM, PM, and Saturday peak hours respectively.

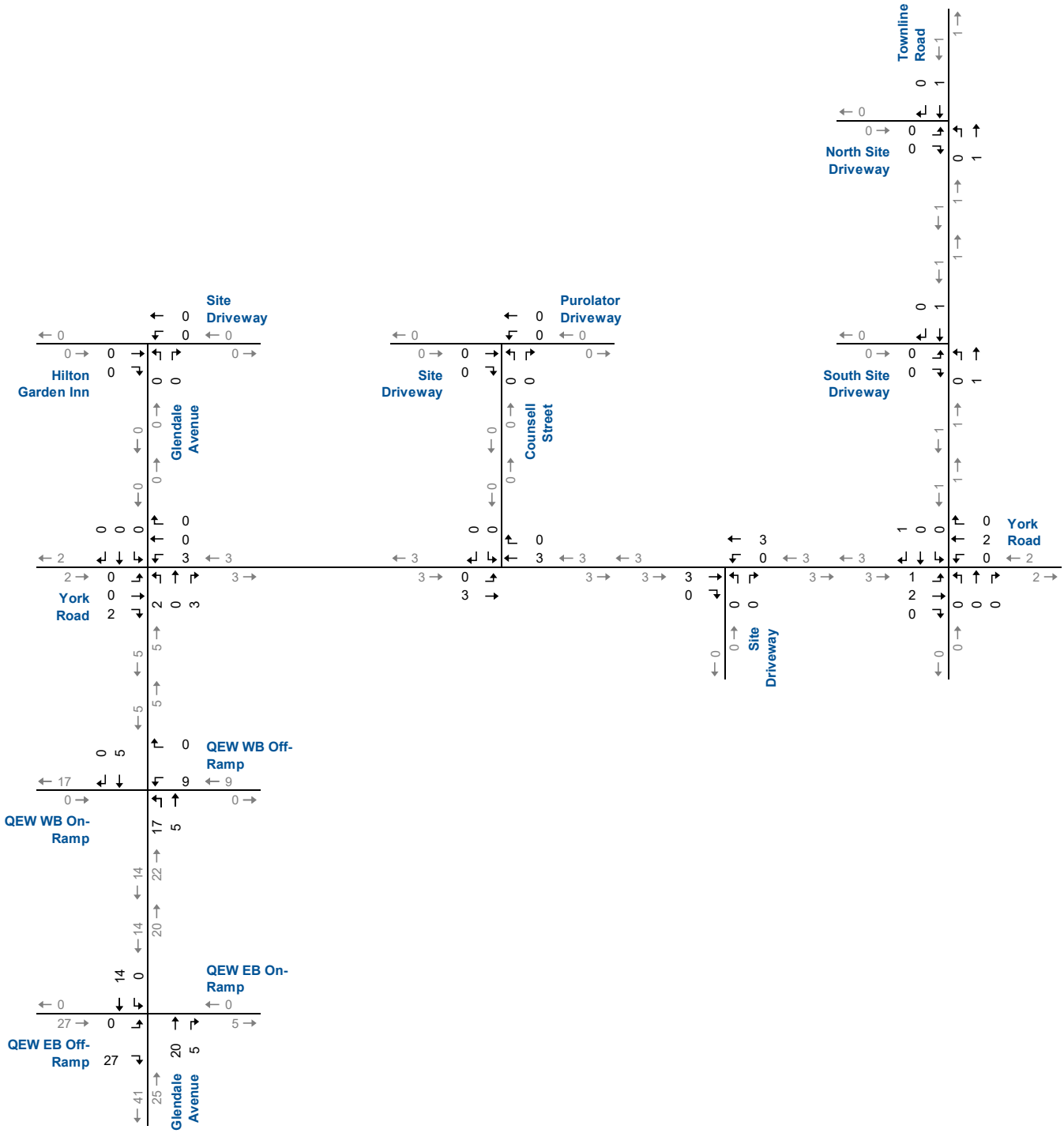
Appendix E contains the individual development traffic volumes for each phase of development.



2027 Site Generated Traffic Volumes AM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

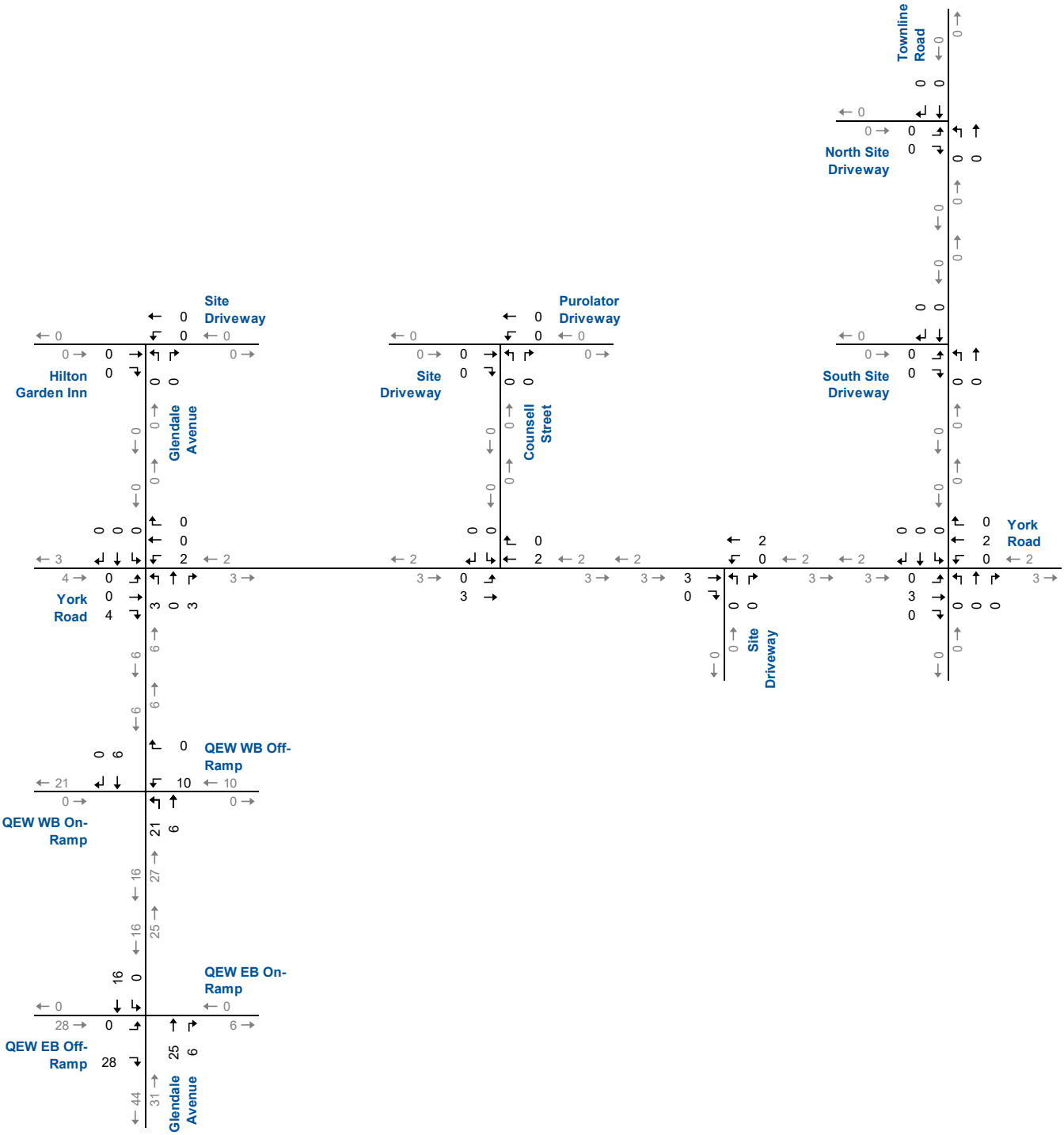
Figure 3.4



2027 Site Generated Traffic Volumes PM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

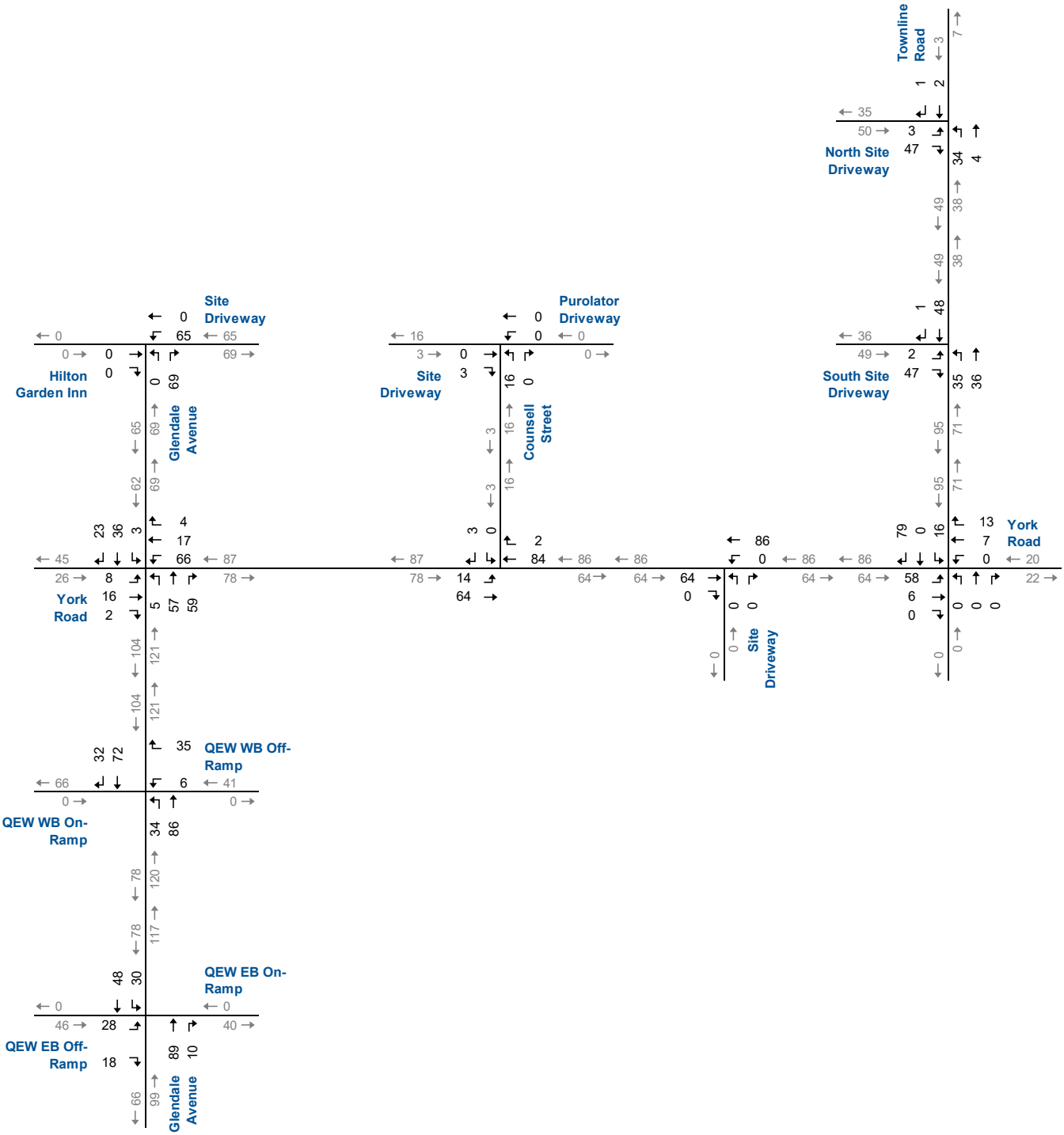
Figure 3.5



2027 Site Generated Traffic Volumes
Saturday Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

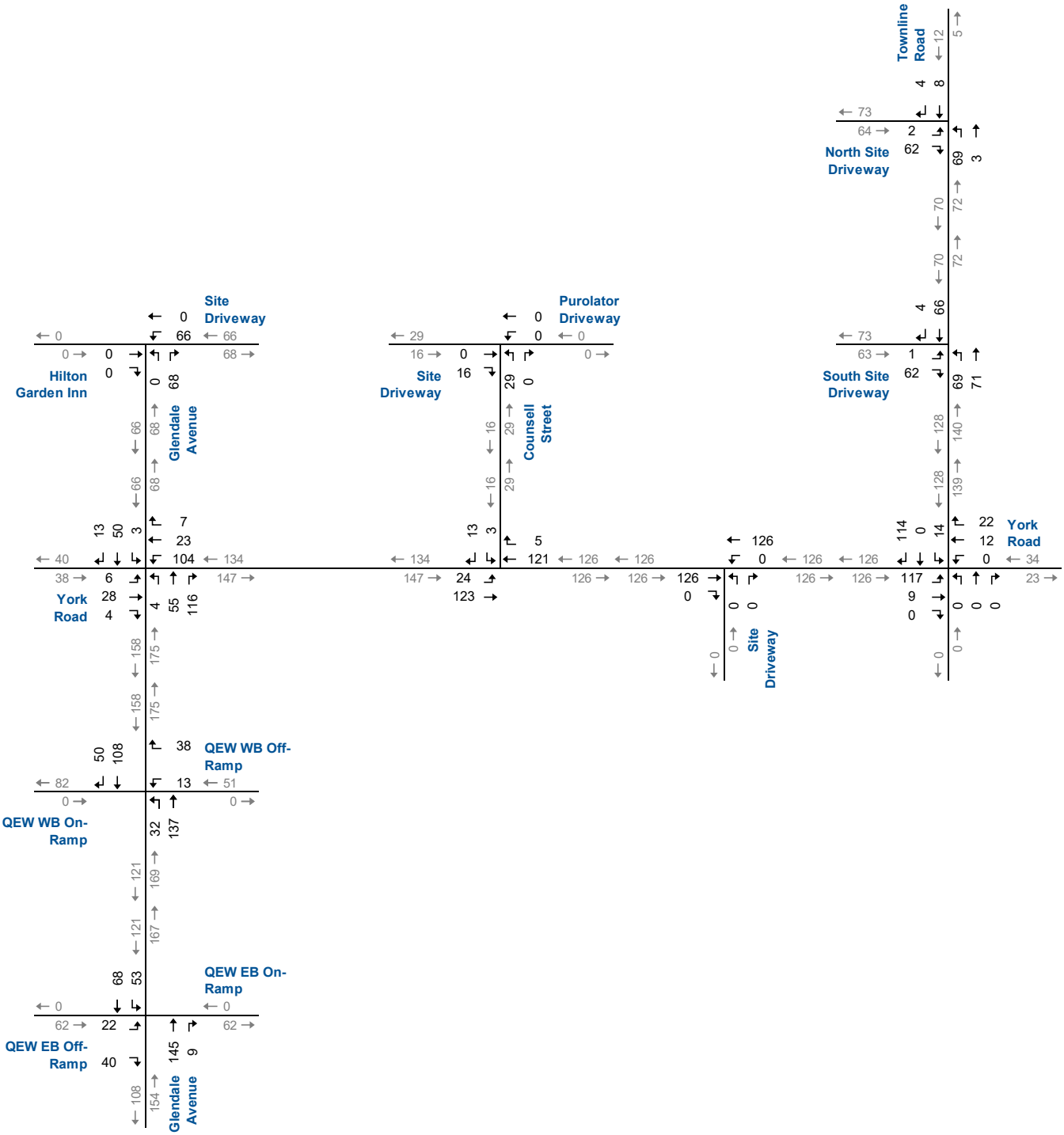
Figure 3.6



2030 Site Generated Traffic Volumes AM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

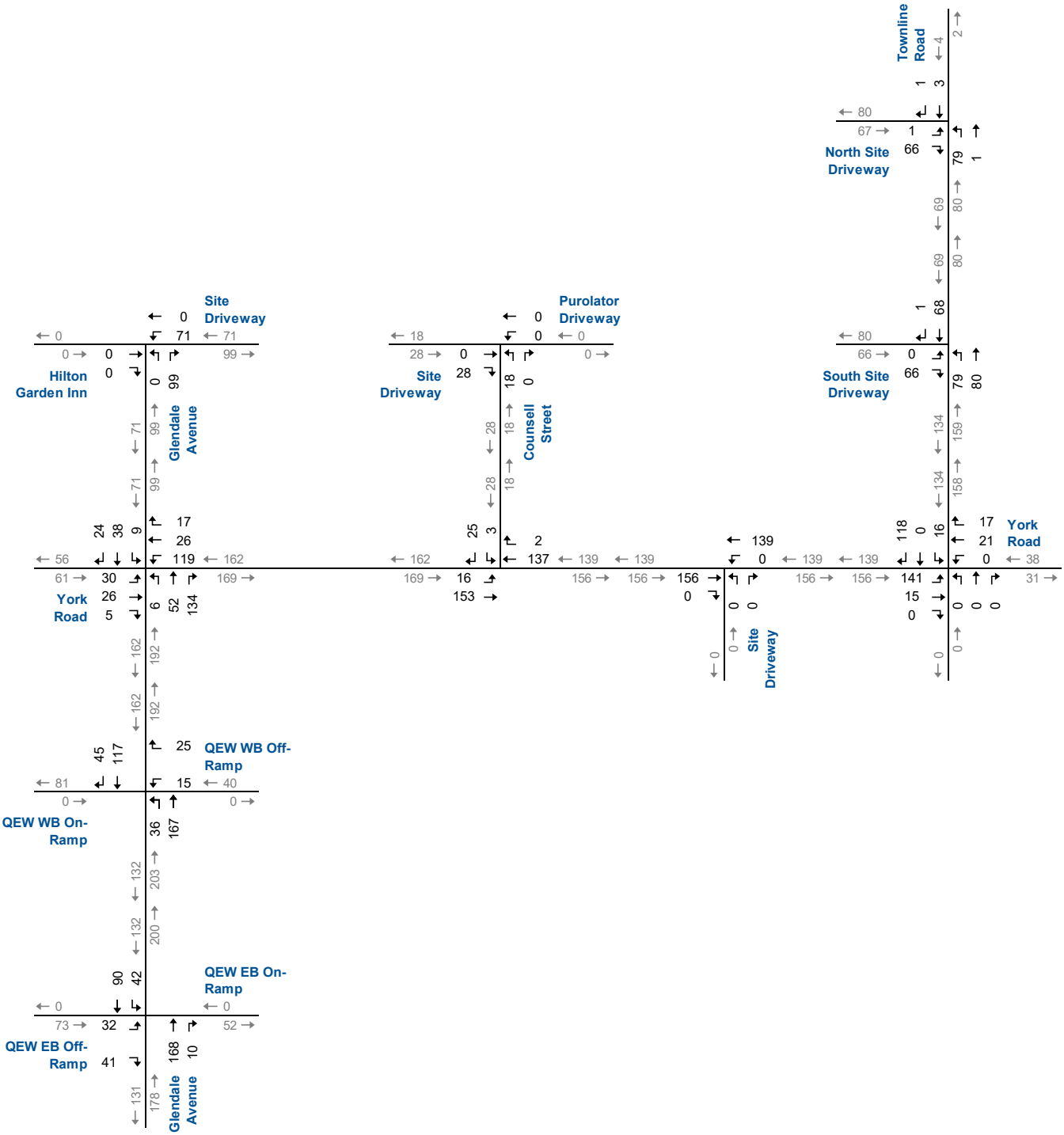
Figure 3.7



2030 Site Generated Traffic Volumes
PM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

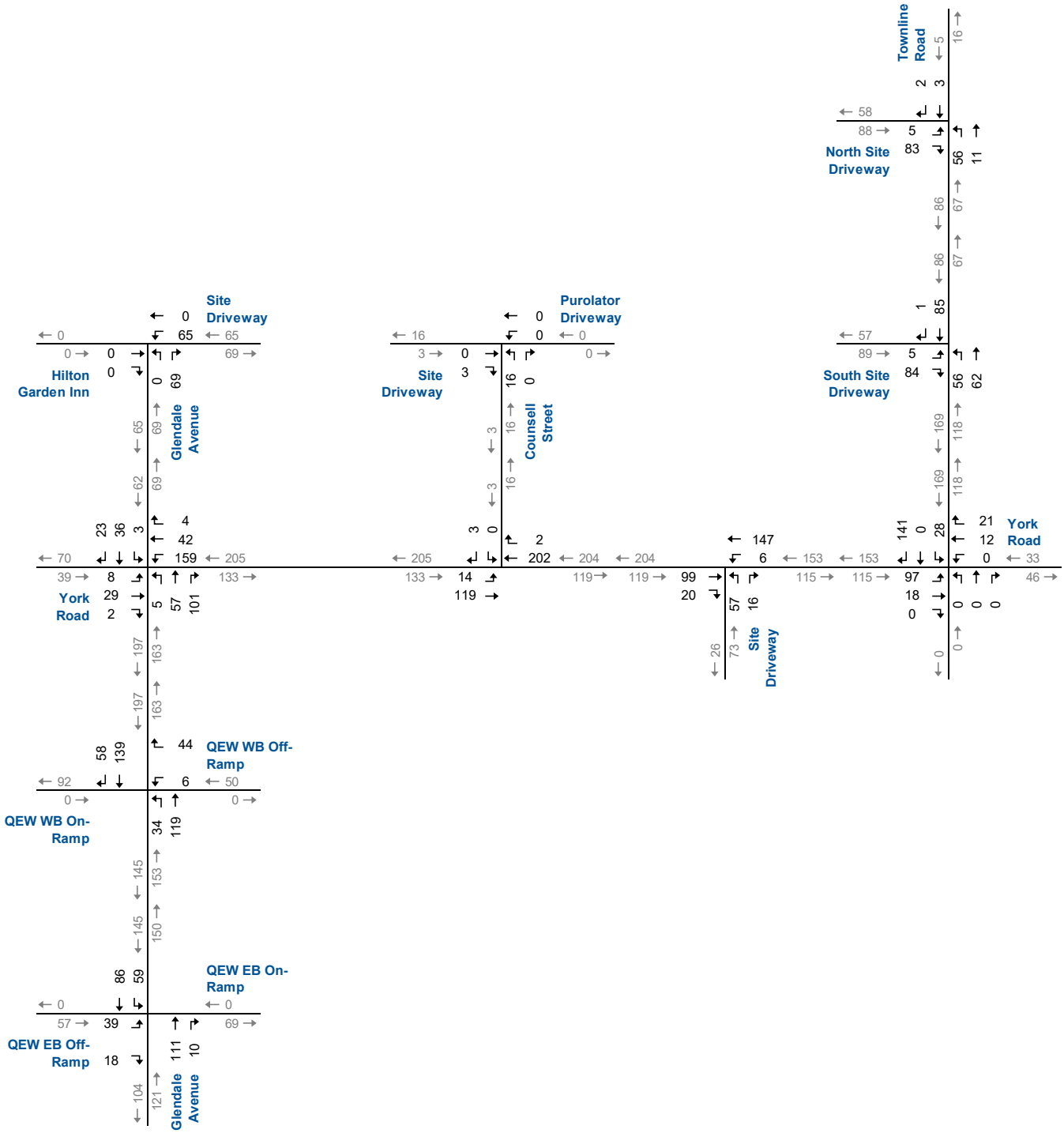
Figure 3.8



2030 Site Generated Traffic Volumes Saturday Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

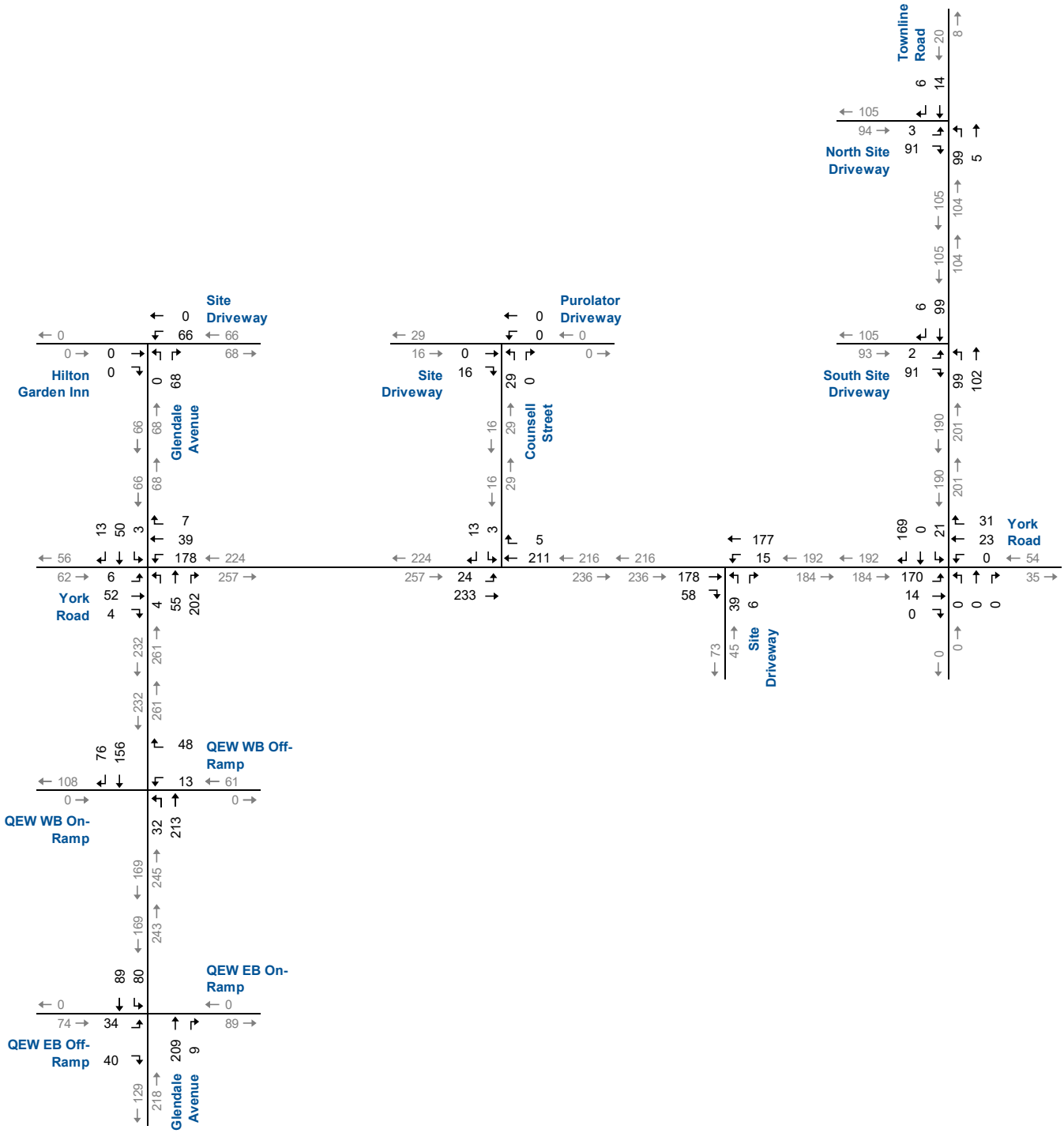
Figure 3.9



2032 Site Generated Traffic Volumes AM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

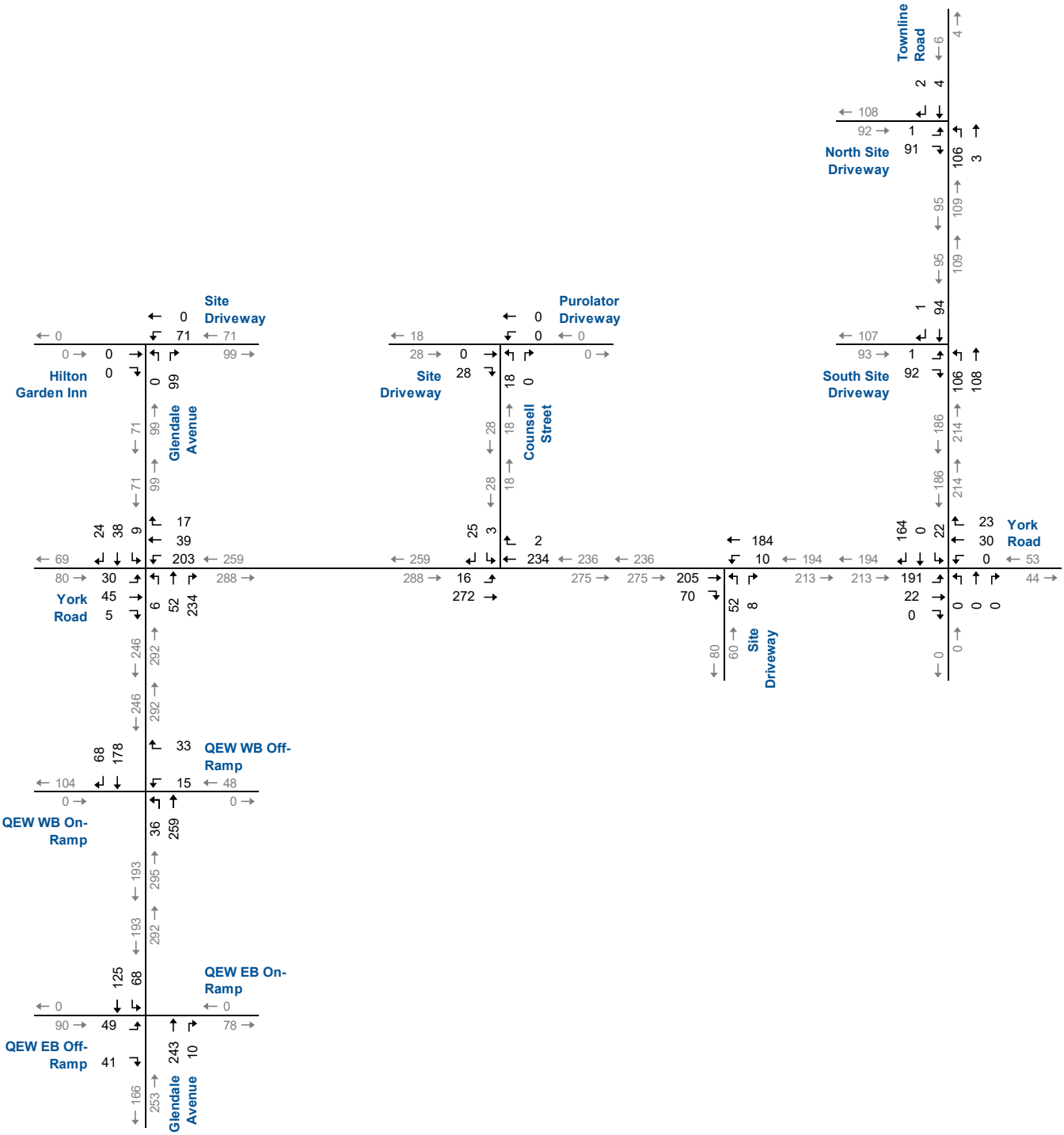
Figure 3.10



2032 Site Generated Traffic Volumes PM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

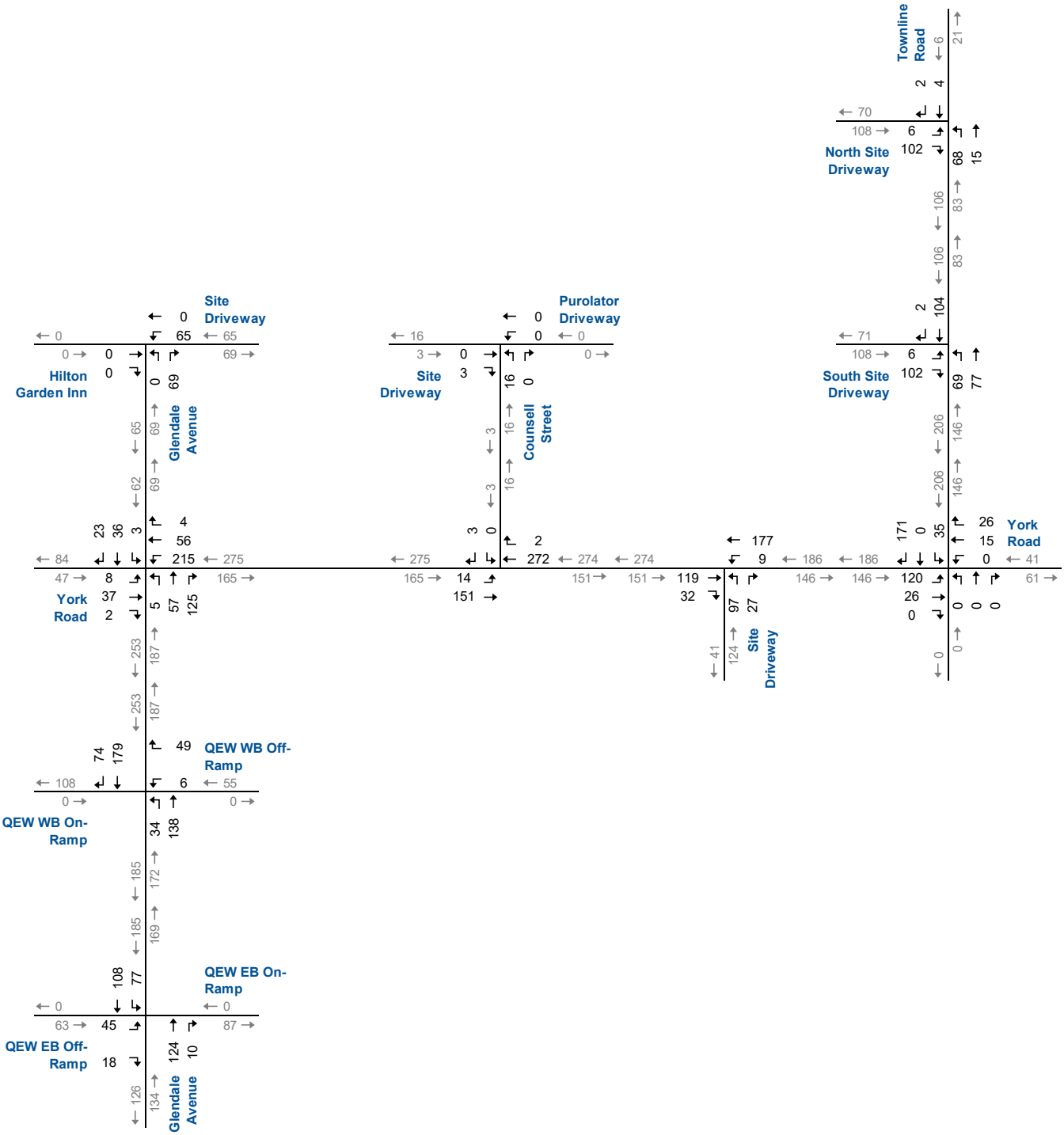
Figure 3.11



2032 Site Generated Traffic Volumes Saturday Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

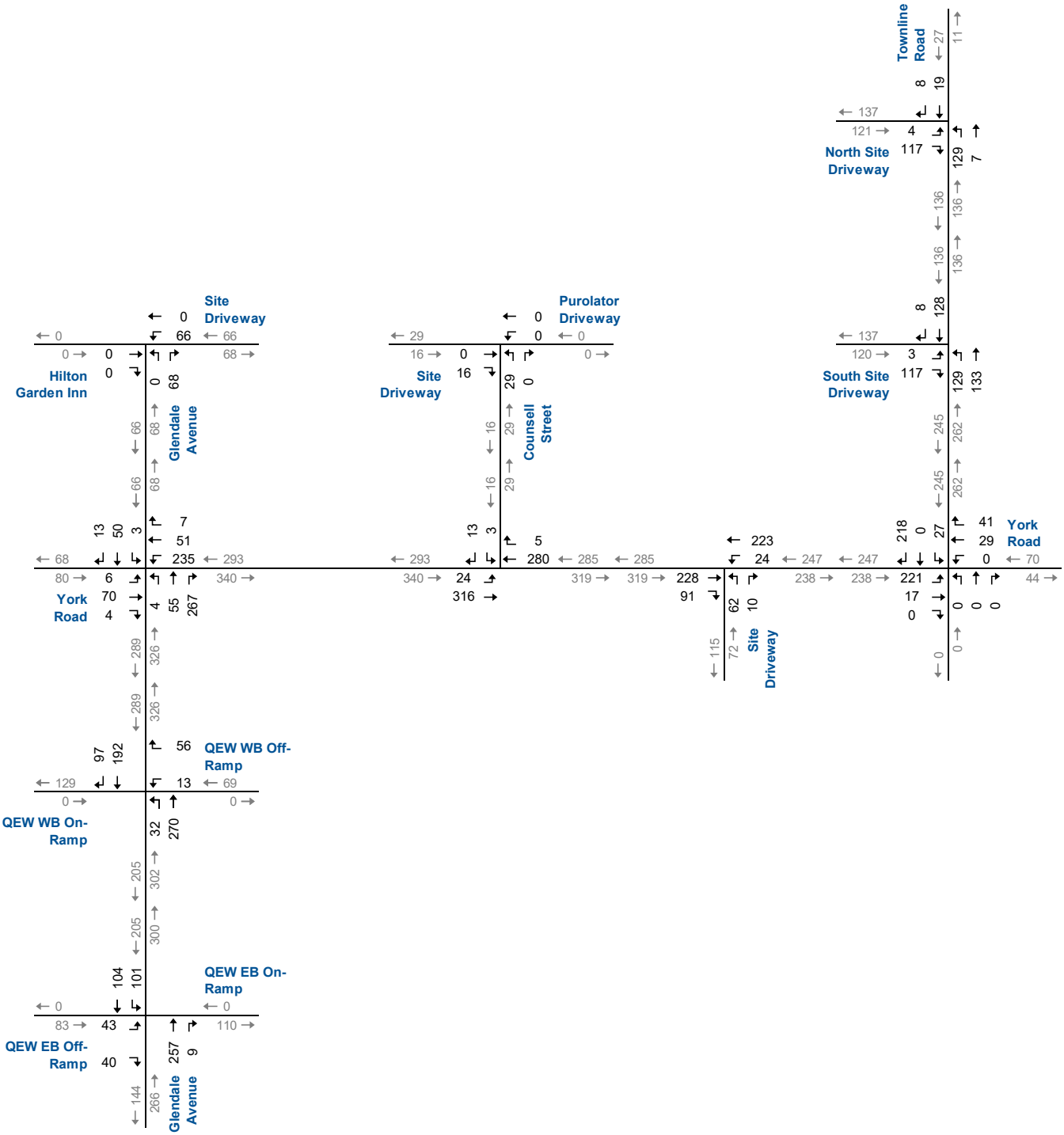
Figure 3.12



2034 Site Generated Traffic Volumes AM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

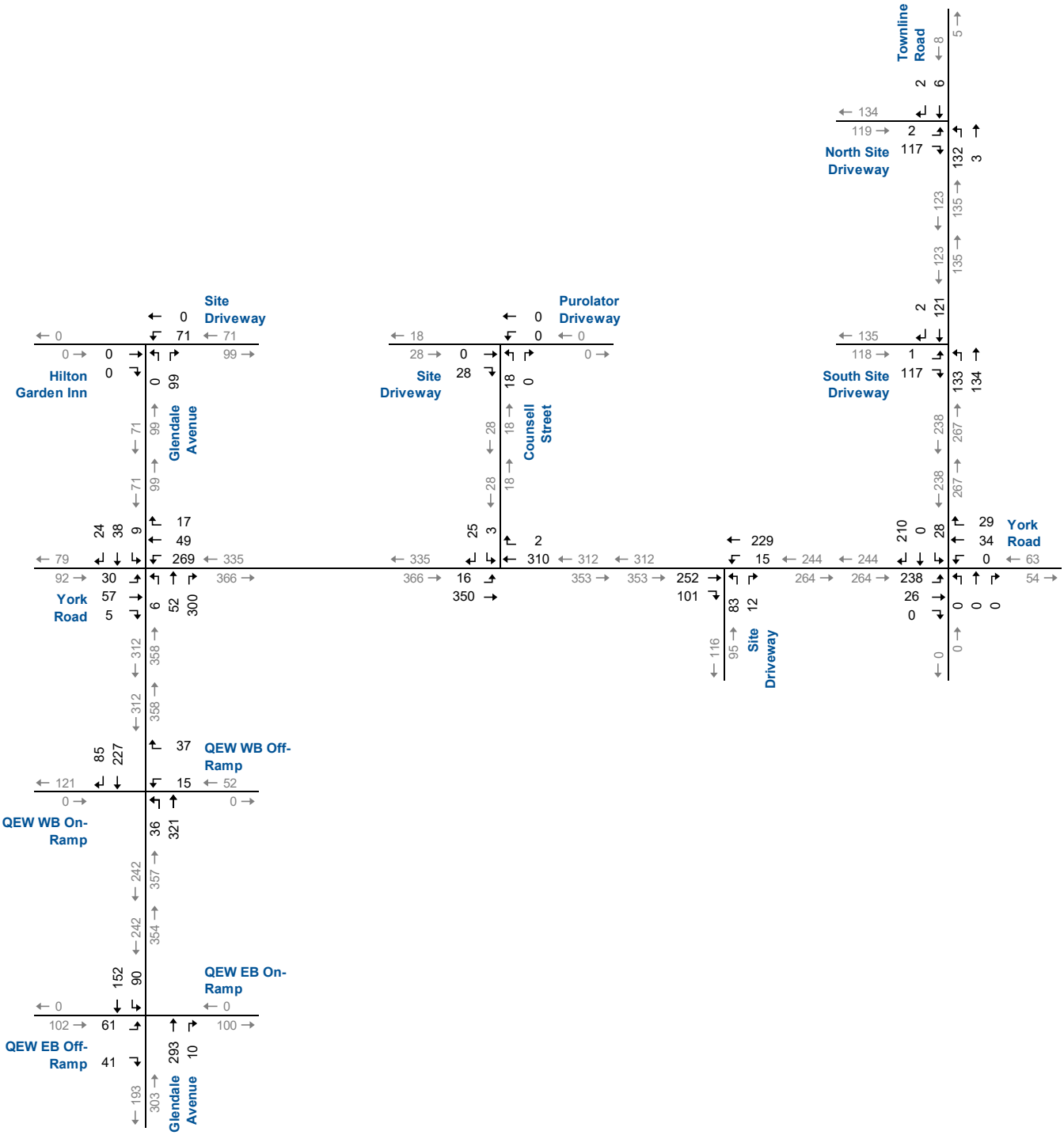
Figure 3.13



2034 Site Generated Traffic Volumes
PM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

Figure 3.14



2034 Site Generated Traffic Volumes Saturday Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

Figure 3.15

4 Future Traffic Conditions

The assessment of future conditions in this section includes the following components:

- Future background traffic estimates;
- Operational analysis of background traffic conditions (pre-development);
- Future total traffic estimates; and
- Operational analysis of total traffic conditions (post-development).

4.1 Forecast Traffic

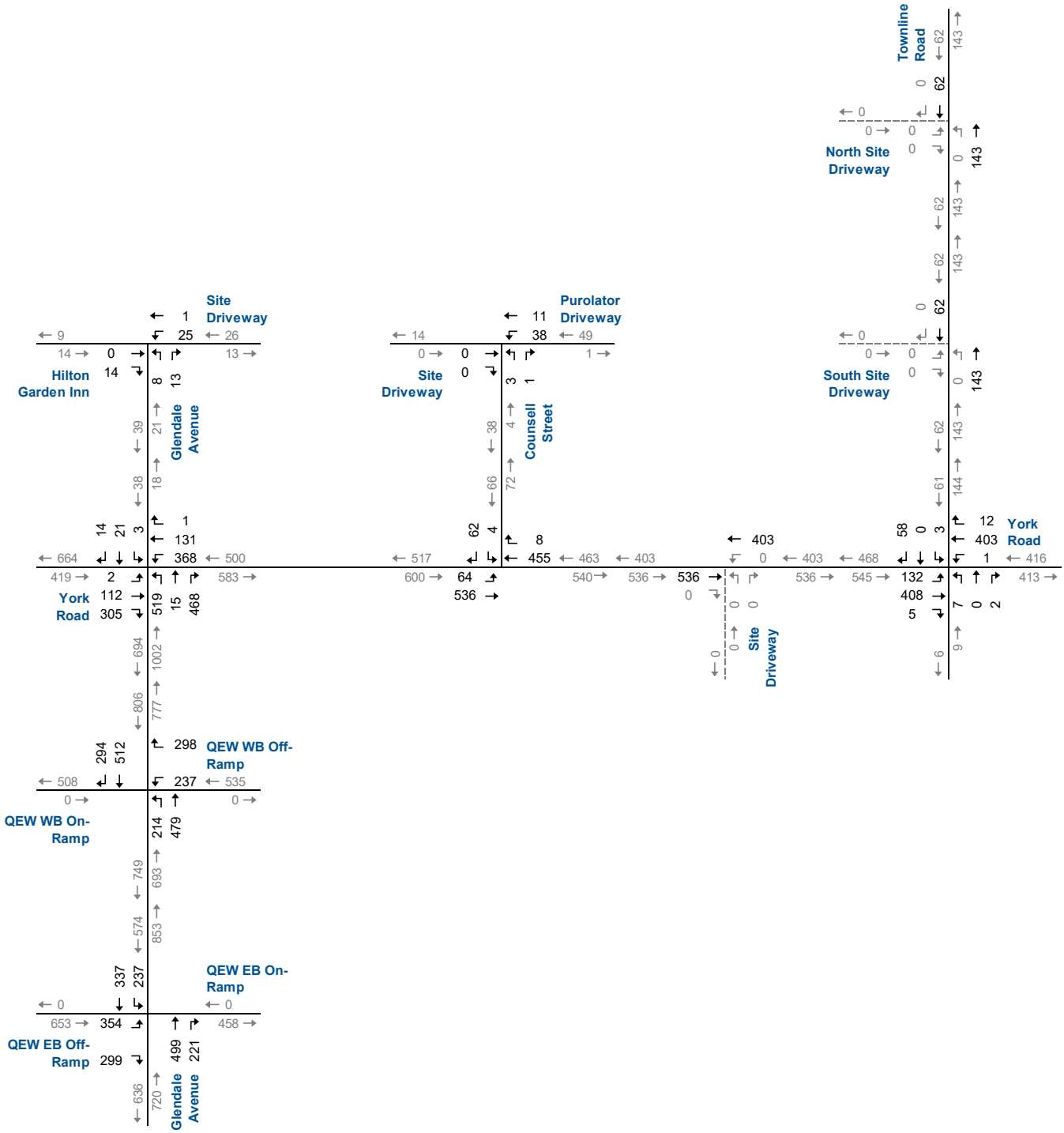
A Phase 1 horizon (2027), Phase 2 horizon (2030), Phase 3 horizon (2032), ultimate build-out horizon (2034), five-year post-ultimate build-out horizon (2039), and ten-year post-ultimate build-out horizon (2044) have been assessed. The likely future traffic volumes near the subject site are estimated to consist of:

- Increased non-site traffic (generalized background traffic growth) and
- Traffic generated by the subject site.

The review agencies confirmed a generalized background growth rate of 2% per annum during pre-study consultation.

Figure 4.1 to **Figure 4.18** illustrate the background traffic volumes.

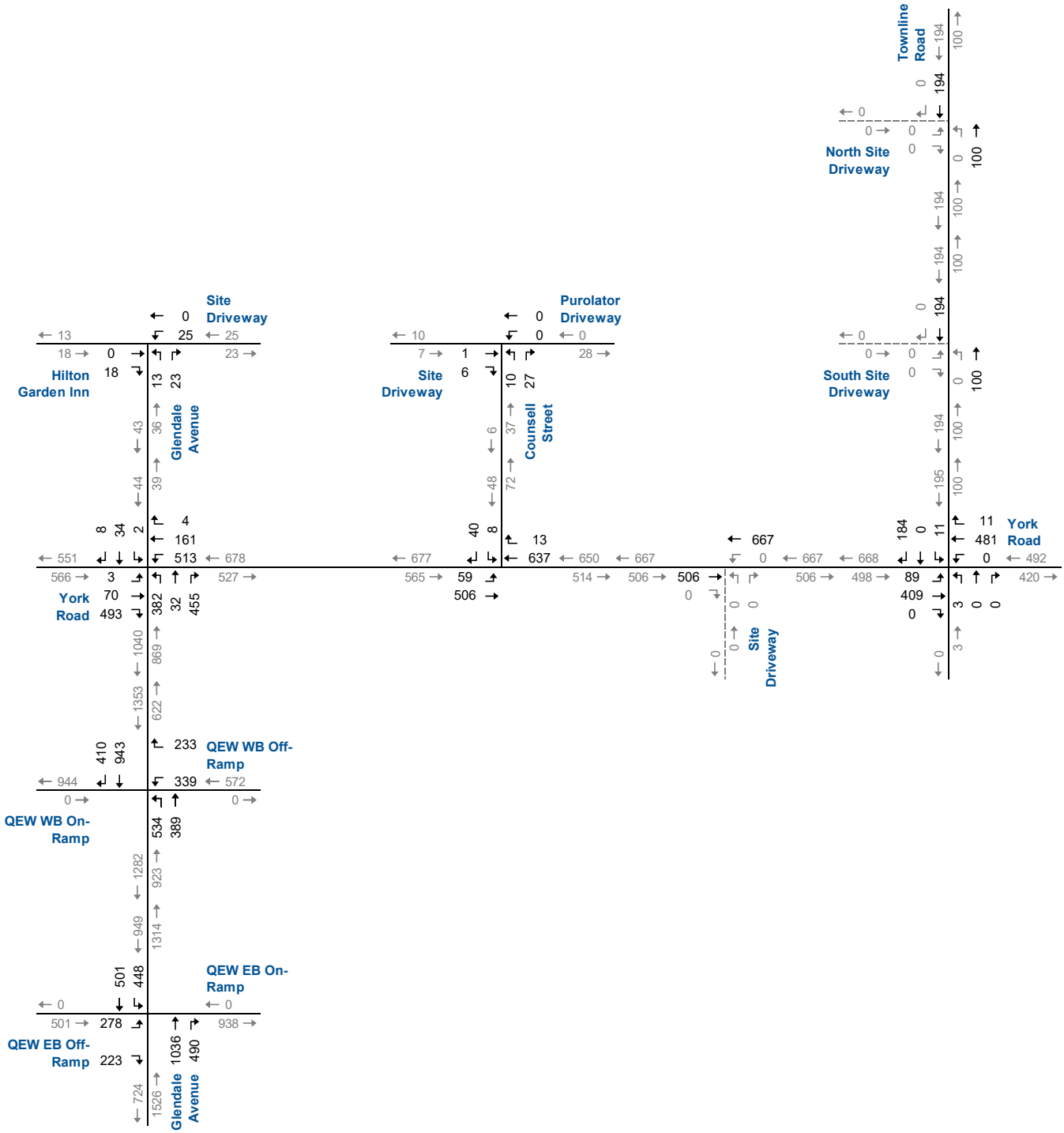
The total traffic volume consists of background traffic and development site-generated traffic. **Figure 4.19** to **Figure 4.36** illustrate the total traffic volumes.



2027 Background Traffic Volumes AM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

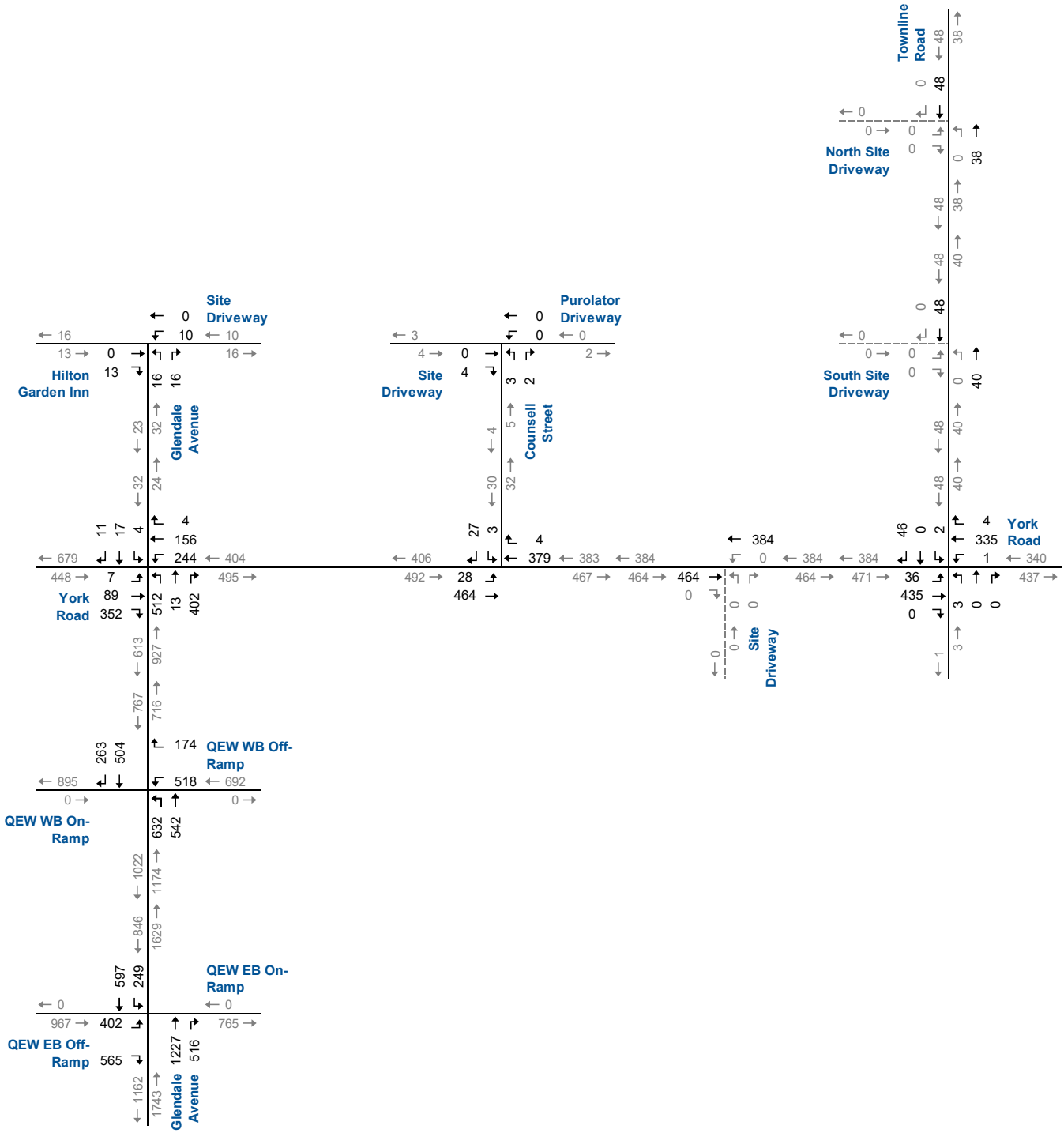
Figure 4.1



2027 Background Traffic Volumes
PM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

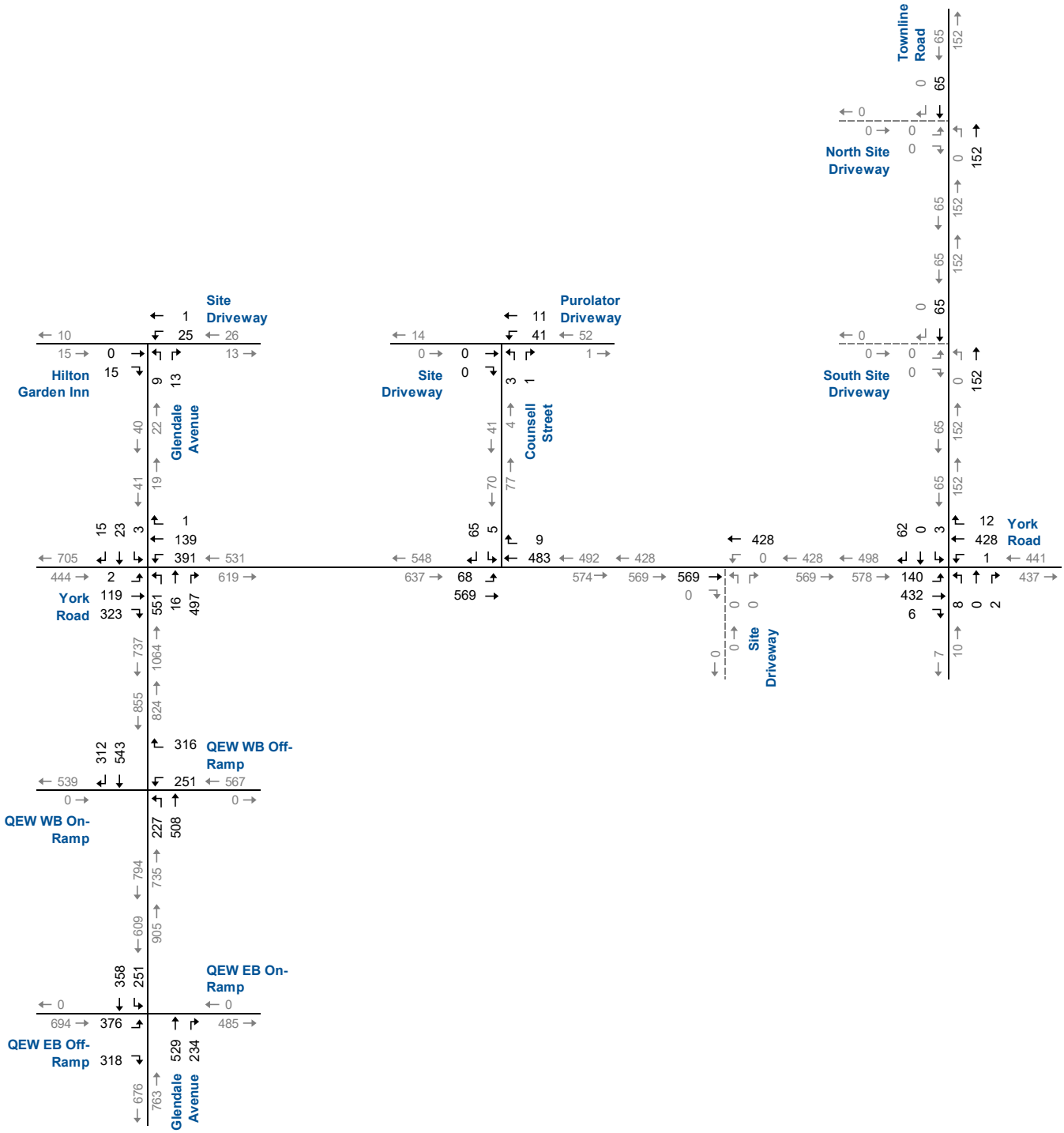
Figure 4.2



2027 Background Traffic Volumes Saturday Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

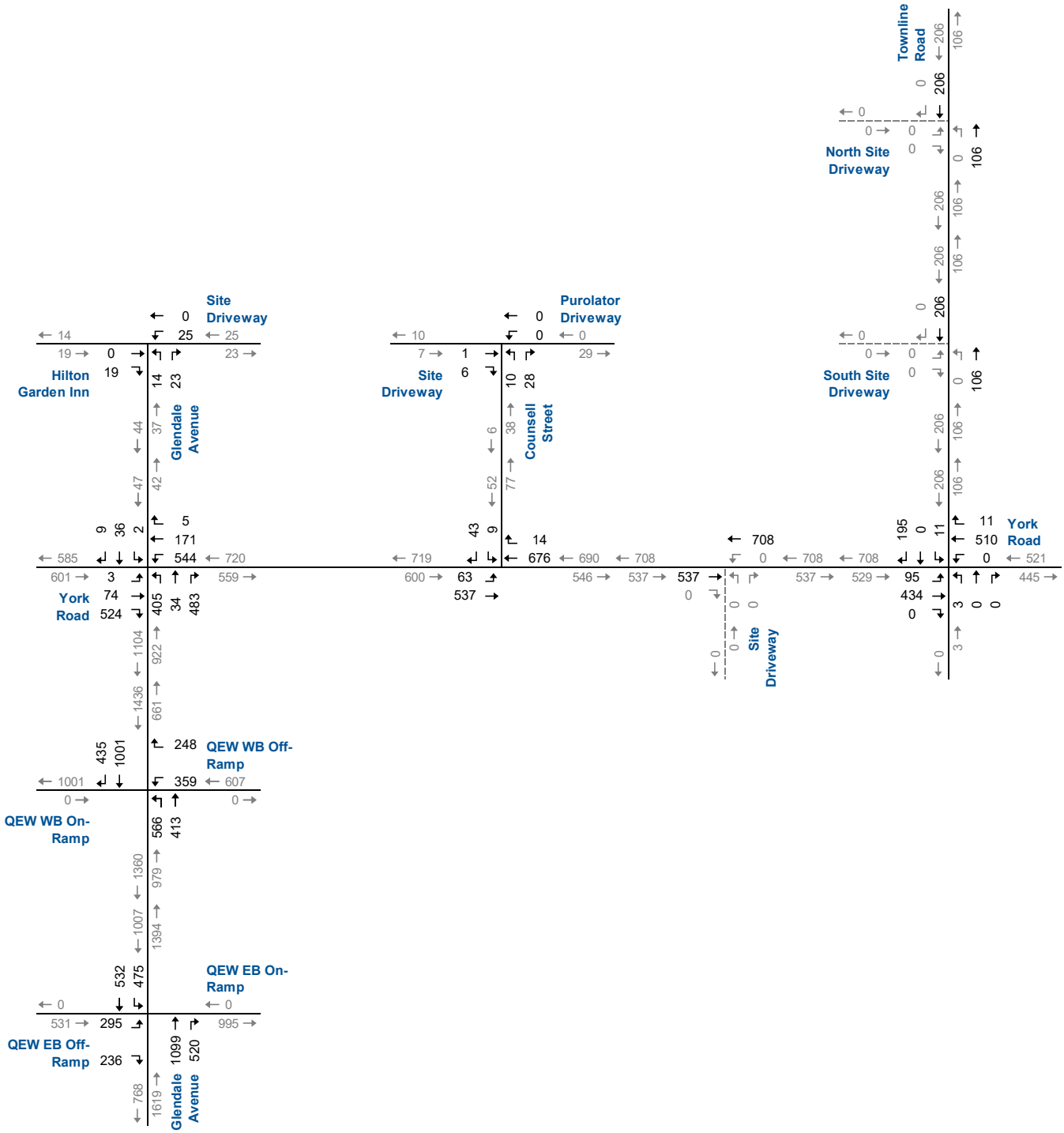
Figure 4.3



2030 Background Traffic Volumes AM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

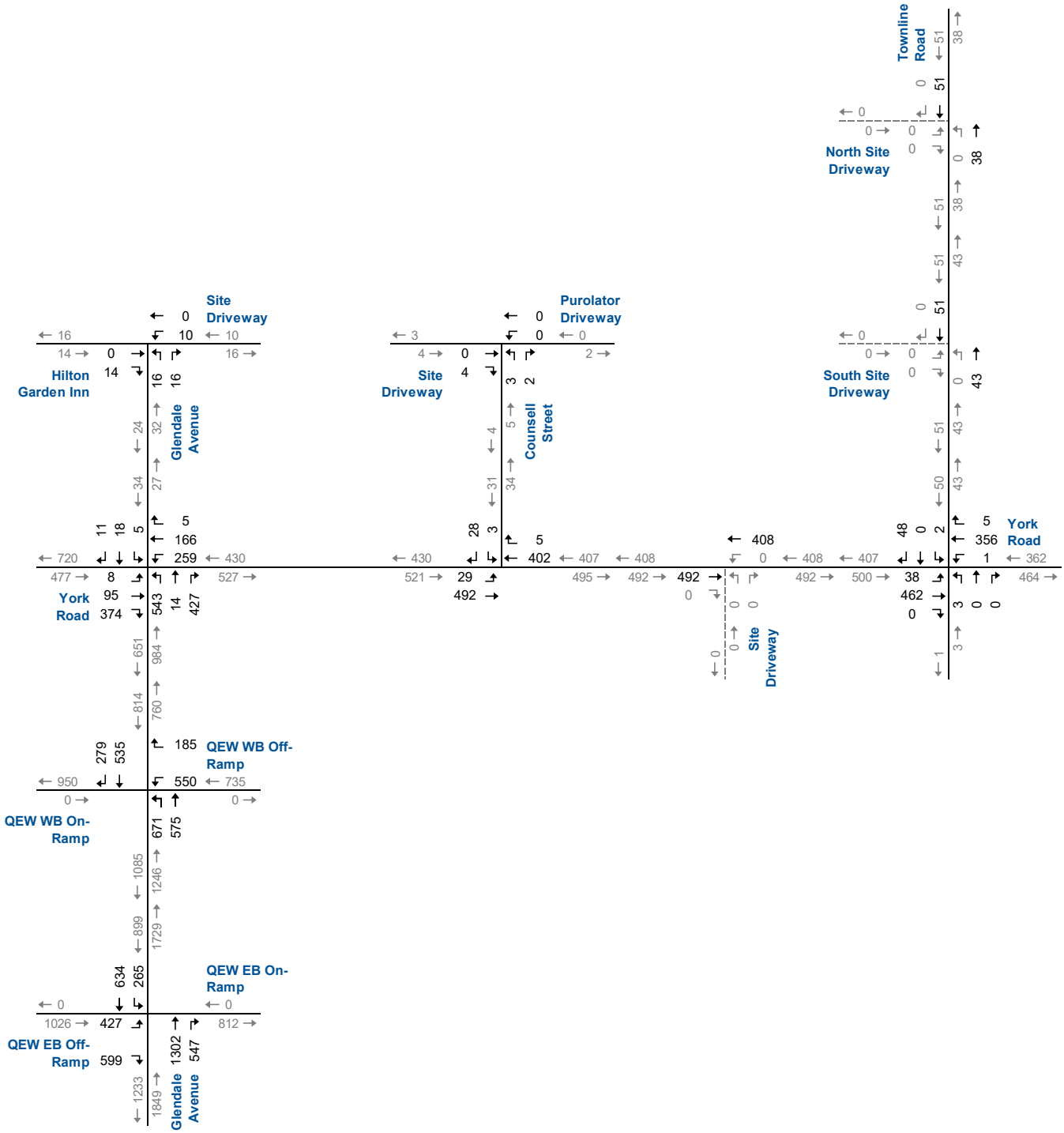
Figure 4.4



2030 Background Traffic Volumes PM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

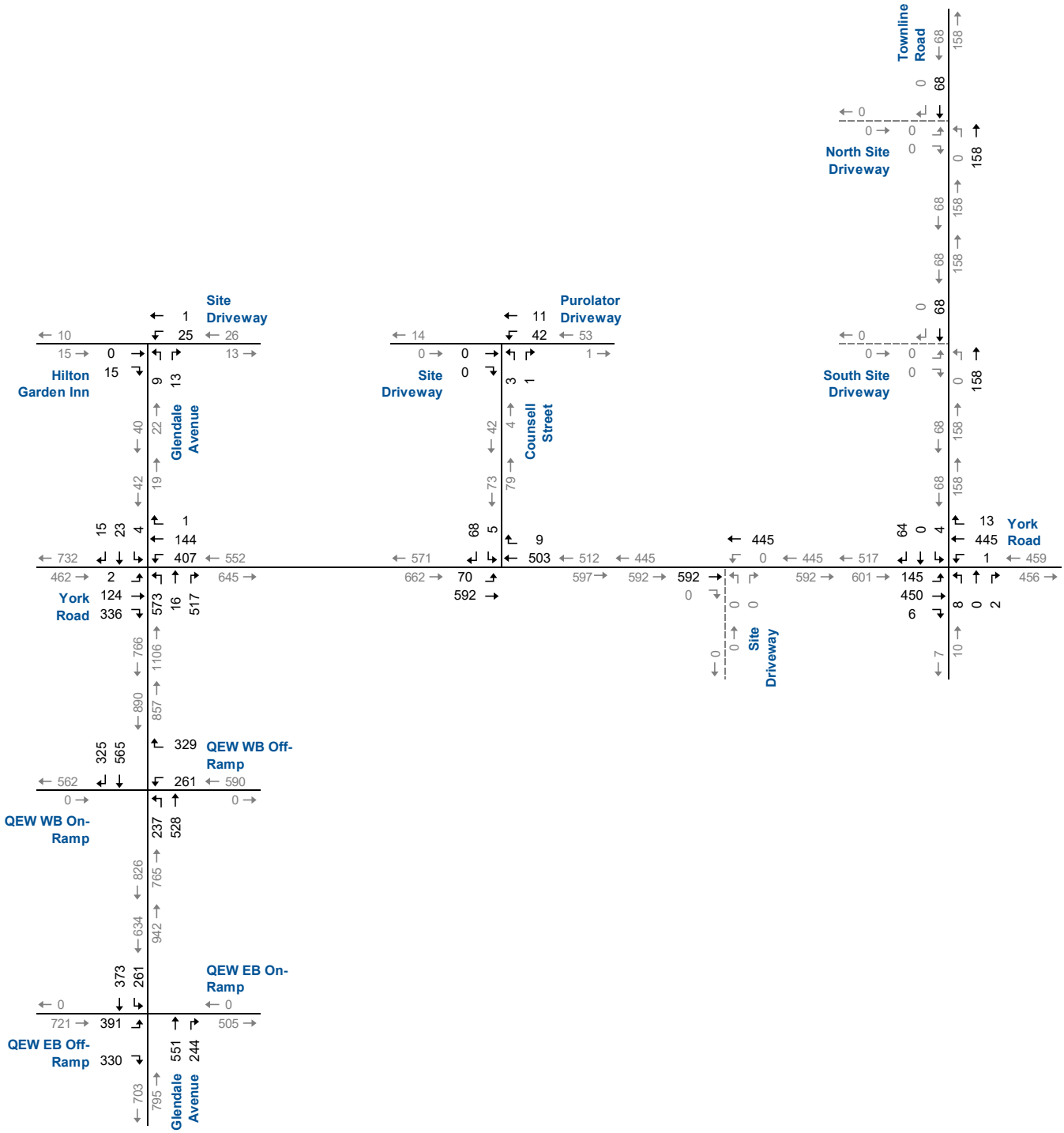
Figure 4.5



2030 Background Traffic Volumes Saturday Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

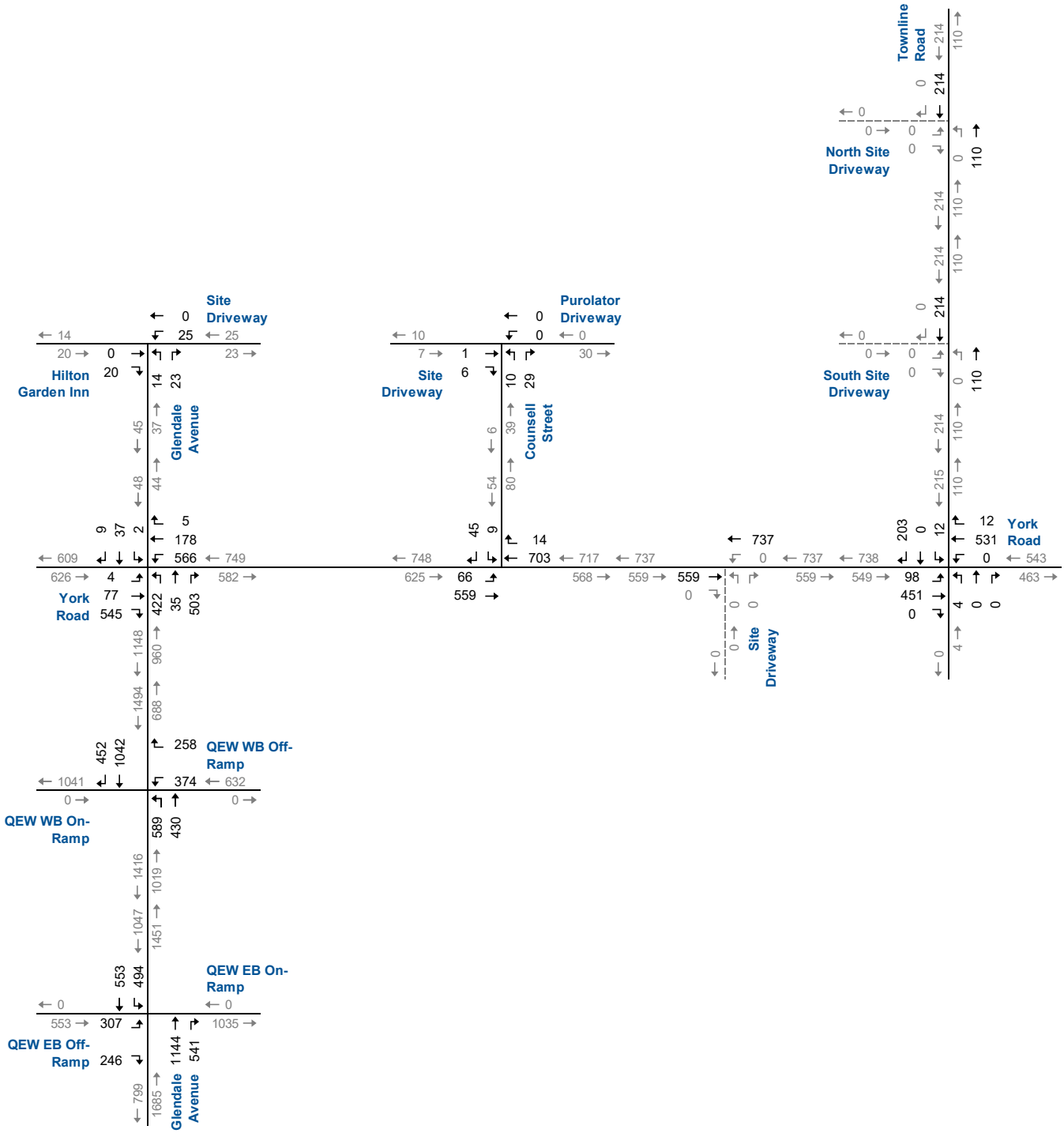
Figure 4.6



2032 Background Traffic Volumes AM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

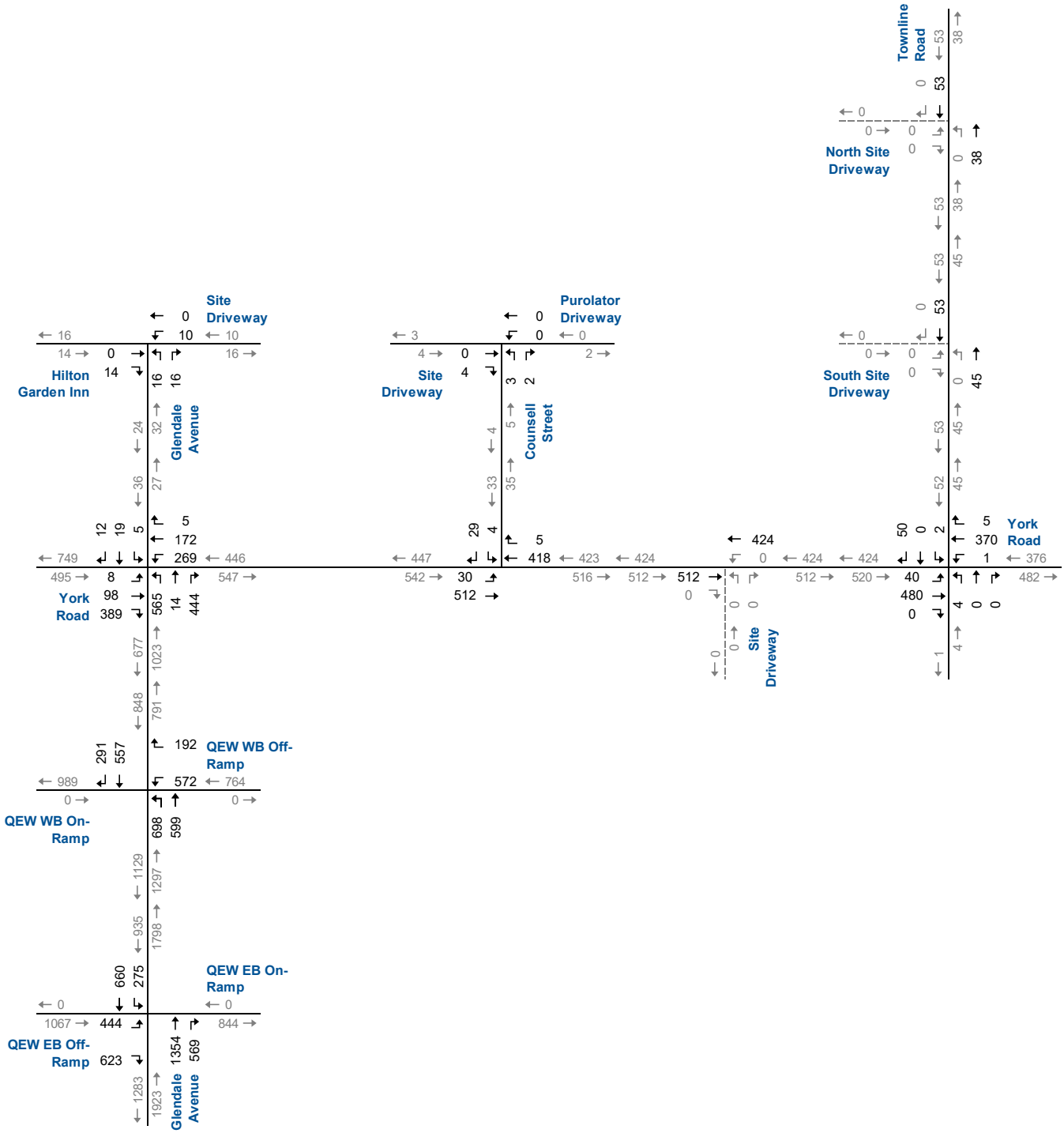
Figure 4.7



2032 Background Traffic Volumes PM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

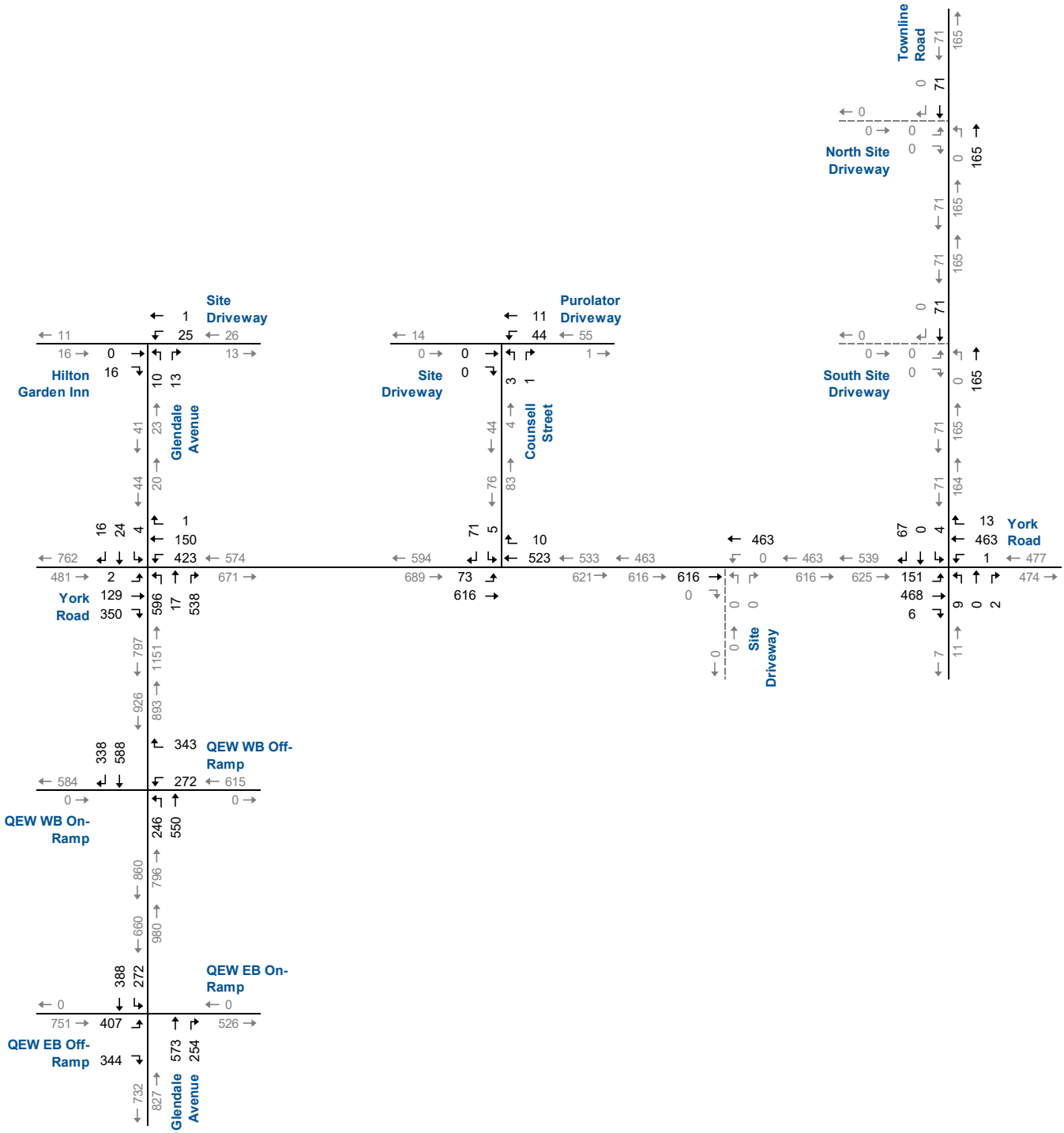
Figure 4.8



2032 Background Traffic Volumes Saturday Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

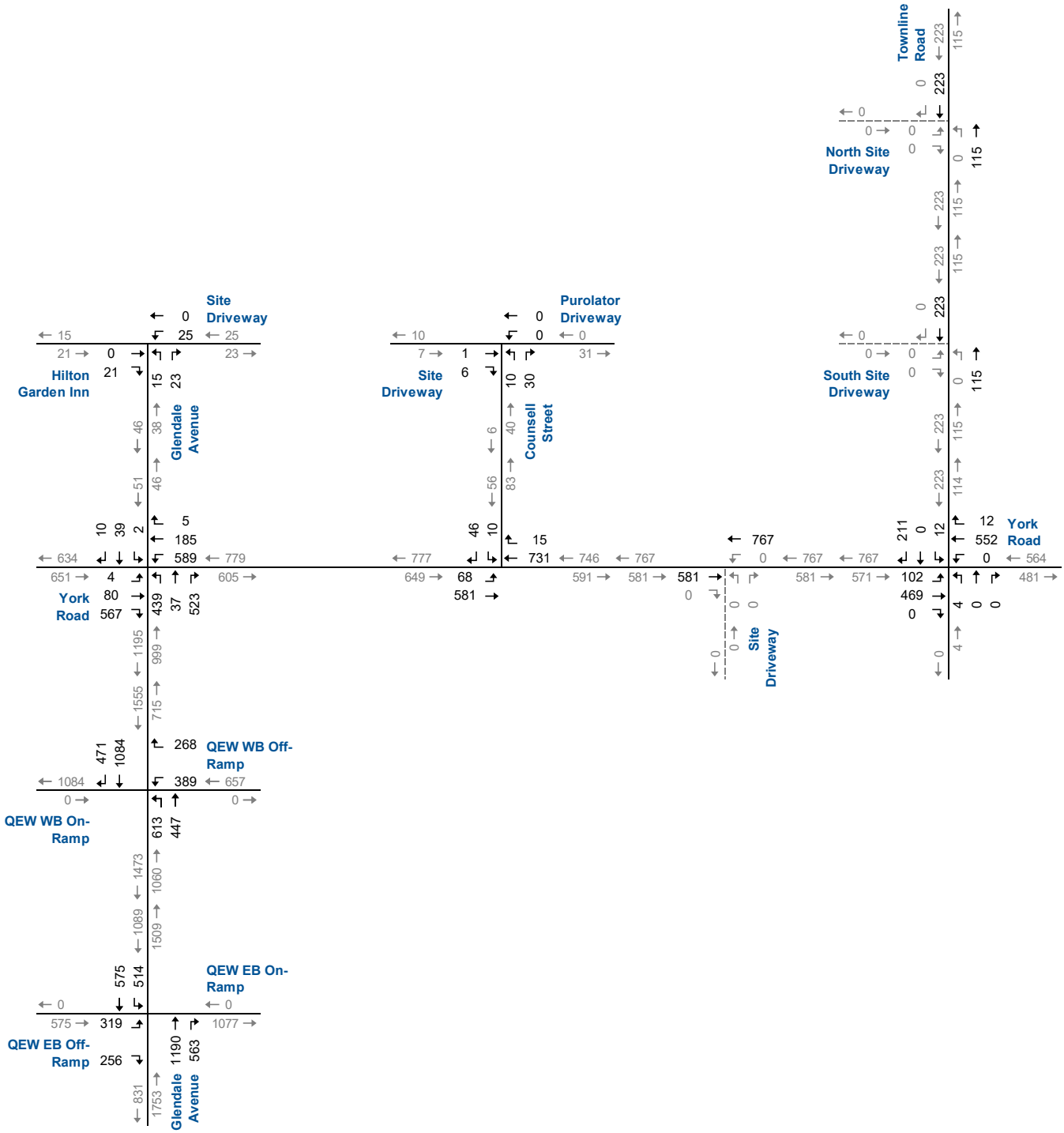
Figure 4.9



2034 Background Traffic Volumes AM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

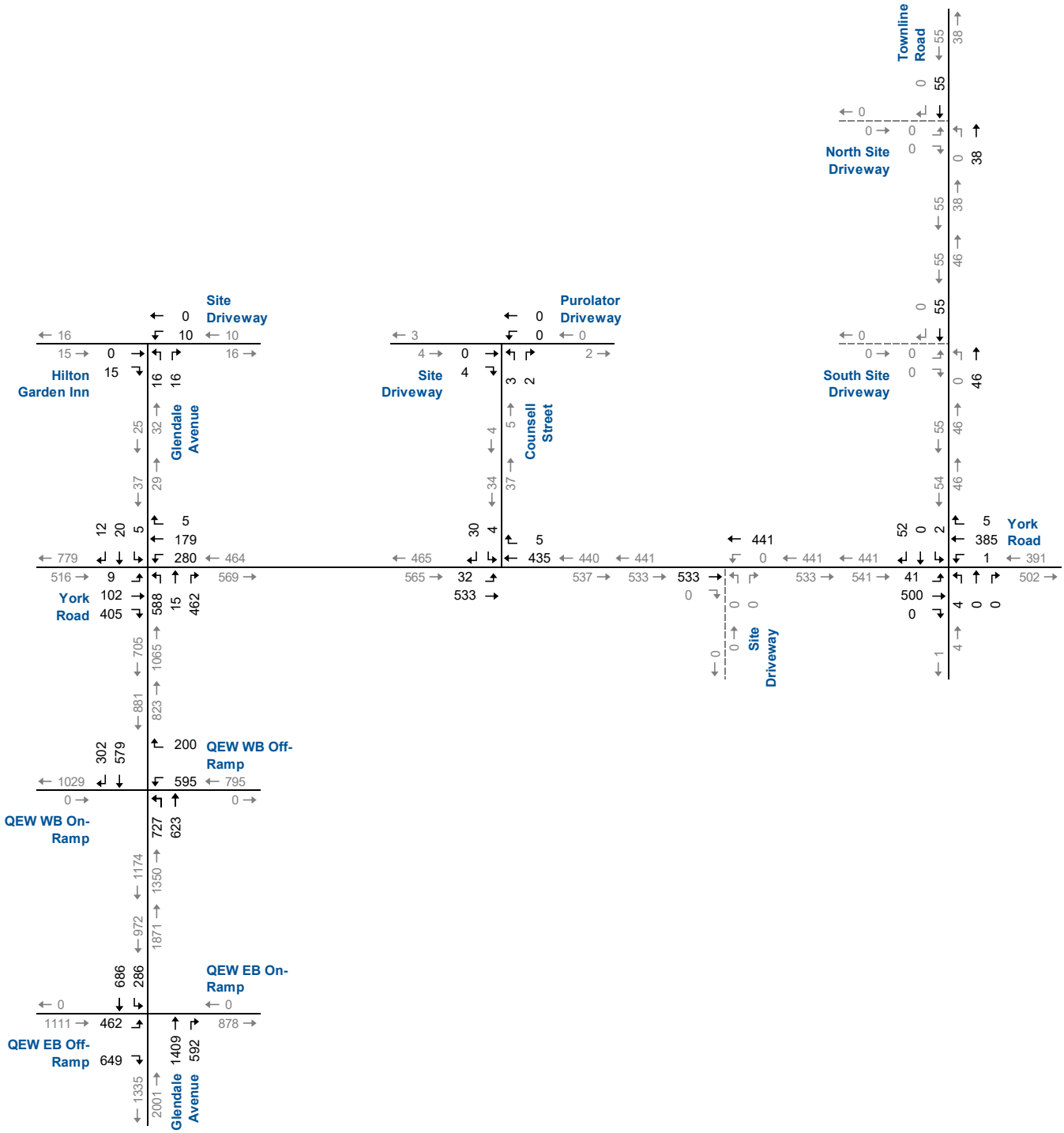
Figure 4.10



2034 Background Traffic Volumes PM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

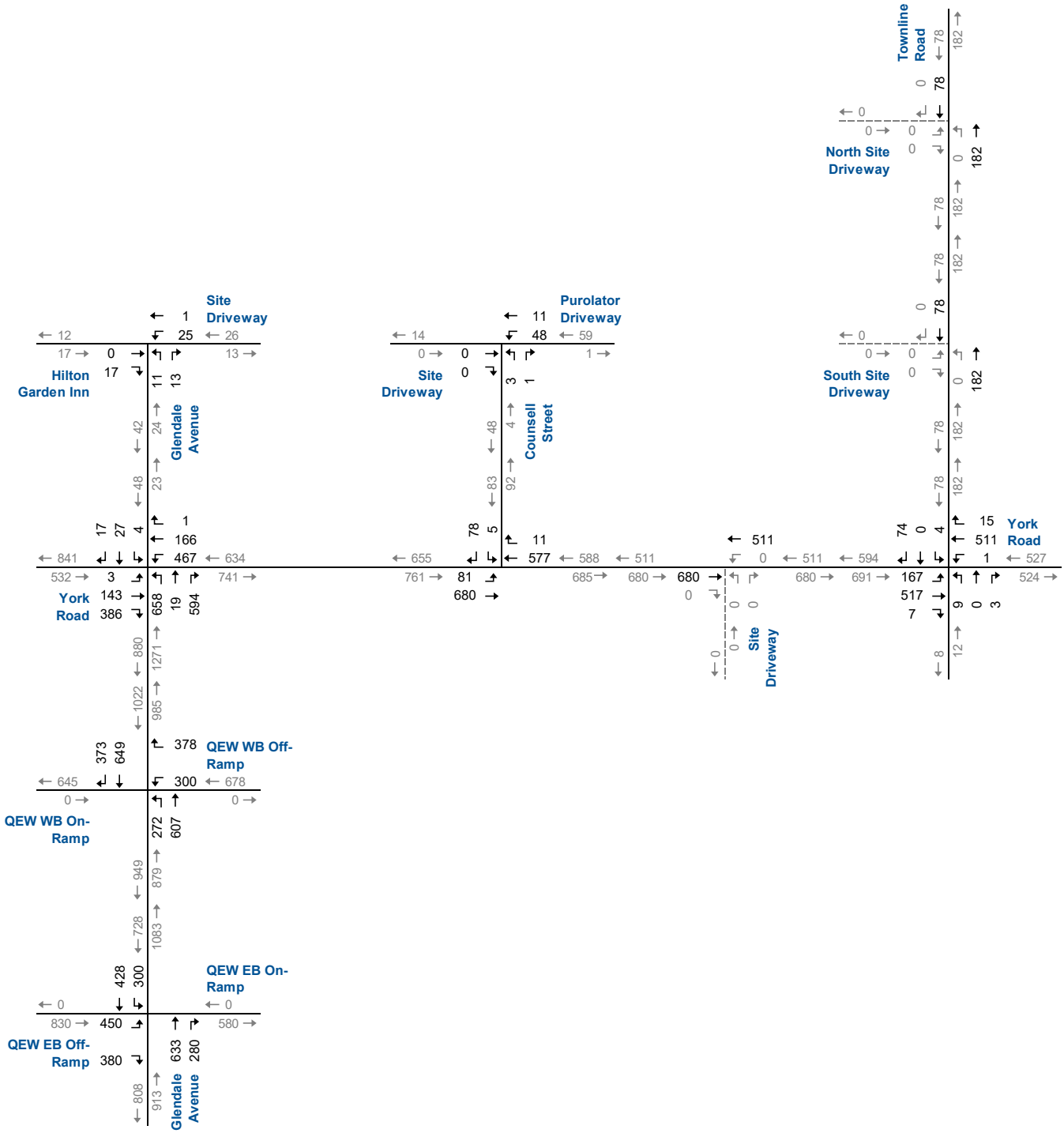
Figure 4.11



2034 Background Traffic Volumes Saturday Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

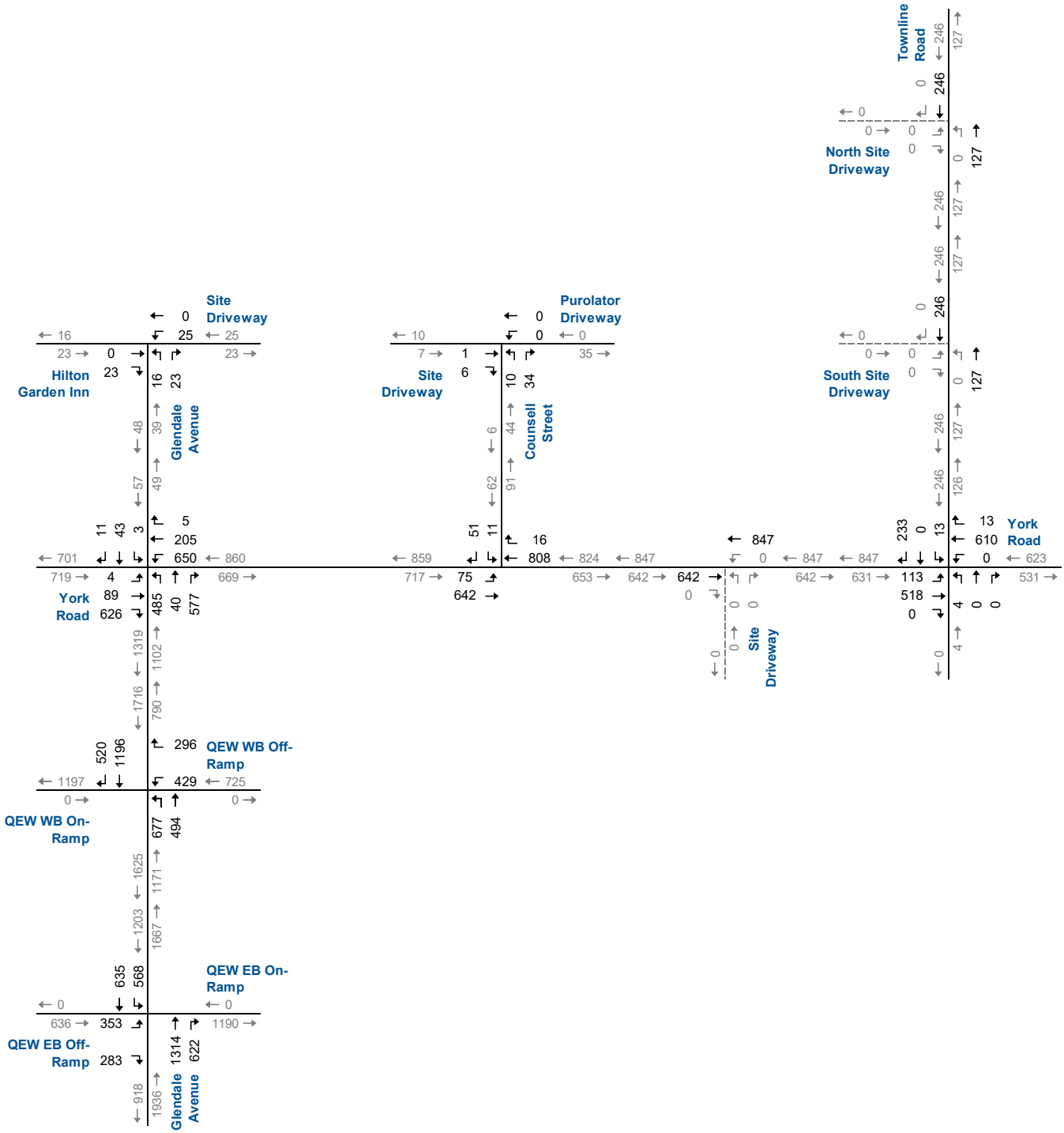
Figure 4.12



2039 Background Traffic Volumes AM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

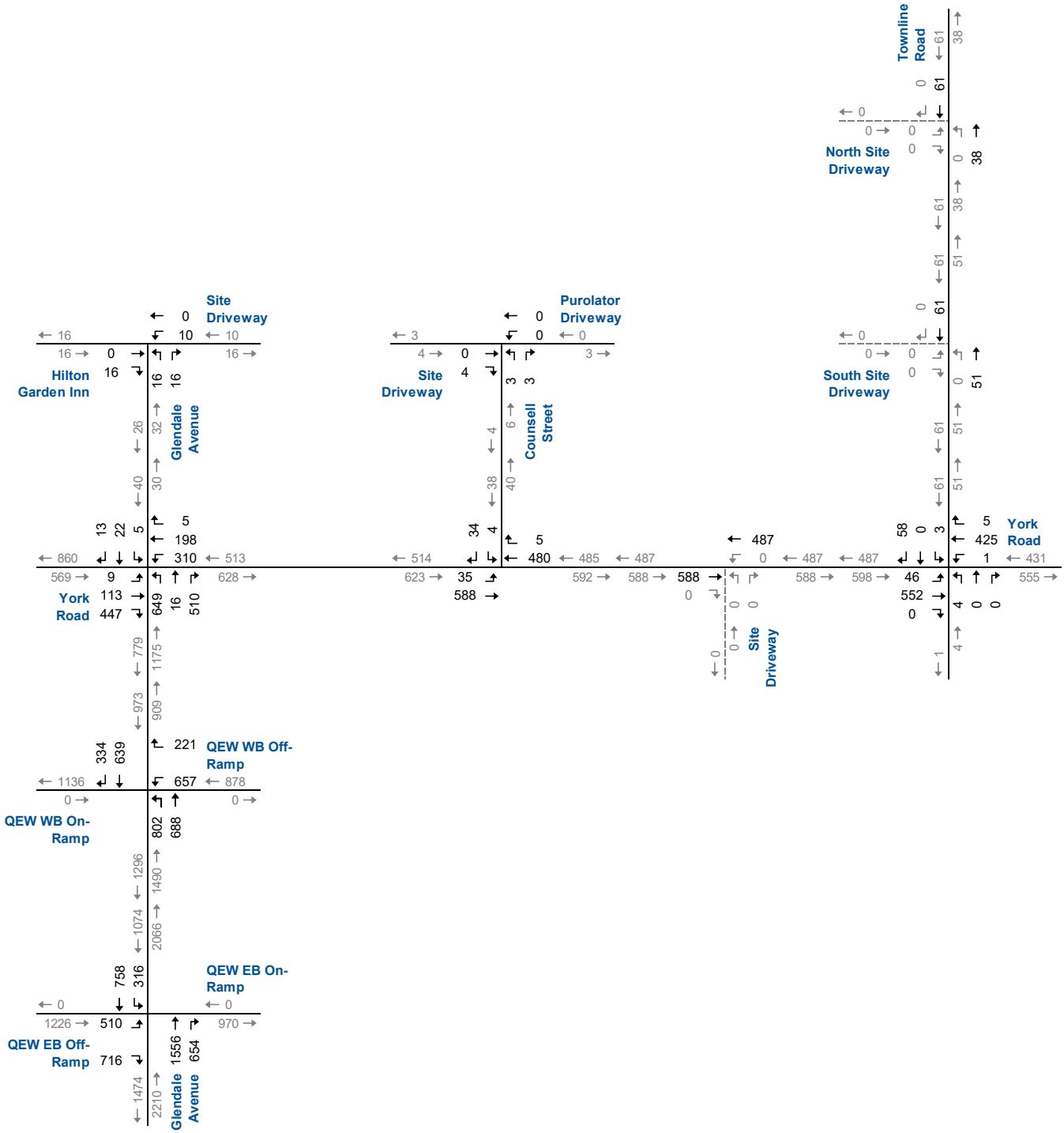
Figure 4.13



2039 Background Traffic Volumes PM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

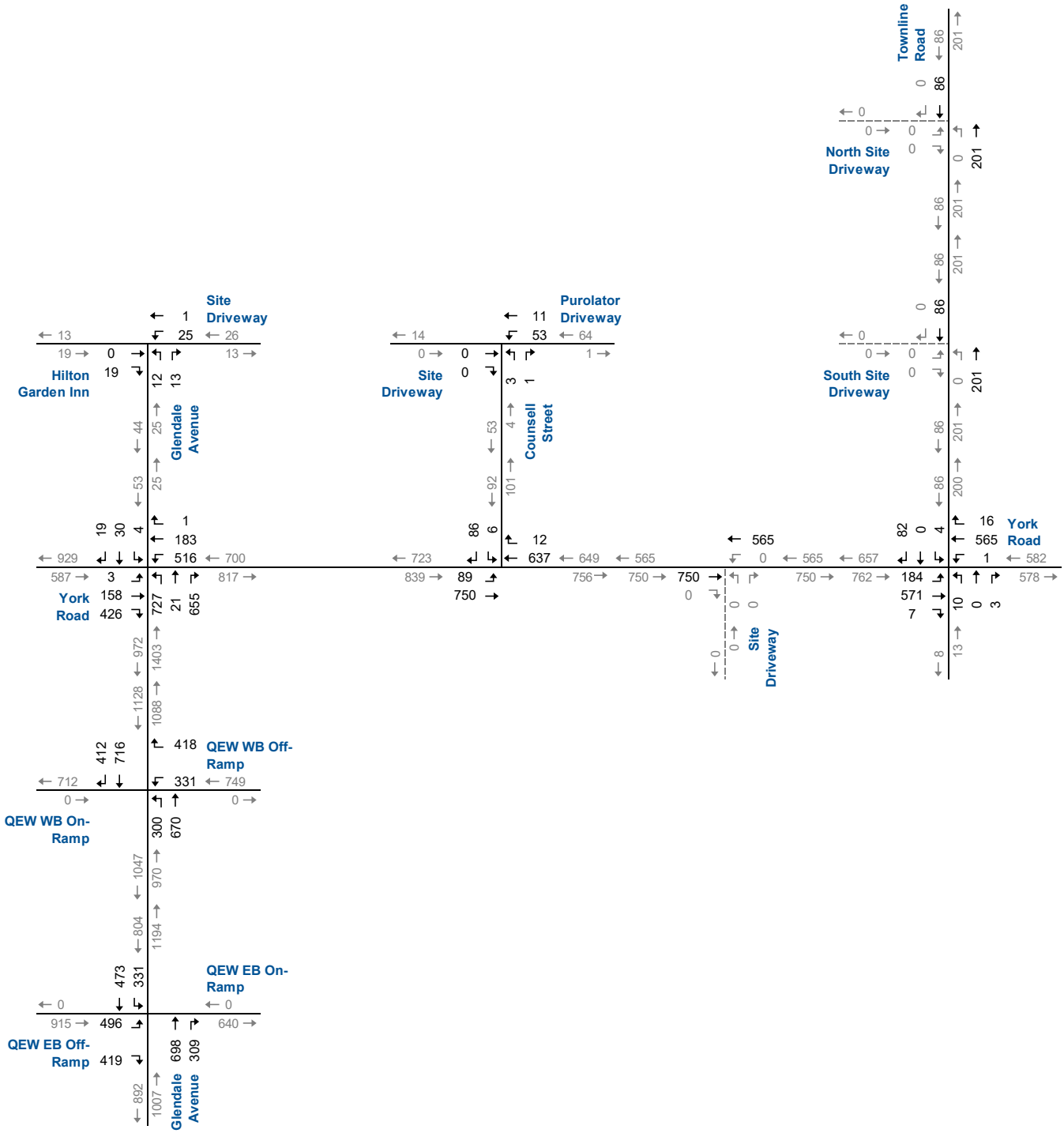
Figure 4.14



2039 Background Traffic Volumes Saturday Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

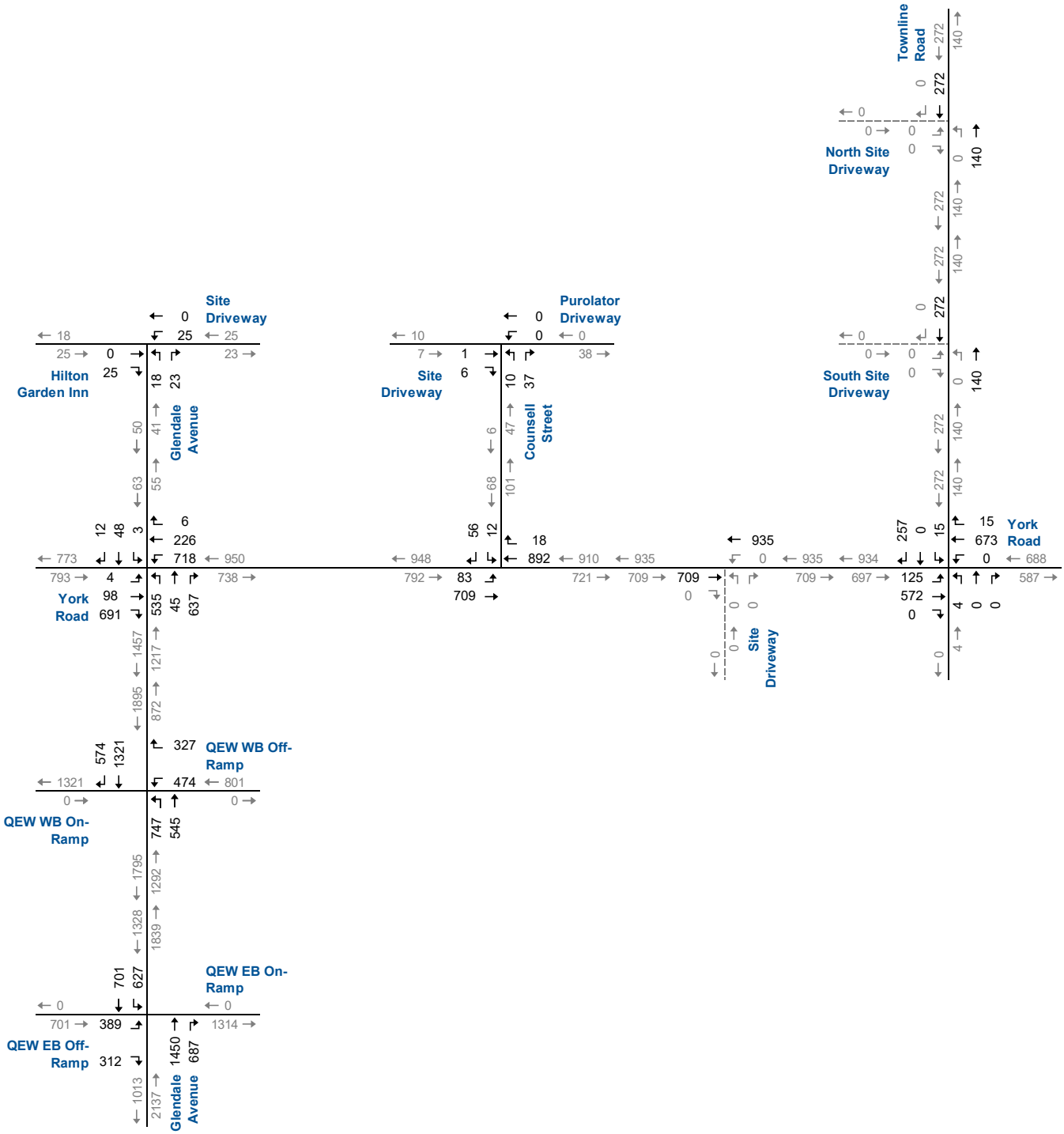
Figure 4.15



2044 Background Traffic Volumes AM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

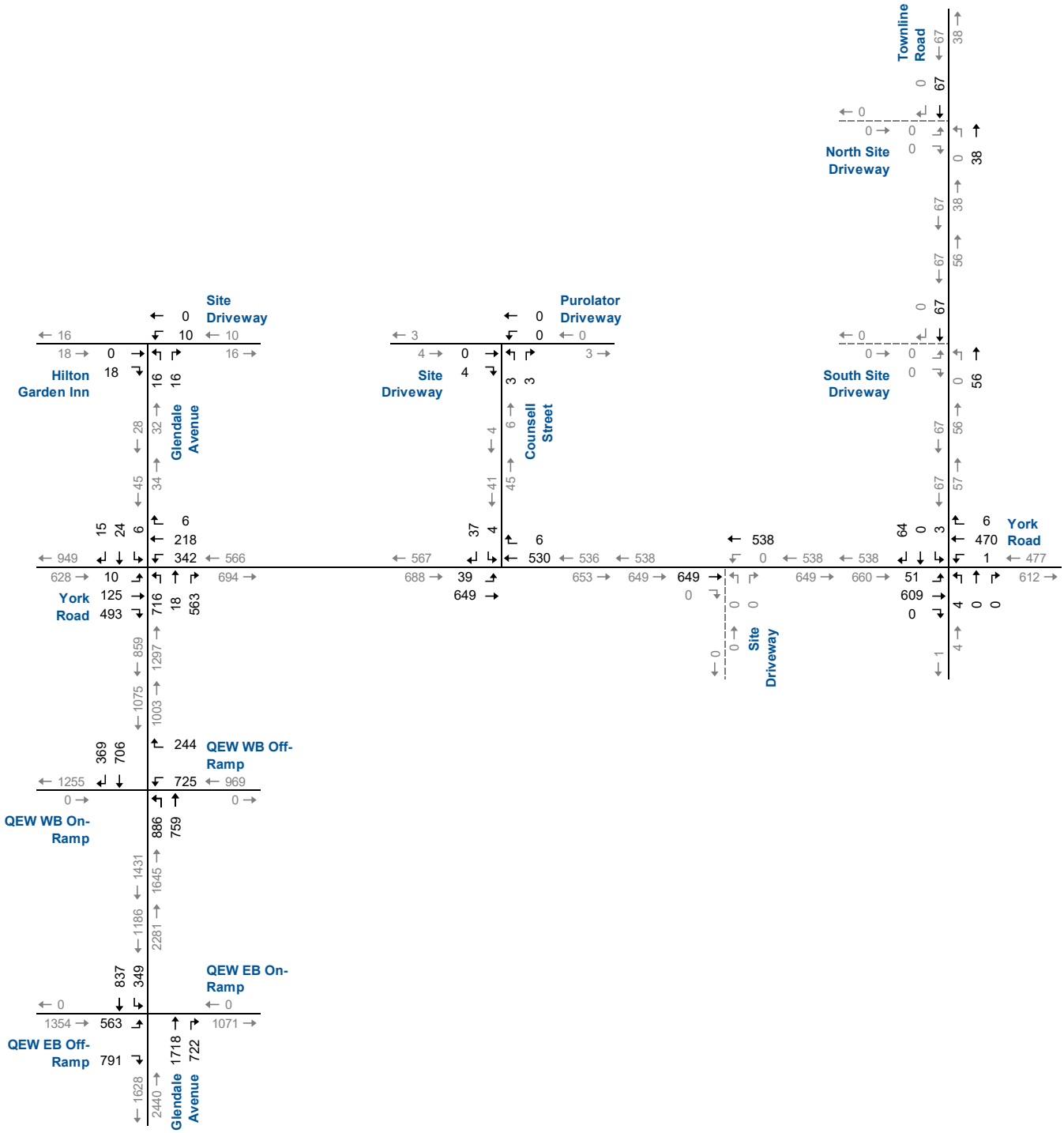
Figure 4.16



2044 Background Traffic Volumes PM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

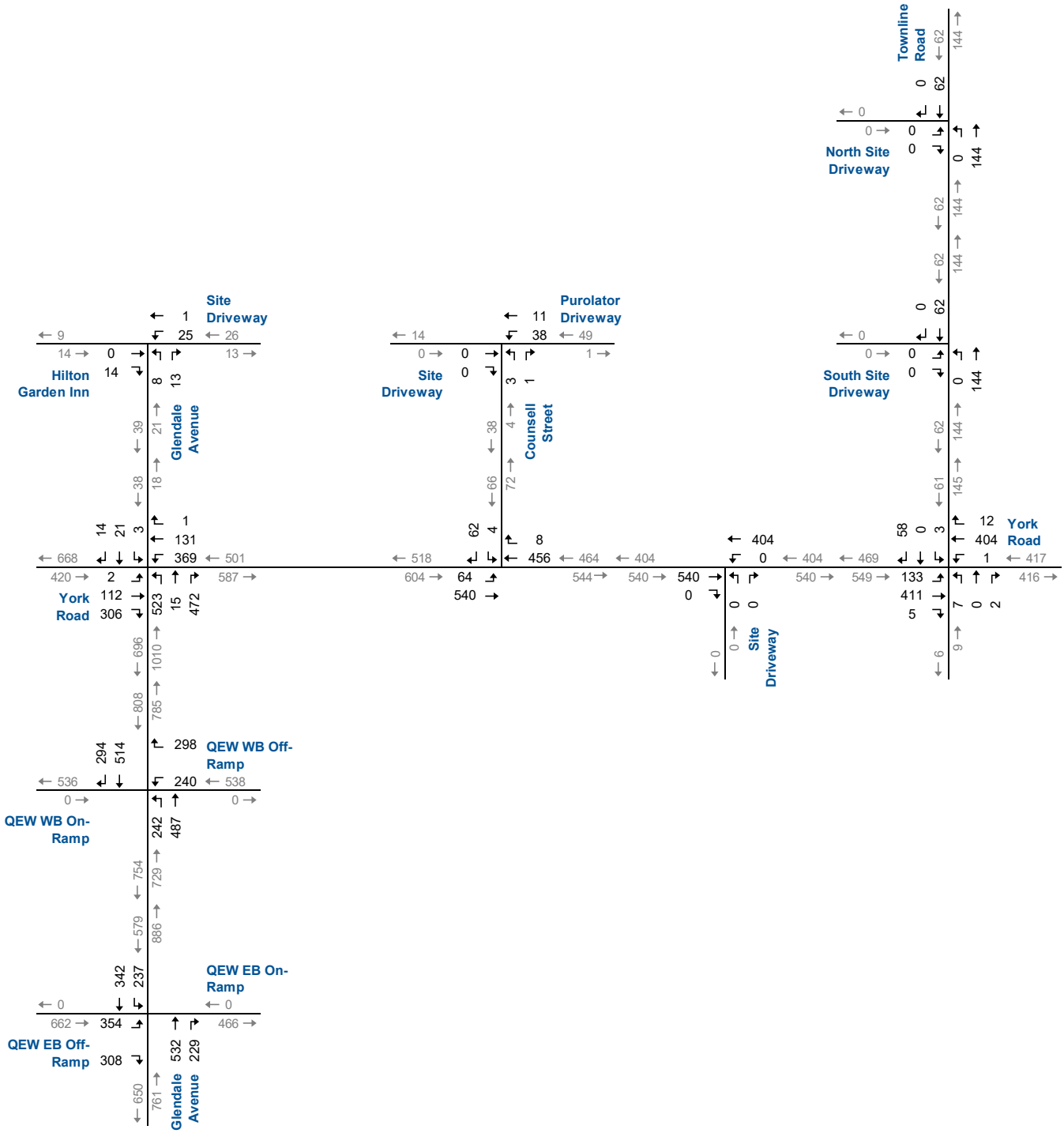
Figure 4.17



2044 Background Traffic Volumes Saturday Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

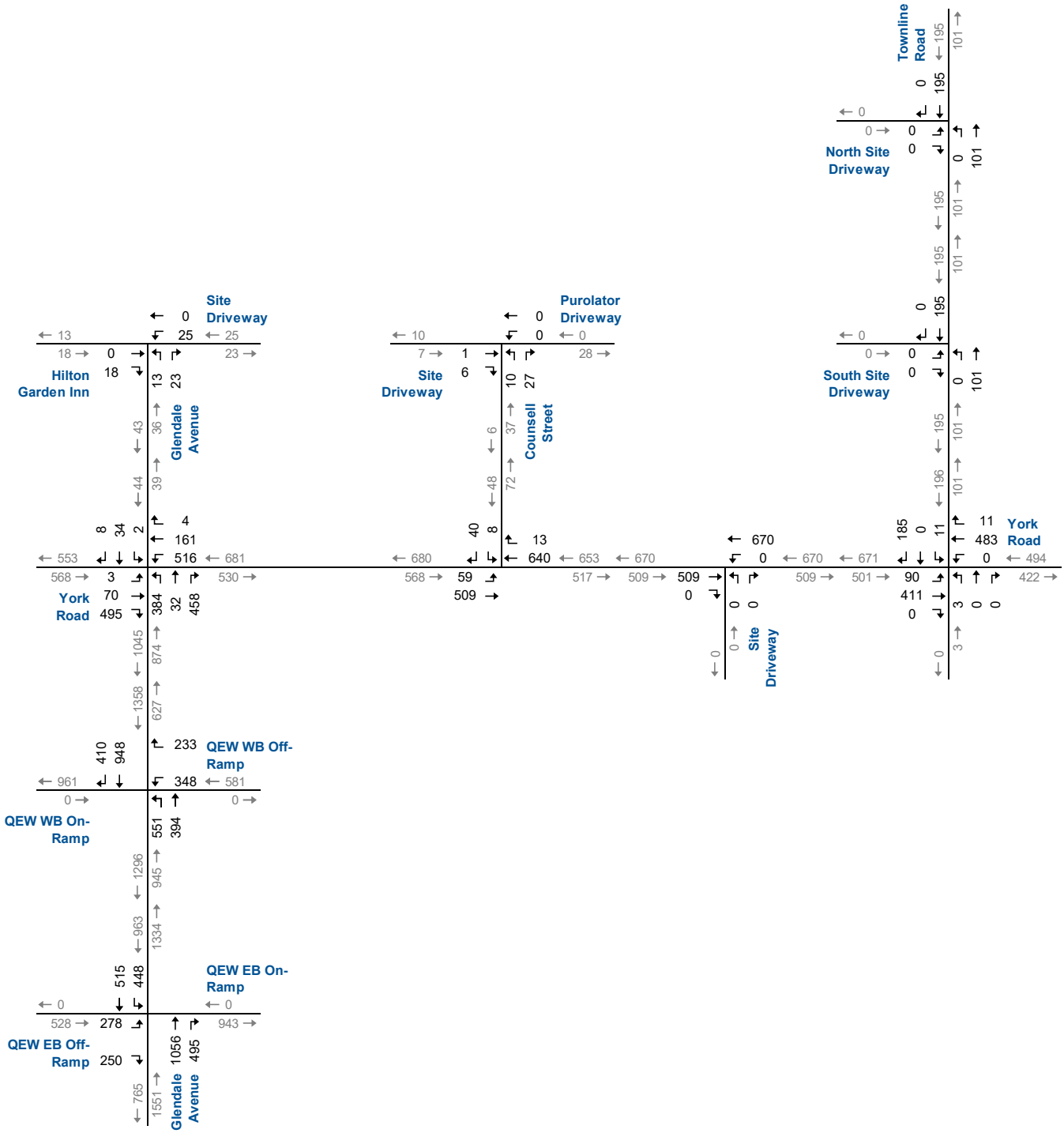
Figure 4.18



2027 Total Traffic Volumes
AM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

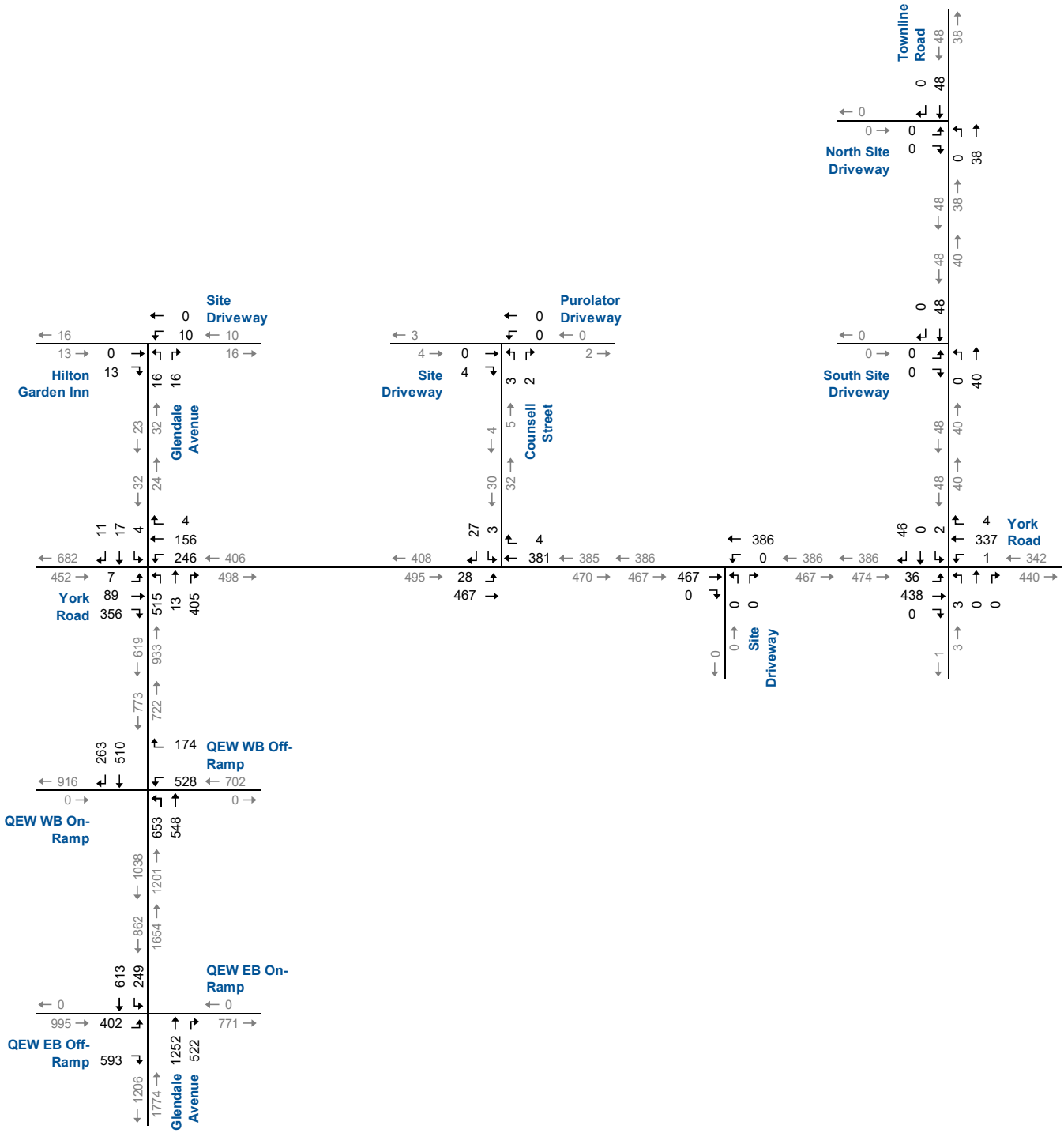
Figure 4.19



2027 Total Traffic Volumes
PM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

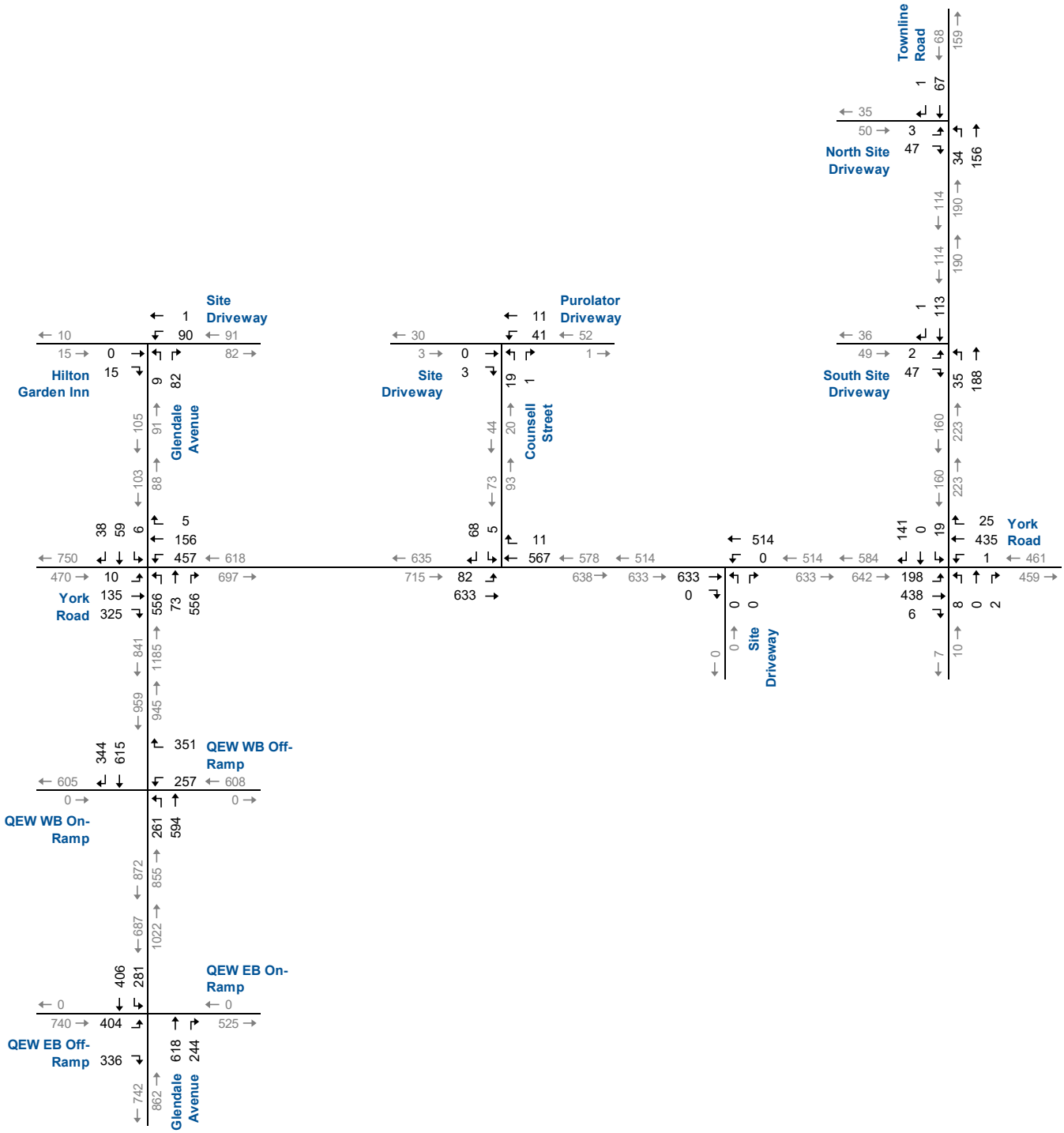
Figure 4.20



2027 Total Traffic Volumes
Saturday Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

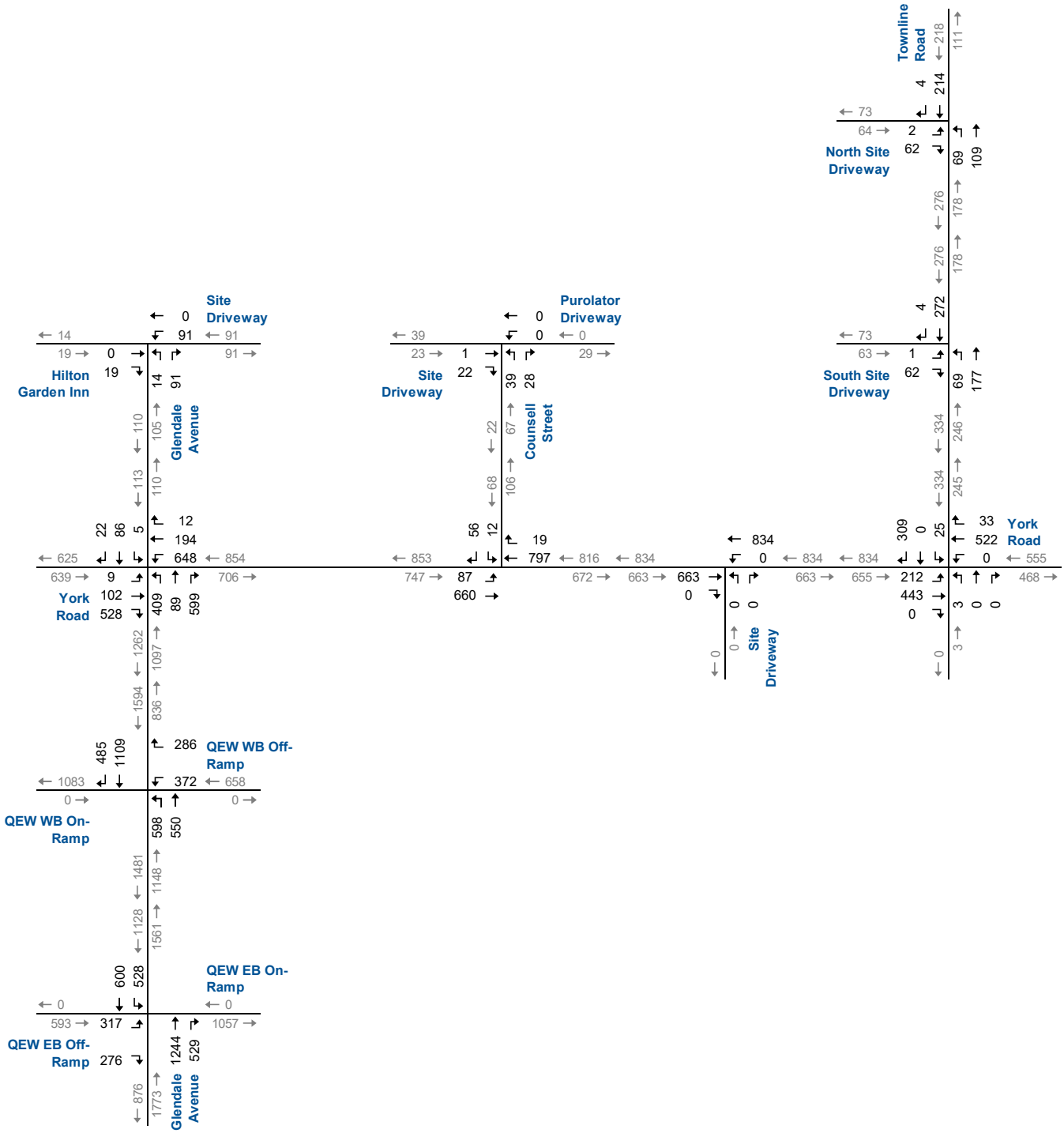
Figure 4.21



2030 Total Traffic Volumes
AM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

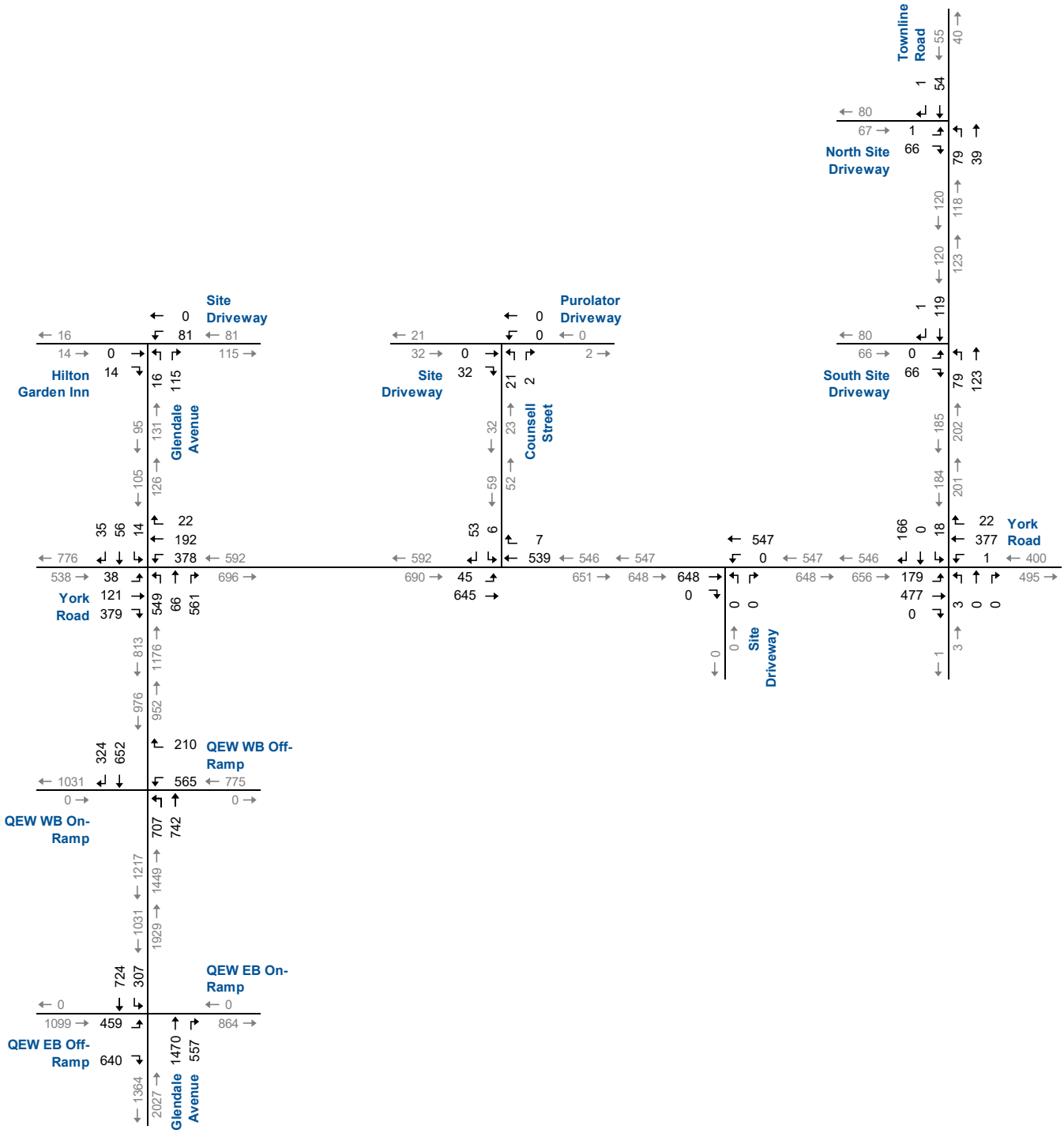
Figure 4.22



2030 Total Traffic Volumes
PM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

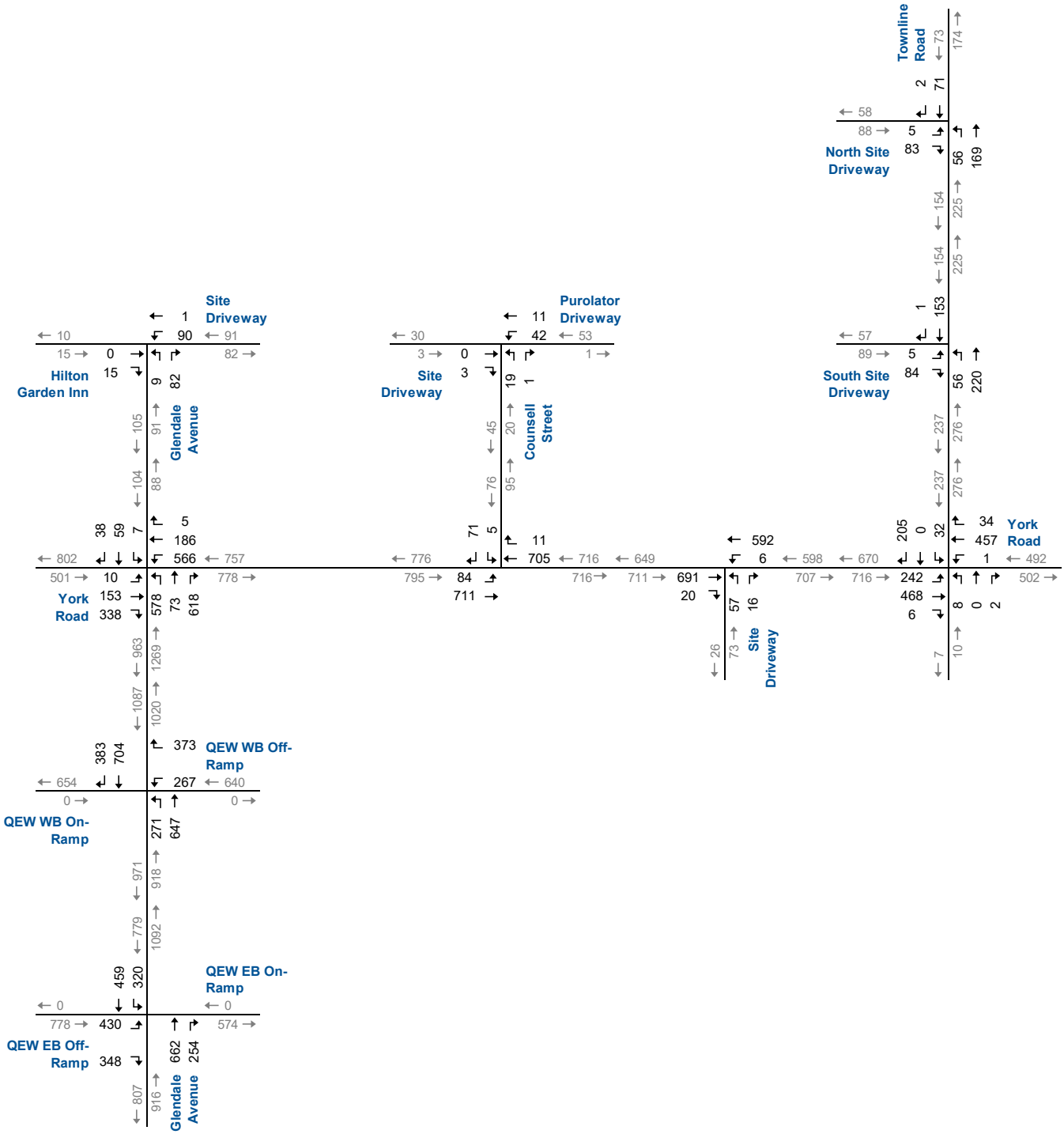
Figure 4.23



2030 Total Traffic Volumes
Saturday Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

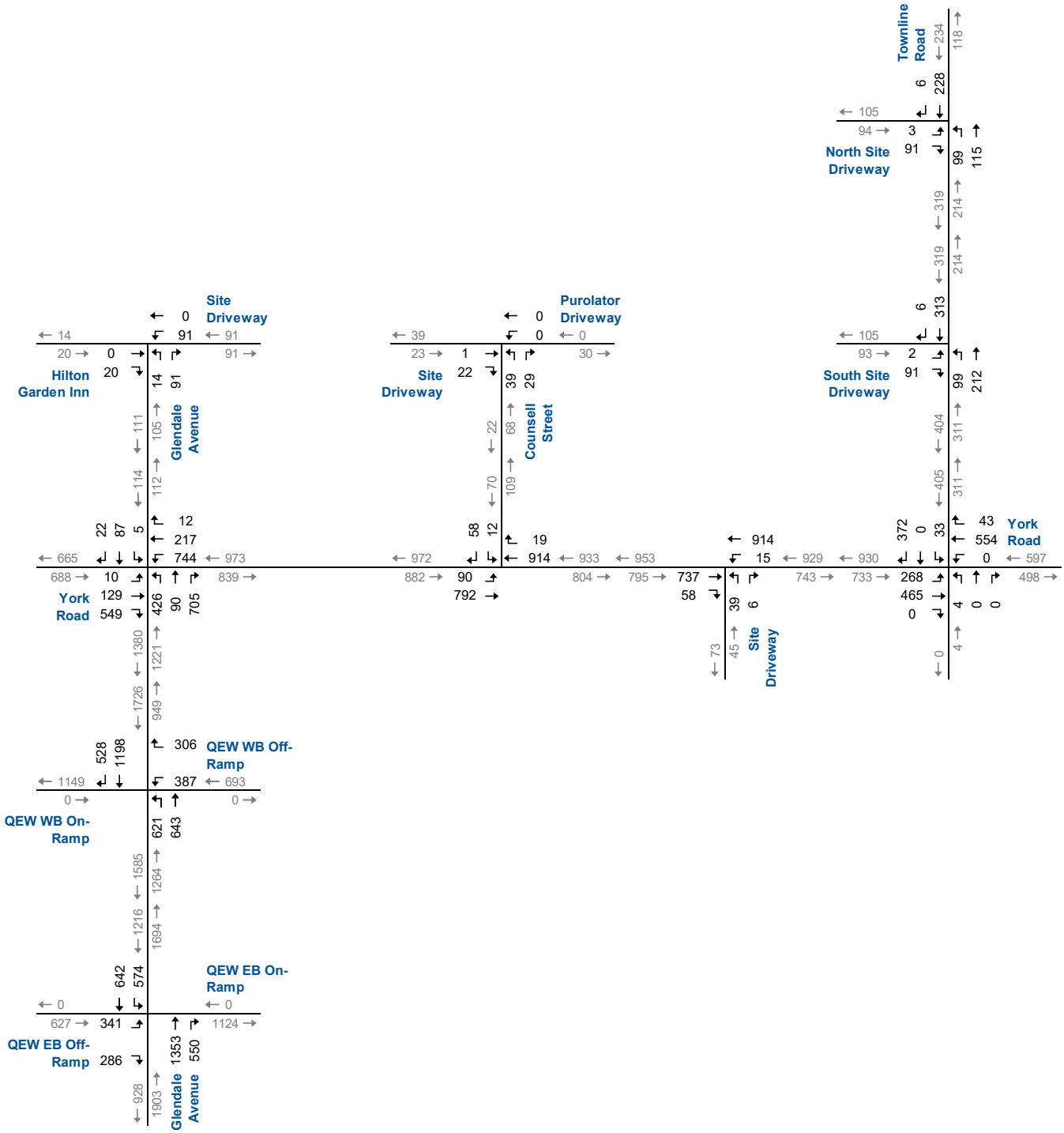
Figure 4.24



2032 Total Traffic Volumes
AM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

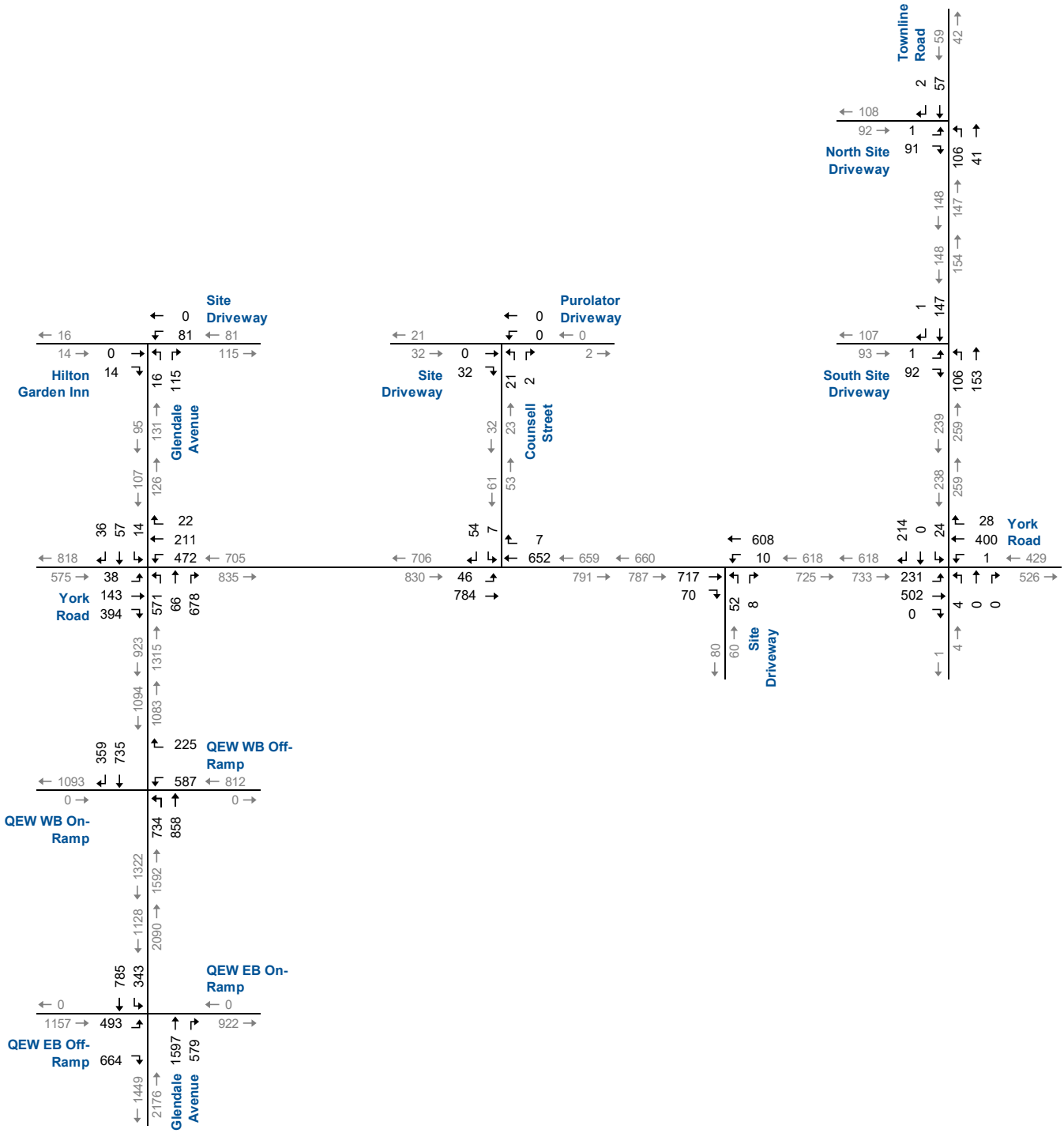
Figure 4.25



2032 Total Traffic Volumes
PM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

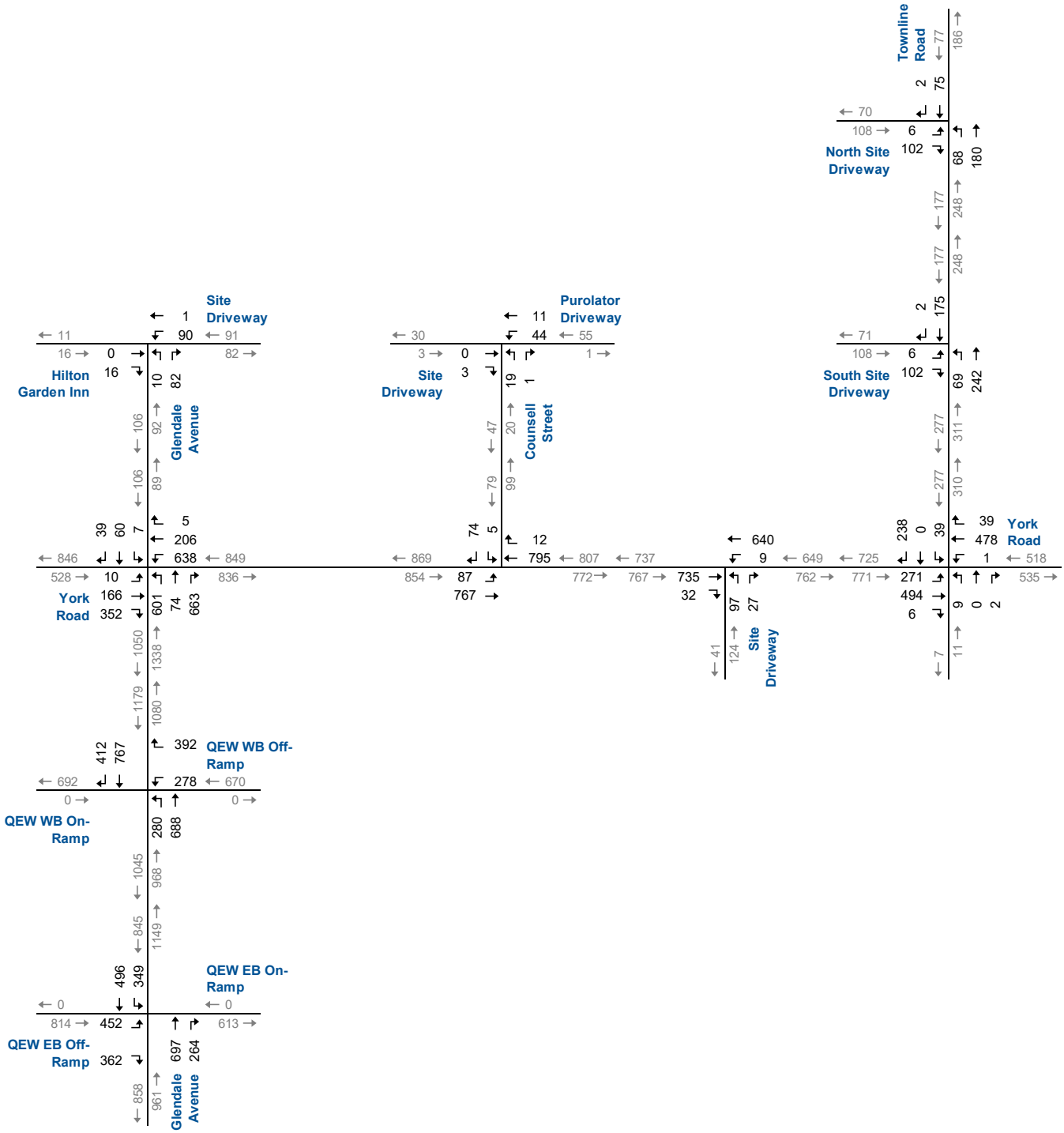
Figure 4.26



2032 Total Traffic Volumes
Saturday Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

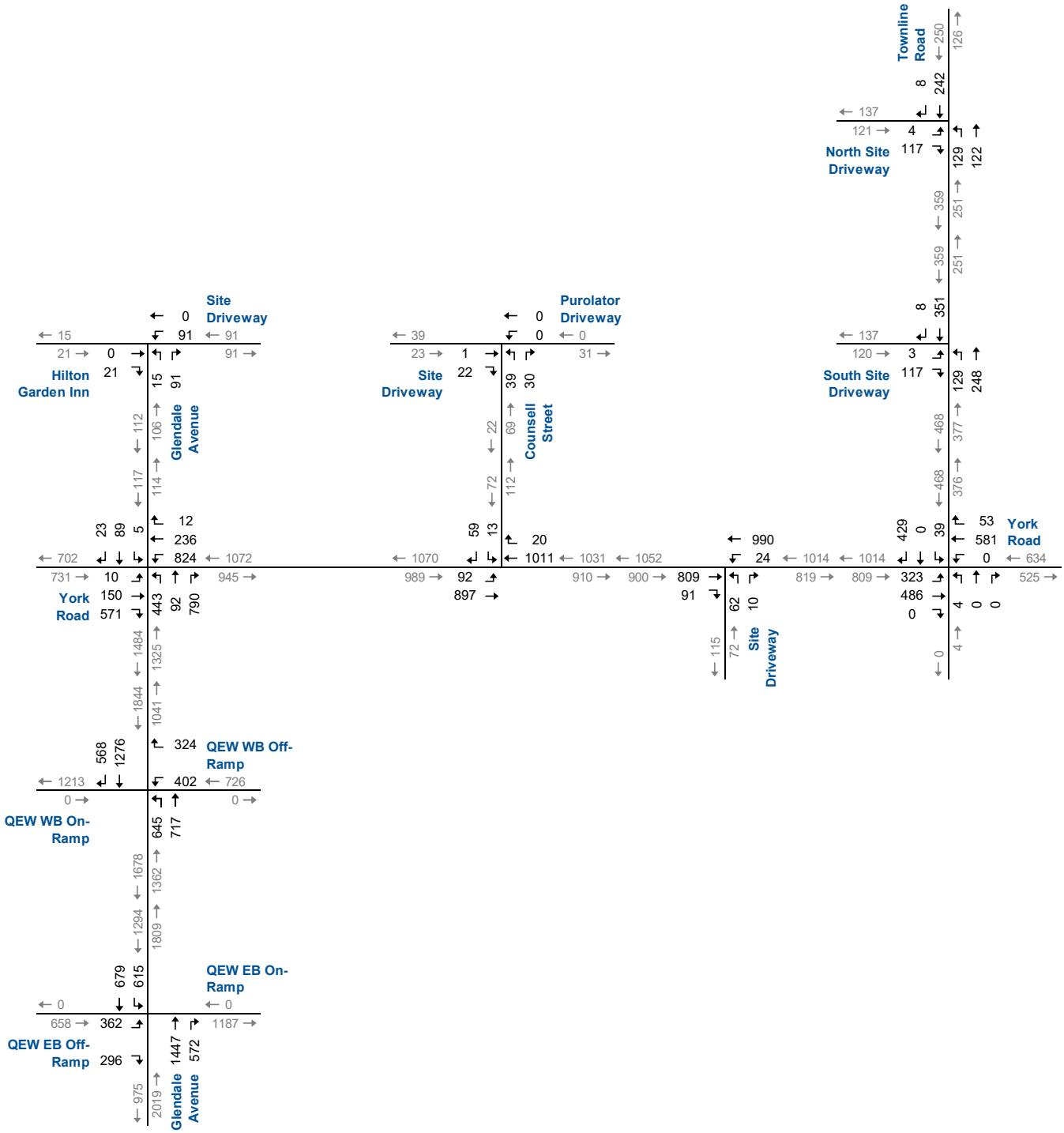
Figure 4.27



2034 Total Traffic Volumes
AM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

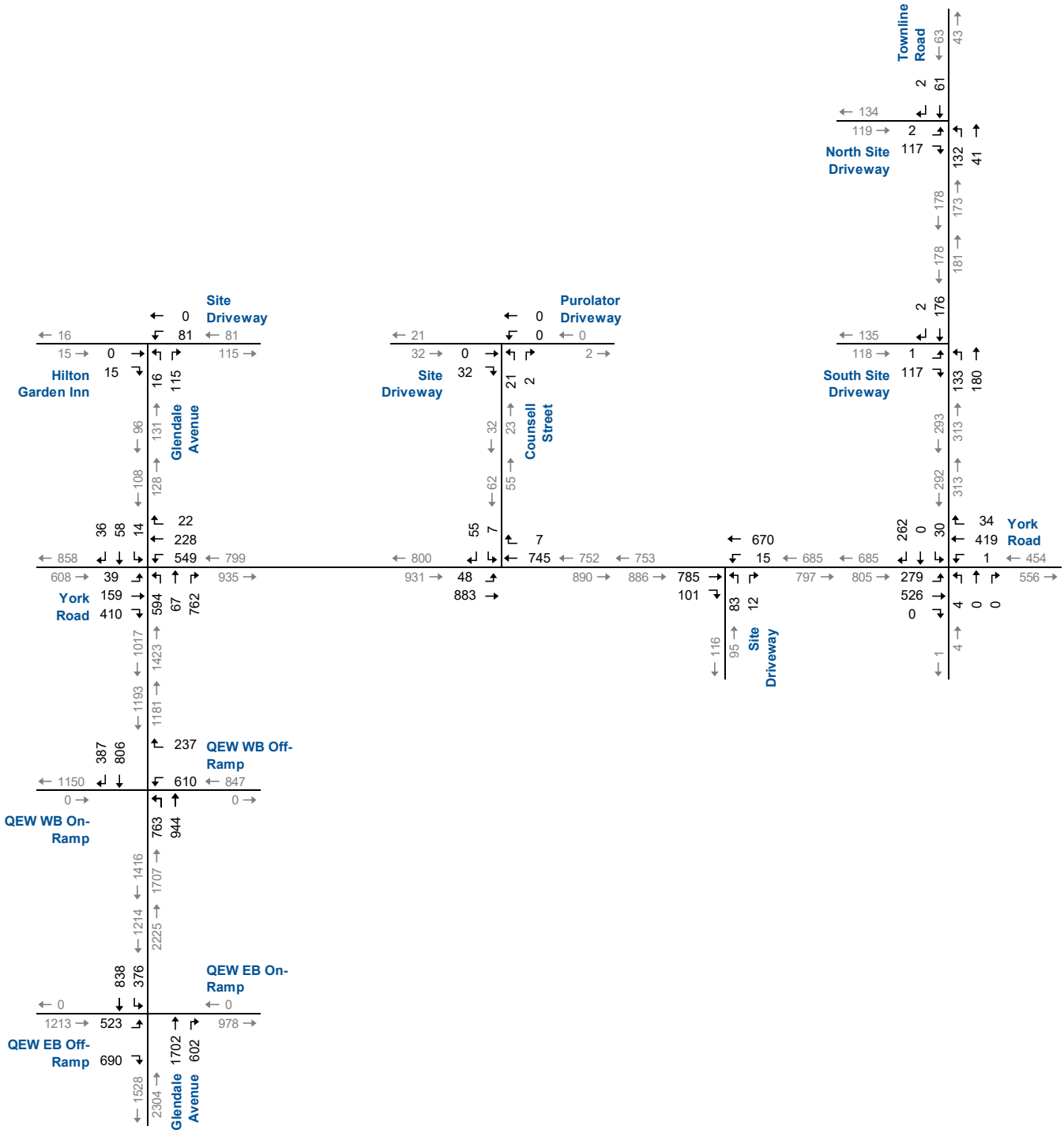
Figure 4.28



2034 Total Traffic Volumes
PM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

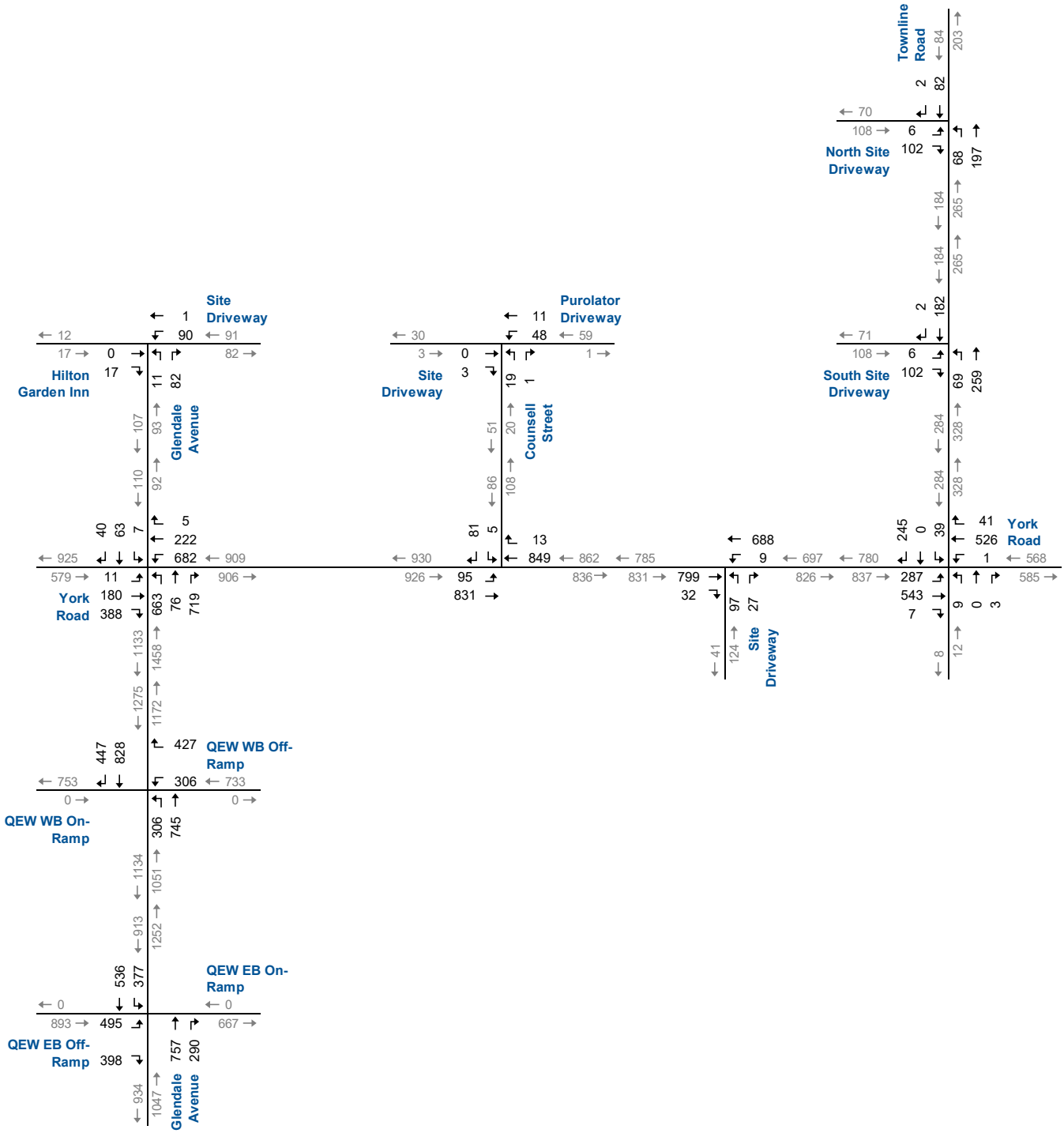
Figure 4.29



2034 Total Traffic Volumes
Saturday Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

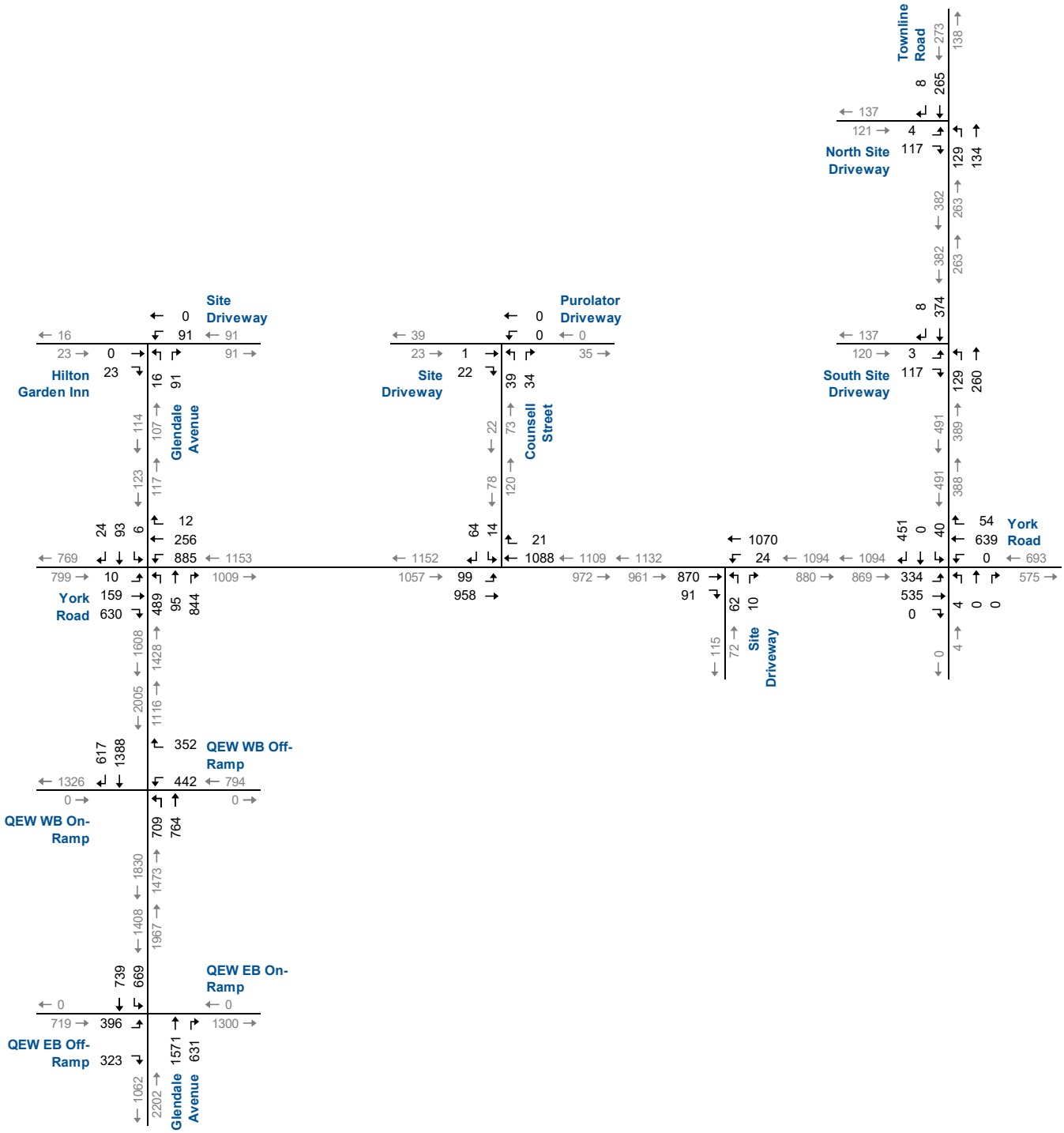
Figure 4.30



2039 Total Traffic Volumes AM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

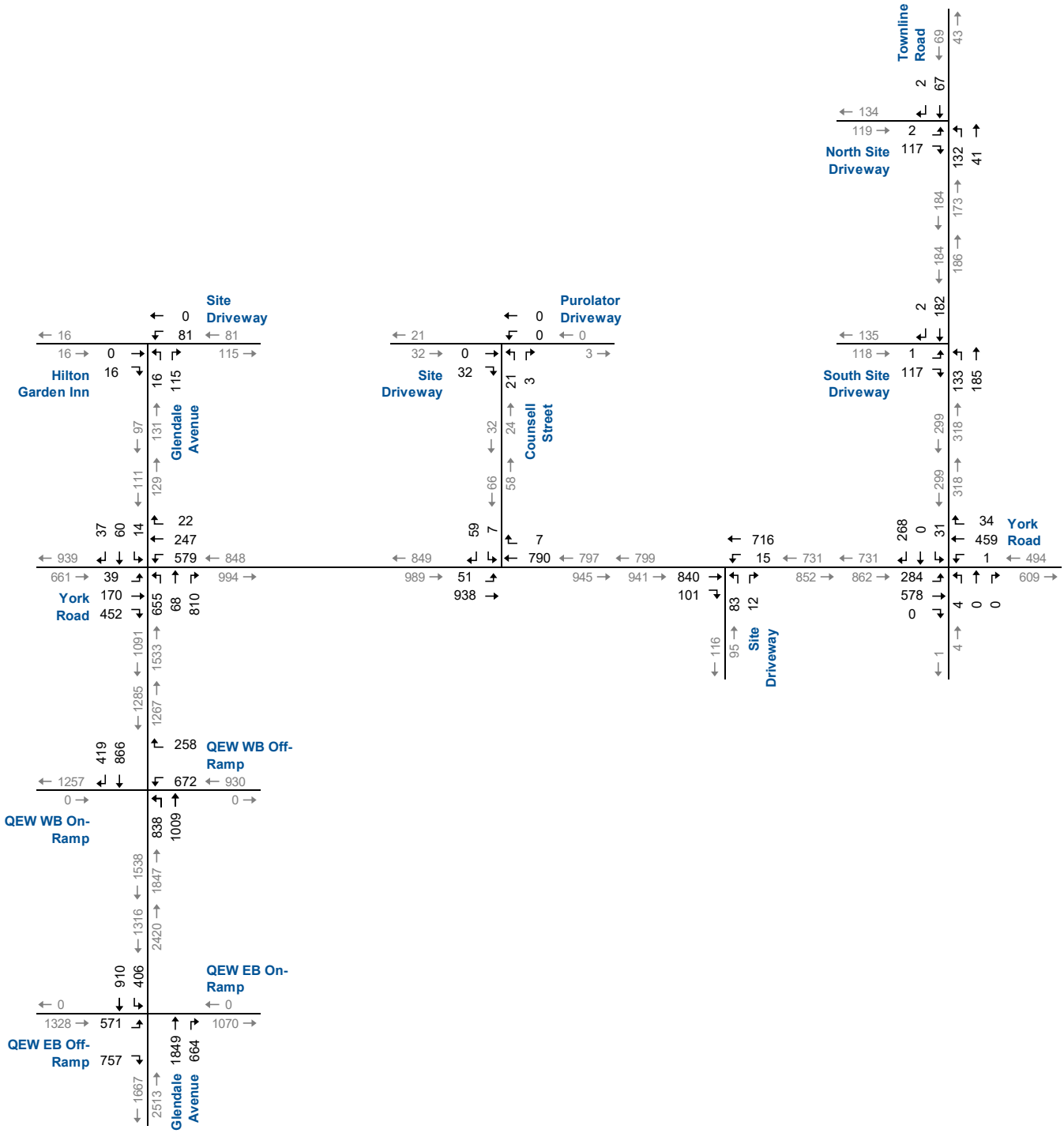
Figure 4.31



2039 Total Traffic Volumes
PM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

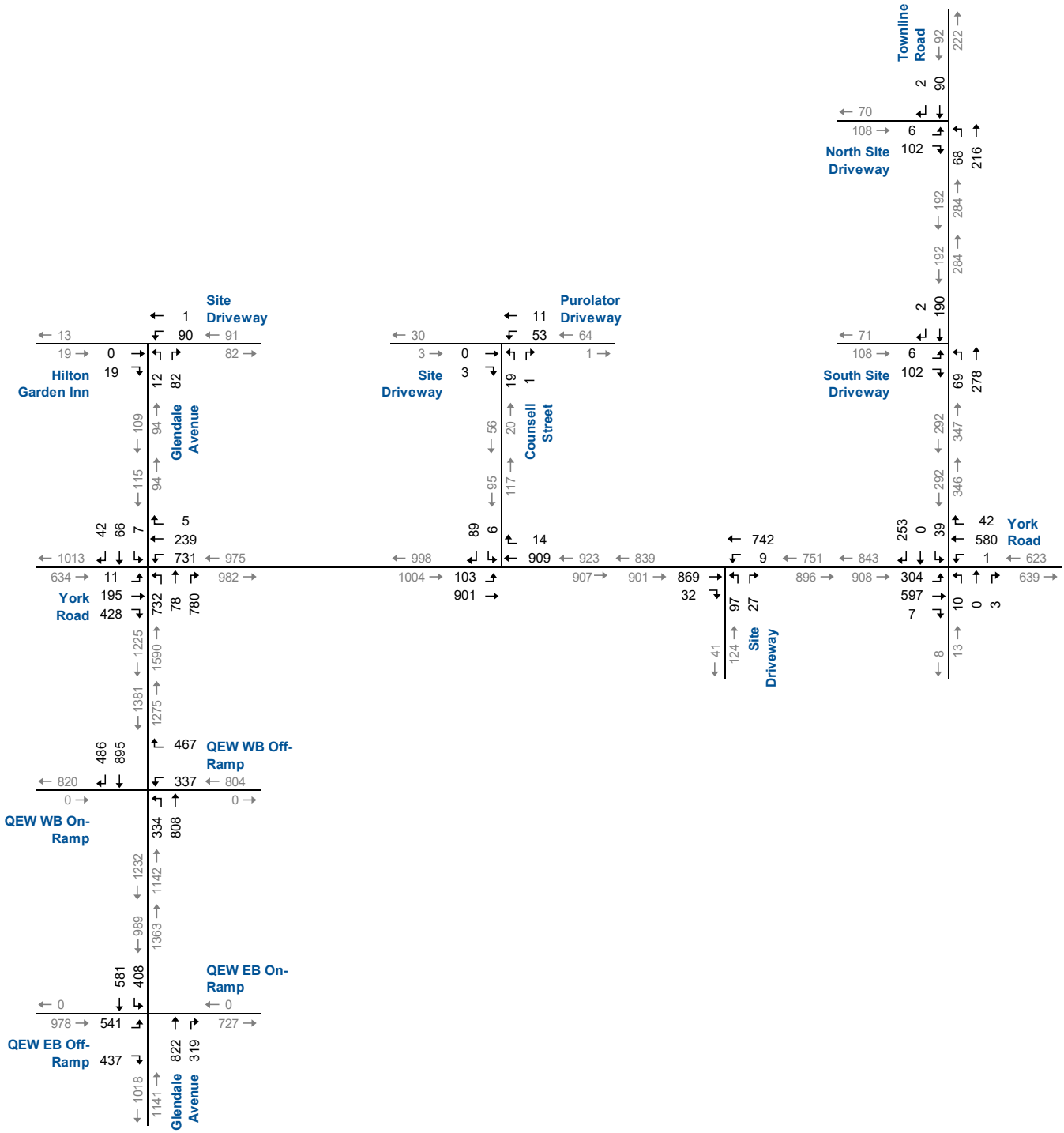
Figure 4.32



2039 Total Traffic Volumes Saturday Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

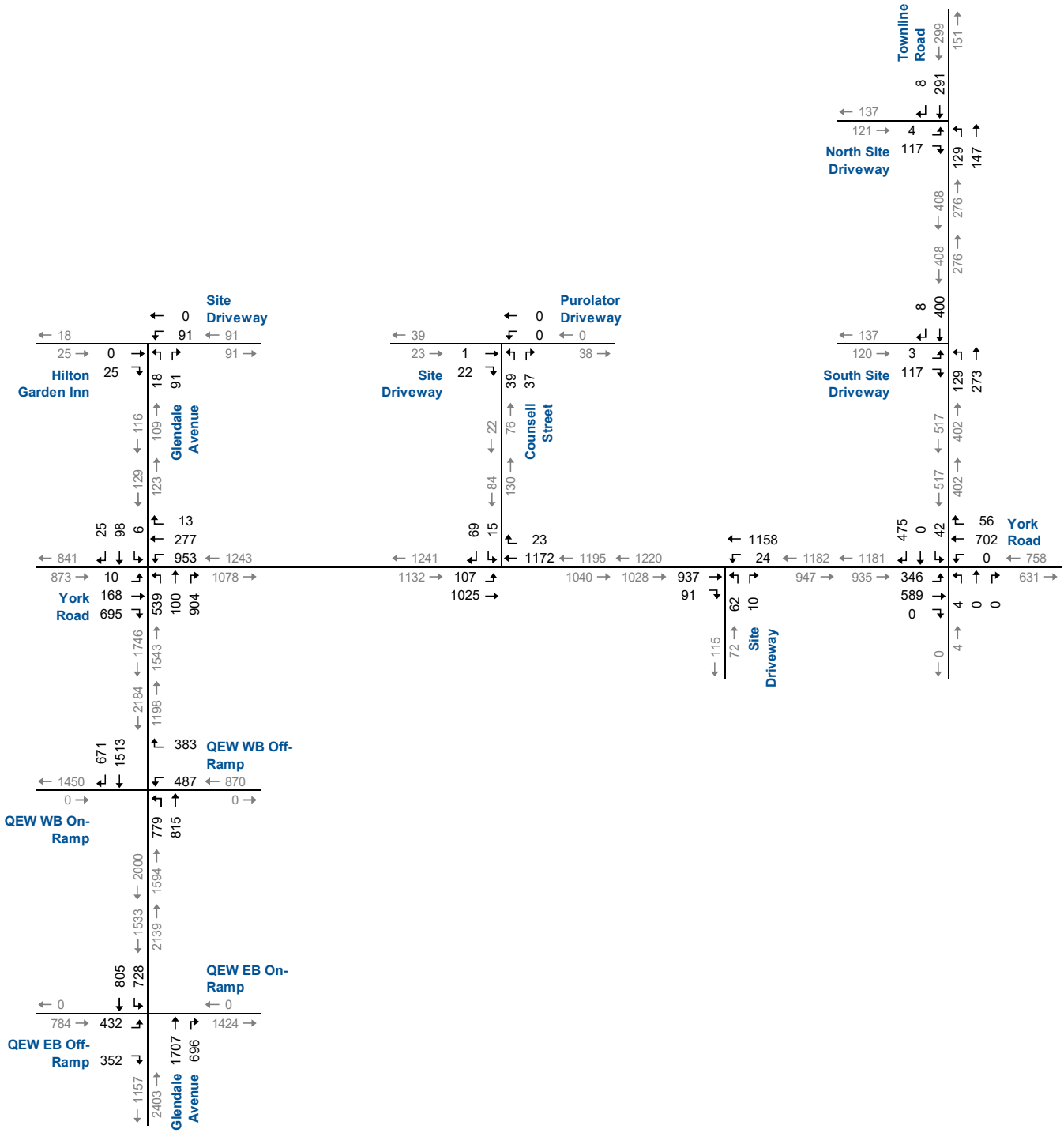
Figure 4.33



2044 Total Traffic Volumes
AM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

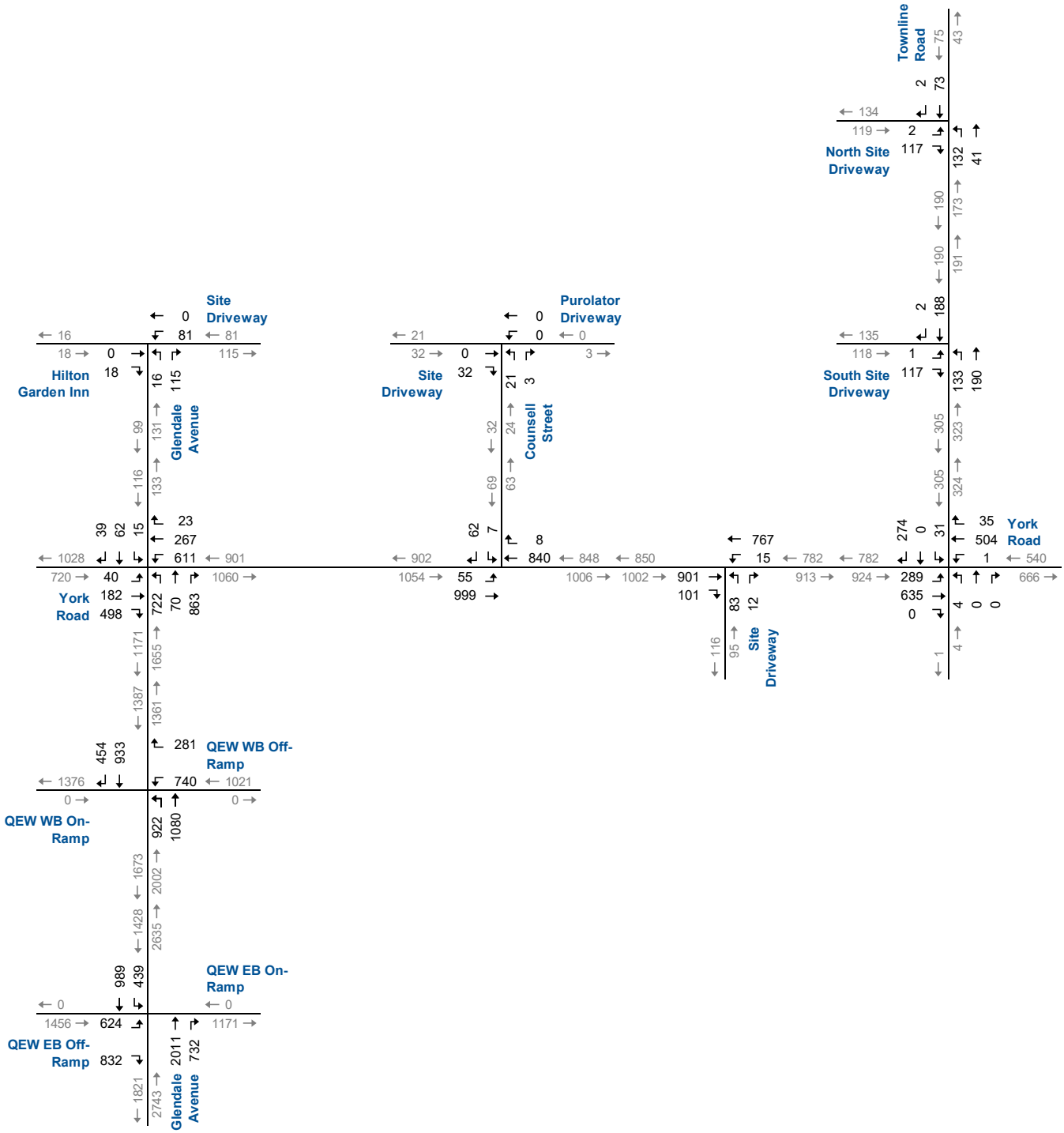
Figure 4.34



2044 Total Traffic Volumes
PM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

Figure 4.35



2044 Total Traffic Volumes Saturday Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

Figure 4.36

4.2 Operational Analysis

The study area intersection operational analyses followed the same methodology used for existing conditions. No changes to the existing lane configurations or signal timings are assumed. For measures of effectiveness significantly over capacity, Synchro returns *Err* as the output.

Table 4.1, **Table 4.2**, and **Table 4.3** summarize the level of service conditions during the background traffic AM, PM, and Saturday peak hours, respectively.

Table 4.4, **Table 4.5**, and **Table 4.6** summarize the level of service conditions during the total traffic AM, PM, and Saturday peak hours, respectively.

Appendix F contains the detailed background traffic Synchro 12 reports.

Appendix G contains the detailed total traffic Synchro 12 reports.

4.2.1 Glendale Avenue and Hilton Garden Inn/Site Driveway

The site driveway to Glendale Avenue is forecast to operate at acceptable levels of service under all horizon years and peak hours. Delays on the driveway approach are forecast to be in the LOS A range with v/c ratios of less than 0.15. Queues on the driveway approach are minimal (less than 1 car length) and are not expected to spill back into any internal drive aisle intersections.

Mainline delays at the site driveway are forecasted to occur at acceptable levels of service. Delays on Glendale Avenue are forecast to be in the LOS A range with v/c ratios of less than 0.05.

4.2.2 Counsell Street and Site Driveway/Purolator Driveway

The site driveway to Counsell Street is forecast to operate at acceptable levels of service under all horizon years and peak hours. Delays on the driveway approach are forecast to be in the LOS A range with v/c ratios of less than 0.15. Queues on the driveway approach are minimal (less than 1 car length) and are not expected to spill back into any internal drive aisle intersections.

Mainline delays at the site driveway are forecasted to occur at acceptable levels of service. Delays on Counsell Street are forecast to be in the LOS A range with v/c ratios of less than 0.05.

4.2.3 York Road and Glendale Avenue

The roundabout operates at acceptable levels of service for most movements. The exception is the westbound movement, which becomes critical under 2039 background traffic conditions during the PM peak hour and 2044 background traffic during the AM peak hour. Under total traffic conditions, the movement becomes critical in 2030, 2032, and 2034 for the PM AM and Saturday peak hours, respectively. The movement is forecast to operate in the LOS D to LOS F range with delays of up to 886 seconds.

4.2.4 York Road and Counsell Street

The intersection operates at acceptable levels of service for most conditions. The exception is the 2034, 2039, and 2044 total traffic conditions during the PM peak hour. The southbound movement is forecast to operate in the LOS D to LOS F range with delays of up to 61 seconds.

4.2.5 York Road and Townline Road

The critical northbound movement during the AM and PM peak hours is forecast to be exacerbated by the increase in traffic. This movement becomes critical under the 2032 background and 2030 total traffic conditions during the Saturday peak hour. This movement operates in the LOS D to LOS F range with critical delays exceeding 300 seconds.

The southbound movement becomes critical under 2039 background traffic conditions during the PM peak hour, under 2032 total traffic conditions during the AM and PM peak hours, and under 2034 total traffic conditions during the Saturday peak hour. This movement operates in the LOS D to LOS F range with critical delays exceeding 300 seconds. Queues are forecast to block the proposed site driveways.

4.2.6 Glendale Avenue North Signals and QEW Westbound Off-Ramp

The QEW Westbound Off-Ramp right-turn movement is forecast to become critical under 2039 background traffic and 2039 total traffic conditions during the AM peak hour. The movement operates in the LOS C range with a maximum v/c ratio of 0.81.

The southbound movement is forecast to become critical under the 2032 total traffic conditions during the PM peak hour. The movement operates in the LOS C to LOS E range with a maximum v/c ratio of 1.06.

4.2.7 Glendale Avenue (Southbound) and QEW Westbound Off-Ramp

The QEW Westbound Off-Ramp left-turn movement is forecast to become critical under 2027 background traffic and 2027 total traffic conditions during the PM peak hour and remains critical during the Saturday peak hour. The movement operates in the LOS D to LOS F range with a maximum v/c ratio of 1.70.

4.2.8 Glendale Avenue (Northbound) and QEW Eastbound Off-Ramp

The QEW Eastbound Off-Ramp left-turn movement is forecast to become critical under 2039 background traffic conditions for the AM Peak Hour and 2032 background traffic conditions for the PM peak hour and remains critical during the Saturday peak hour. Under total traffic conditions, the movement becomes critical in 2032 for the AM peak hour and in 2030 for the PM peak hour. The movement operates in the LOS D to LOS F range with a maximum v/c ratio of 3.25.

4.2.9 Glendale Avenue South Signals

The northbound movement is forecast to become critical under the background conditions in 2039 for the Saturday peak hour and in 2044 for the PM peak hour. Under total traffic conditions, the movement becomes critical in 2030 for the Saturday peak hour and in 2034 for the PM peak hour. The movement with a maximum v/c ratio of 1.43. The northbound queue is forecast to block the intersection with Lampman Court.

4.2.10 Townline Road and North Site Driveway

The north site driveway to Townline Road is forecast to operate at acceptable levels of service under all horizon years and peak hours. Delays on the driveway approach are forecast to be in the LOS A to LOS B range with v/c ratios of less than 0.20. Queues on the driveway approach are minimal (less than 1 car length) and are not expected to spill back into any internal drive aisle intersections.

Mainline delays at the site driveway are forecasted to occur at acceptable levels of service. Delays on Townline Road are forecast to be in the LOS A range with v/c ratios of less than 0.20.

4.2.11 Townline Road and South Site Driveway

The south site driveway to Townline Road is forecast to operate at acceptable levels of service under all horizon years and peak hours. Delays on the driveway approach are forecast to be in the LOS A to LOS B range with v/c ratios of less than 0.25. Queues on the driveway

approach are minimal (less than 1 car length) and are not expected to spill back into any internal drive aisle intersections.

Mainline delays at the site driveway are forecasted to occur at acceptable levels of service. Delays on Townline Road are forecast to be in the LOS A range with v/c ratios of less than 0.30.

4.2.12 York Road & Site Driveway

The south site driveway to York Road is forecast to operate at unacceptable levels of service under all horizon years and peak hours. Delays on the driveway approach are forecast to be in the LOS D to LOS F range with a maximum v/c ratio of 1.88. Queues on the driveway approach are up to 65 m and may spill back into the internal drive aisle intersections.

Mainline delays at the site driveway are forecasted to occur at acceptable levels of service. Delays on York Road are forecast to be in the LOS A range with v/c ratios of less than 0.70.

TABLE 4.1: BACKGROUND TRAFFIC OPERATIONS – AM PEAK HOUR

Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Glendale Avenue & Hilton Garden Inn/Site Driveway	TWSC	2027	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	9		**9**	3		>	**3**					**7**
				V/C		0.01	>		<	0.03			0.01		>						
				Q		0	>		<	1			0		>						
			2030	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	9		**9**	3		>	**3**					**7**
				V/C		0.01	>		<	0.03			0.01		>						
				Q		0	>		<	1			0		>						
			2032	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	9		**9**	3		>	**3**					**7**
				V/C		0.01	>		<	0.03			0.01		>						
				Q		0	>		<	1			0		>						
			2034	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	9		**9**	3		>	**3**					**7**
				V/C		0.02	>		<	0.03			0.01		>						
				Q		0	>		<	1			0		>						
			2039	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	9		**9**	3		>	**3**					**7**
				V/C		0.02	>		<	0.03			0.01		>						
				Q		0	>		<	1			0		>						
			2044	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	9		**9**	4		>	**4**					**7**
				V/C		0.02	>		<	0.03			0.01		>						
				Q		0	>		<	1			0		>						
	Counsell Street & Site Driveway/Purolator Driveway	TWSC	2027	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		0	>	**0**	<	9		**9**	5		>	**5**					**9**
				V/C		0.00	>		<	0.05			0.00		>						
				Q		0	>		<	1			0		>						
			2030	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		0	>	**0**	<	9		**9**	5		>	**5**					**9**
				V/C		0.00	>		<	0.06			0.00		>						
				Q		0	>		<	2			0		>						
			2032	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		0	>	**0**	<	9		**9**	5		>	**5**					**9**
				V/C		0.00	>		<	0.06			0.00		>						
				Q		0	>		<	2			0		>						
			2034	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		0	>	**0**	<	9		**9**	5		>	**5**					**9**
				V/C		0.00	>		<	0.06			0.00		>						
				Q		0	>		<	2			0		>						
			2039	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		0	>	**0**	<	9		**9**	5		>	**5**					**9**
				V/C		0.00	>		<	0.06			0.00		>						
				Q		0	>		<	2			0		>						
			2044	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		0	>	**0**	<	9		**9**	5		>	**5**					**9**
				V/C		0.00	>		<	0.07			0.00		>						
				Q		0	>		<	2			0		>						

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Stor. - Existing Storage (m)
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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	York Road & Glendale Avenue	RBT	2027	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
				Delay	<	4	>	**4**	<	9	>	**9**	<	6	>	**6**	<	6	>	**6**	**6**
				V/C	<	0.11	>		<	0.53	>		<	0.45	>		<	0.06	>		
				Q	<	1	>		<	1	>		<	1	>		<	1	>		
			2030	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
				Delay	<	4	>	**4**	<	10	>	**10**	<	10	>	**10**	<	7	>	**7**	**7**
				V/C	<	0.12	>		<	0.58	>		<	0.58	>		<	0.07	>		
				Q	<	1	>		<	1	>		<	1	>		<	1	>		
			2032	LOS	<	A	>	**A**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	**A**
				Delay	<	4	>	**4**	<	10	>	**10**	<	6	>	**6**	<	7	>	**7**	**7**
				V/C	<	0.13	>		<	0.61	>		<	0.5	>		<	0.07	>		
				Q	<	1	>		<	2	>		<	1	>		<	1	>		
			2034	LOS	<	A	>	**A**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	**A**
				Delay	<	4	>	**4**	<	12	>	**12**	<	7	>	**7**	<	7	>	**7**	**7**
				V/C	<	0.13	>		<	0.64	>		<	0.52	>		<	0.08	>		
				Q	<	1	>		<	2	>		<	1	>		<	1	>		
			2039	LOS	<	A	>	**A**	<	C	>	**C**	<	A	>	**A**	<	A	>	**A**	**A**
				Delay	<	4	>	**4**	<	16	>	**16**	<	8	>	**8**	<	9	>	**9**	**9**
				V/C	<	0.15	>		<	0.74	>		<	0.58	>		<	0.1	>		
				Q	<	1	>		<	9	>		<	1	>		<	1	>		
			2044	LOS	<	A	>	**A**	<	D	>	**D**	<	A	>	**A**	<	B	>	**B**	**B**
				Delay	<	4	>	**4**	<	27	>	**27**	<	9	>	**9**	<	10	>	**10**	**13**
				V/C	<	0.17	>		<	0.86	>		<	0.65	>		<	0.12	>		
				Q	<	1	>		<	22	>		<	3	>		<	1	>		
	York Road & Counsell Street	TWSC	2027	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	9	0		**1**		0	>	**0**					11		>	**11**	**1**
				V/C	0.07	0.17				0.19	>						0.10		>		
				Q	2	0				0	>						3		>		
				Stor.	20	-				-	>						-		>		
				Avail.	18	-				-	>						-		>		
			2030	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	9	0		**1**		0	>	**0**					11		>	**11**	**1**
				V/C	0.07	0.18				0.21	>						0.12		>		
				Q	2	0				0	>						3		>		
				Stor.	20	-				-	>						-		>		
				Avail.	18	-				-	>						-		>		
			2032	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	9	0		**1**		0	>	**0**					12		>	**12**	**1**
				V/C	0.07	0.19				0.21	>						0.13		>		
				Q	2	0				0	>						3		>		
				Stor.	20	-				-	>						-		>		
				Avail.	18	-				-	>						-		>		
			2034	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	9	0		**1**		0	>	**0**					12		>	**12**	**1**
				V/C	0.08	0.20				0.22	>						0.13		>		
				Q	2	0				0	>						4		>		
				Stor.	20	-				-	>						-		>		
				Avail.	18	-				-	>						-		>		
			2039	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	9	0		**1**		0	>	**0**					12		>	**12**	**1**
				V/C	0.09	0.22				0.25	>						0.15		>		
				Q	2	0				0	>						4		>		
				Stor.	20	-				-	>						-		>		
				Avail.	18	-				-	>						-		>		
			2044	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	10	0		**1**		0	>	**0**					14		>	**14**	**1**
				V/C	0.11	0.24				0.27	>						0.19		>		
				Q	3	0				0	>						6		>		
				Stor.	20	-				-	>						-		>		
				Avail.	17	-				-	>						-		>		

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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	York Road & Townline Road	TWSC	2027	LOS	<	A	>	**A**	<	A	>	**A**	<	D	>	**D**	<	B	>	**B**	**A**
				Delay	<	3	>	**3**	<	0	>	**0**	<	31	>	**31**	<	13	>	**13**	**3**
				V/C	<	0.13	>		<	0.00	>		<	0.07	>		<	0.12	>		
				Q	<	4	>		<	0	>		<	2	>		<	3	>		
			2030	LOS	<	A	>	**A**	<	A	>	**A**	<	E	>	**E**	<	B	>	**B**	**A**
				Delay	<	3	>	**3**	<	0	>	**0**	<	36	>	**36**	<	13	>	**13**	**3**
				V/C	<	0.14	>		<	0.00	>		<	0.09	>		<	0.13	>		
				Q	<	4	>		<	0	>		<	2	>		<	4	>		
			2032	LOS	<	A	>	**A**	<	A	>	**A**	<	E	>	**E**	<	B	>	**B**	**A**
				Delay	<	4	>	**4**	<	0	>	**0**	<	40	>	**40**	<	14	>	**14**	**3**
				V/C	<	0.15	>		<	0.00	>		<	0.10	>		<	0.15	>		
				Q	<	4	>		<	0	>		<	2	>		<	4	>		
			2034	LOS	<	A	>	**A**	<	A	>	**A**	<	E	>	**E**	<	B	>	**B**	**A**
				Delay	<	4	>	**4**	<	0	>	**0**	<	45	>	**45**	<	14	>	**14**	**3**
				V/C	<	0.15	>		<	0.00	>		<	0.12	>		<	0.16	>		
				Q	<	4	>		<	0	>		<	3	>		<	5	>		
			2039	LOS	<	A	>	**A**	<	A	>	**A**	<	F	>	**F**	<	C	>	**C**	**A**
				Delay	<	4	>	**4**	<	0	>	**0**	<	57	>	**57**	<	16	>	**16**	**4**
				V/C	<	0.18	>		<	0.00	>		<	0.16	>		<	0.20	>		
				Q	<	5	>		<	0	>		<	4	>		<	6	>		
			2044	LOS	<	A	>	**A**	<	A	>	**A**	<	F	>	**F**	<	C	>	**C**	**A**
				Delay	<	5	>	**5**	<	0	>	**0**	<	84	>	**84**	<	17	>	**17**	**4**
				V/C	<	0.21	>		<	0.00	>		<	0.24	>		<	0.24	>		
				Q	<	6	>		<	0	>		<	6	>		<	8	>		
	Glendale Avenue North Signals & QEW WB Off-Ramp	TCS	2027	LOS							C	**C**		B		**B**		C		**C**	**C**
				Delay							34	**34**		11		**11**		29		**29**	**23**
				V/C							0.71	**0.71**		0.30		**0.30**		0.59		**0.59**	**0.44**
				Q							73			45				54			
			2030	LOS							C	**C**		B		**B**		C		**C**	**C**
				Delay							33	**33**		12		**12**		28		**28**	**23**
				V/C							0.72	**0.72**		0.33		**0.33**		0.60		**0.60**	**0.46**
				Q							76			49				57			
			2032	LOS							C	**C**		B		**B**		C		**C**	**C**
				Delay							33	**33**		12		**12**		28		**28**	**23**
				V/C							0.73	**0.73**		0.34		**0.34**		0.61		**0.61**	**0.47**
				Q							79			52				58			
			2034	LOS							C	**C**		B		**B**		C		**C**	**C**
				Delay							33	**33**		13		**13**		27		**27**	**23**
				V/C							0.73	**0.73**		0.37		**0.37**		0.61		**0.61**	**0.49**
				Q							81			56				60			
			2039	LOS							C	**C**		B		**B**		C		**C**	**C**
				Delay							32	**32**		15		**15**		26		**26**	**23**
				V/C							0.75	**0.75**		0.42		**0.42**		0.63		**0.63**	**0.53**
				Q							88			66				64			
			2044	LOS							C	**C**		B		**B**		C		**C**	**C**
				Delay							31	**31**		18		**18**		24		**24**	**24**
				V/C							0.77	**0.77**		0.49		**0.49**		0.64		**0.64**	**0.57**
				Q							96			77				69			

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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Glendale Avenue SB & QEW WB Off-Ramp	TWSC	2027	LOS Delay V/C Q					B 13 0.37 14			**B** **13**						A 0 0.16 0		**A** **0**	**A** **4**
			2030	LOS Delay V/C Q					B 14 0.41 16			**B** **14**						A 0 0.17 0		**A** **0**	**A** **4**
			2032	LOS Delay V/C Q					B 14 0.43 17			**B** **14**						A 0 0.18 0		**A** **0**	**A** **5**
			2034	LOS Delay V/C Q					C 15 0.46 19			**C** **15**						A 0 0.19 0		**A** **0**	**A** **5**
			2039	LOS Delay V/C Q					C 17 0.53 25			**C** **17**						A 0 0.21 0		**A** **0**	**A** **5**
			2044	LOS Delay V/C Q					C 20 0.61 33			**C** **20**						A 0 0.23 0		**A** **0**	**A** **6**
	Glendale Avenue NB & QEW EB Off-Ramp	TWSC	2027	LOS Delay V/C Q	C 16 0.55 27			**C** **16**						A 0 0.16 0		**A** **0**					**A** **7**
			2030	LOS Delay V/C Q	C 18 0.60 32			**C** **18**						A 0 0.17 0		**A** **0**					**A** **8**
			2032	LOS Delay V/C Q	C 19 0.64 36			**C** **19**						A 0 0.18 0		**A** **0**					**A** **8**
			2034	LOS Delay V/C Q	C 21 0.67 42			**C** **21**						A 0 0.18 0		**A** **0**					**A** **9**
			2039	LOS Delay V/C Q	D 28 0.78 60			**D** **28**						A 0 0.20 0		**A** **0**					**B** **12**
			2044	LOS Delay V/C Q	E 44 0.91 89			**E** **44**						A 0 0.22 0		**A** **0**					**C** **18**

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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																Overall
					Eastbound				Westbound				Northbound				Southbound				
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Glendale Avenue South Signals	TCS	2027	LOS Delay V/C Q										A 6 0.24 30				D 40 0.65 48			**B** **20** **0.21**
			2030	LOS Delay V/C Q										A 7 0.26 34				D 40 0.67 50			**B** **20** **0.22**
			2032	LOS Delay V/C Q										A 7 0.27 36				D 39 0.68 52			**B** **20** **0.22**
			2034	LOS Delay V/C Q										A 7 0.29 38				D 39 0.69 53			**C** **20** **0.23**
			2039	LOS Delay V/C Q										A 8 0.32 45				D 39 0.70 57			**C** **20** **0.25**
			2044	LOS Delay V/C Q										A 9 0.36 54				D 38 0.72 61			**C** **21** **0.27**

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TABLE 4.2: BACKGROUND TRAFFIC OPERATIONS – PM PEAK HOUR

Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Glendale Avenue & Hilton Garden Inn/Site Driveway	TWSC	2027	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	9		9	3		>	3					6
				V/C		0.02	>		<	0.03			0.01		>						
				Q		0	>		<	1			0		>						
			2030	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	9		9	3		>	3					6
				V/C		0.02	>		<	0.03			0.01		>						
				Q		0	>		<	1			0		>						
			2032	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	9		9	3		>	3					6
				V/C		0.02	>		<	0.03			0.01		>						
				Q		0	>		<	1			0		>						
			2034	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	9		9	3		>	3					6
				V/C		0.02	>		<	0.03			0.01		>						
				Q		0	>		<	1			0		>						
			2039	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	9		9	3		>	3					6
				V/C		0.02	>		<	0.03			0.01		>						
				Q		1	>		<	1			0		>						
			2044	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	9		9	3		>	3					6
				V/C		0.02	>		<	0.03			0.01		>						
				Q		1	>		<	1			0		>						
	Counsell Street & Site Driveway/Purolator Driveway	TWSC	2027	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	0		0	2		>	2					3
				V/C		0.01	>		<	0.00			0.01		>						
				Q		0	>		<	0			0		>						
			2030	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	0		0	2		>	2					3
				V/C		0.01	>		<	0.00			0.01		>						
				Q		0	>		<	0			0		>						
			2032	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	0		0	2		>	2					3
				V/C		0.01	>		<	0.00			0.01		>						
				Q		0	>		<	0			0		>						
			2034	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	0		0	2		>	2					3
				V/C		0.01	>		<	0.00			0.01		>						
				Q		0	>		<	0			0		>						
			2039	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	0		0	2		>	2					3
				V/C		0.01	>		<	0.00			0.01		>						
				Q		0	>		<	0			0		>						
			2044	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	0		0	2		>	2					2
				V/C		0.01	>		<	0.00			0.01		>						
				Q		0	>		<	0			0		>						

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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	York Road & Glendale Avenue	RBT	2027	LOS	<	A	>	**A**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	**A**
				Delay	<	4	>	**4**	<	10	>	**10**	<	5	>	**5**	<	6	>	**6**	**6**
				V/C	<	0.08	>		<	0.67	>		<	0.34	>		<	0.07	>		
				Q	<	1	>		<	3	>		<	1	>		<	1	>		
			2030	LOS	<	A	>	**A**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	**A**
				Delay	<	4	>	**4**	<	12	>	**12**	<	5	>	**5**	<	6	>	**6**	**7**
				V/C	<	0.08	>		<	0.72	>		<	0.36	>		<	0.08	>		
				Q	<	1	>		<	6	>		<	1	>		<	1	>		
			2032	LOS	<	A	>	**A**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	**A**
				Delay	<	4	>	**4**	<	14	>	**14**	<	5	>	**5**	<	6	>	**6**	**8**
				V/C	<	0.09	>		<	0.76	>		<	0.38	>		<	0.08	>		
				Q	<	1	>		<	9	>		<	1	>		<	1	>		
			2034	LOS	<	A	>	**A**	<	C	>	**C**	<	A	>	**A**	<	A	>	**A**	**A**
				Delay	<	4	>	**4**	<	17	>	**17**	<	5	>	**5**	<	7	>	**7**	**9**
				V/C	<	0.09	>		<	0.8	>		<	0.4	>		<	0.09	>		
				Q	<	1	>		<	14	>		<	1	>		<	1	>		
			2039	LOS	<	A	>	**A**	<	D	>	**D**	<	A	>	**A**	<	A	>	**A**	**B**
				Delay	<	5	>	**5**	<	30	>	**30**	<	6	>	**6**	<	8	>	**8**	**13**
				V/C	<	0.11	>		<	0.91	>		<	0.44	>		<	0.12	>		
				Q	<	1	>		<	32	>		<	1	>		<	1	>		
			2044	LOS	<	A	>	**A**	<	F	>	**F**	<	A	>	**A**	<	A	>	**A**	**D**
				Delay	<	5	>	**5**	<	92	>	**92**	<	6	>	**6**	<	9	>	**9**	**32**
				V/C	<	0.12	>		<	1.04	>		<	0.49	>		<	0.15	>		
				Q	<	1	>		<	83	>		<	1	>		<	1	>		
	York Road & Counsell Street	TWSC	2027	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	9	0		**1**		0	>	**0**					14		>	**14**	**1**
				V/C	0.07	0.16				0.27	>						0.11		>		
				Q	2	0				0	>						3		>		
				Stor.	20	-				-	>						-		>		
				Avail.	18	-				-	>						-		>		
			2030	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	10	0		**1**		0	>	**0**					15		>	**15**	**1**
				V/C	0.08	0.17				0.29	>						0.13		>		
				Q	2	0				0	>						4		>		
				Stor.	20	-				-	>						-		>		
				Avail.	18	-				-	>						-		>		
			2032	LOS	A	A		**A**		A	>	**A**					C		>	**C**	**A**
				Delay	10	0		**1**		0	>	**0**					15		>	**15**	**1**
				V/C	0.09	0.18				0.30	>						0.14		>		
				Q	2	0				0	>						4		>		
				Stor.	20	-				-	>						-		>		
				Avail.	18	-				-	>						-		>		
			2034	LOS	A	A		**A**		A	>	**A**					C		>	**C**	**A**
				Delay	10	0		**1**		0	>	**0**					16		>	**16**	**1**
				V/C	0.09	0.19				0.31	>						0.16		>		
				Q	2	0				0	>						4		>		
				Stor.	20	-				-	>						-		>		
				Avail.	18	-				-	>						-		>		
			2039	LOS	B	A		**A**		A	>	**A**					C		>	**C**	**A**
				Delay	10	0		**1**		0	>	**0**					18		>	**18**	**1**
				V/C	0.11	0.21				0.34	>						0.20		>		
				Q	3	0				0	>						6		>		
				Stor.	20	-				-	>						-		>		
				Avail.	17	-				-	>						-		>		
			2044	LOS	B	A		**A**		A	>	**A**					C		>	**C**	**A**
				Delay	11	0		**1**		0	>	**0**					22		>	**22**	**1**
				V/C	0.13	0.23				0.38	>						0.26		>		
				Q	4	0				0	>						8		>		
				Stor.	20	-				-	>						-		>		
				Avail.	16	-				-	>						-		>		

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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	York Road & Townline Road	TWSC	2027	LOS	<	A	>	**A**	<	A	>	**A**	<	F	>	**F**	<	C	>	**C**	**A**
				Delay	<	2	>	**2**	<	0	>	**0**	<	56	>	**56**	<	18	>	**18**	**4**
				V/C	<	0.09	>		<	0.00	>		<	0.04	>		<	0.44	>		
				Q	<	2	>		<	0	>		<	1	>		<	18	>		
			2030	LOS	<	A	>	**A**	<	A	>	**A**	<	F	>	**F**	<	C	>	**C**	**A**
				Delay	<	3	>	**3**	<	0	>	**0**	<	68	>	**68**	<	20	>	**20**	**4**
				V/C	<	0.10	>		<	0.00	>		<	0.05	>		<	0.49	>		
				Q	<	3	>		<	0	>		<	1	>		<	21	>		
			2032	LOS	<	A	>	**A**	<	A	>	**A**	<	F	>	**F**	<	C	>	**C**	**A**
				Delay	<	3	>	**3**	<	0	>	**0**	<	80	>	**80**	<	22	>	**22**	**5**
				V/C	<	0.11	>		<	0.00	>		<	0.08	>		<	0.53	>		
				Q	<	3	>		<	0	>		<	2	>		<	24	>		
			2034	LOS	<	A	>	**A**	<	A	>	**A**	<	F	>	**F**	<	C	>	**C**	**A**
				Delay	<	3	>	**3**	<	0	>	**0**	<	93	>	**93**	<	24	>	**24**	**5**
				V/C	<	0.11	>		<	0.00	>		<	0.09	>		<	0.57	>		
				Q	<	3	>		<	0	>		<	2	>		<	28	>		
			2039	LOS	<	A	>	**A**	<	A	>	**A**	<	F	>	**F**	<	D	>	**D**	**A**
				Delay	<	3	>	**3**	<	0	>	**0**	<	154	>	**154**	<	34	>	**34**	**7**
				V/C	<	0.13	>		<	0.00	>		<	0.14	>		<	0.70	>		
				Q	<	4	>		<	0	>		<	4	>		<	41	>		
			2044	LOS	<	A	>	**A**	<	A	>	**A**	<	F	>	**F**	<	F	>	**F**	**B**
				Delay	<	4	>	**4**	<	0	>	**0**	<	312	>	**312**	<	62	>	**62**	**12**
				V/C	<	0.16	>		<	0.00	>		<	0.26	>		<	0.89	>		
				Q	<	4	>		<	0	>		<	6	>		<	68	>		
	Glendale Avenue North Signals & QEW WB Off-Ramp	TCS	2027	LOS							B	**B**		B		**B**		C		**C**	**C**
				Delay							20	**20**		16		**16**		28		**28**	**24**
				V/C							0.41	**0.41**		0.30		**0.30**		0.80		**0.80**	**0.36**
				Q							48			41				102			
			2030	LOS							B	**B**		B		**B**		C		**C**	**C**
				Delay							19	**19**		18		**18**		27		**27**	**24**
				V/C							0.42	**0.42**		0.33		**0.33**		0.81		**0.81**	**0.38**
				Q							51			44				112			
			2032	LOS							B	**B**		B		**B**		C		**C**	**C**
				Delay							18	**18**		19		**19**		27		**27**	**24**
				V/C							0.42	**0.42**		0.35		**0.35**		0.83		**0.83**	**0.39**
				Q							52			47				117			
			2034	LOS							B	**B**		B		**B**		C		**C**	**C**
				Delay							17	**17**		20		**20**		26		**26**	**23**
				V/C							0.42	**0.42**		0.38		**0.38**		0.83		**0.83**	**0.41**
				Q							50			52				113			
			2039	LOS							B	**B**		C		**C**		C		**C**	**C**
				Delay							15	**15**		24		**24**		24		**24**	**23**
				V/C							0.43	**0.43**		0.47		**0.47**		0.84		**0.84**	**0.44**
				Q							51			62				122			
			2044	LOS							B	**B**		C		**C**		B		**B**	**C**
				Delay							10	**10**		34		**34**		17		**17**	**20**
				V/C							0.40	**0.40**		0.68		**0.68**		0.79		**0.79**	**0.47**
				Q							62			66				158			

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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Glendale Avenue SB & QEW WB Off-Ramp	TWSC	2027	LOS Delay V/C Q					D 31 0.75 51			**D** **31**						A 0 0.30 0		**A** **0**	**A** **8**
			2030	LOS Delay V/C Q					E 40 0.83 65			**E** **40**						A 0 0.32 0		**A** **0**	**B** **11**
			2032	LOS Delay V/C Q					F 51 0.90 78			**F** **51**						A 0 0.33 0		**A** **0**	**B** **13**
			2034	LOS Delay V/C Q					F 65 0.96 93			**F** **65**						A 0 0.35 0		**A** **0**	**C** **17**
			2039	LOS Delay V/C Q					F 127 1.16 142			**F** **127**						A 0 0.38 0		**A** **0**	**D** **34**
			2044	LOS Delay V/C Q					F 231 1.42 210			**F** **231**						A 0 0.42 0		**A** **0**	**F** **61**
	Glendale Avenue NB & QEW EB Off-Ramp	TWSC	2027	LOS Delay V/C Q	D 27 0.66 38			**D** **27**						A 0 0.33 0		**A** **0**					**A** **6**
			2030	LOS Delay V/C Q	D 33 0.74 48			**D** **33**						A 0 0.35 0		**A** **0**					**A** **7**
			2032	LOS Delay V/C Q	E 40 0.80 57			**E** **40**						A 0 0.37 0		**A** **0**					**A** **8**
			2034	LOS Delay V/C Q	E 49 0.86 67			**E** **49**						A 0 0.38 0		**A** **0**					**B** **10**
			2039	LOS Delay V/C Q	F 95 1.05 106			**F** **95**						A 0 0.42 0		**A** **0**					**C** **20**
			2044	LOS Delay V/C Q	F 184 1.29 159			**F** **184**						A 0 0.46 0		**A** **0**					**E** **39**

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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																Overall
					Eastbound				Westbound				Northbound				Southbound				
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Glendale Avenue South Signals	TCS	2027	LOS										B				D			C
				Delay										12				38			20
				V/C										0.55				0.73			0.37
				Q										93				64			
			2030	LOS										B				D			C
				Delay										13				37			21
				V/C										0.59				0.74			0.39
				Q										105				67			
			2032	LOS										B				D			C
				Delay										14				36			21
				V/C										0.63				0.74			0.4
				Q										114				69			
			2034	LOS										B				D			C
				Delay										15				36			22
				V/C										0.66				0.74			0.41
				Q										124				71			
			2039	LOS										B				D			C
				Delay										18				35			24
				V/C										0.76				0.76			0.45
				Q										154				77			
			2044	LOS										C				C			C
				Delay										25				34			28
				V/C										0.87				0.77			0.49
				Q										211				82			

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TABLE 4.3: BACKGROUND TRAFFIC OPERATIONS – SATURDAY PEAK HOUR

Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
Saturday Peak Hour	Glendale Avenue & Hilton Garden Inn/Site Driveway	TWSC	2027	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	9		**9**	4		>	**4**					**6**
				V/C		0.01	>		<	0.01			0.01		>						
				Q		0	>		<	0			0		>						
			2030	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	9		**9**	4		>	**4**					**6**
				V/C		0.01	>		<	0.01			0.01		>						
				Q		0	>		<	0			0		>						
			2032	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	9		**9**	4		>	**4**					**6**
				V/C		0.01	>		<	0.01			0.01		>						
				Q		0	>		<	0			0		>						
			2034	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	9		**9**	4		>	**4**					**6**
				V/C		0.01	>		<	0.01			0.01		>						
				Q		0	>		<	0			0		>						
			2039	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	9		**9**	4		>	**4**					**6**
				V/C		0.02	>		<	0.01			0.01		>						
				Q		0	>		<	0			0		>						
			2044	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	9		**9**	4		>	**4**					**6**
				V/C		0.02	>		<	0.01			0.01		>						
				Q		0	>		<	0			0		>						
	Counsell Street & Site Driveway/Purolator Driveway	TWSC	2027	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	0		**0**	4		>	**4**					**6**
				V/C		0.00	>		<	0.00			0.00		>						
				Q		0	>		<	0			0		>						
			2030	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	0		**0**	4		>	**4**					**6**
				V/C		0.00	>		<	0.00			0.00		>						
				Q		0	>		<	0			0		>						
			2032	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	0		**0**	4		>	**4**					**6**
				V/C		0.00	>		<	0.00			0.00		>						
				Q		0	>		<	0			0		>						
			2034	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	0		**0**	4		>	**4**					**6**
				V/C		0.00	>		<	0.00			0.00		>						
				Q		0	>		<	0			0		>						
			2039	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	0		**0**	4		>	**4**					**6**
				V/C		0.00	>		<	0.00			0.00		>						
				Q		0	>		<	0			0		>						
			2044	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	0		**0**	4		>	**4**					**6**
				V/C		0.00	>		<	0.00			0.00		>						
				Q		0	>		<	0			0		>						

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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
Saturday Peak Hour	York Road & Glendale Avenue	RBT	2027	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
				Delay	<	3	>	**3**	<	6	>	**6**	<	5	>	**5**	<	5	>	**5**	**5**
				V/C	<	0.09	>		<	0.43	>		<	0.45	>		<	0.04	>		
				Q	<	1	>		<	1	>		<	1	>		<	1	>		
			2030	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
				Delay	<	3	>	**3**	<	7	>	**7**	<	5	>	**5**	<	5	>	**5**	**5**
				V/C	<	0.09	>		<	0.47	>		<	0.47	>		<	0.05	>		
				Q	<	1	>		<	1	>		<	1	>		<	1	>		
			2032	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
				Delay	<	3	>	**3**	<	7	>	**7**	<	6	>	**6**	<	5	>	**5**	**5**
				V/C	<	0.1	>		<	0.49	>		<	0.49	>		<	0.05	>		
				Q	<	1	>		<	1	>		<	1	>		<	1	>		
			2034	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
				Delay	<	3	>	**3**	<	8	>	**8**	<	6	>	**6**	<	5	>	**5**	**6**
				V/C	<	0.1	>		<	0.52	>		<	0.51	>		<	0.06	>		
				Q	<	1	>		<	1	>		<	1	>		<	1	>		
			2039	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**B**
				Delay	<	4	>	**4**	<	10	>	**10**	<	7	>	**7**	<	6	>	**6**	**7**
				V/C	<	0.12	>		<	0.6	>		<	0.57	>		<	0.07	>		
				Q	<	1	>		<	1	>		<	1	>		<	1	>		
			2044	LOS	<	A	>	**A**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	**D**
				Delay	<	4	>	**4**	<	13	>	**13**	<	8	>	**8**	<	7	>	**7**	**8**
				V/C	<	0.13	>		<	0.69	>		<	0.63	>		<	0.09	>		
				Q	<	1	>		<	4	>		<	2	>		<	1	>		
	York Road & Counsell Street	TWSC	2027	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	8	0		**0**		0	>	**0**					10		>	**10**	**1**
				V/C	0.03	0.15				0.16	>						0.04		>		
				Q	1	0				0	>						1		>		
				Stor.	20	-				-	>						-		>		
				Avail.	19	-				-	>						-		>		
			2030	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	8	0		**0**		0	>	**0**					10		>	**10**	**1**
				V/C	0.03	0.16				0.17	>						0.05		>		
				Q	1	0				0	>						1		>		
				Stor.	20	-				-	>						-		>		
				Avail.	19	-				-	>						-		>		
			2032	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	8	0		**0**		0	>	**0**					11		>	**11**	**1**
				V/C	0.03	0.16				0.18	>						0.05		>		
				Q	1	0				0	>						1		>		
				Stor.	20	-				-	>						-		>		
				Avail.	19	-				-	>						-		>		
			2034	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	8	0		**0**		0	>	**0**					11		>	**11**	**1**
				V/C	0.03	0.17				0.19	>						0.06		>		
				Q	1	0				0	>						1		>		
				Stor.	20	-				-	>						-		>		
				Avail.	19	-				-	>						-		>		
			2039	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	9	0		**0**		0	>	**0**					11		>	**11**	**1**
				V/C	0.04	0.19				0.20	>						0.07		>		
				Q	1	0				0	>						2		>		
				Stor.	20	-				-	>						-		>		
				Avail.	19	-				-	>						-		>		
			2044	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	9	0		**0**		0	>	**0**					12		>	**12**	**1**
				V/C	0.04	0.21				0.23	>						0.07		>		
				Q	1	0				0	>						2		>		
				Stor.	20	-				-	>						-		>		
				Avail.	19	-				-	>						-		>		

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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
Saturday Peak Hour	York Road & Townline Road	TWSC	2027	LOS	<	A	>	**A**	<	A	>	**A**	<	C	>	**C**	<	B	>	**B**	**A**
				Delay	<	1	>	**1**	<	0	>	**0**	<	22	>	**22**	<	11	>	**11**	**1**
				V/C	<	0.03	>		<	0.00	>		<	0.01	>		<	0.08	>		
				Q	<	1	>		<	0	>		<	0	>		<	2	>		
			2030	LOS	<	A	>	**A**	<	A	>	**A**	<	C	>	**C**	<	B	>	**B**	**A**
				Delay	<	1	>	**1**	<	0	>	**0**	<	24	>	**24**	<	11	>	**11**	**1**
				V/C	<	0.03	>		<	0.00	>		<	0.02	>		<	0.09	>		
				Q	<	1	>		<	0	>		<	0	>		<	2	>		
			2032	LOS	<	A	>	**A**	<	A	>	**A**	<	D	>	**D**	<	B	>	**B**	**A**
				Delay	<	1	>	**1**	<	0	>	**0**	<	26	>	**26**	<	12	>	**12**	**1**
				V/C	<	0.04	>		<	0.00	>		<	0.02	>		<	0.09	>		
				Q	<	1	>		<	0	>		<	0	>		<	2	>		
			2034	LOS	<	A	>	**A**	<	A	>	**A**	<	D	>	**D**	<	B	>	**B**	**A**
				Delay	<	1	>	**1**	<	0	>	**0**	<	27	>	**27**	<	12	>	**12**	**1**
				V/C	<	0.04	>		<	0.00	>		<	0.02	>		<	0.10	>		
				Q	<	1	>		<	0	>		<	1	>		<	3	>		
			2039	LOS	<	A	>	**A**	<	A	>	**A**	<	D	>	**D**	<	B	>	**B**	**A**
				Delay	<	1	>	**1**	<	0	>	**0**	<	32	>	**32**	<	13	>	**13**	**2**
				V/C	<	0.05	>		<	0.00	>		<	0.03	>		<	0.12	>		
				Q	<	1	>		<	0	>		<	1	>		<	3	>		
			2044	LOS	<	A	>	**A**	<	A	>	**A**	<	E	>	**E**	<	B	>	**B**	**A**
				Delay	<	1	>	**1**	<	0	>	**0**	<	40	>	**40**	<	13	>	**13**	**2**
				V/C	<	0.05	>		<	0.00	>		<	0.04	>		<	0.15	>		
				Q	<	1	>		<	0	>		<	1	>		<	4	>		
	Glendale Avenue North Signals & QEW WB Off-Ramp	TCS	2027	LOS							C	**C**		A		**A**		C		**C**	**C**
				Delay							30	**30**		9		**9**		33		**33**	**22**
				V/C							0.48	**0.48**		0.32		**0.32**		0.67		**0.67**	**0.37**
				Q							46			44				61			
			2030	LOS							C	**C**		A		**A**		C		**C**	**C**
				Delay							30	**30**		10		**10**		33		**33**	**22**
				V/C							0.49	**0.49**		0.34		**0.34**		0.68		**0.68**	**0.39**
				Q							49			48				64			
			2032	LOS							C	**C**		B		**B**		C		**C**	**C**
				Delay							29	**29**		10		**10**		32		**32**	**22**
				V/C							0.49	**0.49**		0.36		**0.36**		0.69		**0.69**	**0.4**
				Q							50			51				66			
			2034	LOS							C	**C**		B		**B**		C		**C**	**C**
				Delay							28	**28**		11		**11**		32		**32**	**22**
				V/C							0.49	**0.49**		0.38		**0.38**		0.69		**0.69**	**0.41**
				Q							50			56				67			
			2039	LOS							C	**C**		B		**B**		C		**C**	**C**
				Delay							27	**27**		13		**13**		31		**31**	**22**
				V/C							0.50	**0.50**		0.44		**0.44**		0.71		**0.71**	**0.45**
				Q							54			66				72			
			2044	LOS							C	**C**		B		**B**		C		**C**	**C**
				Delay							25	**25**		15		**15**		29		**29**	**22**
				V/C							0.51	**0.51**		0.51		**0.51**		0.72		**0.72**	**0.48**
				Q							57			74				78			

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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
Saturday Peak Hour	Glendale Avenue SB & QEW WB Off-Ramp	TWSC	2027	LOS Delay V/C Q					D 29 0.81 68			**D** **29**						A 0 0.16 0		**A** **0**	**B** **14**
			2030	LOS Delay V/C Q					E 37 0.88 87			**E** **37**						A 0 0.17 0		**A** **0**	**C** **19**
			2032	LOS Delay V/C Q					E 46 0.94 103			**E** **46**						A 0 0.18 0		**A** **0**	**C** **23**
			2034	LOS Delay V/C Q					F 58 0.99 121			**F** **58**						A 0 0.19 0		**A** **0**	**D** **29**
			2039	LOS Delay V/C Q					F 107 1.15 184			**F** **107**						A 0 0.20 0		**A** **0**	**F** **54**
			2044	LOS Delay V/C Q					F 182 1.33 267			**F** **182**						A 0 0.23 0		**A** **0**	**F** **92**
	Glendale Avenue NB & QEW EB Off-Ramp	TWSC	2027	LOS Delay V/C Q	F 113 1.11 127			**F** **113**						A 0 0.39 0		**A** **0**					**D** **28**
			2030	LOS Delay V/C Q	F 166 1.26 163			**F** **166**						A 0 0.42 0		**A** **0**					**E** **41**
			2032	LOS Delay V/C Q	F 210 1.36 190			**F** **210**						A 0 0.43 0		**A** **0**					**F** **52**
			2034	LOS Delay V/C Q	F 261 1.48 218			**F** **261**						A 0 0.45 0		**A** **0**					**F** **64**
			2039	LOS Delay V/C Q	F 418 1.84 297			**F** **418**						A 0 0.50 0		**A** **0**					**F** **103**
			2044	LOS Delay V/C Q	F 632 2.31 385			**F** **632**						A 0 0.55 0		**A** **0**					**F** **156**

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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																Overall
					Eastbound				Westbound				Northbound				Southbound				
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
Saturday Peak Hour	Glendale Avenue South Signals	TCS	2027	LOS										B				D			C
				Delay										16				36			22
				V/C										0.69				0.75			0.43
				Q										133				74			
			2030	LOS										B				D			C
				Delay										18				35			245
				V/C										0.75				0.76			0.45
				Q										151				77			
			2032	LOS										C				C			C
				Delay										20				35			25
				V/C										0.79				0.76			0.47
				Q										184				78			
			2034	LOS										C				C			C
				Delay										22				34			26
				V/C										0.84				0.77			0.48
				Q										200				81			
			2039	LOS										D				C			D
				Delay										37				34			36
				V/C										0.97				0.78			0.53
				Q										243				88			
			2044	LOS										F				C			E
				Delay										90				32			71
				V/C										1.13				0.80			0.57
				Q										291				95			

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TABLE 4.4: TOTAL TRAFFIC OPERATIONS – AM PEAK HOUR

Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Glendale Avenue & Hilton Garden Inn/Site Driveway	TWSC	2027	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	9		**9**	3		>	**3**					**7**
				V/C		0.01	>		<	0.03			0.01		>						
				Q		0	>		<	1			0		>						
			2030	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	10		**10**	1		>	**1**					**5**
				V/C		0.01	>		<	0.11			0.01		>						
				Q		0	>		<	3			0		>						
			2032	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	10		**10**	1		>	**1**					**5**
				V/C		0.01	>		<	0.11			0.01		>						
				Q		0	>		<	3			0		>						
			2034	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	10		**10**	1		>	**1**					**5**
				V/C		0.02	>		<	0.11			0.01		>						
				Q		0	>		<	3			0		>						
			2039	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	10		**10**	1		>	**1**					**6**
				V/C		0.02	>		<	0.11			0.01		>						
				Q		0	>		<	3			0		>						
			2044	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	10		**10**	1		>	**1**					**6**
				V/C		0.02	>		<	0.11			0.01		>						
				Q		0	>		<	3			0		>						
	Counsell Street & Site Driveway/Purolator Driveway	TWSC	2027	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		0	>	**0**	<	9		**9**	5		>	**5**					**9**
				V/C		0.00	>		<	0.05			0.00		>						
				Q		0	>		<	1			0		>						
			2030	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	9		**9**	7		>	**7**					**8**
				V/C		0.00	>		<	0.06			0.01		>						
				Q		0	>		<	2			0		>						
			2032	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	9		**9**	7		>	**7**					**8**
				V/C		0.00	>		<	0.06			0.01		>						
				Q		0	>		<	2			0		>						
			2034	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	9		**9**	7		>	**7**					**9**
				V/C		0.00	>		<	0.06			0.01		>						
				Q		0	>		<	2			0		>						
			2039	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	9		**9**	7		>	**7**					**9**
				V/C		0.00	>		<	0.07			0.01		>						
				Q		0	>		<	2			0		>						
			2044	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	9		**9**	7		>	**7**					**9**
				V/C		0.00	>		<	0.08			0.01		>						
				Q		0	>		<	2			0		>						

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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	York Road & Glendale Avenue	RBT	2027	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
				Delay	<	4	>	**4**	<	9	>	**9**	<	6	>	**6**	<	6	>	**6**	**6**
				V/C	<	0.11	>		<	0.53	>		<	0.46	>		<	0.06	>		
				Q	<	1	>		<	1	>		<	1	>		<	1	>		
			2030	LOS	<	A	>	**A**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	**A**
				Delay	<	4	>	**4**	<	14	>	**14**	<	7	>	**7**	<	8	>	**8**	**8**
				V/C	<	0.15	>		<	0.7	>		<	0.54	>		<	0.18	>		
				Q	<	1	>		<	6	>		<	1	>		<	1	>		
			2032	LOS	<	A	>	**A**	<	D	>	**D**	<	A	>	**A**	<	B	>	**B**	**B**
				Delay	<	5	>	**5**	<	28	>	**28**	<	7	>	**7**	<	10	>	**10**	**13**
				V/C	<	0.18	>		<	0.87	>		<	0.57	>		<	0.21	>		
				Q	<	1	>		<	24	>		<	1	>		<	1	>		
			2034	LOS	<	A	>	**A**	<	F	>	**F**	<	A	>	**A**	<	B	>	**B**	**C**
				Delay	<	5	>	**5**	<	60	>	**60**	<	8	>	**8**	<	12	>	**12**	**23**
				V/C	<	0.21	>		<	0.99	>		<	0.59	>		<	0.24	>		
				Q	<	1	>		<	62	>		<	1	>		<	1	>		
			2039	LOS	<	A	>	**A**	<	F	>	**F**	<	A	>	**A**	<	B	>	**B**	**F**
				Delay	<	5	>	**5**	<	172	>	**172**	<	9	>	**9**	<	13	>	**13**	**57**
				V/C	<	0.22	>		<	1.11	>		<	0.65	>		<	0.27	>		
				Q	<	1	>		<	45	>		<	3	>		<	1	>		
			2044	LOS	<	A	>	**A**	<	F	>	**F**	<	B	>	**B**	<	B	>	**B**	**F**
				Delay	<	5	>	**5**	<	431	>	**431**	<	11	>	**11**	<	15	>	**15**	**134**
				V/C	<	0.24	>		<	1.26	>		<	0.72	>		<	0.3	>		
				Q	<	1	>		<	109	>		<	6	>		<	1	>		
	York Road & Counsell Street	TWSC	2027	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	9	0		**1**		0	>	**0**					11		>	**11**	**1**
				V/C	0.07	0.17				0.19	>						0.10		>		
				Q	2	0				0	>						3		>		
				Stor.	20	-				-	>						-		>		
				Avail.	18	-				-	>						-		>		
			2030	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	9	0		**1**		0	>	**0**					12		>	**12**	**1**
				V/C	0.09	0.20				0.24	>						0.14		>		
				Q	2	0				0	>						4		>		
				Stor.	20	-				-	>						-		>		
				Avail.	18	-				-	>						-		>		
			2032	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	10	0		**1**		0	>	**0**					14		>	**14**	**1**
				V/C	0.11	0.23				0.30	>						0.16		>		
				Q	3	0				0	>						5		>		
				Stor.	20	-				-	>						-		>		
				Avail.	17	-				-	>						-		>		
			2034	LOS	B	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	10	0		**1**		0	>	**0**					15		>	**15**	**1**
				V/C	0.12	0.25				0.34	>						0.19		>		
				Q	3	0				0	>						6		>		
				Stor.	20	-				-	>						-		>		
				Avail.	17	-				-	>						-		>		
			2039	LOS	B	A		**A**		A	>	**A**					C		>	**C**	**A**
				Delay	11	0		**1**		0	>	**0**					16		>	**16**	**1**
				V/C	0.14	0.27				0.36	>						0.22		>		
				Q	4	0				0	>						7		>		
				Stor.	20	-				-	>						-		>		
				Avail.	16	-				-	>						-		>		
			2044	LOS	B	A		**A**		A	>	**A**					C		>	**C**	**A**
				Delay	11	0		**1**		0	>	**0**					19		>	**19**	**2**
				V/C	0.16	0.29				0.39	>						0.29		>		
				Q	4	0				0	>						9		>		
				Stor.	20	-				-	>						-		>		
				Avail.	16	-				-	>						-		>		

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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	York Road & Townline Road	TWSC	2027	LOS	<	A	>	**A**	<	A	>	**A**	<	D	>	**D**	<	B	>	**B**	**A**
				Delay	<	3	>	**3**	<	0	>	**0**	<	32	>	**32**	<	13	>	**13**	**3**
				V/C	<	0.13	>		<	0.00	>		<	0.07	>		<	0.12	>		
				Q	<	4	>		<	0	>		<	2	>		<	3	>		
			2030	LOS	<	A	>	**A**	<	A	>	**A**	<	F	>	**F**	<	C	>	**C**	**A**
				Delay	<	5	>	**5**	<	0	>	**0**	<	66	>	**66**	<	23	>	**23**	**6**
				V/C	<	0.20	>		<	0.00	>		<	0.16	>		<	0.47	>		
				Q	<	6	>		<	0	>		<	4	>		<	19	>		
			2032	LOS	<	A	>	**A**	<	A	>	**A**	<	F	>	**F**	<	F	>	**F**	**B**
				Delay	<	6	>	**6**	<	0	>	**0**	<	134	>	**134**	<	62	>	**62**	**14**
				V/C	<	0.25	>		<	0.00	>		<	0.29	>		<	0.87	>		
				Q	<	8	>		<	0	>		<	8	>		<	61	>		
			2034	LOS	<	A	>	**A**	<	A	>	**A**	<	F	>	**F**	<	F	>	**F**	**D**
				Delay	<	6	>	**6**	<	0	>	**0**	<	251	>	**251**	<	157	>	**157**	**32**
				V/C	<	0.29	>		<	0.00	>		<	0.49	>		<	1.19	>		
				Q	<	10	>		<	0	>		<	12	>		<	112	>		
			2039	LOS	<	A	>	**A**	<	A	>	**A**	<	F	>	**F**	<	F	>	**F**	**F**
				Delay	<	7	>	**7**	<	0	>	**0**	<	396	>	**396**	<	268	>	**268**	**51**
				V/C	<	0.32	>		<	0.00	>		<	0.71	>		<	1.45	>		
				Q	<	11	>		<	0	>		<	15	>		<	146	>		
			2044	LOS	<	A	>	**A**	<	A	>	**A**	<	F	>	**F**	<	F	>	**F**	**F**
				Delay	<	8	>	**8**	<	0	>	**0**	<	781	>	**781**	<	436	>	**436**	**79**
				V/C	<	0.36	>		<	0.00	>		<	1.21	>		<	1.82	>		
				Q	<	13	>		<	0	>		<	20	>		<	184	>		
	Glendale Avenue North Signals & QEW WB Off-Ramp	TCS	2027	LOS							C	**C**		B		**B**		C		**C**	**C**
				Delay							34	**34**		11		**11**		29		**29**	**23**
				V/C							0.71	**0.71**		0.30		**0.30**		0.59		**0.59**	**0.44**
				Q							73			46				55			
			2030	LOS							C	**C**		B		**B**		C		**C**	**C**
				Delay							32	**32**		14		**14**		27		**27**	**23**
				V/C							0.73	**0.73**		0.40		**0.40**		0.62		**0.62**	**0.51**
				Q							83			62				62			
			2032	LOS							C	**C**		B		**B**		C		**C**	**C**
				Delay							31	**31**		16		**16**		27		**27**	**23**
				V/C							0.74	**0.74**		0.45		**0.45**		0.68		**0.68**	**0.54**
				Q							86			71				71			
			2034	LOS							C	**C**		B		**B**		C		**C**	**C**
				Delay							30	**30**		17		**17**		27		**27**	**24**
				V/C							0.74	**0.74**		0.50		**0.50**		0.71		**0.71**	**0.56**
				Q							89			79				77			
			2039	LOS							C	**C**		B		**B**		C		**C**	**C**
				Delay							31	**31**		19		**19**		26		**26**	**24**
				V/C							0.77	**0.77**		0.56		**0.56**		0.73		**0.73**	**0.6**
				Q							105			84				88			
			2044	LOS							C	**C**		C		**C**		C		**C**	**C**
				Delay							32	**32**		21		**21**		26		**26**	**26**
				V/C							0.81	**0.81**		0.63		**0.63**		0.76		**0.76**	**0.65**
				Q							127			90				103			

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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Glendale Avenue SB & QEW WB Off-Ramp	TWSC	2027	LOS Delay V/C Q					B 13 0.38 14			**B** **13**						A 0 0.16 0		**A** **0**	**A** **4**
			2030	LOS Delay V/C Q					B 15 0.44 18			**B** **15**						A 0 0.20 0		**A** **0**	**A** **4**
			2032	LOS Delay V/C Q					C 17 0.49 22			**C** **17**						A 0 0.23 0		**A** **0**	**A** **5**
			2034	LOS Delay V/C Q					C 18 0.54 25			**C** **18**						A 0 0.25 0		**A** **0**	**A** **5**
			2039	LOS Delay V/C Q					C 22 0.62 34			**C** **22**						A 0 0.26 0		**A** **0**	**A** **6**
			2044	LOS Delay V/C Q					D 28 0.72 46			**D** **28**						A 0 0.29 0		**A** **0**	**A** **8**
	Glendale Avenue NB & QEW EB Off-Ramp	TWSC	2027	LOS Delay V/C Q	C 17 0.57 29			**C** **17**						A 0 0.17 0		**A** **0**					**A** **7**
			2030	LOS Delay V/C Q	C 22 0.69 44			**C** **22**						A 0 0.20 0		**A** **0**					**A** **9**
			2032	LOS Delay V/C Q	D 27 0.76 56			**D** **27**						A 0 0.21 0		**A** **0**					**B** **11**
			2034	LOS Delay V/C Q	D 33 0.82 68			**D** **33**						A 0 0.22 0		**A** **0**					**B** **13**
			2039	LOS Delay V/C Q	F 53 0.95 99			**F** **53**						A 0 0.24 0		**A** **0**					**C** **21**
			2044	LOS Delay V/C Q	F 92 1.09 145			**F** **92**						A 0 0.26 0		**A** **0**					**E** **36**

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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																Overall
					Eastbound				Westbound				Northbound				Southbound				
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Glendale Avenue South Signals	TCS	2027	LOS Delay V/C Q										A 6 0.26 33				D 40 0.66 48			**B** **20** **0.22**
			2030	LOS Delay V/C Q										A 8 0.31 42				D 39 0.69 55			**C** **20** **0.24**
			2032	LOS Delay V/C Q										A 9 0.34 50				D 38 0.71 60			**C** **21** **0.26**
			2034	LOS Delay V/C Q										A 10 0.37 55				D 38 0.72 64			**C** **21** **0.27**
			2039	LOS Delay V/C Q										B 10 0.41 64				D 37 0.74 68			**C** **22** **0.29**
			2044	LOS Delay V/C Q										B 12 0.46 73				D 36 0.75 72			**C** **22** **0.3**
	Townline Road & North Site Driveway	TWSC	2030	LOS Delay V/C Q	A 9 0.06 1		> > > >	**A** **9**					< < < <	A 2 0.02 1		**A** **2**	A 0 0.04 0	> > > >	**A** **0**	**A** **2**
			2032	LOS Delay V/C Q	A 9 0.10 3		> > > >	**A** **9**					< < < <	A 2 0.04 1		**A** **2**	A 0 0.05 0	> > > >	**A** **0**	**A** **3**
			2034	LOS Delay V/C Q	A 9 0.13 4		> > > >	**A** **9**					< < < <	A 2 0.05 1		**A** **2**	A 0 0.05 0	> > > >	**A** **0**	**A** **4**
			2039	LOS Delay V/C Q	A 10 0.13 4		> > > >	**A** **10**					< < < <	A 2 0.05 1		**A** **2**	A 0 0.05 0	> > > >	**A** **0**	**A** **4**
			2044	LOS Delay V/C Q	A 10 0.13 4		> > > >	**A** **10**					< < < <	A 2 0.05 1		**A** **2**	A 0 0.06 0	> > > >	**A** **0**	**A** **3**

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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Townline Road & South Site Driveway	TWSC	2030	LOS	A		>	**A**					<	A		**A**		A	>	**A**	**A**
				Delay	9		>	**9**					<	1		**1**		0	>	**0**	**2**
				V/C	0.06		>						<	0.03				0.07	>		
				Q	2		>						<	1				0	>		
			2032	LOS	A		>	**A**					<	A		**A**		A	>	**A**	**A**
				Delay	10		>	**10**					<	2		**2**		0	>	**0**	**3**
				V/C	0.11		>						<	0.04				0.10	>		
				Q	3		>						<	1				0	>		
			2034	LOS	B		>	**B**					<	A		**A**		A	>	**A**	**A**
				Delay	10		>	**10**					<	2		**2**		0	>	**0**	**3**
				V/C	0.15		>						<	0.05				0.11	>		
				Q	4		>						<	1				0	>		
			2039	LOS	B		>	**B**					<	A		**A**		A	>	**A**	**A**
				Delay	10		>	**10**					<	2		**2**		0	>	**0**	**3**
				V/C	0.15		>						<	0.05				0.12	>		
				Q	4		>						<	1				0	>		
			2044	LOS	B		>	**B**					<	A		**A**		A	>	**A**	**A**
				Delay	10		>	**10**					<	2		**2**		0	>	**0**	**3**
				V/C	0.15		>						<	0.06				0.12	>		
				Q	4		>						<	1				0	>		
	Site Driveway & York Road	TWSC	2032	LOS		A	>	**A**	<	A		**A**	E		>	**E**					**A**
				Delay		0	>	**0**	<	0		**0**	42		>	**42**					**2**
				V/C		0.45	>		<	0.01			0.46		>						
				Q		0	>		<	0			17		>						
			2034	LOS		A	>	**A**	<	A		**A**	F		>	**F**					**A**
				Delay		0	>	**0**	<	0		**0**	110		>	**110**					**9**
				V/C		0.49	>		<	0.01			0.91		>						
				Q		0	>		<	0			50		>						
			2039	LOS		A	>	**A**	<	A		**A**	F		>	**F**					**B**
				Delay		0	>	**0**	<	0		**0**	167		>	**167**					**13**
				V/C		0.53	>		<	0.01			1.07		>						
				Q		0	>		<	0			61		>						
			2044	LOS		A	>	**A**	<	A		**A**	F		>	**F**					**C**
				Delay		0	>	**0**	<	0		**0**	260		>	**260**					**18**
				V/C		0.58	>		<	0.01			1.29		>						
				Q		0	>		<	0			74		>						

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TABLE 4.5: TOTAL TRAFFIC OPERATIONS – PM PEAK HOUR

Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																Overall
					Eastbound				Westbound				Northbound				Southbound				
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Glendale Avenue & Hilton Garden Inn/Site Driveway	TWSC	2027	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	9		9	3		>	3					6
				V/C		0.02	>		<	0.03			0.01		>						
				Q		0	>		<	1			0		>						
			2030	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	10		10	1		>	1					5
				V/C		0.02	>		<	0.12			0.01		>						
				Q		0	>		<	3			0		>						
			2032	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	10		10	1		>	1					5
				V/C		0.02	>		<	0.12			0.01		>						
				Q		0	>		<	3			0		>						
			2034	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	10		10	1		>	1					5
				V/C		0.02	>		<	0.12			0.01		>						
				Q		0	>		<	3			0		>						
			2039	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	10		10	1		>	1					6
				V/C		0.02	>		<	0.12			0.01		>						
				Q		1	>		<	3			0		>						
			2044	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	10		10	1		>	1					6
				V/C		0.02	>		<	0.12			0.01		>						
				Q		1	>		<	3			0		>						
	Counsell Street & Site Driveway/Purolator Driveway	TWSC	2027	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	0		0	2		>	2					3
				V/C		0.01	>		<	0.00			0.01		>						
				Q		0	>		<	0			0		>						
			2030	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	0		0	4		>	4					5
				V/C		0.02	>		<	0.00			0.03		>						
				Q		1	>		<	0			1		>						
			2032	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	0		0	4		>	4					5
				V/C		0.02	>		<	0.00			0.03		>						
				Q		1	>		<	0			1		>						
			2034	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	0		0	4		>	4					5
				V/C		0.02	>		<	0.00			0.03		>						
				Q		1	>		<	0			1		>						
			2039	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	0		0	4		>	4					5
				V/C		0.02	>		<	0.00			0.03		>						
				Q		1	>		<	0			1		>						
			2044	LOS		A	>	A	<	A		A	A		>	A					A
				Delay		8	>	8	<	0		0	4		>	4					5
				V/C		0.02	>		<	0.00			0.03		>						
				Q		1	>		<	0			1		>						

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
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Q - 95th Percentile Queue Length (m)
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TCS - Traffic Control Signal
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< / > - Shared with through movement
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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	York Road & Glendale Avenue	RBT	2027	LOS	<	A	>	**A**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	**A**
				Delay	<	4	>	**4**	<	11	>	**11**	<	5	>	**5**	<	6	>	**6**	**6**
				V/C	<	0.08	>		<	0.68	>		<	0.35	>		<	0.07	>		
				Q	<	1	>		<	3	>		<	1	>		<	1	>		
			2030	LOS	<	A	>	**A**	<	D	>	**D**	<	A	>	**A**	<	A	>	**A**	**B**
				Delay	<	5	>	**5**	<	27	>	**27**	<	5	>	**5**	<	8	>	**8**	**12**
				V/C	<	0.13	>		<	0.89	>		<	0.42	>		<	0.21	>		
				Q	<	1	>		<	27	>		<	1	>		<	1	>		
			2032	LOS	<	A	>	**A**	<	F	>	**F**	<	A	>	**A**	<	A	>	**A**	**D**
				Delay	<	5	>	**5**	<	80	>	**80**	<	6	>	**6**	<	9	>	**9**	**30**
				V/C	<	0.18	>		<	1.03	>		<	0.44	>		<	0.24	>		
				Q	<	1	>		<	80	>		<	1	>		<	1	>		
			2034	LOS	<	A	>	**A**	<	F	>	**F**	<	A	>	**A**	<	A	>	**A**	**F**
				Delay	<	6	>	**6**	<	223	>	**223**	<	6	>	**6**	<	10	>	**10**	**78**
				V/C	<	0.2	>		<	1.15	>		<	0.46	>		<	0.25	>		
				Q	<	1	>		<	164	>		<	1	>		<	1	>		
			2039	LOS	<	A	>	**A**	<	F	>	**F**	<	A	>	**A**	<	A	>	**A**	**F**
				Delay	<	6	>	**6**	<	508	>	**508**	<	7	>	**7**	<	10	>	**10**	**172**
				V/C	<	0.21	>		<	1.27	>		<	0.51	>		<	0.27	>		
				Q	<	1	>		<	>200	>		<	1	>		<	1	>		
			2044	LOS	<	A	>	**A**	<	F	>	**F**	<	A	>	**A**	<	B	>	**B**	**F**
				Delay	<	6	>	**6**	<	886	>	**886**	<	7	>	**7**	<	11	>	**11**	**295**
				V/C	<	0.22	>		<	1.42	>		<	0.56	>		<	0.3	>		
				Q	<	1	>		<	>200	>		<	1	>		<	1	>		
	York Road & Counsell Street	TWSC	2027	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	9	0		**1**		0	>	**0**					14		>	**14**	**1**
				V/C	0.07	0.16				0.27	>						0.11		>		
				Q	2	0				0	>						3		>		
				Stor.	20	-				-	>						-		>		
				Avail.	18	-				-	>						-		>		
			2030	LOS	B	A		**A**		A	>	**A**					C		>	**C**	**A**
				Delay	10	0		**1**		0	>	**0**					19		>	**19**	**1**
				V/C	0.12	0.21				0.34	>						0.22		>		
				Q	3	0				0	>						7		>		
				Stor.	20	-				-	>						-		>		
				Avail.	17	-				-	>						-		>		
			2032	LOS	B	A		**A**		A	>	**A**					C		>	**C**	**A**
				Delay	11	0		**1**		0	>	**0**					24		>	**24**	**1**
				V/C	0.14	0.25				0.39	>						0.28		>		
				Q	4	0				0	>						9		>		
				Stor.	20	-				-	>						-		>		
				Avail.	16	-				-	>						-		>		
			2034	LOS	B	A		**A**		A	>	**A**					D		>	**D**	**A**
				Delay	12	0		**1**		0	>	**0**					31		>	**31**	**2**
				V/C	0.16	0.29				0.43	>						0.36		>		
				Q	4	0				0	>						13		>		
				Stor.	20	-				-	>						-		>		
				Avail.	16	-				-	>						-		>		
			2039	LOS	B	A		**A**		A	>	**A**					E		>	**E**	**A**
				Delay	12	0		**1**		0	>	**0**					41		>	**41**	**2**
				V/C	0.18	0.31				0.46	>						0.47		>		
				Q	5	0				0	>						18		>		
				Stor.	20	-				-	>						-		>		
				Avail.	15	-				-	>						-		>		
			2044	LOS	B	A		**A**		A	>	**A**					F		>	**F**	**A**
				Delay	14	0		**1**		0	>	**0**					61		>	**61**	**3**
				V/C	0.22	0.33				0.50	>						0.61		>		
				Q	6	0				0	>						26		>		
				Stor.	20	-				-	>						-		>		
				Avail.	14	-				-	>						-		>		

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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	York Road & Townline Road	TWSC	2027	LOS	<	A	>	**A**	<	A	>	**A**	<	F	>	**F**	<	C	>	**C**	**A**
				Delay	<	2	>	**2**	<	0	>	**0**	<	57	>	**57**	<	18	>	**18**	**4**
				V/C	<	0.09	>		<	0.00	>		<	0.04	>		<	0.44	>		
				Q	<	2	>		<	0	>		<	1	>		<	18	>		
			2030	LOS	<	A	>	**A**	<	A	>	**A**	<	F	>	**F**	<	F	>	**F**	**C**
				Delay	<	5	>	**5**	<	0	>	**0**	<	278	>	**278**	<	80	>	**80**	**20**
				V/C	<	0.23	>		<	0.00	>		<	0.19	>		<	1.00	>		
				Q	<	7	>		<	0	>		<	4	>		<	93	>		
			2032	LOS	<	A	>	**A**	<	A	>	**A**	<	F	>	**F**	<	F	>	**F**	**F**
				Delay	<	7	>	**7**	<	0	>	**0**	<	1254	>	**1254**	<	270	>	**270**	**68**
				V/C	<	0.31	>		<	0.00	>		<	0.84	>		<	1.49	>		
				Q	<	10	>		<	0	>		<	9	>		<	198	>		
			2034	LOS	<	A	>	**A**	<	A	>	**A**	<		>		<	F	>	**F**	
				Delay	<	8	>	**8**	<	0	>	**0**	<	Err	>	**Err**	<	550	>	**550**	
				V/C	<	0.38	>		<	0.00	>		<	Err	>		<	2.12	>		
				Q	<	15	>		<	0	>		<	Err	>		<	308	>		
			2039	LOS	<	A	>	**A**	<	A	>	**A**	<		>		<	F	>	**F**	
				Delay	<	10	>	**10**	<	0	>	**0**	<	Err	>	**Err**	<	791	>	**791**	
				V/C	<	0.42	>		<	0.00	>		<	Err	>		<	2.65	>		
				Q	<	17	>		<	0	>		<	Err	>		<	366	>		
			2044	LOS	<	B	>	**B**	<	A	>	**A**	<		>		<		>		
				Delay	<	11	>	**11**	<	0	>	**0**	<	Err	>	**Err**	<	Err	>	**Err**	
				V/C	<	0.46	>		<	0.00	>		<	Err	>		<	3.49	>		
				Q	<	20	>		<	0	>		<	Err	>		<	Err	>		
	Glendale Avenue North Signals & QEW WB Off-Ramp	TCS	2027	LOS							B	**B**		B		**B**		C		**C**	**C**
				Delay							20	**20**		16		**16**		28		**28**	**24**
				V/C							0.40	**0.40**		0.31		**0.31**		0.80		**0.80**	**0.37**
				Q							48			42				103			
			2030	LOS							B	**B**		C		**C**		C		**C**	**C**
				Delay							17	**17**		22		**22**		26		**26**	**24**
				V/C							0.44	**0.44**		0.48		**0.48**		0.84		**0.84**	**0.45**
				Q							53			66				116			
			2032	LOS							B	**B**		C		**C**		C		**C**	**C**
				Delay							16	**16**		25		**25**		26		**26**	**24**
				V/C							0.45	**0.45**		0.60		**0.60**		0.86		**0.86**	**0.49**
				Q							63			75				144			
			2034	LOS							B	**B**		C		**C**		C		**C**	**C**
				Delay							14	**14**		30		**30**		24		**24**	**25**
				V/C							0.45	**0.45**		0.73		**0.73**		0.86		**0.86**	**0.53**
				Q							71			82				185			
			2039	LOS							B	**B**		C		**C**		C		**C**	**C**
				Delay							15	**15**		31		**31**		32		**32**	**29**
				V/C							0.49	**0.49**		0.77		**0.77**		0.94		**0.94**	**0.56**
				Q							82			86				216			
			2044	LOS							B	**B**		C		**C**		E		**E**	**D**
				Delay							17	**17**		30		**30**		64		**64**	**47**
				V/C							0.55	**0.55**		0.78		**0.78**		1.06		**1.06**	**0.59**
				Q							94			85				250			

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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Glendale Avenue SB & QEW WB Off-Ramp	TWSC	2027	LOS Delay V/C Q					D 33 0.77 55			**D** **33**						A 0 0.30 0		**A** **0**	**A** **9**
			2030	LOS Delay V/C Q					F 60 0.94 86			**F** **60**						A 0 0.35 0		**A** **0**	**C** **15**
			2032	LOS Delay V/C Q					F 91 1.05 111			**F** **91**						A 0 0.38 0		**A** **0**	**C** **22**
			2034	LOS Delay V/C Q					F 129 1.16 137			**F** **129**						A 0 0.41 0		**A** **0**	**D** **31**
			2039	LOS Delay V/C Q					F 223 1.39 194			**F** **223**						A 0 0.44 0		**A** **0**	**F** **54**
			2044	LOS Delay V/C Q					F 356 1.70 265			**F** **356**						A 0 0.48 0		**A** **0**	**F** **86**
	Glendale Avenue NB & QEW EB Off-Ramp	TWSC	2027	LOS Delay V/C Q	D 28 0.67 39			**D** **28**						A 0 0.34 0		**A** **0**					**A** **6**
			2030	LOS Delay V/C Q	F 56 0.89 72			**F** **56**						A 0 0.40 0		**A** **0**					**B** **11**
			2032	LOS Delay V/C Q	F 96 1.05 103			**F** **96**						A 0 0.43 0		**A** **0**					**C** **19**
			2034	LOS Delay V/C Q	F 148 1.19 134			**F** **148**						A 0 0.46 0		**A** **0**					**D** **30**
			2039	LOS Delay V/C Q	F 251 1.44 187			**F** **251**						A 0 0.50 0		**A** **0**					**F** **50**
			2044	LOS Delay V/C Q	F 389 1.76 248			**F** **389**						A 0 0.55 0		**A** **0**					**F** **79**

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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Glendale Avenue South Signals	TCS	2027	LOS Delay V/C Q										B 12 0.56 98				D 37 0.73 66			**C 20 0.38**
			2030	LOS Delay V/C Q										B 16 0.70 136				D 36 0.75 74			**C 23 0.43**
			2032	LOS Delay V/C Q										B 19 0.78 166				D 35 0.76 78			**C 24 0.46**
			2034	LOS Delay V/C Q										C 23 0.86 208				C 34 0.77 80			**C 27 0.49**
			2039	LOS Delay V/C Q										D 36 0.97 244				C 34 0.78 86			**D 35 0.53**
			2044	LOS Delay V/C Q										E 75 1.09 283				C 33 0.79 92			**E 62 0.57**
	Townline Road & North Site Driveway	TWSC	2030	LOS Delay V/C Q	A 10 0.09 2		> > > >	**A 10**					< < < <	A 3 0.06 1		**A 3**	A 0 0.14 0	> > > >	**A 0**	**A 3**
			2032	LOS Delay V/C Q	B 10 0.13 4		> > > >	**B 10**					< < < <	A 4 0.08 2		**A 4**	A 0 0.15 0	> > > >	**A 0**	**A 3**
			2034	LOS Delay V/C Q	B 11 0.18 5		> > > >	**B 11**					< < < <	A 5 0.11 3		**A 5**	A 0 0.16 0	> > > >	**A 0**	**A 4**
			2039	LOS Delay V/C Q	B 11 0.18 5		> > > >	**B 11**					< < < <	A 4 0.11 3		**A 4**	A 0 0.17 0	> > > >	**A 0**	**A 4**
			2044	LOS Delay V/C Q	B 11 0.19 6		> > > >	**B 11**					< < < <	A 4 0.11 3		**A 4**	A 0 0.19 0	> > > >	**A 0**	**A 4**

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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Townline Road & South Site Driveway	TWSC	2030	LOS	B		>	**B**					<	A		**A**		A	>	**A**	**A**
				Delay	10		>	**10**					<	3		**3**		0	>	**0**	**2**
				V/C	0.09		>						<	0.06				0.18	>		
				Q	2		>						<	2				0	>		
			2032	LOS	B		>	**B**					<	A		**A**		A	>	**A**	**A**
				Delay	11		>	**11**					<	3		**3**		0	>	**0**	**3**
				V/C	0.15		>						<	0.09				0.20	>		
				Q	4		>						<	2				0	>		
			2034	LOS	B		>	**B**					<	A		**A**		A	>	**A**	**A**
				Delay	12		>	**12**					<	4		**4**		0	>	**0**	**3**
				V/C	0.20		>						<	0.12				0.23	>		
				Q	6		>						<	3				0	>		
			2039	LOS	B		>	**B**					<	A		**A**		A	>	**A**	**A**
				Delay	12		>	**12**					<	4		**4**		0	>	**0**	**3**
				V/C	0.21		>						<	0.12				0.24	>		
				Q	6		>						<	3				0	>		
			2044	LOS	B		>	**B**					<	A		**A**		A	>	**A**	**A**
				Delay	13		>	**13**					<	4		**4**		0	>	**0**	**3**
				V/C	0.22		>						<	0.13				0.26	>		
				Q	7		>						<	3				0	>		
	Site Driveway & York Road	TWSC	2032	LOS		A	>	**A**	<	A		**A**	F		>	**F**					**A**
				Delay		0	>	**0**	<	1		**1**	86		>	**86**					**3**
				V/C		0.51	>		<	0.02			0.55		>						
				Q		0	>		<	0			20		>						
			2034	LOS		A	>	**A**	<	A		**A**	F		>	**F**					**B**
				Delay		0	>	**0**	<	1		**1**	273		>	**273**					**11**
				V/C		0.58	>		<	0.03			1.18		>						
				Q		0	>		<	1			50		>						
			2039	LOS		A	>	**A**	<	A		**A**	F		>	**F**					**B**
				Delay		0	>	**0**	<	1		**1**	415		>	**415**					**15**
				V/C		0.61	>		<	0.04			1.47		>						
				Q		0	>		<	1			58		>						
			2044	LOS		A	>	**A**	<	A		**A**	F		>	**F**					**C**
				Delay		0	>	**0**	<	2		**1**	624		>	**624**					**21**
				V/C		0.66	>		<	0.04			1.88		>						
				Q		0	>		<	1			65		>						

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TABLE 4.6: TOTAL TRAFFIC OPERATIONS – SATURDAY PEAK HOUR

Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
Saturday Peak Hour	Glendale Avenue & Hilton Garden Inn/Site Driveway	TWSC	2027	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	9		**9**	4		>	**4**					**6**
				V/C		0.01	>		<	0.01			0.01		>						
				Q		0	>		<	0			0		>						
			2030	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	10		**10**	1		>	**1**					**4**
				V/C		0.01	>		<	0.10			0.01		>						
				Q		0	>		<	3			0		>						
			2032	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	10		**10**	1		>	**1**					**4**
				V/C		0.01	>		<	0.10			0.01		>						
				Q		0	>		<	3			0		>						
			2034	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	10		**10**	1		>	**1**					**5**
				V/C		0.01	>		<	0.10			0.01		>						
				Q		0	>		<	3			0		>						
			2039	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	10		**10**	1		>	**1**					**5**
				V/C		0.02	>		<	0.10			0.01		>						
				Q		0	>		<	3			0		>						
			2044	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	10		**10**	1		>	**1**					**5**
				V/C		0.02	>		<	0.10			0.01		>						
				Q		0	>		<	3			0		>						
	Counsell Street & Site Driveway/Purolator Driveway	TWSC	2027	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	0		**0**	4		>	**4**					**6**
				V/C		0.00	>		<	0.00			0.00		>						
				Q		0	>		<	0			0		>						
			2030	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	0		**0**	7		>	**7**					**8**
				V/C		0.03	>		<	0.00			0.01		>						
				Q		1	>		<	0			0		>						
			2032	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	0		**0**	7		>	**7**					**8**
				V/C		0.03	>		<	0.00			0.01		>						
				Q		1	>		<	0			0		>						
			2034	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	0		**0**	7		>	**7**					**8**
				V/C		0.03	>		<	0.00			0.01		>						
				Q		1	>		<	0			0		>						
			2039	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	0		**0**	6		>	**6**					**8**
				V/C		0.03	>		<	0.00			0.01		>						
				Q		1	>		<	0			0		>						
			2044	LOS		A	>	**A**	<	A		**A**	A		>	**A**					**A**
				Delay		8	>	**8**	<	0		**0**	6		>	**6**					**8**
				V/C		0.03	>		<	0.00			0.01		>						
				Q		1	>		<	0			0		>						

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Analysis Period	Intersection	Control Type	Horizon	MOE	Direction/Movement/Approach																
					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
Saturday Peak Hour	York Road & Glendale Avenue	RBT	2027	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
				Delay	<	3	>	**3**	<	6	>	**6**	<	5	>	**5**	<	5	>	**5**	**5**
				V/C	<	0.09	>		<	0.43	>		<	0.45	>		<	0.04	>		
				Q	<	1	>		<	1	>		<	1	>		<	1	>		
			2030	LOS	<	A	>	**A**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	**B**
				Delay	<	4	>	**4**	<	12	>	**12**	<	6	>	**6**	<	7	>	**7**	**7**
				V/C	<	0.16	>		<	0.68	>		<	0.54	>		<	0.17	>		
				Q	<	1	>		<	3	>		<	1	>		<	1	>		
			2032	LOS	<	A	>	**A**	<	C	>	**C**	<	A	>	**A**	<	A	>	**A**	**A**
				Delay	<	4	>	**4**	<	20	>	**20**	<	7	>	**7**	<	8	>	**8**	**10**
				V/C	<	0.19	>		<	0.82	>		<	0.56	>		<	0.2	>		
				Q	<	1	>		<	15	>		<	1	>		<	1	>		
			2034	LOS	<	A	>	**A**	<	E	>	**E**	<	A	>	**A**	<	A	>	**A**	**C**
				Delay	<	5	>	**5**	<	39	>	**39**	<	7	>	**7**	<	9	>	**9**	**15**
				V/C	<	0.22	>		<	0.95	>		<	0.59	>		<	0.23	>		
				Q	<	1	>		<	38	>		<	1	>		<	1	>		
			2039	LOS	<	A	>	**A**	<	F	>	**F**	<	A	>	**A**	<	B	>	**B**	**D**
				Delay	<	5	>	**5**	<	96	>	**96**	<	8	>	**8**	<	10	>	**10**	**31**
				V/C	<	0.23	>		<	1.05	>		<	0.65	>		<	0.26	>		
				Q	<	1	>		<	77	>		<	2	>		<	1	>		
			2044	LOS	<	A	>	**A**	<	F	>	**F**	<	B	>	**B**	<	B	>	**B**	**F**
				Delay	<	5	>	**5**	<	239	>	**239**	<	10	>	**10**	<	12	>	**12**	**70**
				V/C	<	0.25	>		<	1.17	>		<	0.71	>		<	0.29	>		
				Q	<	1	>		<	140	>		<	4	>		<	1	>		
	York Road & Counsell Street	TWSC	2027	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	8	0		**0**		0	>	**0**					10		>	**10**	**1**
				V/C	0.03	0.15				0.16	>						0.04		>		
				Q	1	0				0	>						1		>		
				Stor.	20	-				-	>						-		>		
				Avail.	19	-				-	>						-		>		
			2030	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	9	0		**1**		0	>	**0**					12		>	**12**	**1**
				V/C	0.05	0.21				0.23	>						0.11		>		
				Q	1	0				0	>						3		>		
				Stor.	20	-				-	>						-		>		
				Avail.	19	-				-	>						-		>		
			2032	LOS	A	A		**A**		A	>	**A**					B		>	**B**	**A**
				Delay	9	0		**0**		0	>	**0**					14		>	**14**	**1**
				V/C	0.06	0.25				0.28	>						0.14		>		
				Q	1	0				0	>						4		>		
				Stor.	20	-				-	>						-		>		
				Avail.	19	-				-	>						-		>		
			2034	LOS	A	A		**A**		A	>	**A**					C		>	**C**	**A**
				Delay	10	0		**0**		0	>	**0**					15		>	**15**	**1**
				V/C	0.06	0.28				0.32	>						0.16		>		
				Q	2	0				0	>						5		>		
				Stor.	20	-				-	>						-		>		
				Avail.	18	-				-	>						-		>		
			2039	LOS	A	A		**A**		A	>	**A**					C		>	**C**	**A**
				Delay	10	0		**0**		0	>	**0**					16		>	**16**	**1**
				V/C	0.07	0.30				0.34	>						0.18		>		
				Q	2	0				0	>						5		>		
				Stor.	20	-				-	>						-		>		
				Avail.	18	-				-	>						-		>		
			2044	LOS	B	A		**A**		A	>	**A**					C		>	**C**	**A**
				Delay	10	0		**0**		0	>	**0**					18		>	**18**	**1**
				V/C	0.08	0.32				0.36	>						0.21		>		
				Q	2	0				0	>						6		>		
				Stor.	20	-				-	>						-		>		
				Avail.	18	-				-	>						-		>		

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					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
Saturday Peak Hour	York Road & Townline Road	TWSC	2027	LOS	<	A	>	**A**	<	A	>	**A**	<	C	>	**C**	<	B	>	**B**	**A**
				Delay	<	1	>	**1**	<	0	>	**0**	<	22	>	**22**	<	11	>	**11**	**1**
				V/C	<	0.03	>		<	0.00	>		<	0.01	>		<	0.08	>		
				Q	<	1	>		<	0	>		<	0	>		<	2	>		
			2030	LOS	<	A	>	**A**	<	A	>	**A**	<	F	>	**F**	<	C	>	**C**	**A**
				Delay	<	4	>	**4**	<	0	>	**0**	<	66	>	**66**	<	20	>	**20**	**5**
				V/C	<	0.17	>		<	0.00	>		<	0.05	>		<	0.46	>		
				Q	<	5	>		<	0	>		<	1	>		<	19	>		
			2032	LOS	<	A	>	**A**	<	A	>	**A**	<	F	>	**F**	<	D	>	**D**	**A**
				Delay	<	5	>	**5**	<	0	>	**0**	<	118	>	**118**	<	34	>	**34**	**9**
				V/C	<	0.23	>		<	0.00	>		<	0.11	>		<	0.69	>		
				Q	<	7	>		<	0	>		<	3	>		<	40	>		
			2034	LOS	<	A	>	**A**	<	A	>	**A**	<	F	>	**F**	<	F	>	**F**	**C**
				Delay	<	6	>	**6**	<	0	>	**0**	<	221	>	**221**	<	91	>	**91**	**21**
				V/C	<	0.28	>		<	0.00	>		<	0.20	>		<	1.01	>		
				Q	<	9	>		<	0	>		<	5	>		<	89	>		
			2039	LOS	<	A	>	**A**	<	A	>	**A**	<	F	>	**F**	<	F	>	**F**	**D**
				Delay	<	6	>	**6**	<	0	>	**0**	<	309	>	**309**	<	153	>	**153**	**32**
				V/C	<	0.30	>		<	0.00	>		<	0.26	>		<	1.19	>		
				Q	<	10	>		<	0	>		<	6	>		<	117	>		
			2044	LOS	<	A	>	**A**	<	A	>	**A**	<	F	>	**F**	<	F	>	**F**	**E**
				Delay	<	7	>	**7**	<	0	>	**0**	<	464	>	**464**	<	240	>	**240**	**46**
				V/C	<	0.31	>		<	0.00	>		<	0.37	>		<	1.39	>		
				Q	<	11	>		<	0	>		<	7	>		<	148	>		
	Glendale Avenue North Signals & QEW WB Off-Ramp	TCS	2027	LOS							C	**C**		A		**A**		C		**C**	**C**
				Delay							30	**30**		9		**9**		33		**33**	**22**
				V/C							0.47	**0.47**		0.32		**0.32**		0.67		**0.67**	**0.37**
				Q							46			44				62			
			2030	LOS							C	**C**		B		**B**		C		**C**	**C**
				Delay							26	**26**		14		**14**		30		**30**	**22**
				V/C							0.47	**0.47**		0.48		**0.48**		0.71		**0.71**	**0.46**
				Q							50			74				74			
			2032	LOS							C	**C**		B		**B**		C		**C**	**C**
				Delay							24	**24**		17		**17**		29		**29**	**23**
				V/C							0.46	**0.46**		0.59		**0.59**		0.73		**0.73**	**0.5**
				Q							51			96				80			
			2034	LOS							C	**C**		B		**B**		C		**C**	**C**
				Delay							23	**23**		19		**19**		29		**29**	**24**
				V/C							0.46	**0.46**		0.67		**0.67**		0.76		**0.76**	**0.53**
				Q							53			108				89			
			2039	LOS							C	**C**		C		**C**		C		**C**	**C**
				Delay							22	**22**		22		**22**		28		**28**	**24**
				V/C							0.48	**0.48**		0.74		**0.74**		0.78		**0.78**	**0.57**
				Q							58			108				98			
			2044	LOS							C	**C**		C		**C**		C		**C**	**C**
				Delay							21	**21**		25		**25**		29		**29**	**26**
				V/C							0.50	**0.50**		0.82		**0.82**		0.81		**0.81**	**0.6**
				Q							64			109				109			

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					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
Saturday Peak Hour	Glendale Avenue SB & QEW WB Off-Ramp	TWSC	2027	LOS Delay V/C Q					D 31 0.83 73			**D** **31**						A 0 0.16 0		**A** **0**	**C** **16**
			2030	LOS Delay V/C Q					F 61 1.00 120			**F** **61**						A 0 0.21 0		**A** **0**	**D** **28**
			2032	LOS Delay V/C Q					F 95 1.10 157			**F** **95**						A 0 0.24 0		**A** **0**	**E** **42**
			2034	LOS Delay V/C Q					F 136 1.21 197			**F** **136**						A 0 0.26 0		**A** **0**	**F** **58**
			2039	LOS Delay V/C Q					F 213 1.40 272			**F** **213**						A 0 0.28 0		**A** **0**	**F** **93**
			2044	LOS Delay V/C Q					F 311 1.62 362			**F** **311**						A 0 0.30 0		**A** **0**	**F** **138**
	Glendale Avenue NB & QEW EB Off-Ramp	TWSC	2027	LOS Delay V/C Q	F 121 1.14 132			**F** **121**						A 0 0.40 0		**A** **0**					**D** **29**
			2030	LOS Delay V/C Q	F 290 1.55 228			**F** **290**						A 0 0.47 0		**A** **0**					**F** **69**
			2032	LOS Delay V/C Q	F 420 1.84 289			**F** **420**						A 0 0.51 0		**A** **0**					**F** **99**
			2034	LOS Delay V/C Q	F 546 2.12 340			**F** **546**						A 0 0.54 0		**A** **0**					**F** **128**
			2039	LOS Delay V/C Q	F 768 2.61 419			**F** **768**						A 0 0.59 0		**A** **0**					**F** **181**
			2044	LOS Delay V/C Q	Err 3.25 Err			**Err**						A 0 0.64 0		**A** **0**					**F** **2367**

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					Eastbound				Westbound				Northbound				Southbound				Overall
					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
Saturday Peak Hour	Glendale Avenue South Signals	TCS	2027	LOS Delay V/C Q										B 17 0.71 140				D 36 0.76 75			**C 23 0.43**
			2030	LOS Delay V/C Q										C 27 0.90 219				C 34 0.78 85			**C 29 0.5**
			2032	LOS Delay V/C Q										D 47 1.01 255				C 33 0.79 90			**D 43 0.54**
			2034	LOS Delay V/C Q										F 86 1.12 287				C 32 0.80 95			**E 68 0.57**
			2039	LOS Delay V/C Q										F 149 1.26 323				C 32 0.82 104			**F 110 0.61**
			2044	LOS Delay V/C Q										F 224 1.43 360				C 32 0.84 117			**F 161 0.66**
	Townline Road & North Site Driveway	TWSC	2030	LOS Delay V/C Q	A 9 0.07 2		> > > >	**A 9**					< < < <	A 5 0.06 1		**A 5**	A 0 0.04 0	> > > >	**A 0**	**A 5**
			2032	LOS Delay V/C Q	A 9 0.10 3		> > > >	**A 9**					< < < <	A 6 0.07 2		**A 6**	A 0 0.04 0	> > > >	**A 0**	**A 6**
			2034	LOS Delay V/C Q	A 9 0.13 4		> > > >	**A 9**					< < < <	A 6 0.09 2		**A 6**	A 0 0.04 0	> > > >	**A 0**	**A 6**
			2039	LOS Delay V/C Q	A 9 0.13 4		> > > >	**A 9**					< < < <	A 6 0.09 2		**A 6**	A 0 0.04 0	> > > >	**A 0**	**A 6**
			2044	LOS Delay V/C Q	A 9 0.13 4		> > > >	**A 9**					< < < <	A 6 0.09 2		**A 6**	A 0 0.05 0	> > > >	**A 0**	**A 6**

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					Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
Saturday Peak Hour	Townline Road & South Site Driveway	TWSC	2030	LOS	A		>	**A**					<	A		**A**		A	>	**A**	**A**
				Delay	9		>	**9**					<	3		**3**		0	>	**0**	**3**
				V/C	0.08		>						<	0.06				0.08	>		
				Q	2		>						<	2				0	>		
			2032	LOS	A		>	**A**					<	A		**A**		A	>	**A**	**A**
				Delay	10		>	**10**					<	4		**4**		0	>	**0**	**4**
				V/C	0.12		>						<	0.08				0.09	>		
				Q	3		>						<	2				0	>		
			2034	LOS	A		>	**A**					<	A		**A**		A	>	**A**	**A**
				Delay	10		>	**10**					<	4		**4**		0	>	**0**	**4**
				V/C	0.15		>						<	0.11				0.11	>		
				Q	4		>						<	3				0	>		
			2039	LOS	B		>	**B**					<	A		**A**		A	>	**A**	**A**
				Delay	10		>	**10**					<	4		**4**		0	>	**0**	**4**
				V/C	0.15		>						<	0.11				0.12	>		
				Q	4		>						<	3				0	>		
			2044	LOS	B		>	**B**					<	A		**A**		A	>	**A**	**A**
				Delay	10		>	**10**					<	4		**4**		0	>	**0**	**4**
				V/C	0.15		>						<	0.11				0.12	>		
				Q	4		>						<	3				0	>		
	Site Driveway & York Road	TWSC	2032	LOS		A	>	**A**	<	A		**A**	E		>	**E**					**A**
				Delay		0	>	**0**	<	0		**0**	49		>	**49**					**2**
				V/C		0.50	>		<	0.01			0.45		>						
				Q		0	>		<	0			16		>						
			2034	LOS		A	>	**A**	<	A		**A**	F		>	**F**					**A**
				Delay		0	>	**0**	<	0		**0**	131		>	**131**					**8**
				V/C		0.57	>		<	0.02			0.91		>						
				Q		0	>		<	0			45		>						
			2039	LOS		A	>	**A**	<	A		**A**	F		>	**F**					**B**
				Delay		0	>	**0**	<	1		**1**	188		>	**188**					**10**
				V/C		0.60	>		<	0.02			1.06		>						
				Q		0	>		<	0			53		>						
			2044	LOS		A	>	**A**	<	A		**A**	F		>	**F**					**B**
				Delay		0	>	**0**	<	1		**1**	275		>	**275**					**14**
				V/C		0.64	>		<	0.02			1.26		>						
				Q		0	>		<	1			61		>						

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement
RBT - Roundabout

5 Remedial Measures

5.1 Traffic Signal Control

The need for traffic control improvements is assessed using the Ontario Traffic Manual (OTM Book 12) signal warrant[16] procedures. To warrant the consideration for the installation of traffic signal control with forecast traffic volumes (average hourly volumes), at least one warrant must be fulfilled by 120% for an existing intersection or 150% for a proposed new intersection.

Table 5.1 summarizes the OTM signal warrants for the unsignalized study area intersections with significant volumes. Based on the volume warrant analysis, signals are warranted at the York Road and Townline Road intersection under the 2044 total traffic condition.

Appendix H contains the warrant analysis.

TABLE 5.1: OTM WARRANT SUMMARY

Intersection	Horizon	OTM Warrant				Warranted
		1A	1B	2A	2B	
York Road & Counsell Street	Total (2044)	154%	26%	148%	7%	**No**
York Road & Townline Road	Total (2039)	130%	116%	103%	31%	**No**
	Background (2044)	108%	55%	95%	11%	**No**
	Total (2044)	141%	121%	112%	32%	**Yes**
York Road & Site Driveway	Total (2044)	108%	29%	102%	53%	**No**

[16] Ontario Ministry of Transportation, *Ontario Traffic Manual Book 12: Traffic Signals,* (Toronto: Queen's Printer for Ontario, 2012).

5.2 Auxiliary Turn Lanes

The Ministry of Transportation's (MTO) *Design Supplement 2023 for the TAC Geometric Design Guide for Canadian Roads 2017*[17] provides guidance on the assessment and/or need for auxiliary left-turn lanes. The warrant nomograph to determine if a left-turn lane is needed is based on the following criteria:

- Design speed of the road (posted speed + 20 km/h);
- Advancing volume;
- Opposing volume; and
- Percent of advancing vehicles performing a left-turn maneuver.

The movements were analyzed using the nomographs for left-turn lanes on two-lane undivided highways at unsignalized intersections. **Appendix I** contains the MTO left-turn lane warrants nomographs for the study area intersections.

Table 5.2 and **Table 5.3** summarize the warrant analysis. The warrant analysis indicates:

- An eastbound left-turn lane is warranted under base year conditions on York Road at Townline Road. A left-turn lane is recommended if the preferred remedial measure of a roundabout is not implemented at this intersection.
- A westbound left-turn lane on York Road in the site driveway is not warranted. Turning volumes are forecast to be less than 5% of the total advancing volume.
- A northbound left-turn lane is warranted on Townline Road at the south site driveway under 2032 total traffic conditions and
- A northbound left-turn lane is warranted on Townline Road at the north site driveway under 2039 total traffic conditions.

To further confirm the left-turn lane storage provisions, the SimTraffic module within Synchro was utilized. Specifically, five 60-minute simulation runs with a 15-minute seeding interval to estimate 95th percentile queues. The SimTraffic simulations used a peak hour adjustment factor for the first 15-minute recording interval and an anti-peak hour adjustment factor for the next three 15-minute intervals. **Appendix K** contains the detailed SimTraffic reports.

[17] Ontario Ministry of Transportation, *MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads*, (St. Catherines: Ontario Ministry of Transportation, 2023).

The SimTraffic analysis for future total traffic conditions reports maximum 95th percentile queue lengths of approximately 16 metres for the northbound left-turn lane on Townline Road at the intersection with the south site driveway and approximately 15 metres for the north site driveway.

The northbound left-turn lanes are recommended to provide a minimum of 25 metres of storage for the intersection with the south site driveway and 15 metres of storage for the intersection with the north site driveway to accommodate the forecast future traffic volumes based upon reported operations. Based on the proximity of the driveways and existing driveways on the east side of the road, a two-way left-turn lane is recommended.

Appendix K contains the functional drawings.

TABLE 5.2: LEFT TURN NOMOGRAPH SUMMARY – BACKGROUND TRAFFIC

Horizon	York Road at Townline Road	York Road at Site Driveway	Townline Road at South Site Driveway	Townline Road at North Site Driveway
Base Year	Warranted – 25 m	Not Warranted	Not Warranted	Not Warranted
2027 Background	Warranted – 30 m			
2030 Background	Warranted – 30 m			
2032 Background	Warranted – 40 m			
2034 Background	Warranted – 40 m			
2039 Background	Warranted – 50 m			
2044 Background	Warranted – 55 m			

TABLE 5.3: LEFT TURN NOMOGRAPH SUMMARY – TOTAL TRAFFIC

Horizon	York Road at Townline Road	York Road at Site Driveway	Townline Road at South Site Driveway	Townline Road at North Site Driveway
Base Year	Warranted – 25 m	Not Warranted	Not Warranted	Not Warranted
2027 Total	Warranted – 30 m			
2030 Total	Warranted – 55 m			
2032 Total	Warranted – 80 m		Warranted – 15 m	
2034 Total	Warranted – 80 m		Warranted – 15 m	
2039 Total	Warranted – 80 m		Warranted – 25 m	Warranted – 15 m
2044 Total	Warranted – 80 m		Warranted – 25 m	Warranted – 15 m

5.3 Intersection Improvements

The study area intersection operational analyses followed the same methodology used for existing conditions.

Figure 5.1, **Figure 5.2**, and **Figure 5.3** illustrate the remedial total traffic volumes.

Table 5.6, **Table 5.7**, and **Table 5.8** summarize the level of service conditions with remedial measures during the AM, PM, and Saturday peak hours, respectively.

Appendix L contains the detailed remedial total traffic Synchro 12 reports.

5.3.1 York Road and Glendale Avenue

Adding a two-lane east leg to the existing roundabout under 2030 conditions should be considered to improve traffic operations. This improvement allows the westbound movement to function with acceptable delay levels across all conditions. However, the southbound movement is projected to operate within a LOS range of C to E, experiencing delays of up to 42 seconds due to westbound traffic impeding southbound flow.

5.3.2 York Road and Counsell Street

Restricting the southbound movement to right-out only in 2034 is recommended to reduce delays. Left-turning traffic can navigate to Glendale Avenue and utilize the York Road and Glendale Avenue roundabout to travel east.

With this condition in place, the critical movement is resolved under all peak hours. The southbound movement operates in the LOS B to LOS C range with up to 16-second delays.

5.3.3 York Road and Townline Road

The Niagara Region Roundabout Screening Form was used to determine the feasibility of implementing a roundabout to reduce delays and mitigate queuing issues. The intersection meets the property impacts, precluding factors, and suitability factors thresholds. The intersection is also identified as a Character Gateway within the *Glendale Area Secondary Plan.* Based on this, the location could proceed to an Intersection Control Study. **Appendix M** contains the roundabout screening form. **Appendix K** contains the functional design.

It is recommended that the roundabout be constructed by 2030 to address the critical movements noted at the intersection.

Roundabout analysis under 2044 remedial total traffic conditions indicates that all previously noted critical movements are rectified.

5.3.4 Glendale Avenue North Signals and QEW Westbound Off-Ramp

Signal timing splits have been adjusted within their existing cycle lengths to improve the operations. Signal timing changes are anticipated to enhance the previously identified critical movement at the intersection. Specifically:

- The QEW Westbound Off-Ramp right-turn movement operates under capacity during all peak hours; and
- Northbound and southbound movements are critical under the PM peak hour but have a maximum v/c of 0.95.

Table 5.4 summarizes the changes in the signal timings assumed in the analysis.

TABLE 5.4: GLENDALE AVENUE NORTH SIGNALS AND QEW WESTBOUND OFF-RAMP – SIGNAL TIMING CHANGES

Movement	Period	Green (s)	Amber (s)	Red (s)
NBT	Base	40.0	4.0	4.0
SBT / WBR		40.0	4.0	3.0
NBT	Remedial AM	30.0	4.0	4.0
SBT / WBR		50.0	4.0	3.0
NBT	Remedial PM	28.0	4.0	4.0
SBT / WBR		52.0	4.0	3.0
NBT	Remedial Saturday	43.0	4.0	4.0
SBT / WBR		37.0	4.0	3.0

5.3.5 Glendale Avenue (Southbound) and QEW Westbound Off-Ramp

It is recommended the Ministry of Transportation (MTO) continue to monitor traffic volumes for this movement to determine if improvements to traffic control are necessary. The gap acceptance is likely larger as the upstream signal will create gaps for vehicles utilizing the westbound off-ramp.

5.3.6 Glendale Avenue (Northbound) and QEW Eastbound Off-Ramp

Implementing an additional eastbound left-turning lane and converting traffic control to the eastbound lane is recommended under base year conditions.

With this improvement, the movement operates at acceptable v/c levels under all conditions other than the Saturday peak hour, which operates at a maximum v/c of 0.85.

5.3.7 Glendale Avenue South Signals

Signal timing splits have been optimized within their existing cycle lengths to improve the operations. Signal timing changes are anticipated to improve the previously identified critical movement at the intersection. Specifically, all movements are below a v/c of 1.00 during the PM peak hour. Both movements operate above a v/c of 1.00 during the Saturday peak hour, but the overall intersection delay decreased by over 50 seconds. The MTO should continue to monitor real-world traffic volumes for this intersection.

Table 5.5 summarizes the changes in the signal timings assumed in the analysis.

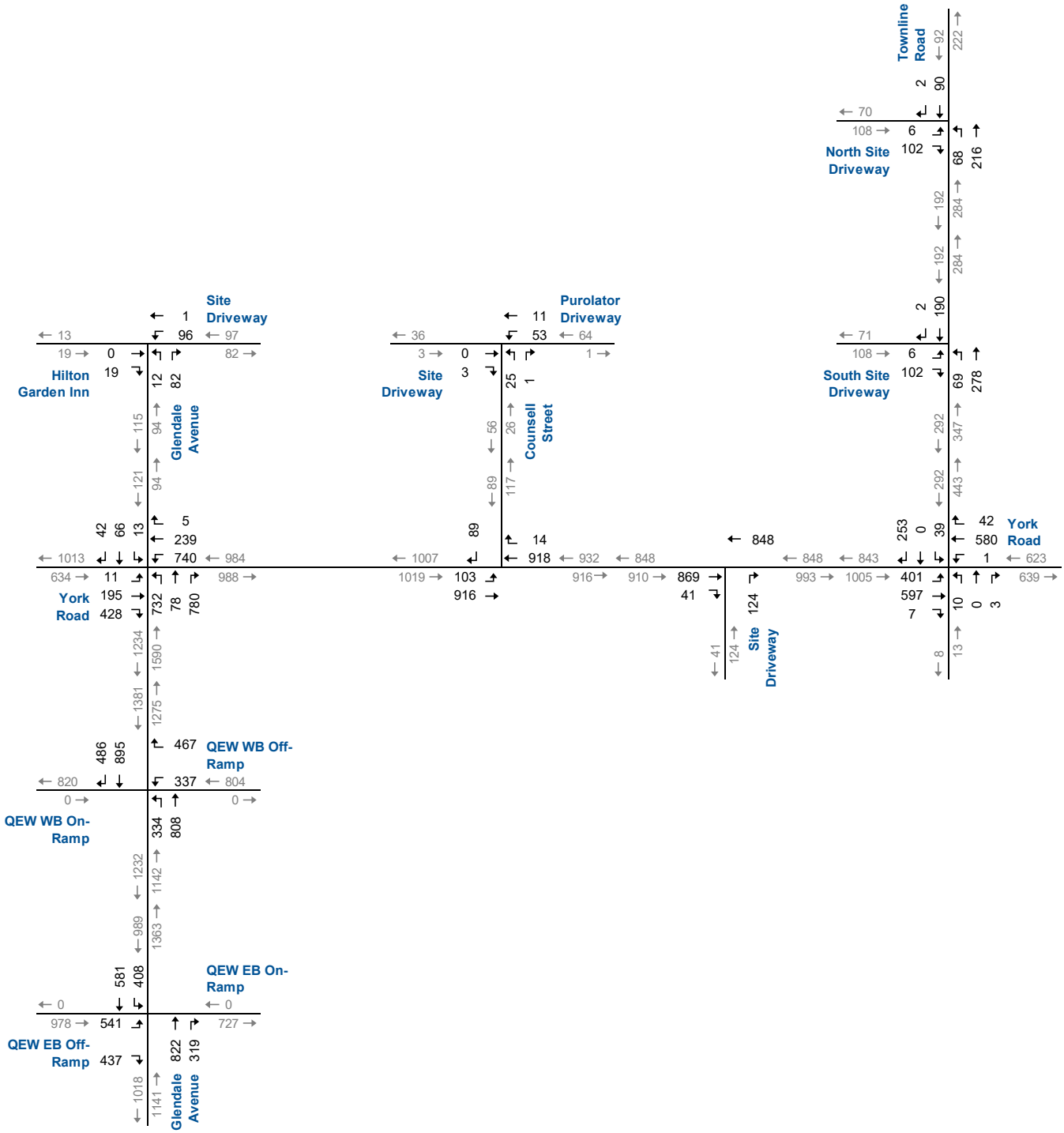
TABLE 5.5: GLENDALE AVENUE SOUTH SIGNALS – SIGNAL TIMING CHANGES

Movement	Period	Green (s)	Amber (s)	Red (s)
NBT	Base	40.0	4.0	4.0
SBT		40.0	4.0	3.0
NBT	Remedial AM	46.0	4.0	4.0
SBT		34.0	4.0	3.0
NBT	Remedial PM	54.0	4.0	4.0
SBT		26.0	4.0	3.0
NBT	Remedial Saturday	54.0	4.0	4.0
SBT		26.0	4.0	3.0

5.3.8 York Road & Site Driveway

Restricting the site driveway to right-in/right-out is recommended to alleviate the critical movements. Under this condition, the northbound movement operates at LOS D during the AM and Saturday peak hours with a maximum delay of 26 seconds. Queueing into the internal drive aisle intersection is also resolved with this restriction.

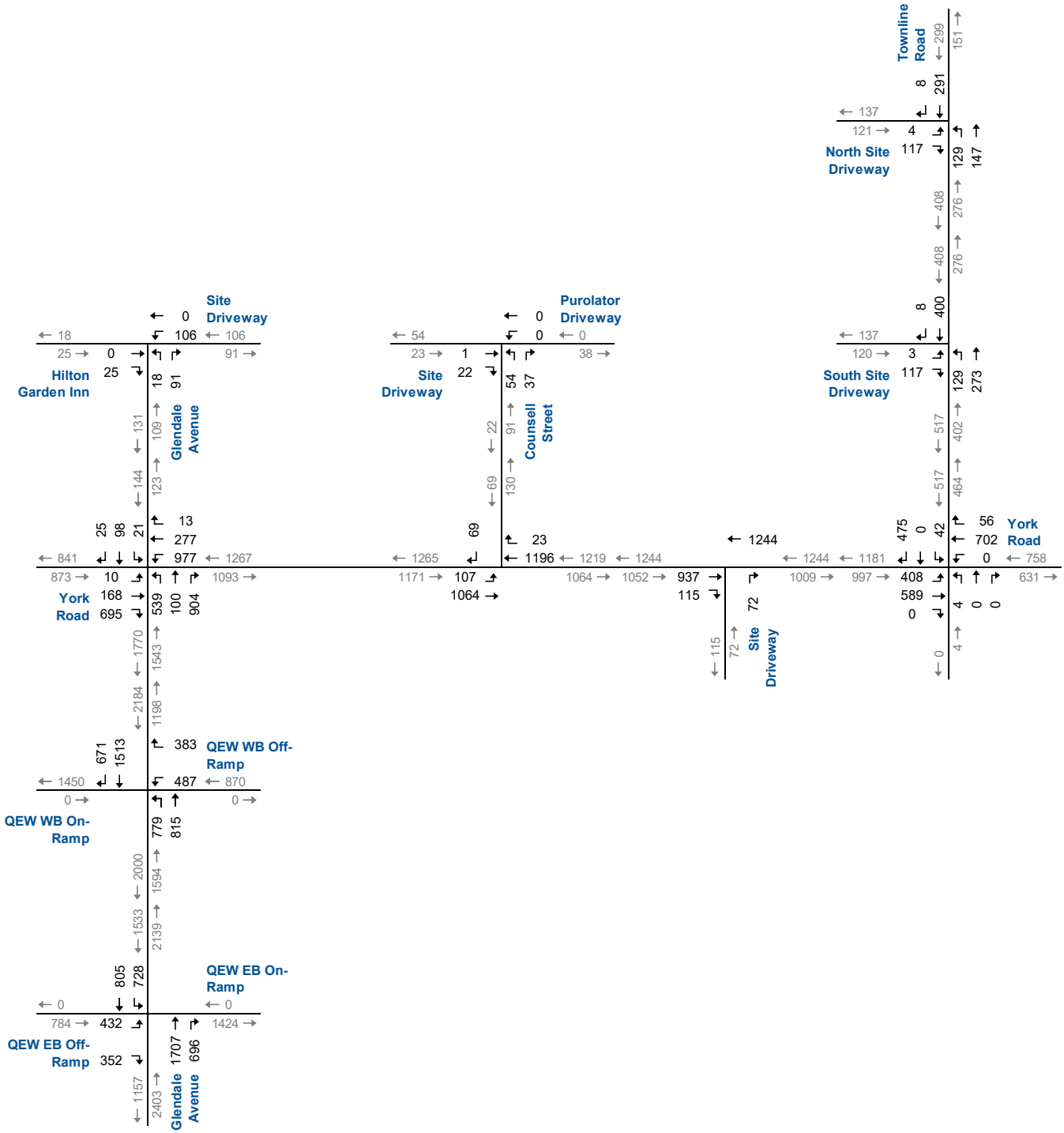
Mainline delays at the site driveway are forecast to remain at acceptable levels of service.



2044 Total Traffic Volumes – Remedial AM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

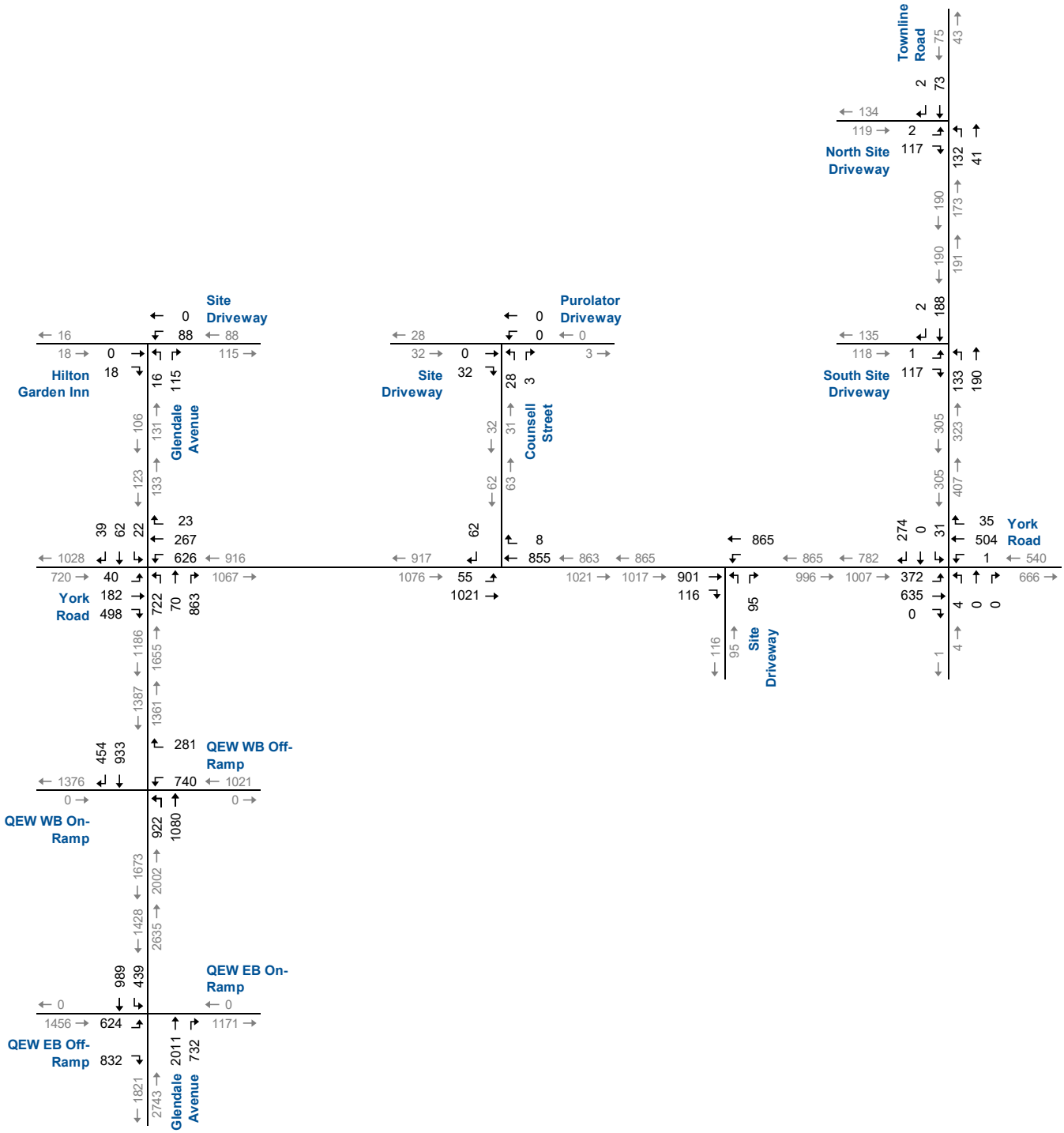
Figure 5.1



2044 Total Traffic Volumes – Remedial PM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

Figure 5.2



2044 Total Traffic Volumes – Remedial Saturday Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

Figure 5.3

TABLE 5.6: REMEDIAL TRAFFIC OPERATIONS – AM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Glendale Avenue & Hilton Garden Inn/Site Driveway	TWSC	LOS Delay V/C Q		A 8 0.02 0	> > > >	**A** **8**	< < < <	A 10 0.12 3		**A** **10**	A 1 0.01 0		> > > >	**A** **1**					**A** **6**
	Counsell Street & Site Driveway/Purolator Driveway	TWSC	LOS Delay V/C Q		A 8 0.00 0	> > > >	**A** **8**	< < < <	A 9 0.08 2		**A** **9**	A 7 0.02 0		> > > >	**A** **7**					**A** **9**
	York Road & Glendale Avenue	RBT	LOS Delay V/C Q	< < < <	A 6 0.27 1	> > > >	**A** **6**	< < < <	A 6 0.62 2	> > > >	**A** **6**	< < < <	B 12 0.72 6	> > > >	**B** **12**	< < < <	D 27 0.46 1	> > > >	**D** **27**	**A** **9**
	York Road & Counsell Street	TWSC	LOS Delay V/C Q Stor. Avail.	B 11 0.16 5 20 15	A 0 0.29 0 - -		**A** **1**		A 0 0.39 0 - -	> > > > > >	**A** **0**							B 14 0.19 6 - -	**B** **14**	**A** **1**
	York Road & Townline Road	RBT	LOS Delay V/C Q	< < < <	C 16 0.83 16	> > > >	**C** **16**	< < < <	A 9 0.63 1	> > > >	**A** **9**	< < < <	A 6 0.02 1	> > > >	**A** **6**	< < < <	A 7 0.35 1	> > > >	**A** **7**	**B** **13**
	Glendale Avenue North Signals & QEW WB Off-Ramp	TCS	LOS Delay V/C Q							C 26 0.74 98			C 21 0.68 119				C 22 0.69 81			**C** **22** **0.65**
	Glendale Avenue SB & QEW WB Off-Ramp	TWSC	LOS Delay V/C Q					D 28 0.72 46			**D** **28**						A 0 0.29 0		**A** **0**	**A** **8**
	Glendale Avenue NB & QEW EB Off-Ramp	TCS	LOS Delay V/C Q	D 41 0.74 54									A 8 0.42 62						**A** **0**	**C** **21** **0.88**
	Glendale Avenue South Signals	TCS	LOS Delay V/C Q										B 12 0.45 72				D 37 0.76 73			**C** **22** **0.3**
	Townline Road & North Site Driveway	TWSC	LOS Delay V/C Q Stor. Avail.	A 10 0.13 4 - -		> > > > > >	**A** **10**					A 8 0.05 1 15 14	A 0 0.14 0 - -		**A** **2**		A 0 0.06 0 - -	> > > > > >	**A** **0**	**A** **3**
	Townline Road & South Site Driveway	TWSC	LOS Delay V/C Q Stor. Avail.	B 10 0.15 4 - -		> > > > > >	**B** **10**					A 8 0.06 1 25 24	A 0 0.18 0 - -		**A** **2**		A 0 0.12 0 - -	> > > > > >	**A** **0**	**A** **3**
	Site Driveway & York Road	TWSC	LOS Delay V/C Q		A 0 0.58 0	> > > >	**A** **0**		A 0 0.54 0		**A** **0**			D 26 0.44 17	**D** **26**					**A** **2**

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement
RBT - Roundabout

TABLE 5.7: REMEDIAL TRAFFIC OPERATIONS – PM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Glendale Avenue & Hilton Garden Inn/Site Driveway	TWSC	LOS Delay V/C Q		A 8 0.02 1	> > > >	**A** **8**	< < < <	A 10 0.14 4		**A** **10**	A 1 0.01 0		> > > >	**A** **1**					**A** **6**
	Counsell Street & Site Driveway/Purolator Driveway	TWSC	LOS Delay V/C Q		A 8 0.02 1	> > > >	**A** **8**	< < < <	A 0 0.00 0		**A** **0**	A 4 0.04 1		> > > >	**A** **4**					**A** **5**
	York Road & Glendale Avenue	RBT	LOS Delay V/C Q	< < < <	A 8 0.29 1	> > > >	**A** **8**	< < < <	A 8 0.74 5	> > > >	**A** **8**	< < < <	A 8 0.57 1	> > > >	**A** **8**	< < < <	E 42 0.67 6	> > > >	**E** **42**	**A** **9**
	York Road & Counsell Street	TWSC	LOS Delay V/C Q Stor. Avail.	B 14 0.22 7 20 13	A 0 0.34 0 - -		**A** **1**		A 0 0.51 0 - -	> > > > > >	**A** **0**							C 16 0.18 5 - -	**C** **16**	**A** **1**
	York Road & Townline Road	RBT	LOS Delay V/C Q	< < < <	C 16 0.82 16	> > > >	**C** **16**	< < < <	B 15 0.76 9	> > > >	**B** **15**	< < < <	A 0 0 1	> > > >	**A** **0**	< < < <	B 12 0.65 2	> > > >	**B** **12**	**B** **15**
	Glendale Avenue North Signals & QEW WB Off-Ramp	TCS	LOS Delay V/C Q							B 13 0.49 70			D 40 0.93 115				C 31 0.95 209			**C** **32** **0.59**
	Glendale Avenue SB & QEW WB Off-Ramp	TWSC	LOS Delay V/C Q					F 356 1.70 265			**F** **356**						A 0 0.48 0		**A** **0**	**F** **86**
	Glendale Avenue NB & QEW EB Off-Ramp	TCS	LOS Delay V/C Q	D 40 0.74 56									B 19 0.88 232						**A** **0**	**C** **23** **1.05**
	Glendale Avenue South Signals	TCS	LOS Delay V/C Q										D 37 0.98 238				D 55 0.96 128			**D** **43** **0.57**
	Townline Road & North Site Driveway	TWSC	LOS Delay V/C Q Stor. Avail.	B 11 0.19 6 - -		> > > > > >	**B** **11**					A 8 0.11 3 15 12	A 0 0.09 0 - -		**A** **4**		A 0 0.19 0 - -	> > > > > >	**A** **0**	**A** **4**
	Townline Road & South Site Driveway	TWSC	LOS Delay V/C Q Stor. Avail.	B 13 0.22 7 - -		> > > > > >	**B** **13**					A 9 0.13 3 25 22	A 0 0.17 0 - -		**A** **3**		A 0 0.26 0 - -	> > > > > >	**A** **0**	**A** **3**
	Site Driveway & York Road	TWSC	LOS Delay V/C Q		A 0 0.67 0	> > > >	**A** **0**		A 0 0.80 0		**A** **0**			C 24 0.29 10	**C** **24**					**A** **1**

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement
RBT - Roundabout

TABLE 5.8: REMEDIAL TRAFFIC OPERATIONS – SATURDAY PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
Saturday Peak Hour	Glendale Avenue & Hilton Garden Inn/Site Driveway	TWSC	LOS Delay V/C Q		A 8 0.02 0	> > > >	**A** **8**	< < < <	A 10 0.11 3		**A** **10**	A 1 0.01 0		> > > >	**A** **1**					**A** **5**
	Counsell Street & Site Driveway/Purolator Driveway	TWSC	LOS Delay V/C Q		A 8 0.03 1	> > > >	**A** **8**	< < < <	A 0 0.00 0		**A** **0**	A 7 0.02 0		> > > >	**A** **7**					**A** **8**
	York Road & Glendale Avenue	RBT	LOS Delay V/C Q	< < < <	A 5 0.26 1	> > > >	**A** **5**	< < < <	A 5 0.58 1	> > > >	**A** **5**	< < < <	B 10 0.72 5	> > > >	**B** **10**	< < < <	C 17 0.39 1	> > > >	**C** **17**	**A** **8**
	York Road & Counsell Street	TWSC	LOS Delay V/C Q Stor. Avail.	B 10 0.08 2 20 18	A 0 0.33 0 - -		**A** **0**		A 0 0.36 0 - -	> > > > > >	**A** **0**							B 12 0.12 3 - -	**B** **12**	**A** **1**
	York Road & Townline Road	RBT	LOS Delay V/C Q	< < < <	C 16 0.83 15	> > > >	**C** **16**	< < < <	B 7 0.53 1	> > > >	**B** **7**	< < < <	A 0 0 1	> > > >	**A** **0**	< < < <	B 6 0.34 1	> > > >	**B** **6**	**B** **11**
	Glendale Avenue North Signals & QEW WB Off-Ramp	TCS	LOS Delay V/C Q							C 23 0.52 68			B 20 0.80 69				C 31 0.84 116			**C** **25** **0.6**
	Glendale Avenue SB & QEW WB Off-Ramp	TWSC	LOS Delay V/C Q					F 311 1.62 362			**F** **311**						A 0 0.30 0		**A** **0**	**F** **138**
	Glendale Avenue NB & QEW EB Off-Ramp	TCS	LOS Delay V/C Q	D 43 0.85 82									F 85 1.13 312						**A** **0**	**E** **75** **1.51**
	Glendale Avenue South Signals	TCS	LOS Delay V/C Q										F 97 1.16 308				F 127 1.18 173			**F** **107** **0.66**
	Townline Road & North Site Driveway	TWSC	LOS Delay V/C Q Stor. Avail.	A 9 0.13 4 - -		> > > > > >	**A** **9**					A 8 0.09 2 15 13	A 0 0.03 0 - -		**A** **6**		A 0 0.05 0 - -	> > > > > >	**A** **0**	**A** **6**
	Townline Road & South Site Driveway	TWSC	LOS Delay V/C Q Stor. Avail.	B 10 0.15 4 - -		> > > > > >	**B** **10**					A 8 0.11 3 25 22	A 0 0.12 0 - -		**A** **3**		A 0 0.12 0 - -	> > > > > >	**A** **0**	**A** **4**
	Site Driveway & York Road	TWSC	LOS Delay V/C Q		A 0 0.65 0	> > > >	**A** **0**		A 0 0.55 0		**A** **0**			D 25 0.37 13	**D** **25**					**A** **1**

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LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement
RBT - Roundabout

6 524 York Road Impacts

The Ministry of Transportation Ontario has released a guideline called "A Guideline for Highway Improvements Associated with Development[18]" to clarify who is responsible for making roadway improvements when land use development requires it. This guide outlines the steps municipalities and stakeholders must follow when constructing improvements to a roadway, whether directly or indirectly. Although this guide is primarily intended for roads under Provincial jurisdiction, it provides valuable insight into the responsibilities involved in these projects.

6.1 Primary Impacts

Section 3A of the guideline outlines the following:

> *"Where a proposed Development will gain access to a provincial highway either directly by private entrance or by a new municipal road, the Proponent is responsible (financially or otherwise) for all warranted Highway Improvements, identified in the approved Traffic Impact Study. The Proponent is also responsible for any Highway Improvements that are not required immediately but that have been identified as being warranted in the future as a result of the Development. Any such future Highway Improvements are the responsibility (financially or otherwise) of the Proponent and must be addressed to MTO's satisfaction before MTO permits will be issued."*

Based on the above, the Applicant will be responsible for the costs related to restricting Council Street at York Road to right out only should the Region and Town agree to move ahead with this recommendation. This would likely entail extending the existing median along York Road and creating a delta island for the north leg along Council Street to restrict southbound vehicles from performing a left movement.

[18] A Guideline for Highway Improvements Associated with Development, MTO, May 2005.

6.2 Secondary Impacts

Section 3C of the guideline outlines the following:

> *"Based upon MTO's review of a Proponent's Traffic Impact Study, it identifies a warrant for Highway Improvements based on existing and/or projected background traffic volumes. The Proponent would be responsible (financially or otherwise) for any additional Highway Improvements required over and above the existing and/or projected background traffic volumes, in order to accommodate the proposed Development traffic."*

The Guideline is clear: the applicant shall only be responsible for the Highway Improvements over and above the existing and/or projected background traffic volumes.

The analysis provided herein has also determined that several improvements are required at the study area intersections because of cumulative background developments. As the study area roadways are projected to have significant growth unrelated to the proposed development, it is difficult to identify what specific improvements the development would trigger (if any) at these congested intersections.

As the Applicant is looking to develop in the relatively short term, the uncertainty of site-specific developments proposed for the area provides uncertainty, given that the various proposals could not materialize as envisioned or ever. As a result, an additional scenario has been reviewed that isolates the direct impacts of the build-out of 524 York Road (Phase 2) solely and consists of traffic estimates comprised of base year traffic grown to year 2040 through the use of a 2% per annum growth rate plus development traffic. This would represent 10 years after full-build out. **Appendix N** contains the isolated projections.

Based on a review of the isolated projections, the operations with and without the build-out of 524 York Road (Phase 2) are similar, as no new critical movements are identified and does not trigger the need for any improvements to the study area intersections.

7 Conclusions and Recommendations

7.1 Conclusions

The main findings and conclusions of this study are as follows:

- **Existing Traffic Operations:** During the AM and PM peak hours at York Road and Townline Road intersections, the northbound movement is expected to operate in the LOS D to LOS E range. In the Saturday peak hour, the westbound QEW Off-Ramp and eastbound QEW Off-Ramp movements operate at critical v/c ratios.
- **253 Taylor Road Site Generated Traffic:** Phase 1 is forecast to generate approximately 105, 125, and 140 new vehicle trips during the AM, PM, and Saturday peak hours, respectively. Upon full build-out, the site is estimated to generate 253 AM peak hour trips, 333 PM peak hour trips, and 365 Saturday peak hour trips.
- **524 York Road – Phase 2 Site Generated Traffic:** The subject site is forecast to generate approximately 153, 82, and 216 new vehicle trips during the AM, PM, and Saturday peak hours, respectively.
- **524 York Road – Parcel 6 Site Generated Traffic:** Phase 1 is forecast to generate approximately 170, 273, and 293 new vehicle trips during the AM, PM, and Saturday peak hours, respectively. Phase 2 is forecast to generate approximately 292, 397, and 400 new vehicle trips during the AM, PM, and Saturday peak hours, respectively. Phase 3 is forecast to generate approximately 65, 118, and 106 new vehicle trips during the AM, PM, and Saturday peak hours. Upon full build-out, the parcel is forecast to generate approximately 357, 515, and 506 new vehicle trips during the AM, PM, and Saturday peak hours, respectively.
- **524 York Road – Parcel 6 Site Generated Traffic:** Phase 2 is forecast to generate approximately 99, 118, and 140 new vehicle trips during the AM, PM, and Saturday peak hours, respectively. Phase 3 is forecast to generate approximately 66, 69, and 71 new vehicle trips during the AM, PM, and Saturday peak hours. Upon full build-out, the parcel is forecast to generate approximately 165, 187, and 211 new vehicle trips during the AM, PM, and Saturday peak hours, respectively.
- **Background Traffic Operations:** Accounting for background growth, the critical movements identified in the existing traffic horizon are forecast to further degrade with the anticipated

increase in non-site related traffic. Additional new critical movements are noted at the York Road and Glendale Avenue, York Road and Townline Road, Glendale Avenue North Signals and QEW Westbound Off-Ramp, Glendale Avenue (Southbound) and QEW Westbound Off-Ramp, Glendale Avenue (Northbound) and QEW Eastbound Off-Ramp, and Glendale Avenue South Signals intersections.

- **Total Traffic Operations:** With site-generated traffic, additional critical movements are noted at the York Road, Counsell Street Townline Road and South Site Driveway intersections.
- **Traffic Signal Control:** Traffic signals at York and Townline Road are warranted under 2044 Total Traffic conditions. Traffic signals are not warranted at any intersection in any other study area.
- **Auxiliary Turn Lanes:** Left turn lanes are warranted at the south site driveway and north site driveway on Townline Road under 2032 and 2039 conditions, respectively. The northbound left-turn lanes are recommended to provide a minimum of 25 metres for the intersection with the south site driveway and 15 metres for the intersection with the north site driveway to accommodate the forecast future traffic volumes based upon reported operations. Implementing a two-way left-turn lane would satisfy both storage requirements. An eastbound left turn lane is warranted under base year conditions on York Road at Townline Road. A left-turn lane is recommended if the preferred remedial measure of a roundabout is not implemented at this intersection.
- **Intersection Improvements:** The following intersection improvements are recommended to remediate the noted critical movements:
  - **York Road and Glendale Avenue:** Add a two-lane east leg to the existing roundabout under 2030 conditions.
  - **York Road and Counsell Street:** Restrict the southbound movement to right out only in 2034.
  - **York Road and Townline Road:** Convert the stop-controlled intersection to a roundabout under 2030 conditions.
  - **Glendale Avenue North Signals and QEW Westbound Off-Ramp:** Monitor traffic and adjust signal timing splits to reflect real-world changes in traffic volumes

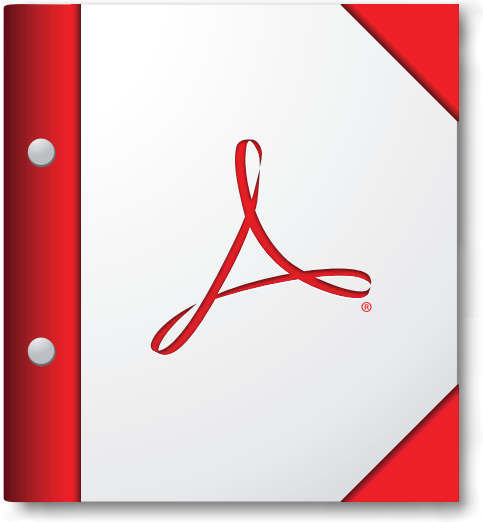
- **Glendale Avenue (Southbound) and QEW Westbound Off-Ramp:** Continue to monitor traffic volumes to determine if improvements to the traffic control are necessary.
- **Glendale Avenue (Northbound) and QEW Eastbound Off-Ramp:** Implementing an additional eastbound turning lane and converting the stop-controlled off-ramp to signal control is recommended under base-year conditions.
- **Glendale Avenue North Signals:** Monitor traffic and adjust signal timing splits to reflect real-world changes in traffic volumes.
- **York Road & Site Driveway:** Restrict the northbound site driveway to right-in/right-out.

7.2 Recommendations

- The Town of Niagara-on-the-Lake implement the active transportation and transit facilities identified within the *Glendale Secondary Plan*;
- Changes in real-world traffic volumes should be monitored, and
- The noted intersection improvements should be implemented to facilitate the developments.

Appendix A

Pre-Study Consultation



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Appendix B

Traffic Data

Glendale Ave @ Hotel Driveways

Morning Peak Diagram

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

One Hour Peak
From: 8:00:00
To: 9:00:00

Municipality: Niagara on the Lake
Site #: 0000000004
Intersection: Glendale Ave & Driveways
TFR File #: 4
Count date: 14-Nov-2024

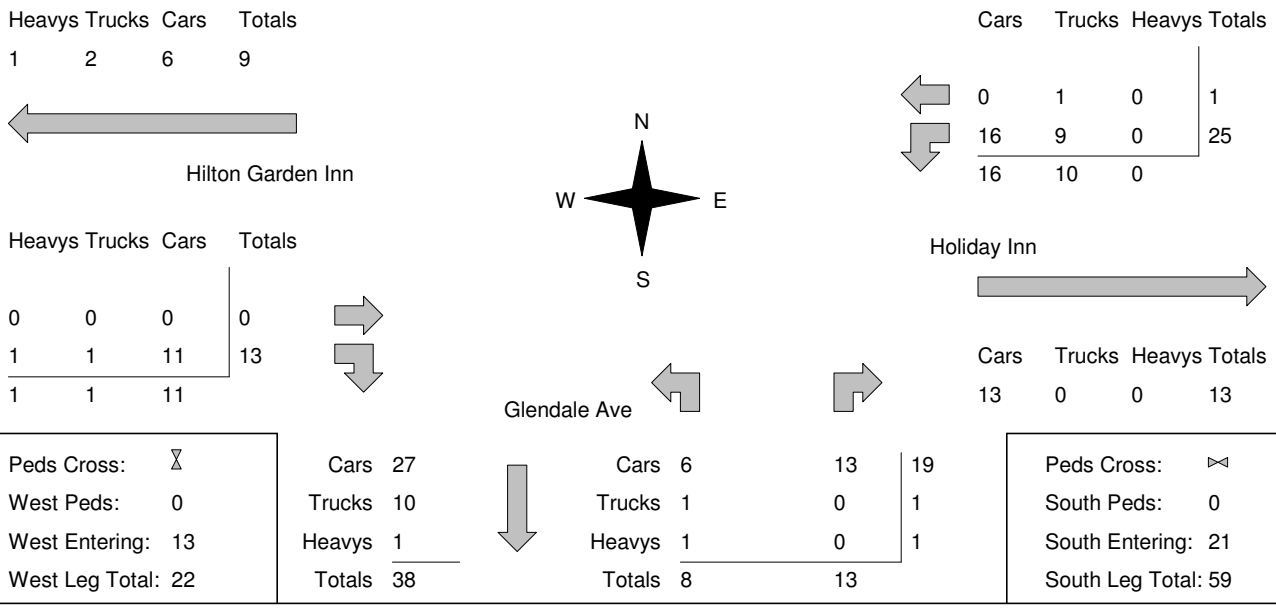
Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: Glendale Ave runs N/S

East Leg Total: 39
East Entering: 26
East Peds: 0
Peds Cross:



Peds Cross:
West Peds: 0
West Entering: 13
West Leg Total: 22

Cars 27
Trucks 10
Heavys 1
Totals 38

Cars 6 13 19
Trucks 1 0 1
Heavys 1 0 1
Totals 8 13

Peds Cross:
South Peds: 0
South Entering: 21
South Leg Total: 59

Comments

Glendale Ave @ Hotel Driveways

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 11:15:00
To: 12:15:00

Municipality: Niagara on the Lake
Site #: 0000000004
Intersection: Glendale Ave & Driveways
TFR File #: 4
Count date: 14-Nov-2024

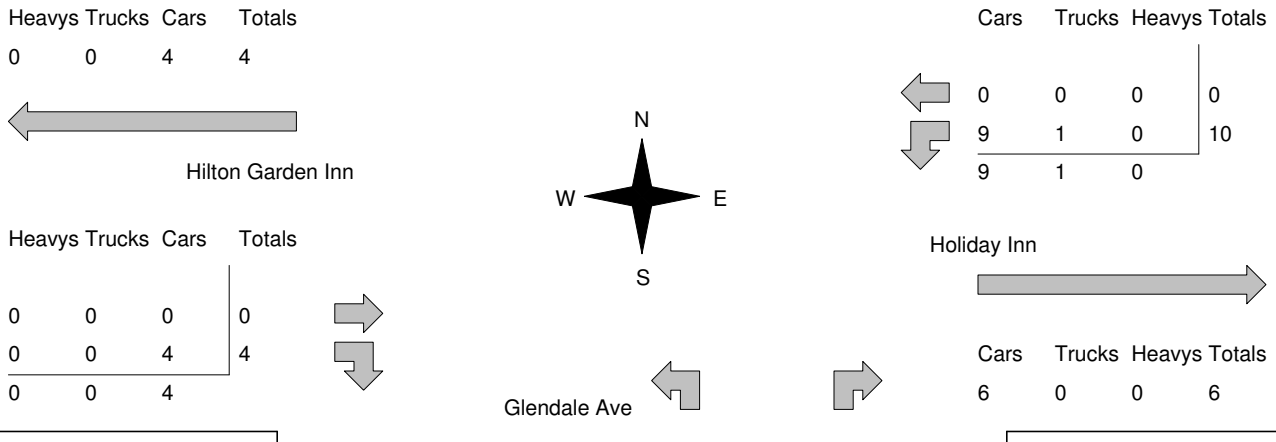
Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: Glendale Ave runs N/S

East Leg Total: 16
East Entering: 10
East Peds: 0
Peds Cross:



Peds Cross:
West Peds: 0
West Entering: 4
West Leg Total: 8

Cars 13
Trucks 1
Heavys 0
Totals 14

Cars 4 6 10
Trucks 0 0 0
Heavys 0 0 0
Totals 4 6

Peds Cross:
South Peds: 0
South Entering: 10
South Leg Total: 24

Comments

Glendale Ave @ Hotel Driveways

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:30:00
To: 16:30:00

Municipality: Niagara on the Lake
Site #: 0000000004
Intersection: Glendale Ave & Driveways
TFR File #: 4
Count date: 14-Nov-2024

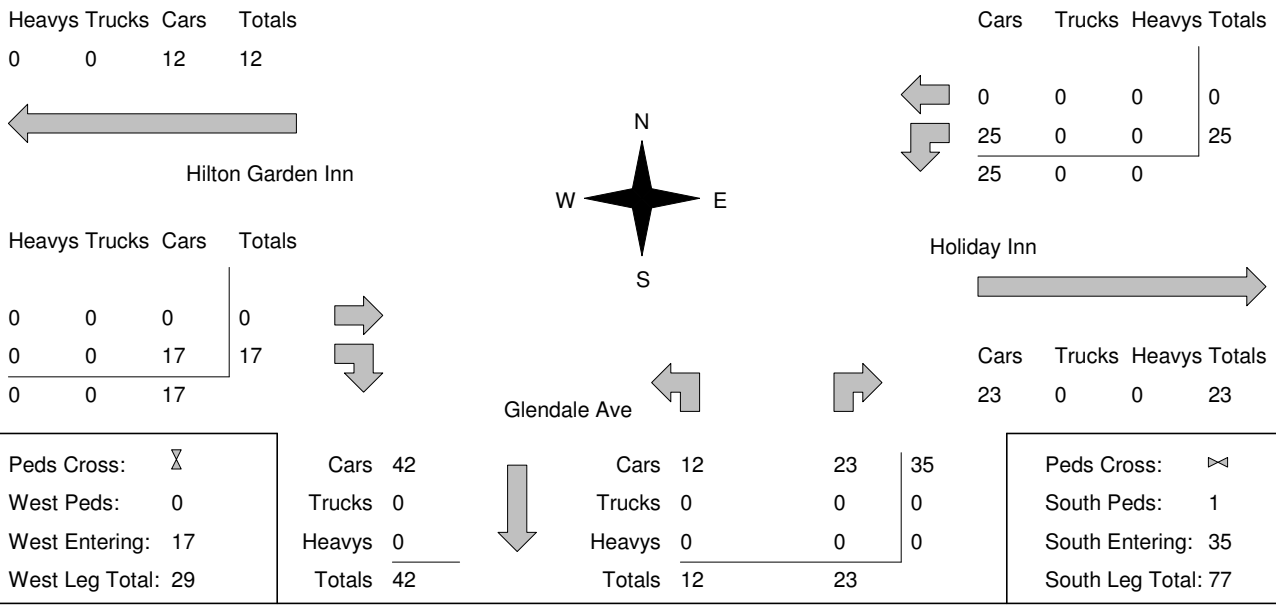
Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: Glendale Ave runs N/S

East Leg Total: 48
East Entering: 25
East Peds: 0
Peds Cross:



Peds Cross:
West Peds: 0
West Entering: 17
West Leg Total: 29

Cars 42
Trucks 0
Heavys 0
Totals 42

Cars 12 23 35
Trucks 0 0 0
Heavys 0 0 0
Totals 12 23

Peds Cross:
South Peds: 1
South Entering: 35
South Leg Total: 77

Comments

Glendale Ave @ Hotel Driveways

Total Count Diagram

Municipality: Niagara on the Lake
Site #: 0000000004
Intersection: Glendale Ave & Driveways
TFR File #: 4
Count date: 14-Nov-2024

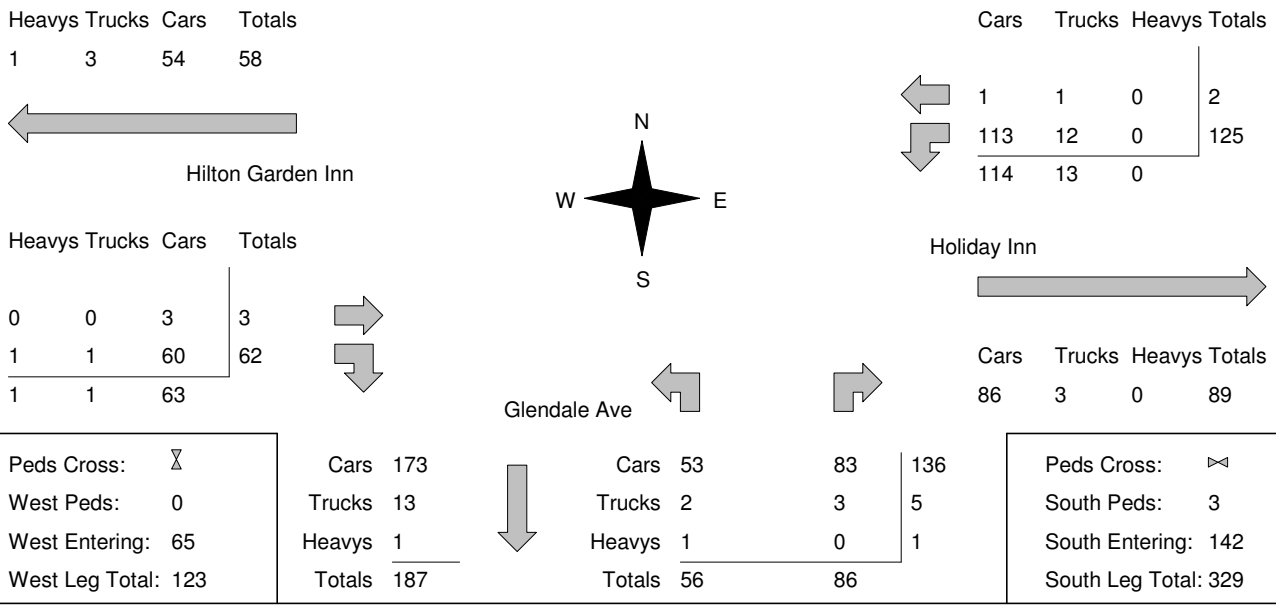
Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: Glendale Ave runs N/S

East Leg Total: 216
East Entering: 127
East Peds: 0
Peds Cross:



Peds Cross:
West Peds: 0
West Entering: 65
West Leg Total: 123

Cars 173
Trucks 13
Heavys 1
Totals 187

Cars 53 83 136
Trucks 2 3 5
Heavys 1 0 1
Totals 56 86

Peds Cross:
South Peds: 3
South Entering: 142
South Leg Total: 329

Comments

Counsell St @ Hotel Driveway

Morning Peak Diagram

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

One Hour Peak
From: 8:00:00
To: 9:00:00

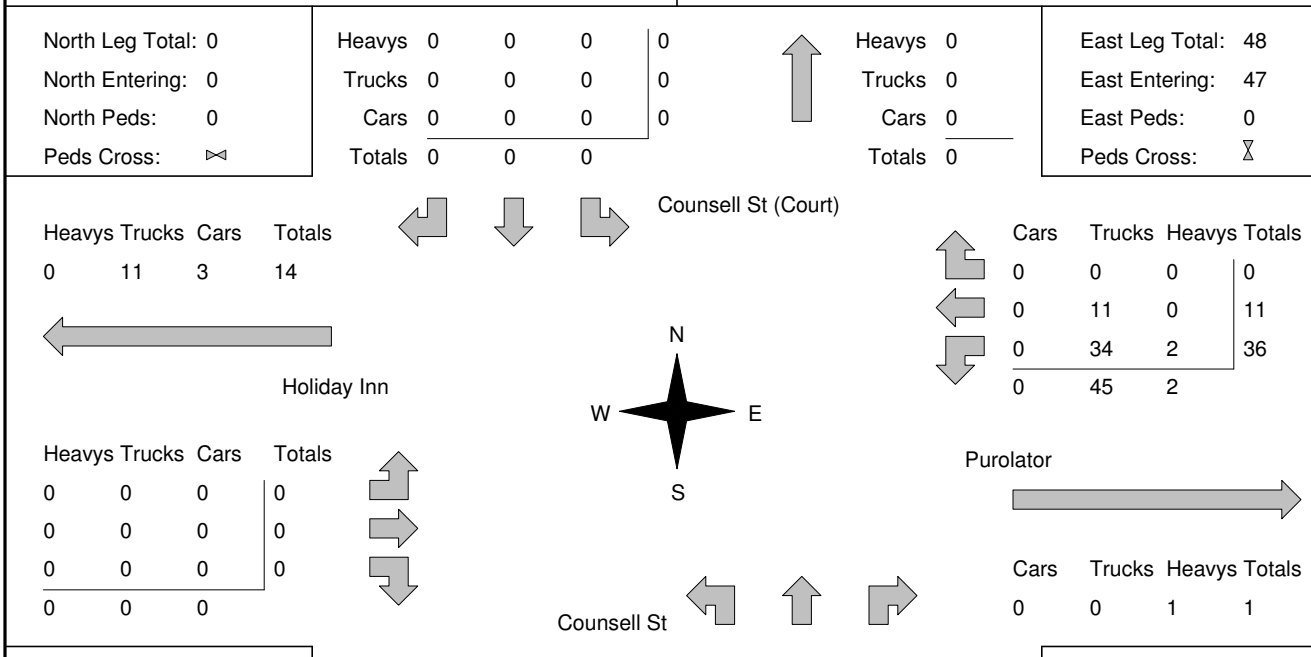
Municipality: Niagara on the Lake
Site #: 0000000005
Intersection: Counsell St & Driveways
TFR File #: 5
Count date: 14-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: Counsell St runs N/S



Comments

Counsell St @ Hotel Driveway

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:00:00
To: 13:00:00

Municipality: Niagara on the Lake
Site #: 0000000005
Intersection: Counsell St & Driveways
TFR File #: 5
Count date: 14-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

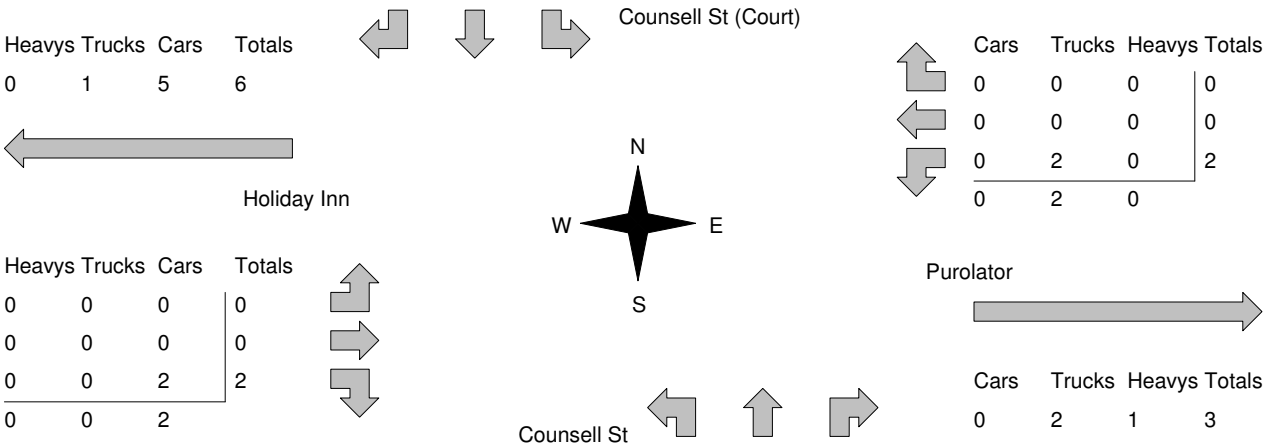
Major Road: Counsell St runs N/S

North Leg Total: 4
North Entering: 2
North Peds: 0
Peds Cross: ⋈

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	0	2	0	2
Totals	0	2	0	

Heavys	0
Trucks	0
Cars	2
Totals	2

East Leg Total: 5
East Entering: 2
East Peds: 0
Peds Cross: ⧖



Heavys	Trucks	Cars	Totals
0	1	5	6

Cars	Trucks	Heavys	Totals
0	0	0	0
0	0	0	0
0	2	0	2
0	2	0	

Heavys	Trucks	Cars	Totals
0	0	0	0
0	0	0	0
0	0	2	2
0	0	2	

Cars	Trucks	Heavys	Totals
0	2	1	3

Peds Cross: ⧖
West Peds: 0
West Entering: 2
West Leg Total: 8

Cars	4
Trucks	2
Heavys	0
Totals	6

Cars	5	2	0	7
Trucks	1	0	2	3
Heavys	0	0	1	1
Totals	6	2	3	

Peds Cross: ⋈
South Peds: 0
South Entering: 11
South Leg Total: 17

Comments

Counsell St @ Hotel Driveway

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

Municipality: Niagara on the Lake
Site #: 0000000005
Intersection: Counsell St & Driveways
TFR File #: 5
Count date: 14-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: Counsell St runs N/S

North Leg Total: 4
North Entering: 2
North Peds: 0
Peds Cross: ⋈

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	1	1	0	2
Totals	1	1	0	

Heavys	0
Trucks	0
Cars	2
Totals	2

East Leg Total: 26
East Entering: 0
East Peds: 0
Peds Cross: ⧖

Counsell St (Court)

Heavys	Trucks	Cars	Totals
0	0	9	9

Holiday Inn

Heavys	Trucks	Cars	Totals
0	0	0	0
0	0	1	1
0	0	6	6
0	0	7	

Cars	Trucks	Heavys	Totals
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	

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Purolator

Cars	Trucks	Heavys	Totals
1	24	1	26

Counsell St

Peds Cross: ⧖
West Peds: 0
West Entering: 7
West Leg Total: 16

Cars	7
Trucks	0
Heavys	0
Totals	7

Cars	8	2	0	10
Trucks	0	0	24	24
Heavys	0	0	1	1
Totals	8	2	25	

Peds Cross: ⋈
South Peds: 0
South Entering: 35
South Leg Total: 42

Comments

Counsell St @ Hotel Driveway

Total Count Diagram

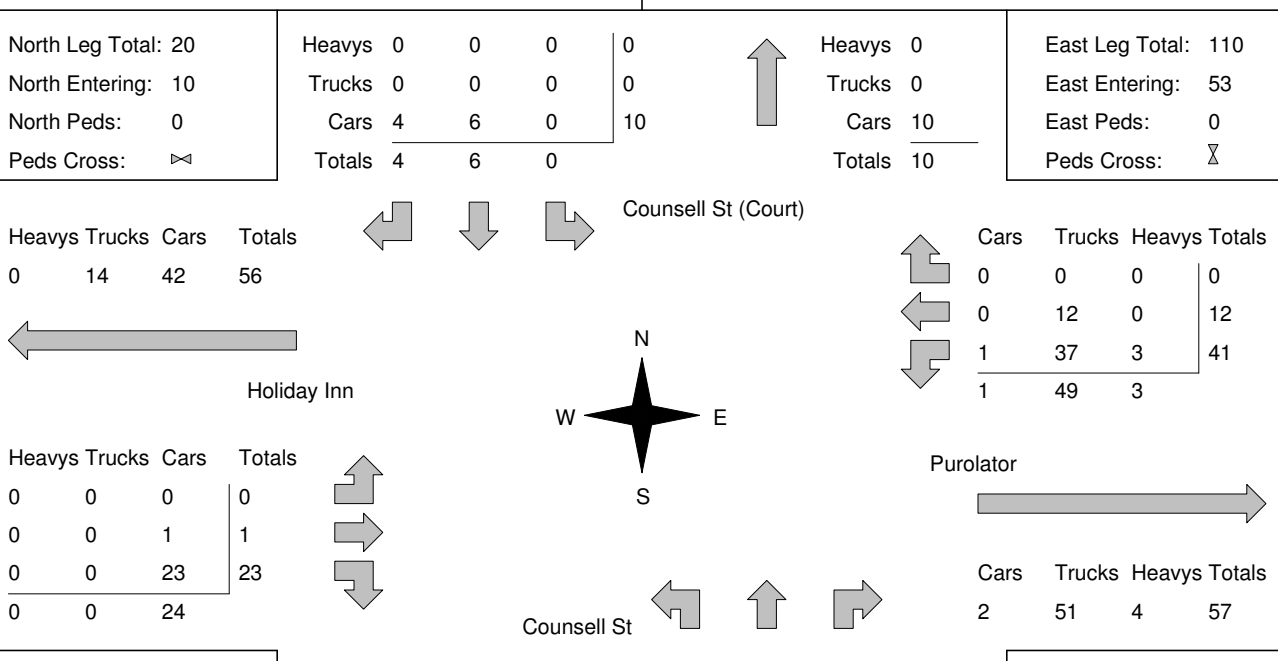
Municipality: Niagara on the Lake
Site #: 0000000005
Intersection: Counsell St & Driveways
TFR File #: 5
Count date: 14-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: Counsell St runs N/S



Comments

Glendale Ave @ York Rd

Morning Peak Diagram

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

One Hour Peak
From: 7:45:00
To: 8:45:00

Municipality: Niagara on the Lake
Site #: 0000000001
Intersection: York Rd & Glendale Ave
TFR File #: 1
Count date: 14-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: York Rd runs W/E

North Leg Total:	53			
North Entering:	36			
North Peds:	1			
Peds Cross:	⋈			
Heavys	0	0	0	0
Trucks	2	4	1	7
Cars	11	16	2	29
Totals	13	20	3	
Heavys	0			
Trucks	1			
Cars	16			
Totals	17			
East Leg Total:	1021			
East Entering:	471			
East Peds:	0			
Peds Cross:	⧖			

Glendale Ave

Heavys	Trucks	Cars	Totals
52	15	558	625

Cars	Trucks	Heavys	Totals
1	0	0	1
116	4	3	123
288	32	27	347
405	36	30	

York Rd

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	2	2
4	1	101	106
30	10	247	287
34	11	350	

York Rd

Cars	Trucks	Heavys	Totals
502	13	35	550

Glendale Ave

Peds Cross:	⧖			
West Peds:	2			
West Entering:	395			
West Leg Total:	1020			
Cars	551			
Trucks	46			
Heavys	57			
Totals	654			
Cars	431	13	399	843
Trucks	9	1	11	21
Heavys	49	0	31	80
Totals	489	14	441	
Peds Cross:	⋈			
South Peds:	0			
South Entering:	944			
South Leg Total:	1598			

Comments

Glendale Ave @ York Rd

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 11:45:00
To: 12:45:00

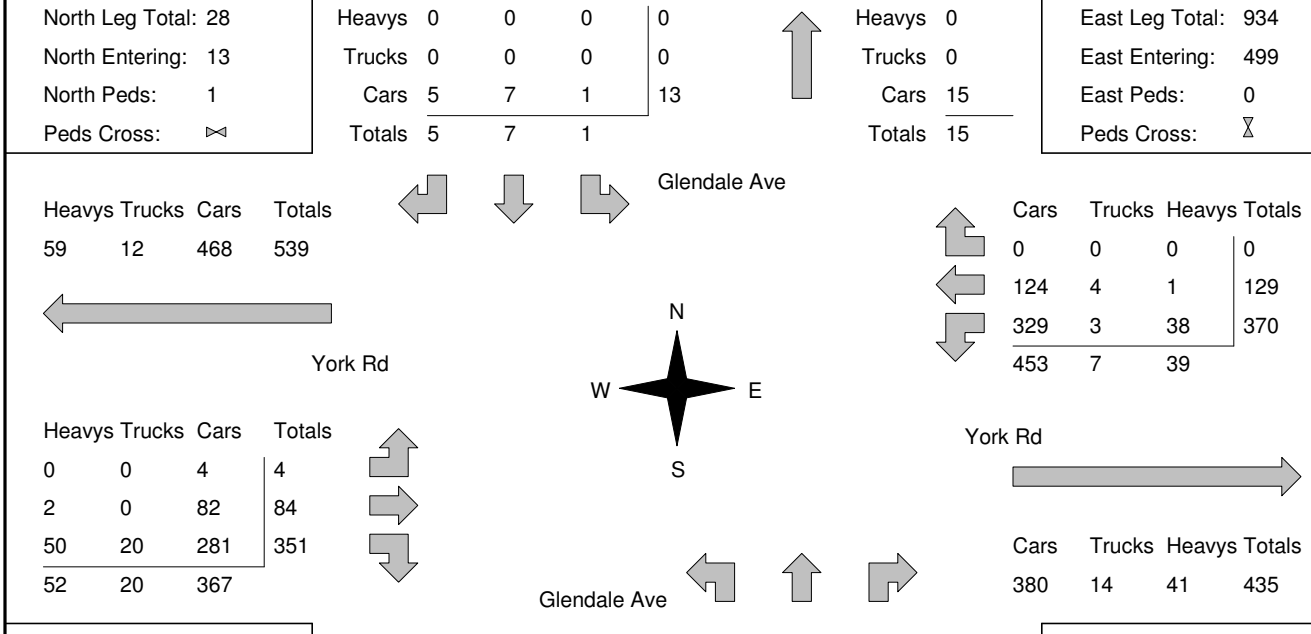
Municipality: Niagara on the Lake
Site #: 0000000001
Intersection: York Rd & Glendale Ave
TFR File #: 1
Count date: 14-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: York Rd runs W/E



Comments

Glendale Ave @ York Rd

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

Municipality: Niagara on the Lake
Site #: 0000000001
Intersection: York Rd & Glendale Ave
TFR File #: 1
Count date: 14-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: York Rd runs W/E

North Leg Total:	79			
North Entering:	42			
North Peds:	4			
Peds Cross:	⋈			
Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	8	32	2	42
Totals	8	32	2	
Heavys	0			
Trucks	1			
Cars	36			
Totals	37			
East Leg Total:	1136			
East Entering:	639			
East Peds:	1			
Peds Cross:	⧖			

Glendale Ave

Heavys	Trucks	Cars	Totals
51	9	460	520

Cars	Trucks	Heavys	Totals
4	0	0	4
140	6	6	152
460	4	19	483
604	10	25	

York Rd

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	3	3
1	3	62	66
35	10	420	465
36	13	485	

York Rd

Cars	Trucks	Heavys	Totals
409	28	60	497

Glendale Ave

Peds Cross:	⧖			
West Peds:	4			
West Entering:	534			
West Leg Total:	1054			
Cars	912			
Trucks	14			
Heavys	54			
Totals	980			
Cars	312	29	345	686
Trucks	3	1	25	29
Heavys	45	0	59	104
Totals	360	30	429	
Peds Cross:	⋈			
South Peds:	0			
South Entering:	819			
South Leg Total:	1799			

Comments

Glendale Ave @ York Rd

Total Count Diagram

Municipality: Niagara on the Lake
Site #: 0000000001
Intersection: York Rd & Glendale Ave
TFR File #: 1
Count date: 14-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: York Rd runs W/E

North Leg Total:	366
North Entering:	197
North Peds:	7
Peds Cross:	⋈

Heavys	0	1	0	1
Trucks	5	7	1	13
Cars	53	119	11	183
Totals	58	127	12	

Heavys	0	
Trucks	5	
Cars	164	
Totals	169	

East Leg Total:	7469
East Entering:	3884
East Peds:	2
Peds Cross:	⧖

Glendale Ave

Heavys	Trucks	Cars	Totals
404	97	3711	4212

Cars	Trucks	Heavys	Totals
17	1	0	18
1025	31	36	1092
2469	79	226	2774
3511	111	262	

York Rd

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	22	22
19	12	612	643
317	78	2382	2777
336	90	3016	

York Rd

Cars	Trucks	Heavys	Totals
3165	116	304	3585

Glendale Ave

Peds Cross:	⧖
West Peds:	18
West Entering:	3442
West Leg Total:	7654

Cars	4970			
Trucks	164			
Heavys	544			
Totals	5678			

Cars	2633	125	2542	5300
Trucks	61	4	103	168
Heavys	368	0	285	653
Totals	3062	129	2930	

Peds Cross:	⋈
South Peds:	0
South Entering:	6121
South Leg Total:	11799

Comments

York Rd @ Counsell St

Morning Peak Diagram

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

One Hour Peak
From: 7:45:00
To: 8:45:00

Municipality: Niagara on the Lake
Site #: 0000000002
Intersection: York Rd & Counsell St
TFR File #: 2
Count date: 14-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

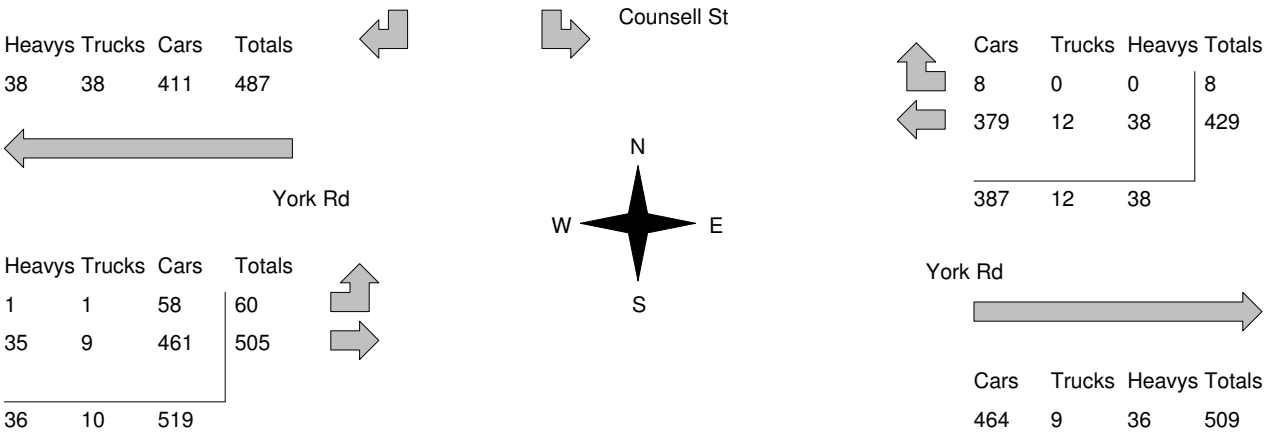
Major Road: York Rd runs W/E

North Leg Total: 130
North Entering: 62
North Peds: 0
Peds Cross: ⋈

Heavys	0	1	1
Trucks	26	0	26
Cars	32	3	35
Totals	58	4	

Heavys	1
Trucks	1
Cars	66
Totals	68

East Leg Total: 946
East Entering: 437
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 565
West Leg Total: 1052

Comments

York Rd @ Counsell St

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 11:45:00
To: 12:45:00

Municipality: Niagara on the Lake
Site #: 0000000002
Intersection: York Rd & Counsell St
TFR File #: 2
Count date: 14-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: York Rd runs W/E

North Leg Total: 70
North Entering: 35
North Peds: 0
Peds Cross: ⋈

Heavys	0	0	0
Trucks	0	1	1
Cars	31	3	34
Totals	31	4	

Heavys	0
Trucks	2
Cars	33
Totals	35

East Leg Total: 893
East Entering: 466
East Peds: 0
Peds Cross: ⧖

Counsell St

Heavys	Trucks	Cars	Totals
39	5	443	487

Cars	Trucks	Heavys	Totals
9	1	0	10
412	5	39	456
421	6	39	

York Rd

N
W E
S

Heavys	Trucks	Cars	Totals
0	1	24	25
38	14	371	423
38	15	395	

York Rd

Cars	Trucks	Heavys	Totals
374	15	38	427

Peds Cross: ⧖
West Peds: 0
West Entering: 448
West Leg Total: 935

Comments

York Rd @ Counsell St

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:15:00
To: 16:15:00

Municipality: Niagara on the Lake
Site #: 0000000002
Intersection: York Rd & Counsell St
TFR File #: 2
Count date: 14-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: York Rd runs W/E

North Leg Total: 114
North Entering: 46
North Peds: 1
Peds Cross: ⋈

Heavys	0	0	0
Trucks	1	0	1
Cars	37	8	45
Totals	38	8	

Heavys	1
Trucks	24
Cars	43
Totals	68

East Leg Total: 1097
East Entering: 612
East Peds: 0
Peds Cross: ⧖

Counsell St

Heavys	Trucks	Cars	Totals
39	8	591	638

Cars	Trucks	Heavys	Totals
9	3	0	12
554	7	39	600
563	10	39	

York Rd

N
W E
S

Heavys	Trucks	Cars	Totals
1	21	34	56
53	7	417	477
54	28	451	

York Rd

Cars	Trucks	Heavys	Totals
425	7	53	485

Peds Cross: ⧖
West Peds: 0
West Entering: 533
West Leg Total: 1171

Comments

York Rd @ Counsell St

Total Count Diagram

Municipality: Niagara on the Lake
Site #: 0000000002
Intersection: York Rd & Counsell St
TFR File #: 2
Count date: 14-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: York Rd runs W/E

North Leg Total:	654		
North Entering:	306		
North Peds:	2		
Peds Cross:	⋈		

Heavys	3	1	4
Trucks	37	1	38
Cars	229	35	264
Totals	269	37	

Heavys	7		
Trucks	51		
Cars	290		
Totals	348		

East Leg Total:	7092
East Entering:	3653
East Peds:	0
Peds Cross:	⧖

Counsell St

Heavys	Trucks	Cars	Totals
286	95	3471	3852

Cars	Trucks	Heavys	Totals
62	8	0	70
3242	58	283	3583
3304	66	283	

York Rd

N
W E
S

Heavys	Trucks	Cars	Totals
7	43	228	278
298	61	3043	3402
305	104	3271	

York Rd

Cars	Trucks	Heavys	Totals
3078	62	299	3439

Peds Cross:	⧖
West Peds:	0
West Entering:	3680
West Leg Total:	7532

Comments

York Rd @ Townline Rd

Morning Peak Diagram

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

One Hour Peak
From: 7:45:00
To: 8:45:00

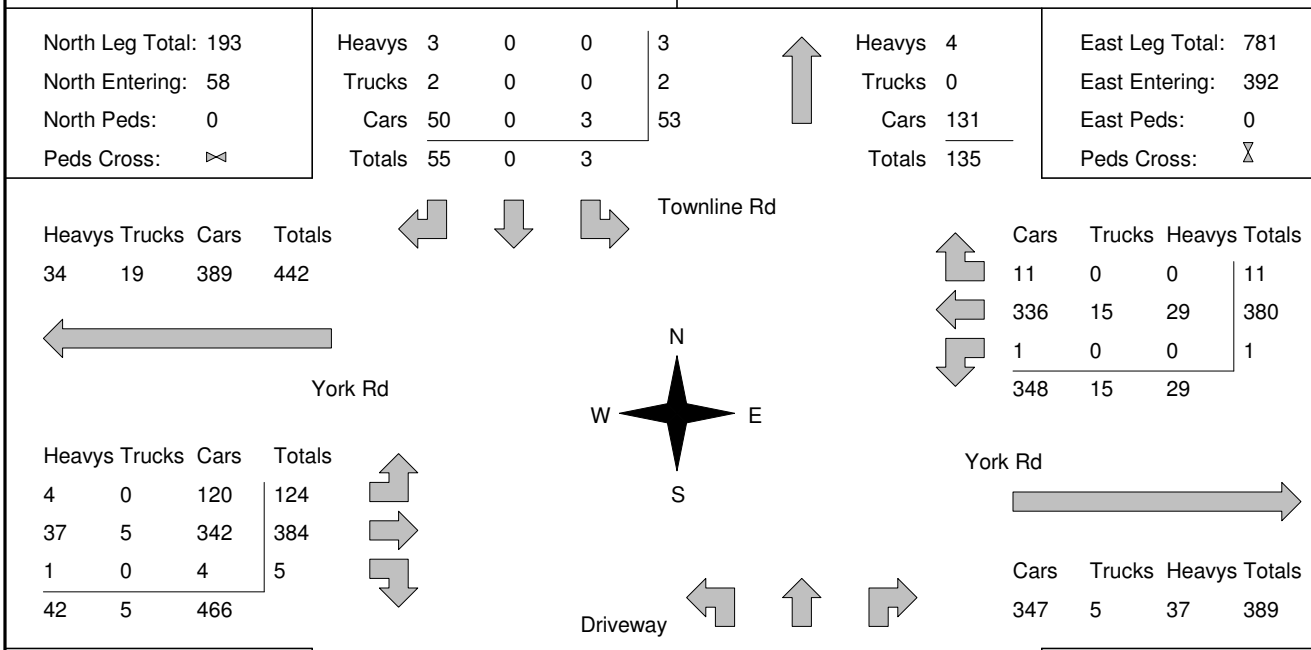
Municipality: Niagara on the Lake
Site #: 0000000003
Intersection: York Rd & Townline Rd
TFR File #: 3
Count date: 14-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: York Rd runs W/E



Comments

York Rd @ Townline Rd

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 11:45:00
To: 12:45:00

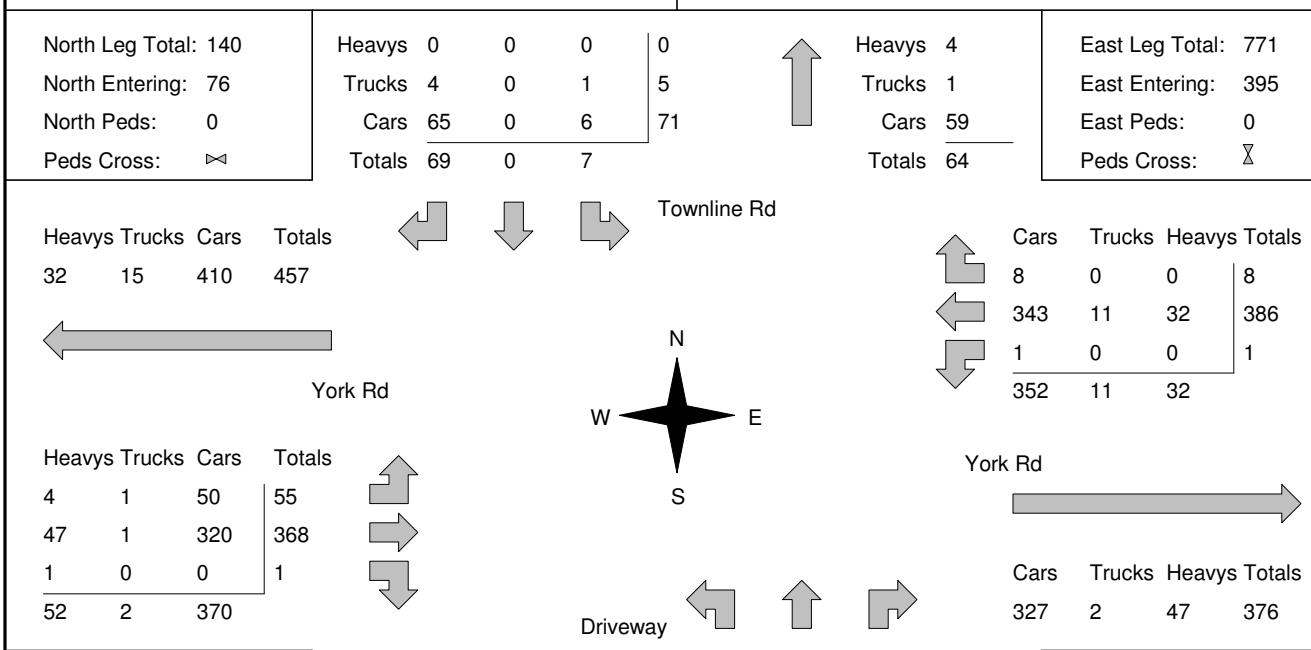
Municipality: Niagara on the Lake
Site #: 0000000003
Intersection: York Rd & Townline Rd
TFR File #: 3
Count date: 14-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: York Rd runs W/E



Comments

York Rd @ Townline Rd

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:15:00
To: 17:15:00

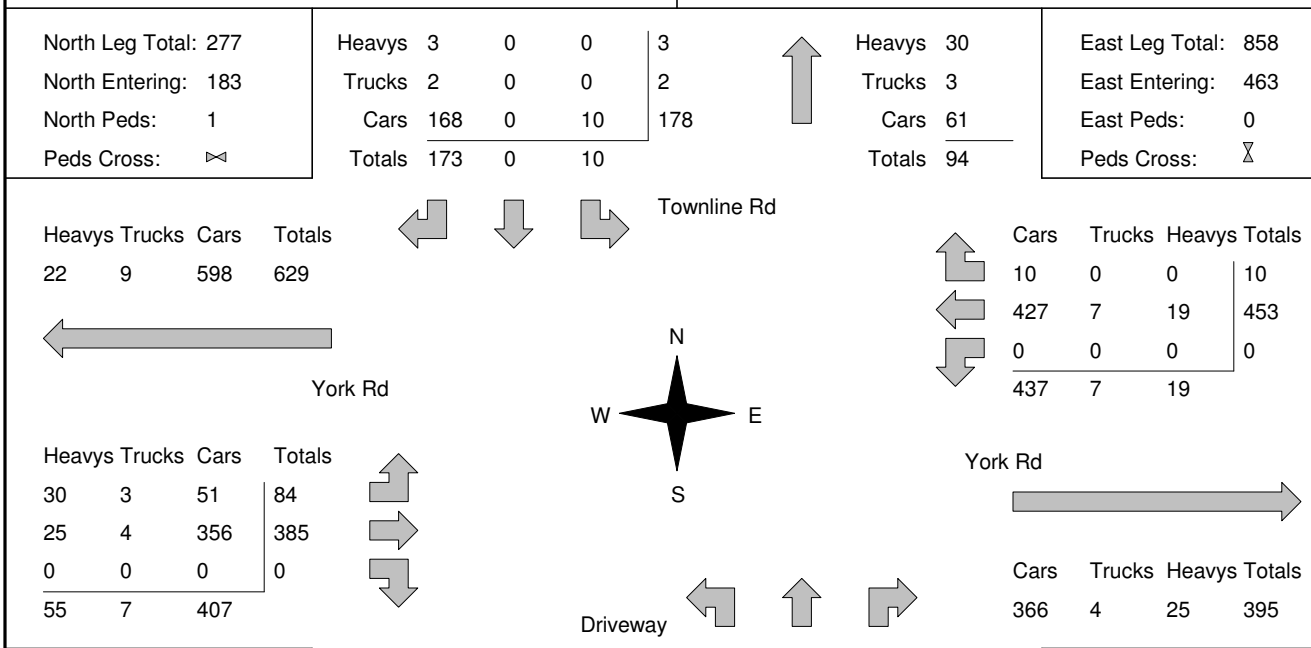
Municipality: Niagara on the Lake
Site #: 0000000003
Intersection: York Rd & Townline Rd
TFR File #: 3
Count date: 14-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: York Rd runs W/E



Comments

York Rd @ Townline Rd

Total Count Diagram

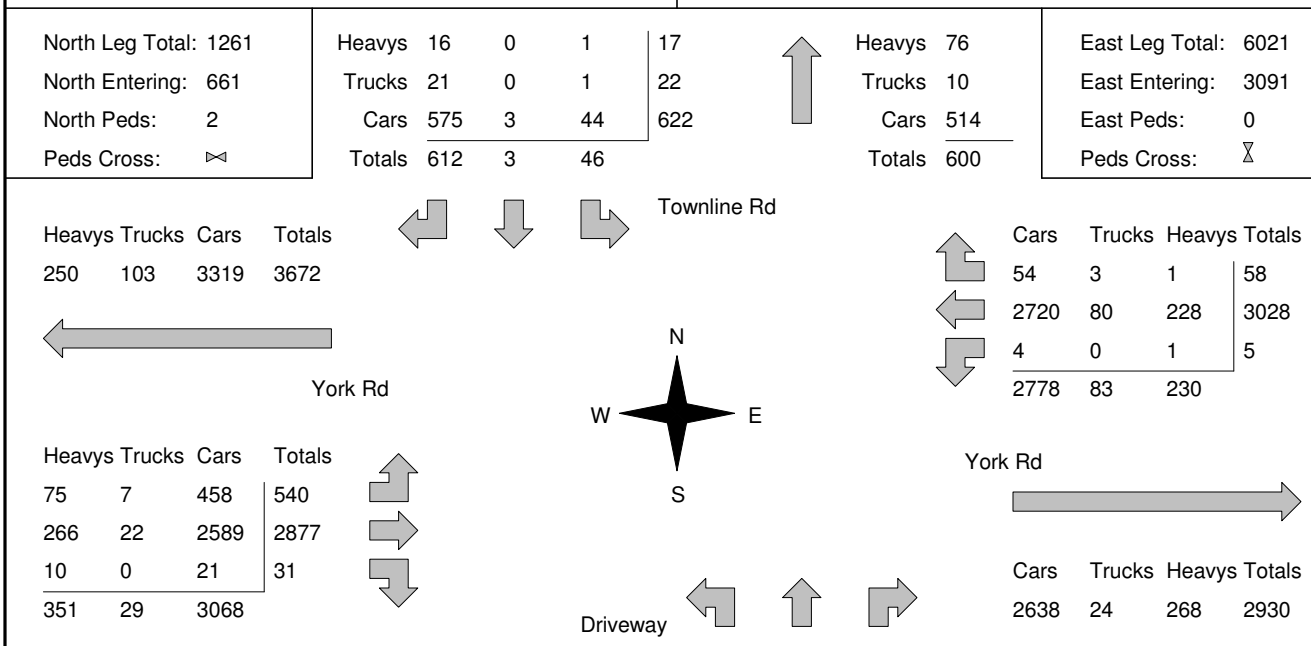
Municipality: Niagara on the Lake
Site #: 0000000003
Intersection: York Rd & Townline Rd
TFR File #: 3
Count date: 14-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: York Rd runs W/E



Comments

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue North Signals
Site Code: 210470
Start Date: 01/25/2024

Turning Movement Data

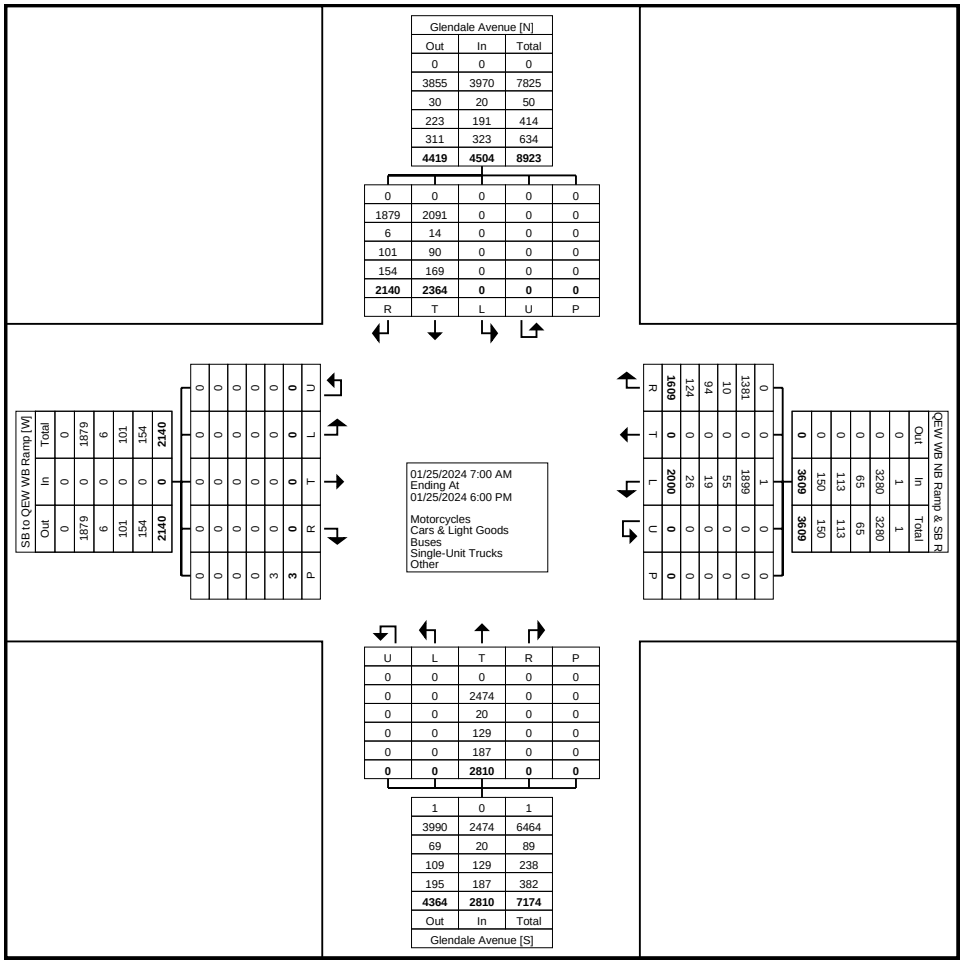
Start Time	SB to QEW WB Ramp Eastbound						QEW WB NB Ramp & SB Ramp Westbound						Glendale Avenue Northbound						Glendale Avenue Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	0	0	0	0	0	41	0	49	0	0	90	0	56	0	0	0	56	0	52	45	0	0	97	243
7:15 AM	0	0	0	0	0	0	44	0	44	0	0	88	0	85	0	0	0	85	0	50	58	0	0	108	281
7:30 AM	0	0	0	0	0	0	41	0	59	0	0	100	0	83	0	0	0	83	0	48	45	0	0	93	276
7:45 AM	0	0	0	0	0	0	48	0	99	0	0	147	0	120	0	0	0	120	0	52	63	0	0	115	382
Hourly Total	0	0	0	0	0	0	174	0	251	0	0	425	0	344	0	0	0	344	0	202	211	0	0	413	1182
8:00 AM	0	0	0	0	0	0	45	0	60	0	0	105	0	127	0	0	0	127	0	53	59	0	0	112	344
8:15 AM	0	0	0	0	0	0	67	0	63	0	0	130	0	116	0	0	0	116	0	80	72	0	0	152	398
8:30 AM	0	0	0	0	0	0	63	0	59	0	0	122	0	88	0	0	0	88	0	74	83	0	0	157	367
8:45 AM	0	0	0	0	0	0	46	0	55	0	0	101	0	113	0	0	0	113	0	58	77	0	0	135	349
Hourly Total	0	0	0	0	0	0	221	0	237	0	0	458	0	444	0	0	0	444	0	265	291	0	0	556	1458
9:00 AM	0	0	0	0	0	0	67	0	43	0	0	110	0	75	0	0	0	75	0	70	68	0	0	138	323
9:15 AM	0	0	0	0	0	0	64	0	35	0	0	99	0	61	0	0	0	61	0	64	62	0	0	126	286
9:30 AM	0	0	0	0	0	0	38	0	48	0	0	86	0	51	0	0	0	51	0	61	67	0	0	128	265
9:45 AM	0	0	0	0	0	0	35	0	51	0	0	86	0	71	0	0	0	71	0	66	63	0	0	129	286
Hourly Total	0	0	0	0	0	0	204	0	177	0	0	381	0	258	0	0	0	258	0	261	260	0	0	521	1160
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	0	0	0	0	1	0	53	0	42	0	0	95	0	99	0	0	0	99	0	67	57	0	0	124	318
11:45 AM	0	0	0	0	0	0	58	0	46	0	0	104	0	58	0	0	0	58	0	68	58	0	0	126	288
Hourly Total	0	0	0	0	1	0	111	0	88	0	0	199	0	157	0	0	0	157	0	135	115	0	0	250	606
12:00 PM	0	0	0	0	0	0	57	0	39	0	0	96	0	84	0	0	0	84	0	64	55	0	0	119	299
12:15 PM	0	0	0	0	0	0	76	0	53	0	0	129	0	80	0	0	0	80	0	78	57	0	0	135	344
12:30 PM	0	0	0	0	0	0	77	0	41	0	0	118	0	108	0	0	0	108	0	70	59	0	0	129	355
12:45 PM	0	0	0	0	0	0	69	0	44	0	0	113	0	89	0	0	0	89	0	46	65	0	0	111	313
Hourly Total	0	0	0	0	0	0	279	0	177	0	0	456	0	361	0	0	0	361	0	258	236	0	0	494	1311
1:00 PM	0	0	0	0	0	0	60	0	32	0	0	92	0	84	0	0	0	84	0	77	60	0	0	137	313
1:15 PM	0	0	0	0	0	0	69	0	47	0	0	116	0	70	0	0	0	70	0	64	58	0	0	122	308
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	129	0	79	0	0	208	0	154	0	0	0	154	0	141	118	0	0	259	621
3:00 PM	0	0	0	0	0	0	56	0	46	0	0	102	0	87	0	0	0	87	0	61	63	0	0	124	313
3:15 PM	0	0	0	0	0	0	68	0	44	0	0	112	0	66	0	0	0	66	0	76	63	0	0	139	317
3:30 PM	0	0	0	0	0	0	63	0	62	0	0	125	0	113	0	0	0	113	0	85	70	0	0	155	393
3:45 PM	0	0	0	0	0	0	80	0	63	0	0	143	0	111	0	0	0	111	0	82	55	0	0	137	391
Hourly Total	0	0	0	0	0	0	267	0	215	0	0	482	0	377	0	0	0	377	0	304	251	0	0	555	1414
4:00 PM	0	0	0	0	0	0	72	0	54	0	0	126	0	98	0	0	0	98	0	109	71	0	0	180	404
4:15 PM	0	0	0	0	1	0	81	0	67	0	0	148	0	111	0	0	0	111	0	96	86	0	0	182	441

4:30 PM	0	0	0	0	0	0	80	0	47	0	0	127	0	99	0	0	0	99	0	125	103	0	0	228	454
4:45 PM	0	0	0	0	0	0	81	0	53	0	0	134	0	81	0	0	0	81	0	110	88	0	0	198	413
Hourly Total	0	0	0	0	1	0	314	0	221	0	0	535	0	389	0	0	0	389	0	440	348	0	0	788	1712
5:00 PM	0	0	0	0	1	0	77	0	53	0	0	130	0	76	0	0	0	76	0	136	109	0	0	245	451
5:15 PM	0	0	0	0	0	0	77	0	30	0	0	107	0	98	0	0	0	98	0	73	83	0	0	156	361
5:30 PM	0	0	0	0	0	0	81	0	41	0	0	122	0	77	0	0	0	77	0	71	60	0	0	131	330
5:45 PM	0	0	0	0	0	0	66	0	40	0	0	106	0	75	0	0	0	75	0	78	58	0	0	136	317
Hourly Total	0	0	0	0	1	0	301	0	164	0	0	465	0	326	0	0	0	326	0	358	310	0	0	668	1459
Grand Total	0	0	0	0	3	0	2000	0	1609	0	0	3609	0	2810	0	0	0	2810	0	2364	2140	0	0	4504	10923
Approach %	0.0	0.0	0.0	0.0	-	-	55.4	0.0	44.6	0.0	-	-	0.0	100.0	0.0	0.0	-	-	0.0	52.5	47.5	0.0	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.0	18.3	0.0	14.7	0.0	-	33.0	0.0	25.7	0.0	0.0	-	25.7	0.0	21.6	19.6	0.0	-	41.2	-
Motorcycles	0	0	0	0	-	0	1	0	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Motorcycles	-	-	-	-	-	-	0.1	-	0.0	-	-	0.0	-	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	0	0	0	0	-	0	1899	0	1381	0	-	3280	0	2474	0	0	-	2474	0	2091	1879	0	-	3970	9724
% Cars & Light Goods	-	-	-	-	-	-	95.0	-	85.8	-	-	90.9	-	88.0	-	-	-	88.0	-	88.5	87.8	-	-	88.1	89.0
Buses	0	0	0	0	-	0	55	0	10	0	-	65	0	20	0	0	-	20	0	14	6	0	-	20	105
% Buses	-	-	-	-	-	-	2.8	-	0.6	-	-	1.8	-	0.7	-	-	-	0.7	-	0.6	0.3	-	-	0.4	1.0
Single-Unit Trucks	0	0	0	0	-	0	19	0	94	0	-	113	0	129	0	0	-	129	0	90	101	0	-	191	433
% Single-Unit Trucks	-	-	-	-	-	-	1.0	-	5.8	-	-	3.1	-	4.6	-	-	-	4.6	-	3.8	4.7	-	-	4.2	4.0
Articulated Trucks	0	0	0	0	-	0	26	0	124	0	-	150	0	187	0	0	-	187	0	169	154	0	-	323	660
% Articulated Trucks	-	-	-	-	-	-	1.3	-	7.7	-	-	4.2	-	6.7	-	-	-	6.7	-	7.1	7.2	-	-	7.2	6.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	-	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue North Signals
Site Code: 210470
Start Date: 01/25/2024



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue North Signals
Site Code: 210470
Start Date: 01/25/2024

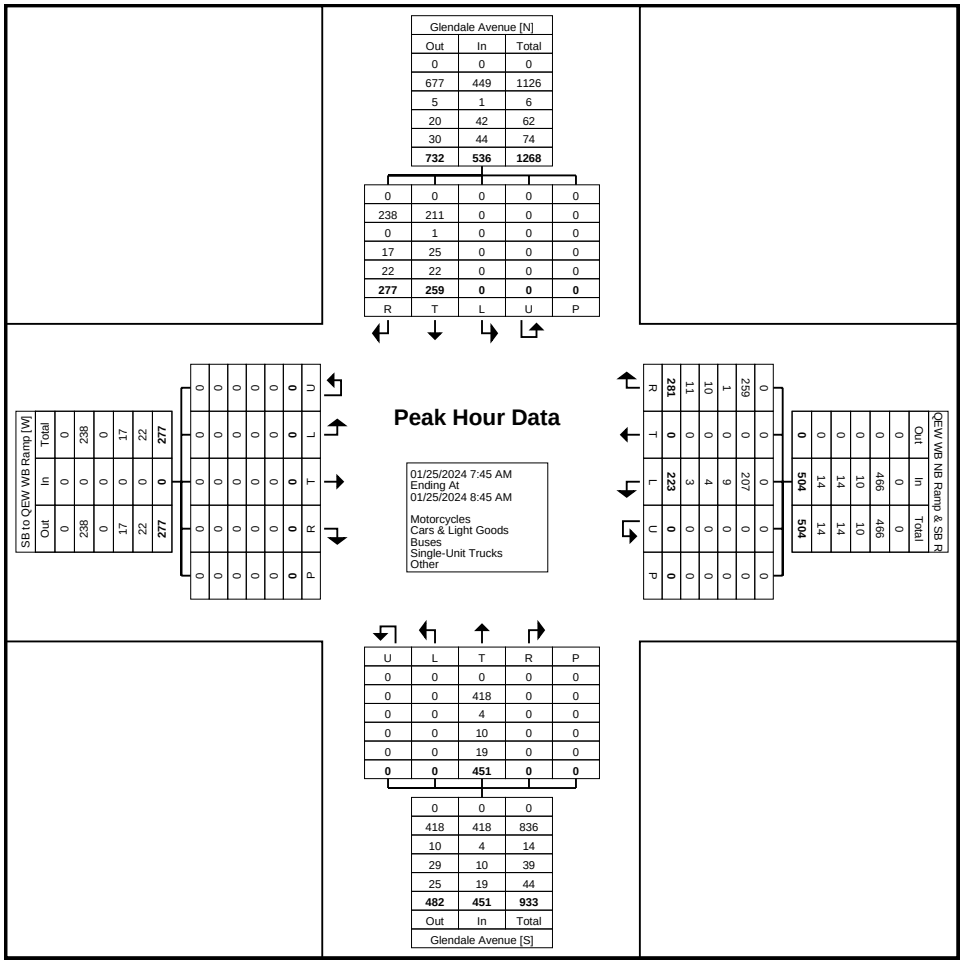
Turning Movement Peak Hour Data (7:45 AM)

Start Time	SB to QEW WB Ramp Eastbound						QEW WB NB Ramp & SB Ramp Westbound						Glendale Avenue Northbound						Glendale Avenue Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:45 AM	0	0	0	0	0	0	48	0	99	0	0	147	0	120	0	0	0	120	0	52	63	0	0	115	382
8:00 AM	0	0	0	0	0	0	45	0	60	0	0	105	0	127	0	0	0	127	0	53	59	0	0	112	344
8:15 AM	0	0	0	0	0	0	67	0	63	0	0	130	0	116	0	0	0	116	0	80	72	0	0	152	398
8:30 AM	0	0	0	0	0	0	63	0	59	0	0	122	0	88	0	0	0	88	0	74	83	0	0	157	367
Total	0	0	0	0	0	0	223	0	281	0	0	504	0	451	0	0	0	451	0	259	277	0	0	536	1491
Approach %	0.0	0.0	0.0	0.0	-	-	44.2	0.0	55.8	0.0	-	-	0.0	100.0	0.0	0.0	-	-	0.0	48.3	51.7	0.0	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.0	15.0	0.0	18.8	0.0	-	33.8	0.0	30.2	0.0	0.0	-	30.2	0.0	17.4	18.6	0.0	-	35.9	-
PHF	0.000	0.000	0.000	0.000	-	0.000	0.832	0.000	0.710	0.000	-	0.857	0.000	0.888	0.000	0.000	-	0.888	0.000	0.809	0.834	0.000	-	0.854	0.937
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	-	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	0	0	0	0	-	0	207	0	259	0	-	466	0	418	0	0	-	418	0	211	238	0	-	449	1333
% Cars & Light Goods	-	-	-	-	-	-	92.8	-	92.2	-	-	92.5	-	92.7	-	-	-	92.7	-	81.5	85.9	-	-	83.8	89.4
Buses	0	0	0	0	-	0	9	0	1	0	-	10	0	4	0	0	-	4	0	1	0	0	-	1	15
% Buses	-	-	-	-	-	-	4.0	-	0.4	-	-	2.0	-	0.9	-	-	-	0.9	-	0.4	0.0	-	-	0.2	1.0
Single-Unit Trucks	0	0	0	0	-	0	4	0	10	0	-	14	0	10	0	0	-	10	0	25	17	0	-	42	66
% Single-Unit Trucks	-	-	-	-	-	-	1.8	-	3.6	-	-	2.8	-	2.2	-	-	-	2.2	-	9.7	6.1	-	-	7.8	4.4
Articulated Trucks	0	0	0	0	-	0	3	0	11	0	-	14	0	19	0	0	-	19	0	22	22	0	-	44	77
% Articulated Trucks	-	-	-	-	-	-	1.3	-	3.9	-	-	2.8	-	4.2	-	-	-	4.2	-	8.5	7.9	-	-	8.2	5.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	-	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue North Signals
Site Code: 210470
Start Date: 01/25/2024



Turning Movement Peak Hour Data Plot (7:45 AM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue North Signals
Site Code: 210470
Start Date: 01/25/2024

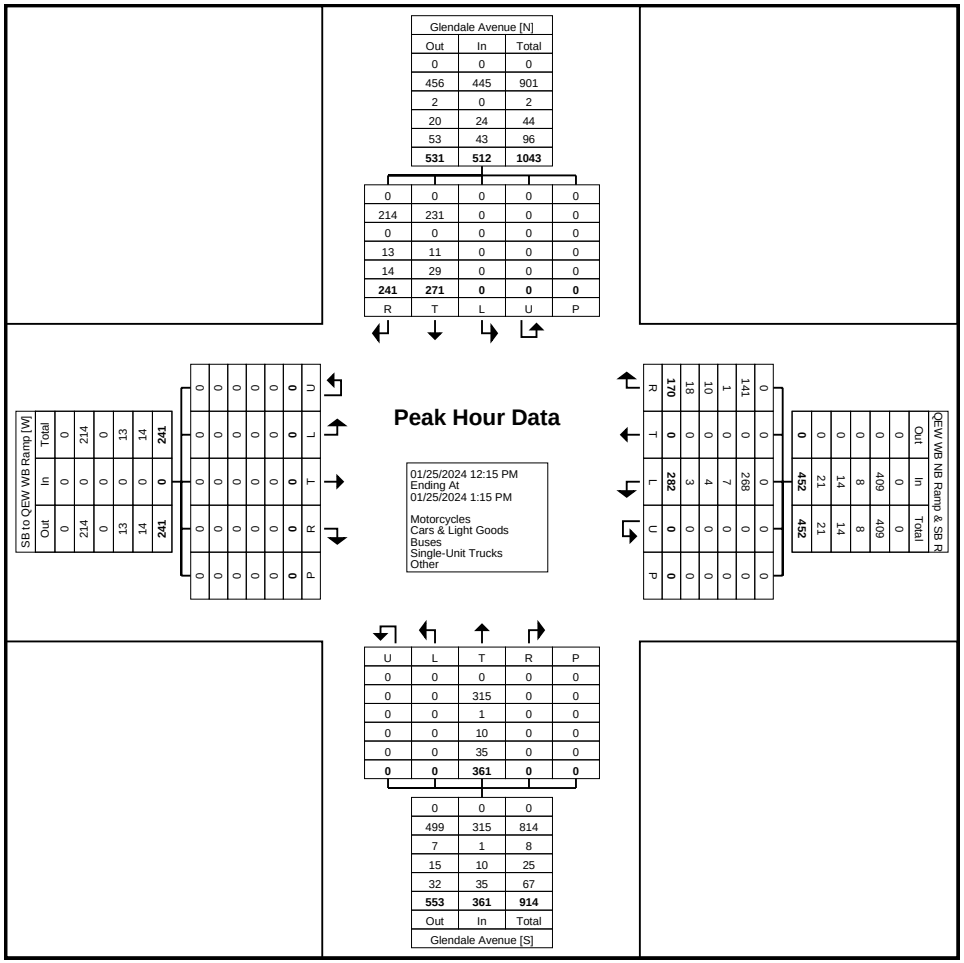
Turning Movement Peak Hour Data (12:15 PM)

Start Time	SB to QEW WB Ramp Eastbound						QEW WB NB Ramp & SB Ramp Westbound						Glendale Avenue Northbound						Glendale Avenue Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
12:15 PM	0	0	0	0	0	0	76	0	53	0	0	129	0	80	0	0	0	80	0	78	57	0	0	135	344
12:30 PM	0	0	0	0	0	0	77	0	41	0	0	118	0	108	0	0	0	108	0	70	59	0	0	129	355
12:45 PM	0	0	0	0	0	0	69	0	44	0	0	113	0	89	0	0	0	89	0	46	65	0	0	111	313
1:00 PM	0	0	0	0	0	0	60	0	32	0	0	92	0	84	0	0	0	84	0	77	60	0	0	137	313
Total	0	0	0	0	0	0	282	0	170	0	0	452	0	361	0	0	0	361	0	271	241	0	0	512	1325
Approach %	0.0	0.0	0.0	0.0	-	-	62.4	0.0	37.6	0.0	-	-	0.0	100.0	0.0	0.0	-	-	0.0	52.9	47.1	0.0	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.0	21.3	0.0	12.8	0.0	-	34.1	0.0	27.2	0.0	0.0	-	27.2	0.0	20.5	18.2	0.0	-	38.6	-
PHF	0.000	0.000	0.000	0.000	-	0.000	0.916	0.000	0.802	0.000	-	0.876	0.000	0.836	0.000	0.000	-	0.836	0.000	0.869	0.927	0.000	-	0.934	0.933
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	-	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	0	0	0	0	-	0	268	0	141	0	-	409	0	315	0	0	-	315	0	231	214	0	-	445	1169
% Cars & Light Goods	-	-	-	-	-	-	95.0	-	82.9	-	-	90.5	-	87.3	-	-	-	87.3	-	85.2	88.8	-	-	86.9	88.2
Buses	0	0	0	0	-	0	7	0	1	0	-	8	0	1	0	0	-	1	0	0	0	0	-	0	9
% Buses	-	-	-	-	-	-	2.5	-	0.6	-	-	1.8	-	0.3	-	-	-	0.3	-	0.0	0.0	-	-	0.0	0.7
Single-Unit Trucks	0	0	0	0	-	0	4	0	10	0	-	14	0	10	0	0	-	10	0	11	13	0	-	24	48
% Single-Unit Trucks	-	-	-	-	-	-	1.4	-	5.9	-	-	3.1	-	2.8	-	-	-	2.8	-	4.1	5.4	-	-	4.7	3.6
Articulated Trucks	0	0	0	0	-	0	3	0	18	0	-	21	0	35	0	0	-	35	0	29	14	0	-	43	99
% Articulated Trucks	-	-	-	-	-	-	1.1	-	10.6	-	-	4.6	-	9.7	-	-	-	9.7	-	10.7	5.8	-	-	8.4	7.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	-	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue North Signals
Site Code: 210470
Start Date: 01/25/2024



Turning Movement Peak Hour Data Plot (12:15 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue North Signals
Site Code: 210470
Start Date: 01/25/2024

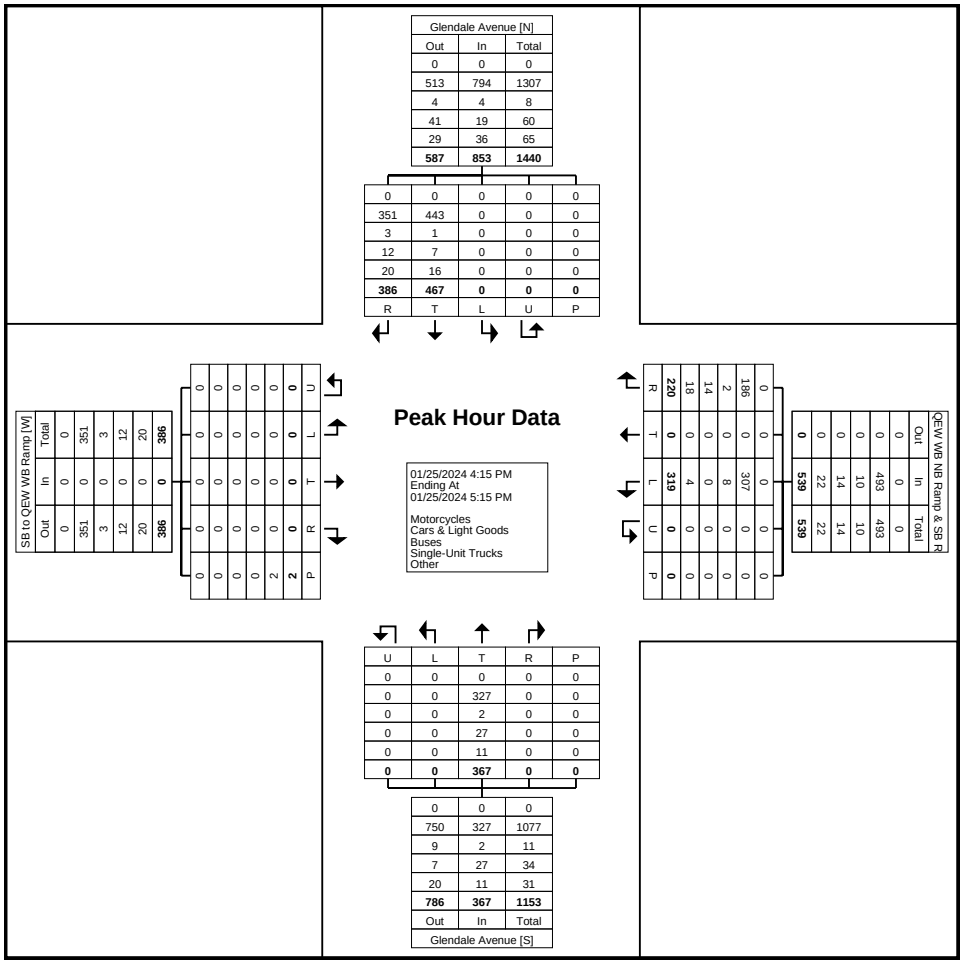
Turning Movement Peak Hour Data (4:15 PM)

Start Time	SB to QEW WB Ramp Eastbound						QEW WB NB Ramp & SB Ramp Westbound						Glendale Avenue Northbound						Glendale Avenue Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:15 PM	0	0	0	0	1	0	81	0	67	0	0	148	0	111	0	0	0	111	0	96	86	0	0	182	441
4:30 PM	0	0	0	0	0	0	80	0	47	0	0	127	0	99	0	0	0	99	0	125	103	0	0	228	454
4:45 PM	0	0	0	0	0	0	81	0	53	0	0	134	0	81	0	0	0	81	0	110	88	0	0	198	413
5:00 PM	0	0	0	0	1	0	77	0	53	0	0	130	0	76	0	0	0	76	0	136	109	0	0	245	451
Total	0	0	0	0	2	0	319	0	220	0	0	539	0	367	0	0	0	367	0	467	386	0	0	853	1759
Approach %	0.0	0.0	0.0	0.0	-	-	59.2	0.0	40.8	0.0	-	-	0.0	100.0	0.0	0.0	-	-	0.0	54.7	45.3	0.0	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.0	18.1	0.0	12.5	0.0	-	30.6	0.0	20.9	0.0	0.0	-	20.9	0.0	26.5	21.9	0.0	-	48.5	-
PHF	0.000	0.000	0.000	0.000	-	0.000	0.985	0.000	0.821	0.000	-	0.910	0.000	0.827	0.000	0.000	-	0.827	0.000	0.858	0.885	0.000	-	0.870	0.969
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	-	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	0	0	0	0	-	0	307	0	186	0	-	493	0	327	0	0	-	327	0	443	351	0	-	794	1614
% Cars & Light Goods	-	-	-	-	-	-	96.2	-	84.5	-	-	91.5	-	89.1	-	-	-	89.1	-	94.9	90.9	-	-	93.1	91.8
Buses	0	0	0	0	-	0	8	0	2	0	-	10	0	2	0	0	-	2	0	1	3	0	-	4	16
% Buses	-	-	-	-	-	-	2.5	-	0.9	-	-	1.9	-	0.5	-	-	-	0.5	-	0.2	0.8	-	-	0.5	0.9
Single-Unit Trucks	0	0	0	0	-	0	0	0	14	0	-	14	0	27	0	0	-	27	0	7	12	0	-	19	60
% Single-Unit Trucks	-	-	-	-	-	-	0.0	-	6.4	-	-	2.6	-	7.4	-	-	-	7.4	-	1.5	3.1	-	-	2.2	3.4
Articulated Trucks	0	0	0	0	-	0	4	0	18	0	-	22	0	11	0	0	-	11	0	16	20	0	-	36	69
% Articulated Trucks	-	-	-	-	-	-	1.3	-	8.2	-	-	4.1	-	3.0	-	-	-	3.0	-	3.4	5.2	-	-	4.2	3.9
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	-	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue North Signals
Site Code: 210470
Start Date: 01/25/2024



Turning Movement Peak Hour Data Plot (4:15 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue South Signals
Site Code: 210470
Start Date: 01/25/2024

Turning Movement Data

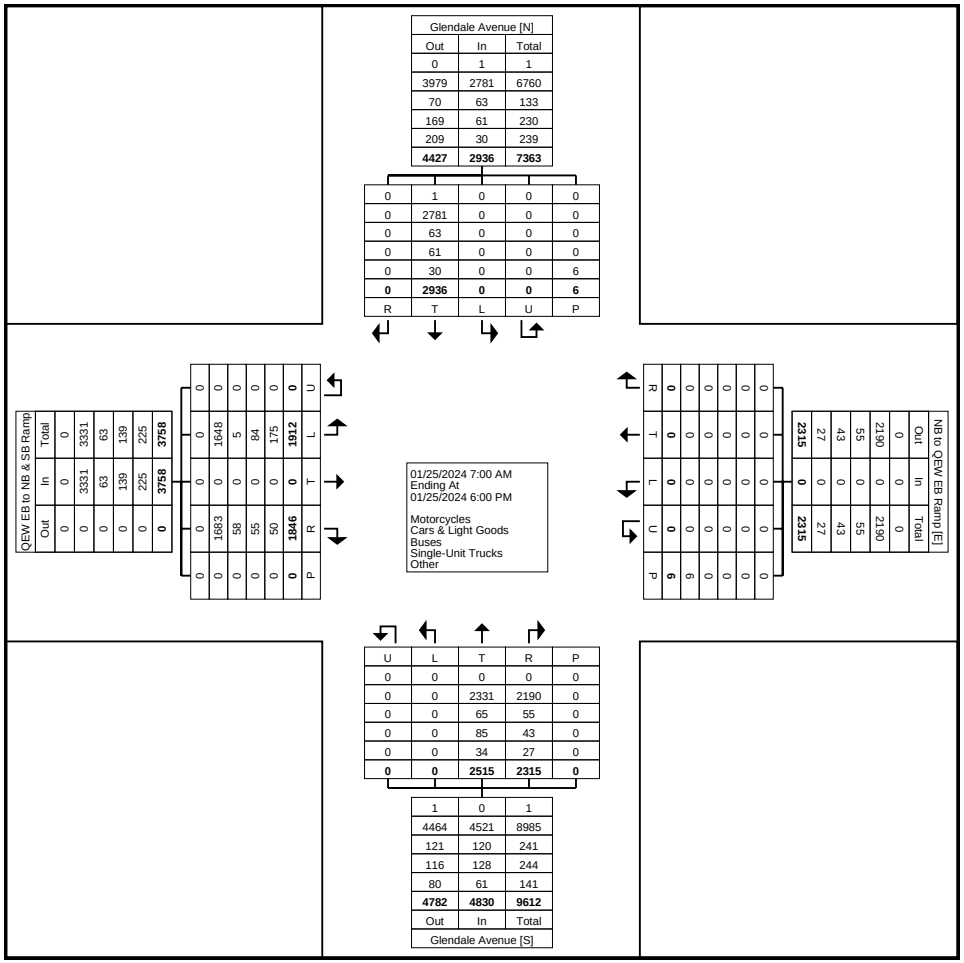
Start Time	QEW EB to NB & SB Ramp Eastbound						NB to QEW EB Ramp Westbound						Glendale Avenue Northbound						Glendale Avenue Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	45	0	29	0	0	74	0	0	0	0	0	0	0	25	32	0	0	57	0	62	0	0	0	62	193
7:15 AM	50	0	28	0	0	78	0	0	0	0	0	0	0	47	49	0	0	96	0	66	0	0	0	66	240
7:30 AM	49	0	42	0	0	91	0	0	0	0	0	0	0	56	55	0	0	111	0	56	0	0	0	56	258
7:45 AM	79	0	63	0	0	142	0	0	0	0	0	0	0	68	66	0	0	134	0	76	0	0	0	76	352
Hourly Total	223	0	162	0	0	385	0	0	0	0	0	0	0	196	202	0	0	398	0	260	0	0	0	260	1043
8:00 AM	91	0	57	0	0	148	0	0	0	0	0	0	0	71	42	0	0	113	0	56	0	0	0	56	317
8:15 AM	96	0	88	0	0	184	0	0	0	0	0	0	0	55	59	0	0	114	0	97	0	0	1	97	395
8:30 AM	62	0	60	0	0	122	0	0	0	0	0	0	0	70	51	0	0	121	0	95	0	0	0	95	338
8:45 AM	85	0	77	0	0	162	0	0	0	0	0	0	0	72	56	0	0	128	0	70	0	0	0	70	360
Hourly Total	334	0	282	0	0	616	0	0	0	0	0	0	0	268	208	0	0	476	0	318	0	0	1	318	1410
9:00 AM	49	0	79	0	0	128	0	0	0	0	0	0	0	41	33	0	0	74	0	99	0	0	0	99	301
9:15 AM	48	0	74	0	0	122	0	0	0	0	0	0	0	46	31	0	0	77	0	83	0	0	0	83	282
9:30 AM	33	0	45	0	0	78	0	0	0	0	0	0	0	50	44	0	0	94	0	56	0	0	0	56	228
9:45 AM	56	0	62	0	0	118	0	0	0	0	0	0	0	51	43	0	0	94	0	62	0	0	0	62	274
Hourly Total	186	0	260	0	0	446	0	0	0	0	0	0	0	188	151	0	0	339	0	300	0	0	0	300	1085
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	76	0	55	0	0	131	0	0	0	0	1	0	0	72	46	0	0	118	0	90	0	0	0	90	339
11:45 AM	48	0	58	0	0	106	0	0	0	0	0	0	0	62	50	0	0	112	0	78	0	0	0	78	296
Hourly Total	124	0	113	0	0	237	0	0	0	0	1	0	0	134	96	0	0	230	0	168	0	0	0	168	635
12:00 PM	58	0	76	0	0	134	0	0	0	0	0	0	0	70	73	0	0	143	0	88	0	0	0	88	365
12:15 PM	50	0	69	0	0	119	0	0	0	0	0	0	0	97	59	0	0	156	0	110	0	0	0	110	385
12:30 PM	63	0	52	0	0	115	0	0	0	0	0	0	0	113	76	0	0	189	0	110	0	0	0	110	414
12:45 PM	56	0	63	0	0	119	0	0	0	0	0	0	0	80	87	0	0	167	0	93	0	0	2	93	379
Hourly Total	227	0	260	0	0	487	0	0	0	0	0	0	0	360	295	0	0	655	0	401	0	0	2	401	1543
1:00 PM	48	0	46	0	0	94	0	0	0	0	0	0	0	102	60	0	0	162	0	94	0	0	0	94	350
1:15 PM	48	0	64	0	0	112	0	0	0	0	0	0	0	76	80	0	0	156	0	95	0	0	0	95	363
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	96	0	110	0	0	206	0	0	0	0	0	0	0	178	140	0	0	318	0	189	0	0	0	189	713
3:00 PM	64	0	73	0	0	137	0	0	0	0	0	0	0	107	97	0	0	204	0	79	0	0	0	79	420
3:15 PM	45	0	55	0	0	100	0	0	0	0	0	0	0	85	91	0	0	176	0	105	0	0	0	105	381
3:30 PM	77	0	60	0	0	137	0	0	0	0	1	0	0	108	91	0	0	199	0	92	0	0	0	92	428
3:45 PM	75	0	51	0	0	126	0	0	0	0	0	0	0	102	111	0	0	213	0	115	0	0	0	115	454
Hourly Total	261	0	239	0	0	500	0	0	0	0	1	0	0	402	390	0	0	792	0	391	0	0	0	391	1683
4:00 PM	57	0	49	0	0	106	0	0	0	0	3	0	0	131	104	0	0	235	0	117	0	0	2	117	458
4:15 PM	60	0	53	0	0	113	0	0	0	0	0	0	0	121	115	0	0	236	0	117	0	0	0	117	466

4:30 PM	70	0	57	0	0	127	0	0	0	0	0	0	0	119	132	0	0	251	0	123	0	0	0	123	501
4:45 PM	51	0	57	0	0	108	0	0	0	0	0	0	0	87	111	0	0	198	0	124	0	0	0	124	430
Hourly Total	238	0	216	0	0	454	0	0	0	0	3	0	0	458	462	0	0	920	0	481	0	0	2	481	1855
5:00 PM	61	0	47	0	0	108	0	0	0	0	1	0	0	90	116	0	0	206	0	122	0	0	1	122	436
5:15 PM	60	0	62	0	0	122	0	0	0	0	0	0	0	97	92	0	0	189	0	93	0	0	0	93	404
5:30 PM	55	0	44	0	0	99	0	0	0	0	0	0	0	80	74	0	0	154	0	109	0	0	0	109	362
5:45 PM	47	0	51	0	0	98	0	0	0	0	0	0	0	64	89	0	0	153	0	104	0	0	0	104	355
Hourly Total	223	0	204	0	0	427	0	0	0	0	1	0	0	331	371	0	0	702	0	428	0	0	1	428	1557
Grand Total	1912	0	1846	0	0	3758	0	0	0	0	6	0	0	2515	2315	0	0	4830	0	2936	0	0	6	2936	11524
Approach %	50.9	0.0	49.1	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	52.1	47.9	0.0	-	-	0.0	100.0	0.0	0.0	-	-	-
Total %	16.6	0.0	16.0	0.0	-	32.6	0.0	0.0	0.0	0.0	-	0.0	0.0	21.8	20.1	0.0	-	41.9	0.0	25.5	0.0	0.0	-	25.5	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Motorcycles	0.0	-	0.0	-	-	0.0	-	-	-	-	-	-	-	0.0	0.0	-	-	0.0	-	0.0	-	-	-	0.0	0.0
Cars & Light Goods	1648	0	1683	0	-	3331	0	0	0	0	-	0	0	2331	2190	0	-	4521	0	2781	0	0	-	2781	10633
% Cars & Light Goods	86.2	-	91.2	-	-	88.6	-	-	-	-	-	-	-	92.7	94.6	-	-	93.6	-	94.7	-	-	-	94.7	92.3
Buses	5	0	58	0	-	63	0	0	0	0	-	0	0	65	55	0	-	120	0	63	0	0	-	63	246
% Buses	0.3	-	3.1	-	-	1.7	-	-	-	-	-	-	-	2.6	2.4	-	-	2.5	-	2.1	-	-	-	2.1	2.1
Single-Unit Trucks	84	0	55	0	-	139	0	0	0	0	-	0	0	85	43	0	-	128	0	61	0	0	-	61	328
% Single-Unit Trucks	4.4	-	3.0	-	-	3.7	-	-	-	-	-	-	-	3.4	1.9	-	-	2.7	-	2.1	-	-	-	2.1	2.8
Articulated Trucks	175	0	50	0	-	225	0	0	0	0	-	0	0	34	27	0	-	61	0	30	0	0	-	30	316
% Articulated Trucks	9.2	-	2.7	-	-	6.0	-	-	-	-	-	-	-	1.4	1.2	-	-	1.3	-	1.0	-	-	-	1.0	2.7
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	-	0.0	-	-	0.0	-	-	-	-	-	-	-	0.0	0.0	-	-	0.0	-	0.0	-	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	6	-	-	-	-	-	0	-	-	-	-	-	6	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue South Signals
Site Code: 210470
Start Date: 01/25/2024



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue South Signals
Site Code: 210470
Start Date: 01/25/2024

Turning Movement Peak Hour Data (8:00 AM)

Start Time	QEW EB to NB & SB Ramp Eastbound						NB to QEW EB Ramp Westbound						Glendale Avenue Northbound						Glendale Avenue Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
8:00 AM	91	0	57	0	0	148	0	0	0	0	0	0	0	71	42	0	0	113	0	56	0	0	0	56	317
8:15 AM	96	0	88	0	0	184	0	0	0	0	0	0	0	55	59	0	0	114	0	97	0	0	1	97	395
8:30 AM	62	0	60	0	0	122	0	0	0	0	0	0	0	70	51	0	0	121	0	95	0	0	0	95	338
8:45 AM	85	0	77	0	0	162	0	0	0	0	0	0	0	72	56	0	0	128	0	70	0	0	0	70	360
Total	334	0	282	0	0	616	0	0	0	0	0	0	0	268	208	0	0	476	0	318	0	0	1	318	1410
Approach %	54.2	0.0	45.8	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	56.3	43.7	0.0	-	-	0.0	100.0	0.0	0.0	-	-	-
Total %	23.7	0.0	20.0	0.0	-	43.7	0.0	0.0	0.0	0.0	-	0.0	0.0	19.0	14.8	0.0	-	33.8	0.0	22.6	0.0	0.0	-	22.6	-
PHF	0.870	0.000	0.801	0.000	-	0.837	0.000	0.000	0.000	0.000	-	0.000	0.000	0.931	0.881	0.000	-	0.930	0.000	0.820	0.000	0.000	-	0.820	0.892
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	-	0.0	-	-	0.0	-	-	-	-	-	-	-	0.0	0.0	-	-	0.0	-	0.0	-	-	-	0.0	0.0
Cars & Light Goods	300	0	253	0	-	553	0	0	0	0	-	0	0	242	192	0	-	434	0	288	0	0	-	288	1275
% Cars & Light Goods	89.8	-	89.7	-	-	89.8	-	-	-	-	-	-	-	90.3	92.3	-	-	91.2	-	90.6	-	-	-	90.6	90.4
Buses	1	0	7	0	-	8	0	0	0	0	-	0	0	10	7	0	-	17	0	9	0	0	-	9	34
% Buses	0.3	-	2.5	-	-	1.3	-	-	-	-	-	-	-	3.7	3.4	-	-	3.6	-	2.8	-	-	-	2.8	2.4
Single-Unit Trucks	14	0	12	0	-	26	0	0	0	0	-	0	0	12	2	0	-	14	0	17	0	0	-	17	57
% Single-Unit Trucks	4.2	-	4.3	-	-	4.2	-	-	-	-	-	-	-	4.5	1.0	-	-	2.9	-	5.3	-	-	-	5.3	4.0
Articulated Trucks	19	0	10	0	-	29	0	0	0	0	-	0	0	4	7	0	-	11	0	4	0	0	-	4	44
% Articulated Trucks	5.7	-	3.5	-	-	4.7	-	-	-	-	-	-	-	1.5	3.4	-	-	2.3	-	1.3	-	-	-	1.3	3.1
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	-	0.0	-	-	0.0	-	-	-	-	-	-	-	0.0	0.0	-	-	0.0	-	0.0	-	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
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519-896-3163 cbowness@ptsl.com

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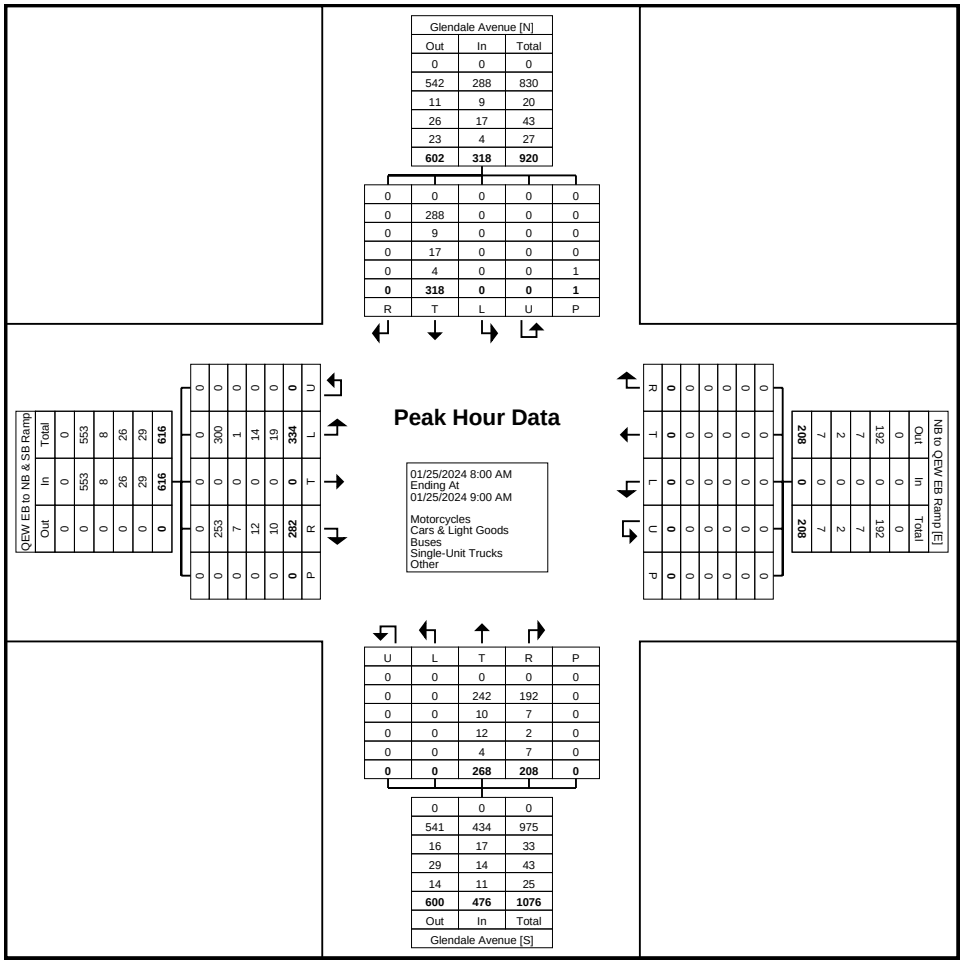
Site Code: 210470
Start Date: 01/25/2024



Turning Movement Peak Hour Data Plot (8:00 AM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue South Signals
Site Code: 210470
Start Date: 01/25/2024

Turning Movement Peak Hour Data (12:00 PM)

Start Time	QEW EB to NB & SB Ramp Eastbound						NB to QEW EB Ramp Westbound						Glendale Avenue Northbound						Glendale Avenue Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
12:00 PM	58	0	76	0	0	134	0	0	0	0	0	0	0	70	73	0	0	143	0	88	0	0	0	88	365
12:15 PM	50	0	69	0	0	119	0	0	0	0	0	0	0	97	59	0	0	156	0	110	0	0	0	110	385
12:30 PM	63	0	52	0	0	115	0	0	0	0	0	0	0	113	76	0	0	189	0	110	0	0	0	110	414
12:45 PM	56	0	63	0	0	119	0	0	0	0	0	0	0	80	87	0	0	167	0	93	0	0	2	93	379
Total	227	0	260	0	0	487	0	0	0	0	0	0	0	360	295	0	0	655	0	401	0	0	2	401	1543
Approach %	46.6	0.0	53.4	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	55.0	45.0	0.0	-	-	0.0	100.0	0.0	0.0	-	-	-
Total %	14.7	0.0	16.9	0.0	-	31.6	0.0	0.0	0.0	0.0	-	0.0	0.0	23.3	19.1	0.0	-	42.4	0.0	26.0	0.0	0.0	-	26.0	-
PHF	0.901	0.000	0.855	0.000	-	0.909	0.000	0.000	0.000	0.000	-	0.000	0.000	0.796	0.848	0.000	-	0.866	0.000	0.911	0.000	0.000	-	0.911	0.932
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	-	0.0	-	-	0.0	-	-	-	-	-	-	-	0.0	0.0	-	-	0.0	-	0.0	-	-	-	0.0	0.0
Cars & Light Goods	186	0	231	0	-	417	0	0	0	0	-	0	0	330	274	0	-	604	0	380	0	0	-	380	1401
% Cars & Light Goods	81.9	-	88.8	-	-	85.6	-	-	-	-	-	-	-	91.7	92.9	-	-	92.2	-	94.8	-	-	-	94.8	90.8
Buses	0	0	6	0	-	6	0	0	0	0	-	0	0	8	8	0	-	16	0	7	0	0	-	7	29
% Buses	0.0	-	2.3	-	-	1.2	-	-	-	-	-	-	-	2.2	2.7	-	-	2.4	-	1.7	-	-	-	1.7	1.9
Single-Unit Trucks	8	0	15	0	-	23	0	0	0	0	-	0	0	14	6	0	-	20	0	11	0	0	-	11	54
% Single-Unit Trucks	3.5	-	5.8	-	-	4.7	-	-	-	-	-	-	-	3.9	2.0	-	-	3.1	-	2.7	-	-	-	2.7	3.5
Articulated Trucks	33	0	8	0	-	41	0	0	0	0	-	0	0	8	7	0	-	15	0	3	0	0	-	3	59
% Articulated Trucks	14.5	-	3.1	-	-	8.4	-	-	-	-	-	-	-	2.2	2.4	-	-	2.3	-	0.7	-	-	-	0.7	3.8
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	-	0.0	-	-	0.0	-	-	-	-	-	-	-	0.0	0.0	-	-	0.0	-	0.0	-	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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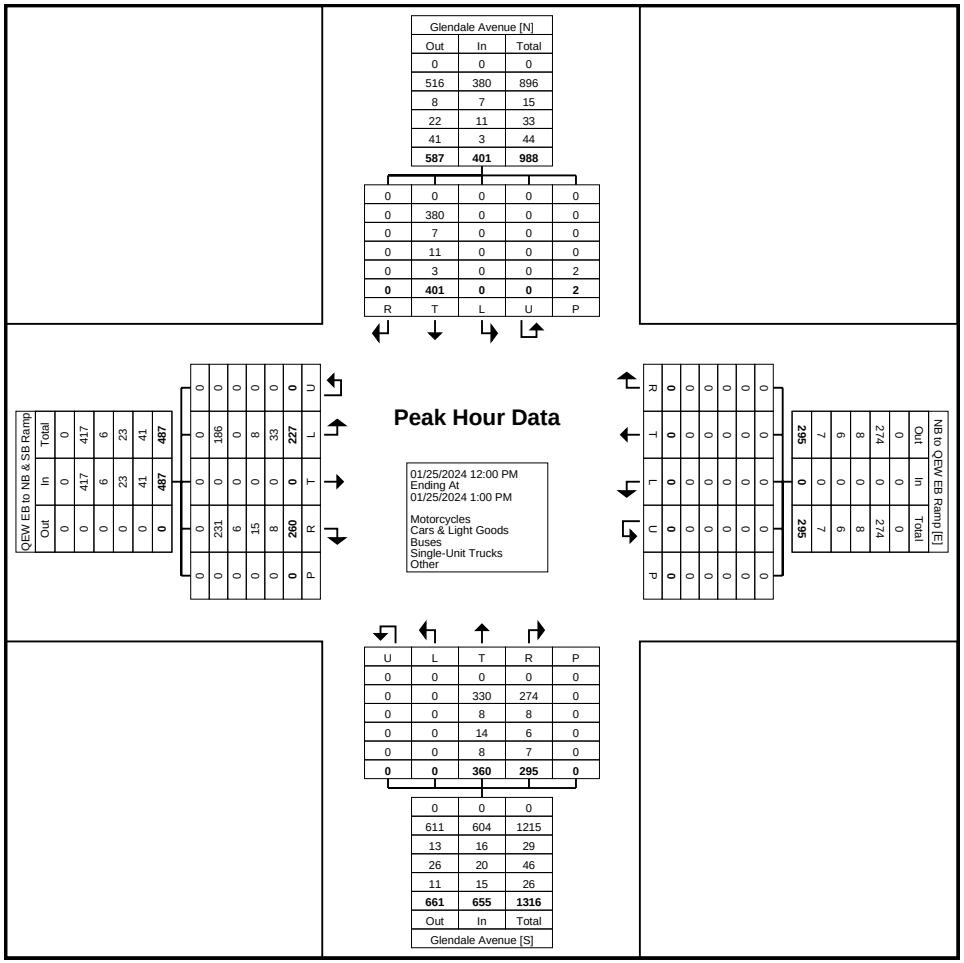
519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue South Signals
Site Code: 210470
Start Date: 01/25/2024



Turning Movement Peak Hour Data Plot (12:00 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue South Signals
Site Code: 210470
Start Date: 01/25/2024

Turning Movement Peak Hour Data (3:45 PM)

Start Time	QEW EB to NB & SB Ramp Eastbound						NB to QEW EB Ramp Westbound						Glendale Avenue Northbound						Glendale Avenue Southbound						
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Int. Total
3:45 PM	75	0	51	0	0	126	0	0	0	0	0	0	0	102	111	0	0	213	0	115	0	0	0	115	454
4:00 PM	57	0	49	0	0	106	0	0	0	0	3	0	0	131	104	0	0	235	0	117	0	0	2	117	458
4:15 PM	60	0	53	0	0	113	0	0	0	0	0	0	0	121	115	0	0	236	0	117	0	0	0	117	466
4:30 PM	70	0	57	0	0	127	0	0	0	0	0	0	0	119	132	0	0	251	0	123	0	0	0	123	501
Total	262	0	210	0	0	472	0	0	0	0	3	0	0	473	462	0	0	935	0	472	0	0	2	472	1879
Approach %	55.5	0.0	44.5	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	50.6	49.4	0.0	-	-	0.0	100.0	0.0	0.0	-	-	-
Total %	13.9	0.0	11.2	0.0	-	25.1	0.0	0.0	0.0	0.0	-	0.0	0.0	25.2	24.6	0.0	-	49.8	0.0	25.1	0.0	0.0	-	25.1	-
PHF	0.873	0.000	0.921	0.000	-	0.929	0.000	0.000	0.000	0.000	-	0.000	0.000	0.903	0.875	0.000	-	0.931	0.000	0.959	0.000	0.000	-	0.959	0.938
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Motorcycles	0.0	-	0.0	-	-	0.0	-	-	-	-	-	-	-	0.0	0.0	-	-	0.0	-	0.2	-	-	-	0.2	0.1
Cars & Light Goods	224	0	195	0	-	419	0	0	0	0	-	0	0	439	449	0	-	888	0	454	0	0	-	454	1761
% Cars & Light Goods	85.5	-	92.9	-	-	88.8	-	-	-	-	-	-	-	92.8	97.2	-	-	95.0	-	96.2	-	-	-	96.2	93.7
Buses	1	0	8	0	-	9	0	0	0	0	-	0	0	10	8	0	-	18	0	7	0	0	-	7	34
% Buses	0.4	-	3.8	-	-	1.9	-	-	-	-	-	-	-	2.1	1.7	-	-	1.9	-	1.5	-	-	-	1.5	1.8
Single-Unit Trucks	18	0	2	0	-	20	0	0	0	0	-	0	0	20	3	0	-	23	0	6	0	0	-	6	49
% Single-Unit Trucks	6.9	-	1.0	-	-	4.2	-	-	-	-	-	-	-	4.2	0.6	-	-	2.5	-	1.3	-	-	-	1.3	2.6
Articulated Trucks	19	0	5	0	-	24	0	0	0	0	-	0	0	4	2	0	-	6	0	4	0	0	-	4	34
% Articulated Trucks	7.3	-	2.4	-	-	5.1	-	-	-	-	-	-	-	0.8	0.4	-	-	0.6	-	0.8	-	-	-	0.8	1.8
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	-	0.0	-	-	0.0	-	-	-	-	-	-	-	0.0	0.0	-	-	0.0	-	0.0	-	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

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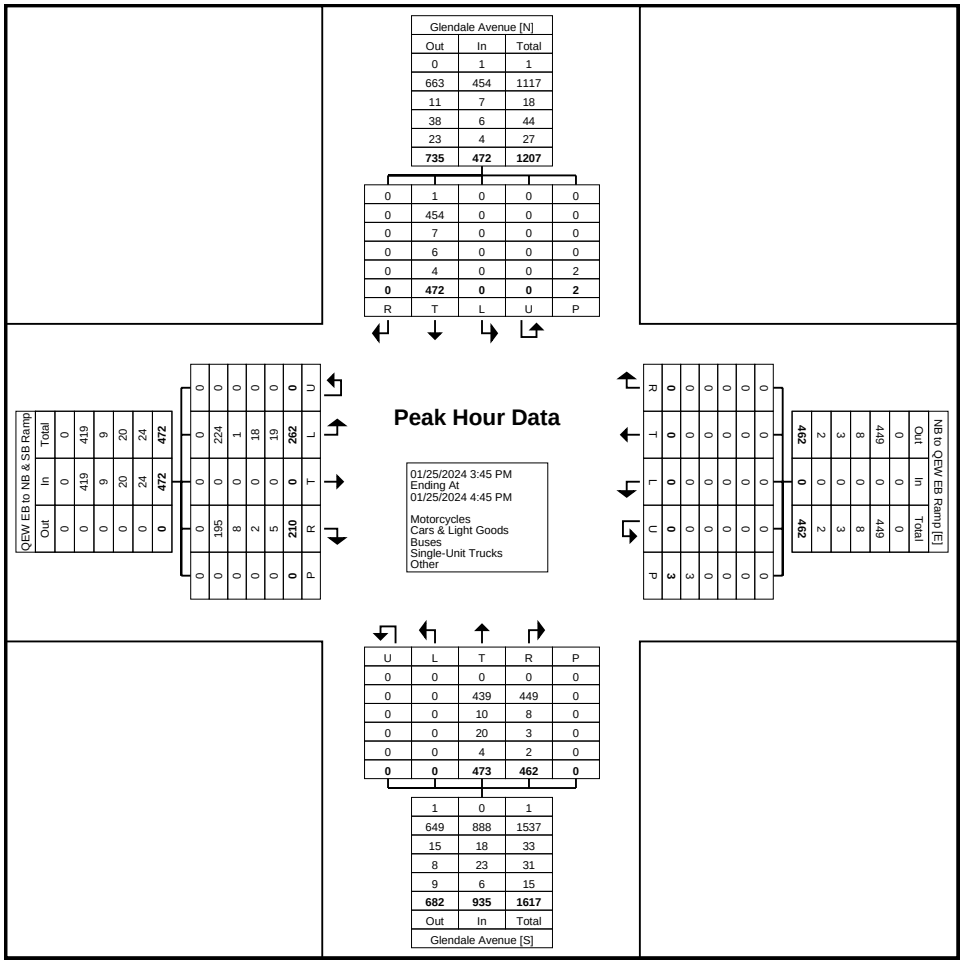


Turning Movement Peak Hour Data Plot (3:45 PM)

Glendale Ave @ Hotel Driveways

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 15:00:00

One Hour Peak
From: 12:15:00
To: 13:15:00

Municipality: Niagara on the Lake
Site #: 0000000004
Intersection: Glendale Ave & Driveways
TFR File #: 4
Count date: 16-Nov-2024

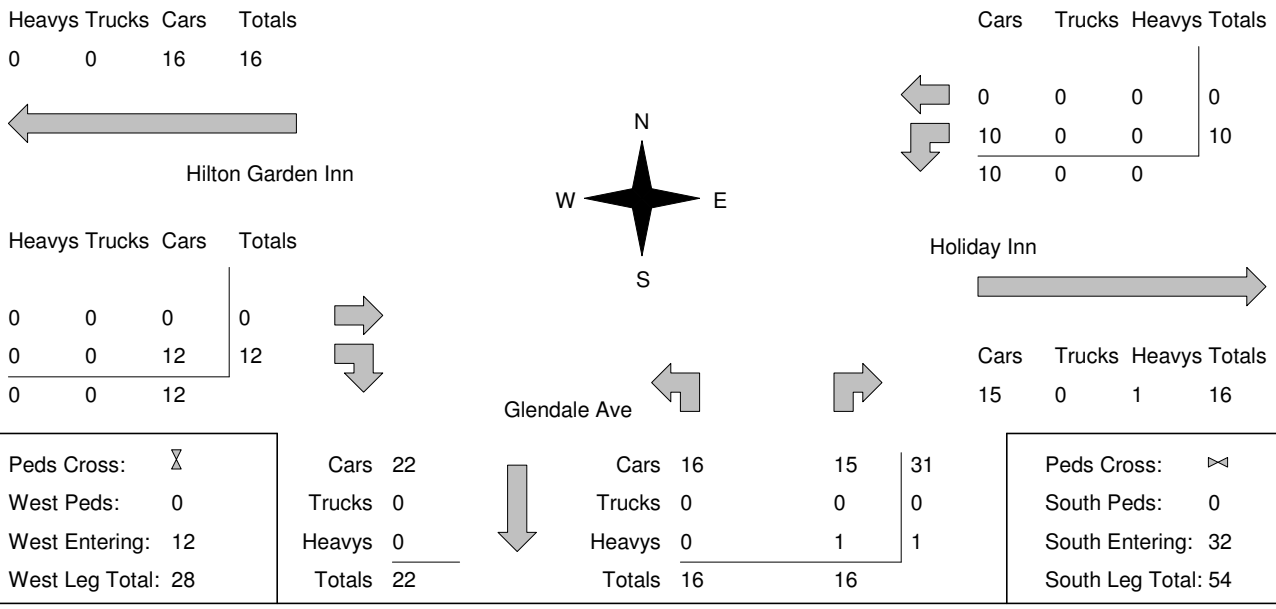
Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: Glendale Ave runs N/S

East Leg Total: 26
East Entering: 10
East Peds: 0
Peds Cross:



Peds Cross:
West Peds: 0
West Entering: 12
West Leg Total: 28

Cars 22
Trucks 0
Heavys 0
Totals 22

Peds Cross:
South Peds: 0
South Entering: 32
South Leg Total: 54

Comments

Glendale Ave @ Hotel Driveways

Total Count Diagram

Municipality: Niagara on the Lake
Site #: 0000000004
Intersection: Glendale Ave & Driveways
TFR File #: 4
Count date: 16-Nov-2024

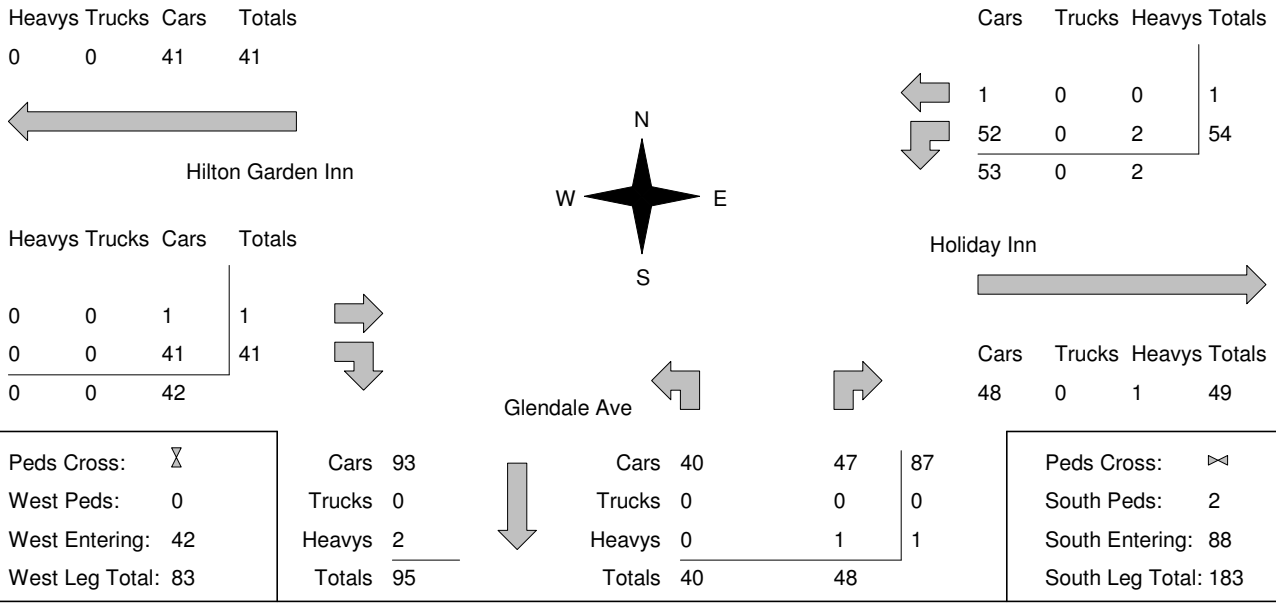
Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: Glendale Ave runs N/S

East Leg Total: 104
East Entering: 55
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 42
West Leg Total: 83

Cars 93
Trucks 0
Heavys 2
Totals 95

Cars 40 47 87
Trucks 0 0 0
Heavys 0 1 1
Totals 40 48

Peds Cross: ⋈
South Peds: 2
South Entering: 88
South Leg Total: 183

Comments

Counsell St @ Hotel Driveway

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 15:00:00

One Hour Peak
From: 11:15:00
To: 12:15:00

Municipality: Niagara on the Lake
Site #: 0000000005
Intersection: Counsell St & Driveways
TFR File #: 5
Count date: 16-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: Counsell St runs N/S

North Leg Total:	0			
North Entering:	0			
North Peds:	0			
Peds Cross:	⋈			
Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	0	0	0	0
Totals	0	0	0	
Heavys	0			
Trucks	0			
Cars	0			
Totals	0			
East Leg Total:	2			
East Entering:	0			
East Peds:	0			
Peds Cross:	⧖			

Counsell St (Court)

Heavys	Trucks	Cars	Totals
0	0	3	3

Cars	Trucks	Heavys	Totals
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	

Holiday Inn

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	0	0
0	0	0	0
0	0	4	4
0	0	4	

Purolator

Cars	Trucks	Heavys	Totals
1	1	0	2

Counsell St

Peds Cross:	⧖			
West Peds:	0			
West Entering:	4			
West Leg Total:	7			
Cars	4			
Trucks	0			
Heavys	0			
Totals	4			
Cars	3	0	1	4
Trucks	0	0	1	1
Heavys	0	0	0	0
Totals	3	0	2	
Peds Cross:	⋈			
South Peds:	0			
South Entering:	5			
South Leg Total:	9			

Comments

Counsell St @ Hotel Driveway

Total Count Diagram

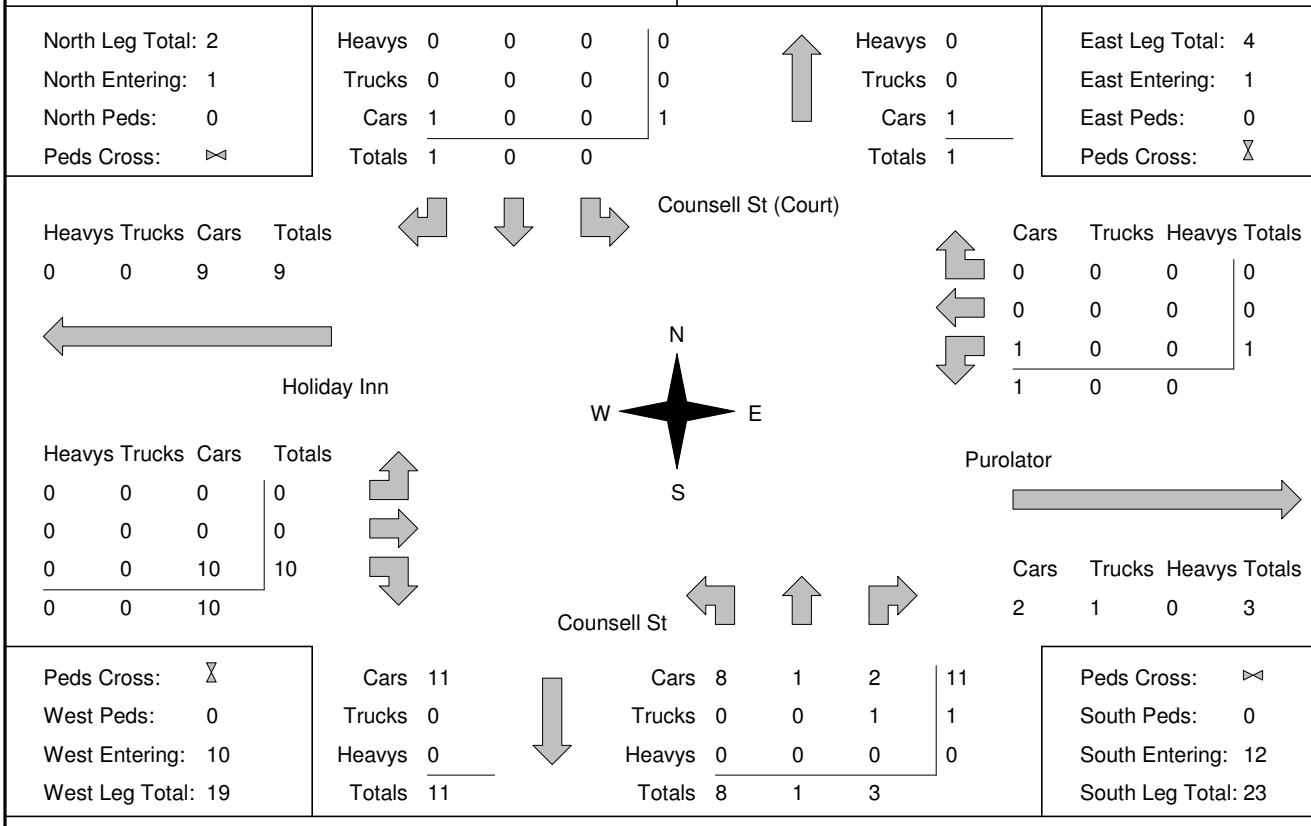
Municipality: Niagara on the Lake
Site #: 0000000005
Intersection: Counsell St & Driveways
TFR File #: 5
Count date: 16-Nov-2024

Weather conditions: Cloudy/Dry

Person(s) who counted: Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: Counsell St runs N/S



Comments

Glendale Ave @ York Rd

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 15:00:00

One Hour Peak
From: 11:45:00
To: 12:45:00

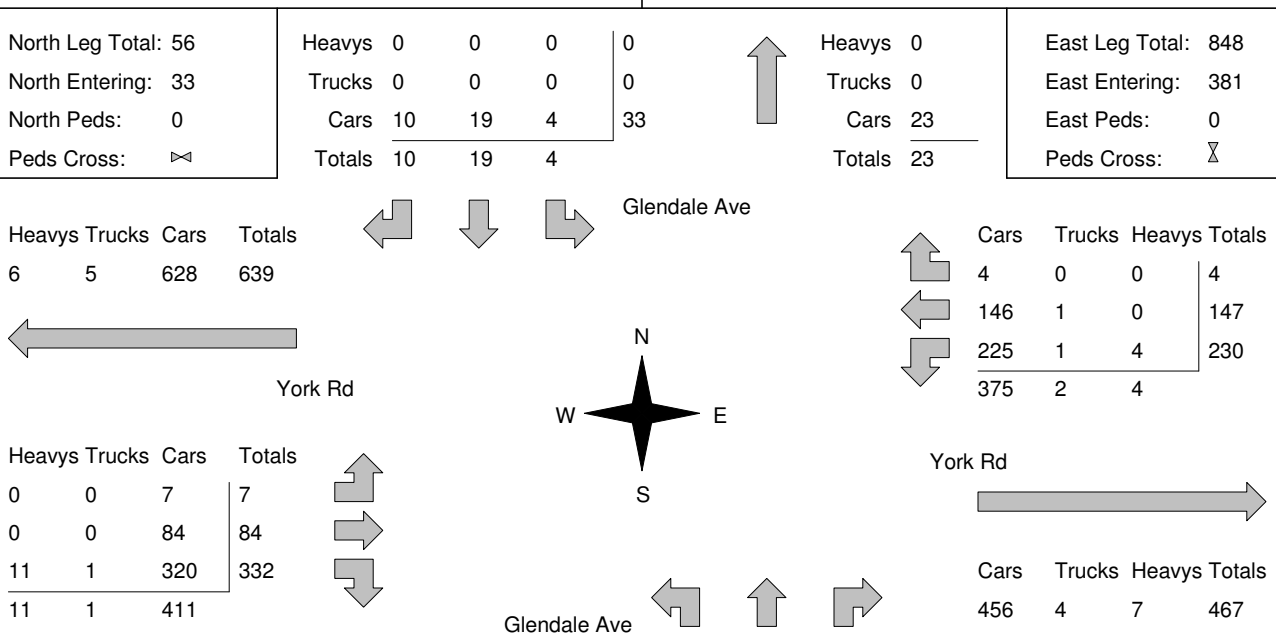
Municipality: Niagara on the Lake
Site #: 0000000001
Intersection: York Rd & Glendale Ave
TFR File #: 1
Count date: 16-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: York Rd runs W/E



Comments

Glendale Ave @ York Rd

Total Count Diagram

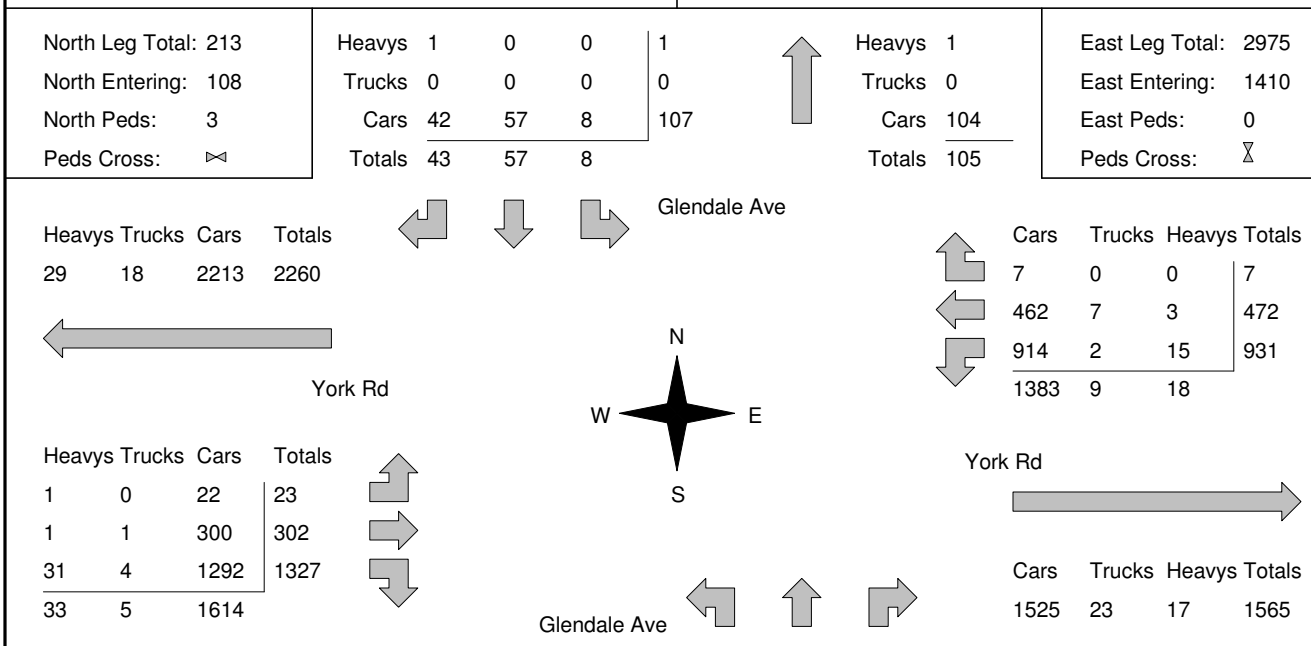
Municipality: Niagara on the Lake
Site #: 0000000001
Intersection: York Rd & Glendale Ave
TFR File #: 1
Count date: 16-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: York Rd runs W/E



Comments

York Rd @ Counsell St

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 15:00:00

One Hour Peak
From: 11:45:00
To: 12:45:00

Municipality: Niagara on the Lake
Site #: 0000000002
Intersection: York Rd & Counsell St
TFR File #: 2
Count date: 16-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: York Rd runs W/E

North Leg Total: 58
North Entering: 28
North Peds: 0
Peds Cross: ⋈

Heavys	0	0	0
Trucks	0	0	0
Cars	25	3	28
Totals	25	3	

Heavys	0
Trucks	1
Cars	29
Totals	30

East Leg Total: 801
East Entering: 361
East Peds: 0
Peds Cross: ⧖

Counsell St

Heavys	Trucks	Cars	Totals
6	1	375	382

Cars	Trucks	Heavys	Totals
4	0	0	4
350	1	6	357
354	1	6	

York Rd

N
W E
S

Heavys	Trucks	Cars	Totals
0	1	25	26
8	5	424	437
8	6	449	

York Rd

Cars	Trucks	Heavys	Totals
427	5	8	440

Peds Cross: ⧖
West Peds: 0
West Entering: 463
West Leg Total: 845

Comments

York Rd @ Counsell St

Total Count Diagram

Municipality: Niagara on the Lake
Site #: 0000000002
Intersection: York Rd & Counsell St
TFR File #: 2
Count date: 16-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: York Rd runs W/E

North Leg Total: 197
North Entering: 97
North Peds: 0
Peds Cross: ⋈

Heavys	0	0	0
Trucks	0	0	0
Cars	79	18	97
Totals	79	18	

Heavys	0
Trucks	1
Cars	99
Totals	100

East Leg Total: 2841
East Entering: 1354
East Peds: 0
Peds Cross: ⧖

Counsell St

Heavys	Trucks	Cars	Totals
20	9	1383	1412

Cars	Trucks	Heavys	Totals
21	0	0	21
1304	9	20	1333
1325	9	20	

York Rd

N
W E
S

Heavys	Trucks	Cars	Totals
0	1	78	79
18	25	1426	1469
18	26	1504	

York Rd

Cars	Trucks	Heavys	Totals
1444	25	18	1487

Peds Cross: ⧖
West Peds: 0
West Entering: 1548
West Leg Total: 2960

Comments

York Rd @ Townline Rd

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 15:00:00

One Hour Peak
From: 11:45:00
To: 12:45:00

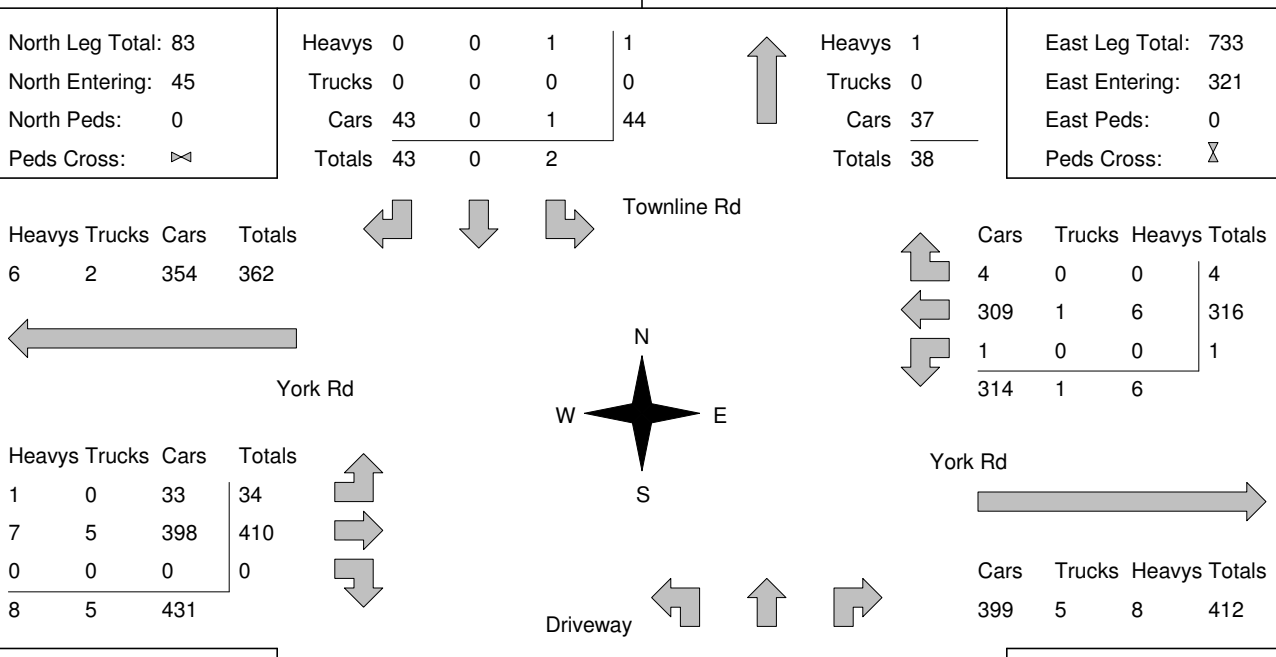
Municipality: Niagara on the Lake
Site #: 0000000003
Intersection: York Rd & Townline Rd
TFR File #: 3
Count date: 16-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: York Rd runs W/E



Comments

York Rd @ Townline Rd

Total Count Diagram

Municipality: Niagara on the Lake
Site #: 0000000003
Intersection: York Rd & Townline Rd
TFR File #: 3
Count date: 16-Nov-2024

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: York Rd runs W/E

North Leg Total:	225			
North Entering:	122			
North Peds:	0			
Peds Cross:	⋈			
Heavys	0	0	1	1
Trucks	1	0	0	1
Cars	112	0	8	120
Totals	113	0	9	
Heavys	1			
Trucks	0			
Cars	102			
Totals	103			
East Leg Total:	2659			
East Entering:	1240			
East Peds:	0			
Peds Cross:	⧖			

Townline Rd

Heavys	Trucks	Cars	Totals
20	8	1318	1346

Cars	Trucks	Heavys	Totals
12	0	0	12
1199	6	20	1225
3	0	0	3
1214	6	20	

York Rd

N
W E
S

Heavys	Trucks	Cars	Totals
1	0	90	91
17	24	1368	1409
0	1	5	6
18	25	1463	

York Rd

Cars	Trucks	Heavys	Totals
1377	24	18	1419

Driveway

Peds Cross:	⧖			
West Peds:	0			
West Entering:	1506			
West Leg Total:	2852			
Cars	8			
Trucks	1			
Heavys	0			
Totals	9			
Cars	7	0	1	8
Trucks	1	0	0	1
Heavys	0	0	0	0
Totals	8	0	1	
Peds Cross:	⋈			
South Peds:	0			
South Entering:	9			
South Leg Total:	18			

Comments

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue North
Signals - Saturday
Site Code: 210470
Start Date: 02/03/2024

Turning Movement Data

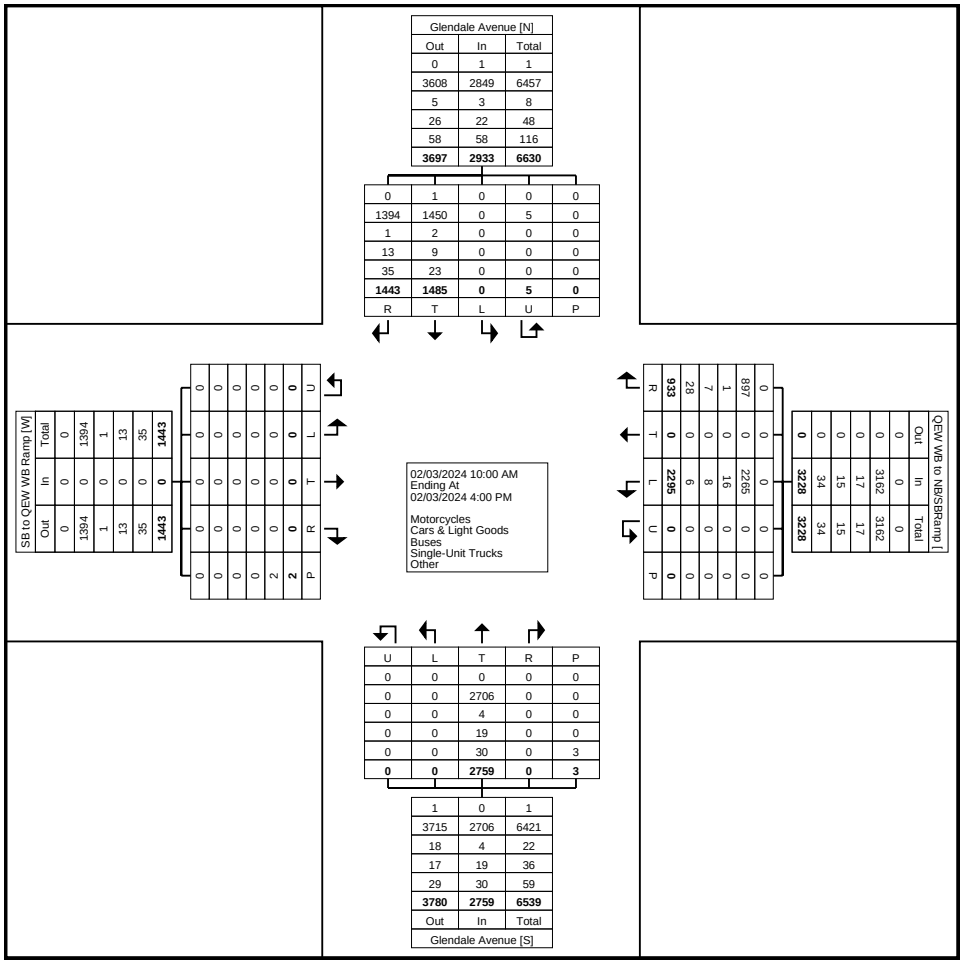
Start Time	SB to QEW WB Ramp Eastbound						QEW WB to NB/SBRamp Westbound						Glendale Avenue Northbound						Glendale Avenue Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
10:00 AM	0	0	0	0	0	0	61	0	20	0	0	81	0	53	0	0	0	53	0	57	45	0	0	102	236
10:15 AM	0	0	0	0	0	0	68	0	28	0	0	96	0	65	0	0	0	65	0	42	47	0	0	89	250
10:30 AM	0	0	0	0	0	0	70	0	36	0	0	106	0	98	0	0	0	98	0	44	55	0	0	99	303
10:45 AM	0	0	0	0	0	0	74	0	54	0	0	128	0	113	0	0	0	113	0	62	45	0	0	107	348
Hourly Total	0	0	0	0	0	0	273	0	138	0	0	411	0	329	0	0	0	329	0	205	192	0	0	397	1137
11:00 AM	0	0	0	0	0	0	75	0	34	0	0	109	0	96	0	0	0	96	0	72	60	0	0	132	337
11:15 AM	0	0	0	0	0	0	93	0	40	0	0	133	0	103	0	0	0	103	0	69	46	0	0	115	351
11:30 AM	0	0	0	0	0	0	113	0	35	0	0	148	0	123	0	0	0	123	0	62	60	1	0	123	394
11:45 AM	0	0	0	0	0	0	95	0	42	0	0	137	0	134	0	0	0	134	0	59	68	0	0	127	398
Hourly Total	0	0	0	0	0	0	376	0	151	0	0	527	0	456	0	0	0	456	0	262	234	1	0	497	1480
12:00 PM	0	0	0	0	1	0	92	0	43	0	0	135	0	101	0	0	1	101	0	61	50	0	0	111	347
12:15 PM	0	0	0	0	1	0	73	0	25	0	0	98	0	149	0	0	2	149	0	68	53	0	0	121	368
12:30 PM	0	0	0	0	0	0	102	0	28	0	0	130	0	155	0	0	0	155	0	57	57	0	0	114	399
12:45 PM	0	0	0	0	0	0	90	0	43	0	0	133	0	121	0	0	0	121	0	64	78	0	0	142	396
Hourly Total	0	0	0	0	2	0	357	0	139	0	0	496	0	526	0	0	3	526	0	250	238	0	0	488	1510
1:00 PM	0	0	0	0	0	0	99	0	36	0	0	135	0	127	0	0	0	127	0	60	65	1	0	126	388
1:15 PM	0	0	0	0	0	0	101	0	31	0	0	132	0	127	0	0	0	127	0	71	60	0	0	131	390
1:30 PM	0	0	0	0	0	0	102	0	44	0	0	146	0	133	0	0	0	133	0	60	63	0	0	123	402
1:45 PM	0	0	0	0	0	0	101	0	41	0	0	142	0	113	0	0	0	113	0	74	68	0	0	142	397
Hourly Total	0	0	0	0	0	0	403	0	152	0	0	555	0	500	0	0	0	500	0	265	256	1	0	522	1577
2:00 PM	0	0	0	0	0	0	136	0	41	0	0	177	0	126	0	0	0	126	0	59	63	0	0	122	425
2:15 PM	0	0	0	0	0	0	109	0	38	0	0	147	0	111	0	0	0	111	0	72	66	0	0	138	396
2:30 PM	0	0	0	0	0	0	121	0	42	0	0	163	0	142	0	0	0	142	0	55	55	0	0	110	415
2:45 PM	0	0	0	0	0	0	122	0	43	0	0	165	0	132	0	0	0	132	0	54	64	0	0	118	415
Hourly Total	0	0	0	0	0	0	488	0	164	0	0	652	0	511	0	0	0	511	0	240	248	0	0	488	1651
3:00 PM	0	0	0	0	0	0	91	0	58	0	0	149	0	120	0	0	0	120	0	72	62	1	0	135	404
3:15 PM	0	0	0	0	0	0	106	0	39	0	0	145	0	134	0	0	0	134	0	69	61	0	0	130	409
3:30 PM	0	0	0	0	0	0	103	0	48	0	0	151	0	87	0	0	0	87	0	52	85	0	0	137	375
3:45 PM	0	0	0	0	0	0	98	0	44	0	0	142	0	96	0	0	0	96	0	70	67	2	0	139	377
Hourly Total	0	0	0	0	0	0	398	0	189	0	0	587	0	437	0	0	0	437	0	263	275	3	0	541	1565
Grand Total	0	0	0	0	2	0	2295	0	933	0	0	3228	0	2759	0	0	3	2759	0	1485	1443	5	0	2933	8920
Approach %	0.0	0.0	0.0	0.0	-	-	71.1	0.0	28.9	0.0	-	-	0.0	100.0	0.0	0.0	-	-	0.0	50.6	49.2	0.2	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.0	25.7	0.0	10.5	0.0	-	36.2	0.0	30.9	0.0	0.0	-	30.9	0.0	16.6	16.2	0.1	-	32.9	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Motorcycles	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	-	0.0	-	-	-	0.0	-	0.1	0.0	0.0	-	0.0	0.0

Cars & Light Goods	0	0	0	0	-	0	2265	0	897	0	-	3162	0	2706	0	0	-	2706	0	1450	1394	5	-	2849	8717
% Cars & Light Goods	-	-	-	-	-	-	98.7	-	96.1	-	-	98.0	-	98.1	-	-	-	98.1	-	97.6	96.6	100.0	-	97.1	97.7
Buses	0	0	0	0	-	0	16	0	1	0	-	17	0	4	0	0	-	4	0	2	1	0	-	3	24
% Buses	-	-	-	-	-	-	0.7	-	0.1	-	-	0.5	-	0.1	-	-	-	0.1	-	0.1	0.1	0.0	-	0.1	0.3
Single-Unit Trucks	0	0	0	0	-	0	8	0	7	0	-	15	0	19	0	0	-	19	0	9	13	0	-	22	56
% Single-Unit Trucks	-	-	-	-	-	-	0.3	-	0.8	-	-	0.5	-	0.7	-	-	-	0.7	-	0.6	0.9	0.0	-	0.8	0.6
Articulated Trucks	0	0	0	0	-	0	6	0	28	0	-	34	0	29	0	0	-	29	0	23	35	0	-	58	121
% Articulated Trucks	-	-	-	-	-	-	0.3	-	3.0	-	-	1.1	-	1.1	-	-	-	1.1	-	1.5	2.4	0.0	-	2.0	1.4
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	1
% Bicycles on Road	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	-	0.0	-	-	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue North
Signals - Saturday
Site Code: 210470
Start Date: 02/03/2024



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue North
Signals - Saturday
Site Code: 210470
Start Date: 02/03/2024

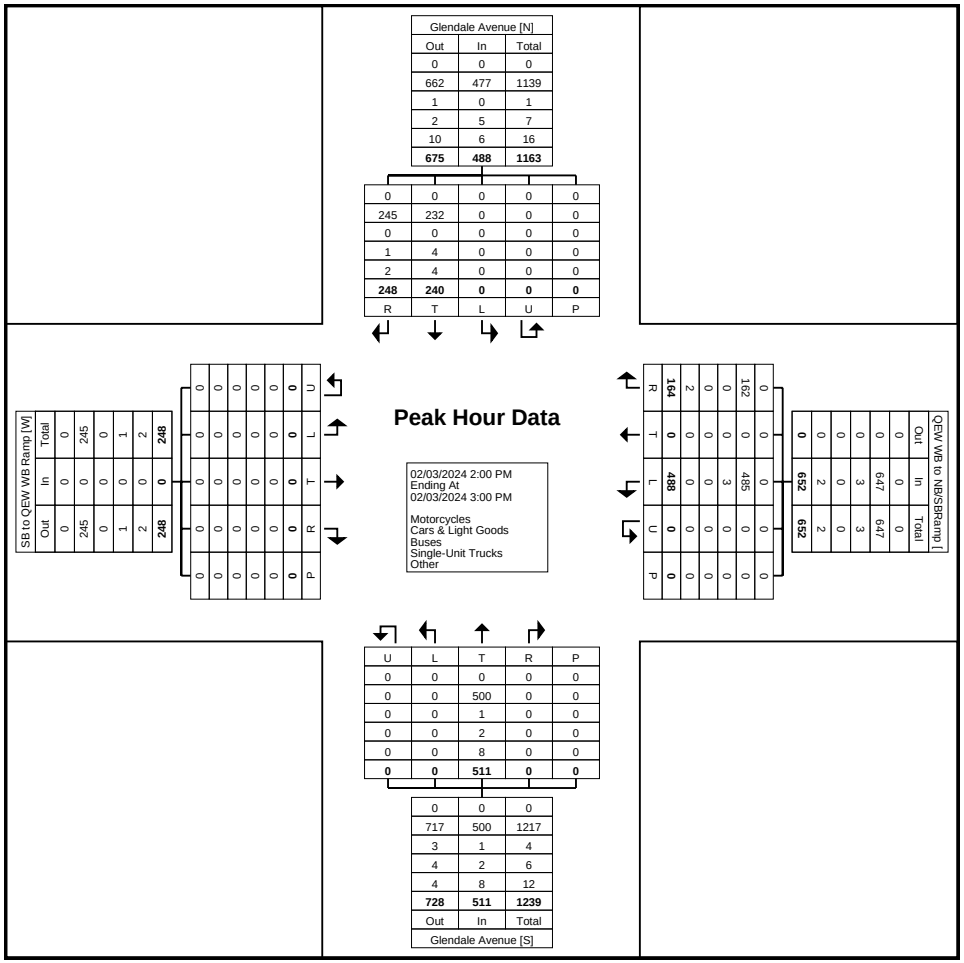
Turning Movement Peak Hour Data (2:00 PM)

Start Time	SB to QEW WB Ramp Eastbound						QEW WB to NB/SBRamp Westbound						Glendale Avenue Northbound						Glendale Avenue Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
2:00 PM	0	0	0	0	0	0	136	0	41	0	0	177	0	126	0	0	0	126	0	59	63	0	0	122	425
2:15 PM	0	0	0	0	0	0	109	0	38	0	0	147	0	111	0	0	0	111	0	72	66	0	0	138	396
2:30 PM	0	0	0	0	0	0	121	0	42	0	0	163	0	142	0	0	0	142	0	55	55	0	0	110	415
2:45 PM	0	0	0	0	0	0	122	0	43	0	0	165	0	132	0	0	0	132	0	54	64	0	0	118	415
Total	0	0	0	0	0	0	488	0	164	0	0	652	0	511	0	0	0	511	0	240	248	0	0	488	1651
Approach %	0.0	0.0	0.0	0.0	-	-	74.8	0.0	25.2	0.0	-	-	0.0	100.0	0.0	0.0	-	-	0.0	49.2	50.8	0.0	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.0	29.6	0.0	9.9	0.0	-	39.5	0.0	31.0	0.0	0.0	-	31.0	0.0	14.5	15.0	0.0	-	29.6	-
PHF	0.000	0.000	0.000	0.000	-	0.000	0.897	0.000	0.953	0.000	-	0.921	0.000	0.900	0.000	0.000	-	0.900	0.000	0.833	0.939	0.000	-	0.884	0.971
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	-	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	0	0	0	0	-	0	485	0	162	0	-	647	0	500	0	0	-	500	0	232	245	0	-	477	1624
% Cars & Light Goods	-	-	-	-	-	-	99.4	-	98.8	-	-	99.2	-	97.8	-	-	-	97.8	-	96.7	98.8	-	-	97.7	98.4
Buses	0	0	0	0	-	0	3	0	0	0	-	3	0	1	0	0	-	1	0	0	0	0	-	0	4
% Buses	-	-	-	-	-	-	0.6	-	0.0	-	-	0.5	-	0.2	-	-	-	0.2	-	0.0	0.0	-	-	0.0	0.2
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	0	4	1	0	-	5	7
% Single-Unit Trucks	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	-	0.4	-	-	-	0.4	-	1.7	0.4	-	-	1.0	0.4
Articulated Trucks	0	0	0	0	-	0	0	0	2	0	-	2	0	7	0	0	-	7	0	4	2	0	-	6	15
% Articulated Trucks	-	-	-	-	-	-	0.0	-	1.2	-	-	0.3	-	1.4	-	-	-	1.4	-	1.7	0.8	-	-	1.2	0.9
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	1
% Bicycles on Road	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	-	0.2	-	-	-	0.2	-	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue North
Signals - Saturday
Site Code: 210470
Start Date: 02/03/2024



Turning Movement Peak Hour Data Plot (2:00 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue South Signals - Saturday
Site Code: 210470
Start Date: 02/03/2024

Turning Movement Data

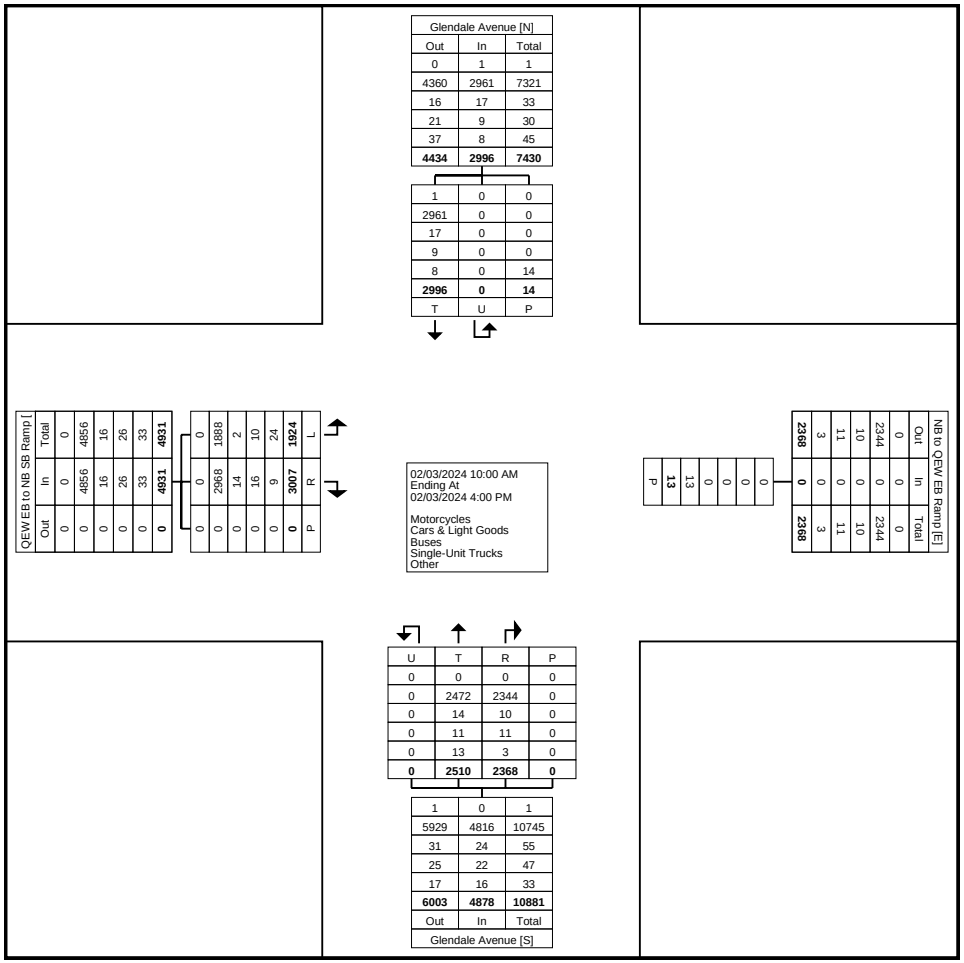
Start Time	QEW EB to NB SB Ramp Eastbound				NB to QEW EB Ramp Westbound		Glendale Avenue Northbound					Glendale Avenue Southbound				
	Left	Right	Peds	App. Total	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Thru	U-Turn	Peds	App. Total	Int. Total
10:00 AM	36	86	0	122	0	0	41	44	0	0	85	91	0	0	91	298
10:15 AM	39	87	0	126	1	0	56	51	0	0	107	91	0	1	91	324
10:30 AM	75	100	0	175	0	0	57	52	0	0	109	93	0	0	93	377
10:45 AM	78	123	0	201	1	0	72	65	0	0	137	107	0	1	107	445
Hourly Total	228	396	0	624	2	0	226	212	0	0	438	382	0	2	382	1444
11:00 AM	70	103	0	173	1	0	73	67	0	0	140	119	0	1	119	432
11:15 AM	74	108	0	182	0	0	89	61	0	0	150	127	0	0	127	459
11:30 AM	75	113	0	188	0	0	107	93	0	0	200	145	0	0	145	533
11:45 AM	79	124	0	203	0	0	110	94	0	0	204	119	0	0	119	526
Hourly Total	298	448	0	746	1	0	379	315	0	0	694	510	0	1	510	1950
12:00 PM	74	121	0	195	1	0	97	93	0	0	190	108	0	1	108	493
12:15 PM	112	131	0	243	0	0	101	107	0	0	208	110	0	0	110	561
12:30 PM	106	131	0	237	2	0	114	115	0	0	229	126	0	2	126	592
12:45 PM	92	133	0	225	0	0	108	116	0	0	224	115	0	0	115	564
Hourly Total	384	516	0	900	3	0	420	431	0	0	851	459	0	3	459	2210
1:00 PM	79	139	0	218	2	0	116	109	0	0	225	115	0	2	115	558
1:15 PM	84	136	0	220	1	0	117	120	0	0	237	121	0	1	121	578
1:30 PM	82	159	0	241	0	0	128	108	0	0	236	133	0	0	133	610
1:45 PM	84	142	0	226	1	0	112	115	0	0	227	138	0	1	138	591
Hourly Total	329	576	0	905	4	0	473	452	0	0	925	507	0	4	507	2337
2:00 PM	97	157	0	254	2	0	112	111	0	0	223	166	0	2	166	643
2:15 PM	82	141	0	223	1	0	112	106	0	0	218	153	0	1	153	594
2:30 PM	106	131	0	237	0	0	148	119	0	0	267	145	0	0	145	649
2:45 PM	85	137	0	222	0	0	144	117	0	0	261	150	0	0	150	633
Hourly Total	370	566	0	936	3	0	516	453	0	0	969	614	0	3	614	2519
3:00 PM	92	133	0	225	0	0	126	135	0	0	261	131	0	0	131	617
3:15 PM	96	131	0	227	0	0	142	115	0	0	257	137	0	1	137	621
3:30 PM	67	113	0	180	0	0	119	154	0	0	273	127	0	0	127	580
3:45 PM	60	128	0	188	0	0	109	101	0	0	210	129	0	0	129	527
Hourly Total	315	505	0	820	0	0	496	505	0	0	1001	524	0	1	524	2345
Grand Total	1924	3007	0	4931	13	0	2510	2368	0	0	4878	2996	0	14	2996	12805
Approach %	39.0	61.0	-	-	-	-	51.5	48.5	0.0	-	-	100.0	0.0	-	-	-
Total %	15.0	23.5	-	38.5	-	0.0	19.6	18.5	0.0	-	38.1	23.4	0.0	-	23.4	-
Motorcycles	0	0	-	0	-	0	0	0	0	-	0	1	0	-	1	1
% Motorcycles	0.0	0.0	-	0.0	-	-	0.0	0.0	-	-	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	1888	2968	-	4856	-	0	2472	2344	0	-	4816	2961	0	-	2961	12633

% Cars & Light Goods	98.1	98.7	-	98.5	-	-	98.5	99.0	-	-	98.7	98.8	-	-	98.8	98.7
Buses	2	14	-	16	-	0	14	10	0	-	24	17	0	-	17	57
% Buses	0.1	0.5	-	0.3	-	-	0.6	0.4	-	-	0.5	0.6	-	-	0.6	0.4
Single-Unit Trucks	10	16	-	26	-	0	11	11	0	-	22	9	0	-	9	57
% Single-Unit Trucks	0.5	0.5	-	0.5	-	-	0.4	0.5	-	-	0.5	0.3	-	-	0.3	0.4
Articulated Trucks	24	9	-	33	-	0	13	3	0	-	16	8	0	-	8	57
% Articulated Trucks	1.2	0.3	-	0.7	-	-	0.5	0.1	-	-	0.3	0.3	-	-	0.3	0.4
Bicycles on Road	0	0	-	0	-	0	0	0	0	-	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	0.0	-	-	0.0	0.0	-	-	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	0	-	1	-	-	-	-	0	-	-	-	2	-	-
% Bicycles on Crosswalk	-	-	-	-	7.7	-	-	-	-	-	-	-	-	14.3	-	-
Pedestrians	-	-	0	-	12	-	-	-	-	0	-	-	-	12	-	-
% Pedestrians	-	-	-	-	92.3	-	-	-	-	-	-	-	-	85.7	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue South
Signals - Saturday
Site Code: 210470
Start Date: 02/03/2024



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue South Signals - Saturday
Site Code: 210470
Start Date: 02/03/2024

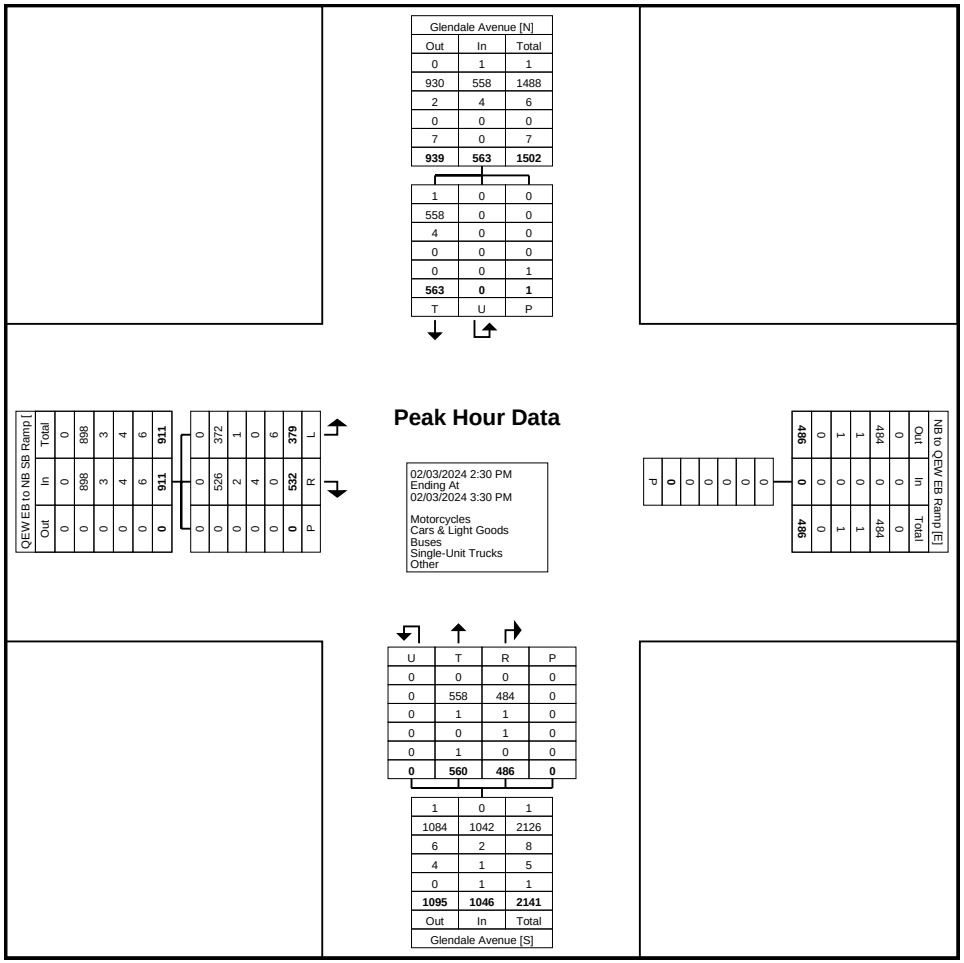
Turning Movement Peak Hour Data (2:30 PM)

Start Time	QEW EB to NB SB Ramp Eastbound				NB to QEW EB Ramp Westbound		Glendale Avenue Northbound					Glendale Avenue Southbound				
	Left	Right	Peds	App. Total	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Thru	U-Turn	Peds	App. Total	Int. Total
2:30 PM	106	131	0	237	0	0	148	119	0	0	267	145	0	0	145	649
2:45 PM	85	137	0	222	0	0	144	117	0	0	261	150	0	0	150	633
3:00 PM	92	133	0	225	0	0	126	135	0	0	261	131	0	0	131	617
3:15 PM	96	131	0	227	0	0	142	115	0	0	257	137	0	1	137	621
Total	379	532	0	911	0	0	560	486	0	0	1046	563	0	1	563	2520
Approach %	41.6	58.4	-	-	-	-	53.5	46.5	0.0	-	-	100.0	0.0	-	-	-
Total %	15.0	21.1	-	36.2	-	0.0	22.2	19.3	0.0	-	41.5	22.3	0.0	-	22.3	-
PHF	0.894	0.971	-	0.961	-	0.000	0.946	0.900	0.000	-	0.979	0.938	0.000	-	0.938	0.971
Motorcycles	0	0	-	0	-	0	0	0	0	-	0	1	0	-	1	1
% Motorcycles	0.0	0.0	-	0.0	-	-	0.0	0.0	-	-	0.0	0.2	-	-	0.2	0.0
Cars & Light Goods	372	526	-	898	-	0	558	484	0	-	1042	558	0	-	558	2498
% Cars & Light Goods	98.2	98.9	-	98.6	-	-	99.6	99.6	-	-	99.6	99.1	-	-	99.1	99.1
Buses	1	2	-	3	-	0	1	1	0	-	2	4	0	-	4	9
% Buses	0.3	0.4	-	0.3	-	-	0.2	0.2	-	-	0.2	0.7	-	-	0.7	0.4
Single-Unit Trucks	0	4	-	4	-	0	0	1	0	-	1	0	0	-	0	5
% Single-Unit Trucks	0.0	0.8	-	0.4	-	-	0.0	0.2	-	-	0.1	0.0	-	-	0.0	0.2
Articulated Trucks	6	0	-	6	-	0	1	0	0	-	1	0	0	-	0	7
% Articulated Trucks	1.6	0.0	-	0.7	-	-	0.2	0.0	-	-	0.1	0.0	-	-	0.0	0.3
Bicycles on Road	0	0	-	0	-	0	0	0	0	-	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	0.0	-	-	0.0	0.0	-	-	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	0	-	0	-	-	-	-	0	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	0	-	0	-	-	-	-	0	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: QEW & Glendale Avenue South
Signals - Saturday
Site Code: 210470
Start Date: 02/03/2024



Turning Movement Peak Hour Data Plot (2:30 PM)

Signal Code: 089DDN

Intersection: RR89 (GLENDALE AVE.) & DDI NORTH

Municipality: notl

Owner: region

Last Modified: 2022-10-04 10:03:07 AM

Timing Parameters	SB THRU GLENDALE AVE.	NB THRU GLENDALE AVE.	n/a	n/a	n/a	n/a
Min Green	10	10	0	0	0	0
Walk	7	0	0	0	0	0
Ped Clearance	9	0	0	0	0	0
Vehicle Ext.	2.5	2.5	0	0	0	0
Max Green	40	40	0	0	0	0
Yellow	4	4	0	0	0	0
All Red	3	4	0	0	0	0

		Offset
Minimum Cycle	35	0
Pedestrian Cycle	23	
Maximum Cycle	95	0
Operation	FA	
Installed On:	--/--/----	
Count Date:	--/--/----	

FA = Fully Actuated SA = Semi Actuated FT = Fixed Time

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Signal Code: 089DDS

Intersection: RR89 (GLENDALE AVE.) & DDI SOUTH

Municipality: notl

Owner: region

Last Modified: 2022-10-04 1:26:07 PM

Timing Parameters	SBD GLENDALE AVE	NBD GLENDALE AVE	n/a	n/a	n/a	n/a
Min Green	10	10	0	0	0	0
Walk	0	7	0	0	0	0
Ped Clearance	0	9	0	0	0	0
Vehicle Ext.	2.5	2.5	0	0	0	0
Max Green	40	40	0	0	0	0
Yellow	4	4	0	0	0	0
All Red	4	3	0	0	0	0

		Offset
Minimum Cycle	35	0
Pedestrian Cycle	23	
Maximum Cycle	95	0
Operation	FA	
Installed On:	--/--/----	
Count Date:	--/--/----	

FA = Fully Actuated SA = Semi Actuated FT = Fixed Time

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Appendix C

Existing Traffic Operations

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	13	25	1	8	13
Future Volume (vph)	0	13	25	1	8	13
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.918	
Flt Protected				0.954	0.981	
Satd. Flow (prot)	1514	0	0	1669	1576	0
Flt Permitted				0.954	0.981	
Satd. Flow (perm)	1514	0	0	1669	1576	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	0	14	27	1	9	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	0	28	23	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	13	25	1	8	13
Future Volume (Veh/h)	0	13	25	1	8	13
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	14	27	1	9	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	32	0	39	25	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	32	0	39	25	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	97	100	99	
cM capacity (veh/h)	860	1091	954	866	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	14	28	23
Volume Left	0	27	9
Volume Right	14	0	14
cSH	1091	951	1636
Volume to Capacity	0.01	0.03	0.01
Queue Length 95th (m)	0.3	0.7	0.1
Control Delay (s/veh)	8.3	8.9	2.8
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	8.9	2.8
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.6		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

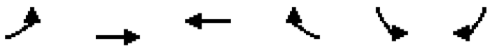
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	36	11	3	1
Future Volume (vph)	0	0	36	11	3	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.966	
Flt Protected				0.963	0.964	
Satd. Flow (prot)	1750	0	0	1669	1626	0
Flt Permitted				0.963	0.964	
Satd. Flow (perm)	1750	0	0	1669	1626	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	1%	0%	1%
Adj. Flow (vph)	0	0	39	12	3	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	51	4	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	36	11	3	1
Future Volume (Veh/h)	0	0	36	11	3	1
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	39	12	3	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	7	0	7	7	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	7	0	7	7	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	96	99	100	
cM capacity (veh/h)	891	1091	1015	889	1636	

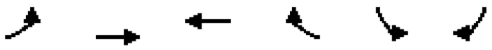
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	0	51	4
Volume Left	0	39	3
Volume Right	0	0	1
cSH	1700	982	1636
Volume to Capacity	0.00	0.05	0.00
Queue Length 95th (m)	0.0	1.3	0.0
Control Delay (s/veh)	0.0	8.9	5.4
Lane LOS	A	A	A
Approach Delay (s/veh)	0.0	8.9	5.4
Approach LOS	A	A	

Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	60	505	429	8	4	58
Future Volume (vph)	60	505	429	8	4	58
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.997		0.873	
Flt Protected	0.950				0.997	
Satd. Flow (prot)	1662	3325	3315	0	1523	0
Flt Permitted	0.950				0.997	
Satd. Flow (perm)	1662	3325	3315	0	1523	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	65	549	466	9	4	63
Shared Lane Traffic (%)						
Lane Group Flow (vph)	65	549	475	0	67	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

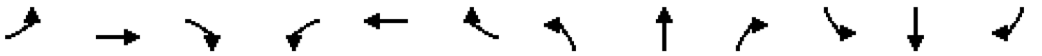
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	60	505	429	8	4	58
Future Volume (Veh/h)	60	505	429	8	4	58
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	65	549	466	9	4	63
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	475				875	238
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	475				875	238
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				99	92
cM capacity (veh/h)	1098				275	770

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	65	275	275	311	164	67
Volume Left	65	0	0	0	0	4
Volume Right	0	0	0	0	9	63
cSH	1098	1700	1700	1700	1700	695
Volume to Capacity	0.06	0.16	0.16	0.18	0.10	0.10
Queue Length 95th (m)	1.5	0.0	0.0	0.0	0.0	2.5
Control Delay (s/veh)	8.5	0.0	0.0	0.0	0.0	10.7
Lane LOS	A					B
Approach Delay (s/veh)	0.9			0.0		10.7
Approach LOS						B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	30.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	384	5	1	380	11	7	0	2	3	0	55
Future Volume (vph)	124	384	5	1	380	11	7	0	2	3	0	55
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.996			0.973			0.871	
Flt Protected		0.988						0.962			0.998	
Satd. Flow (prot)	0	1727	0	0	1743	0	0	1638	0	0	1521	0
Flt Permitted		0.988						0.962			0.998	
Satd. Flow (perm)	0	1727	0	0	1743	0	0	1638	0	0	1521	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	135	417	5	1	413	12	8	0	2	3	0	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	557	0	0	426	0	0	10	0	0	63	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 66.0%		ICU Level of Service C	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	384	5	1	380	11	7	0	2	3	0	55
Future Volume (Veh/h)	124	384	5	1	380	11	7	0	2	3	0	55
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	135	417	5	1	413	12	8	0	2	3	0	60
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	425			422			1171	1117	420	1113	1113	419
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	425			422			1171	1117	420	1113	1113	419
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 %	88			100			94	100	100	98	100	91
cM capacity (veh/h)	1145			1148			141	184	638	170	185	638

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	557	426	10	63
Volume Left	135	1	8	3
Volume Right	5	12	2	60
cSH	1145	1148	167	564
Volume to Capacity	0.12	0.00	0.06	0.11
Queue Length 95th (m)	3.2	0.0	1.5	3.0
Control Delay (s/veh)	3.1	0.0	27.9	12.2
Lane LOS	A	A	D	B
Approach Delay (s/veh)	3.1	0.0	27.9	12.2
Approach LOS			D	B

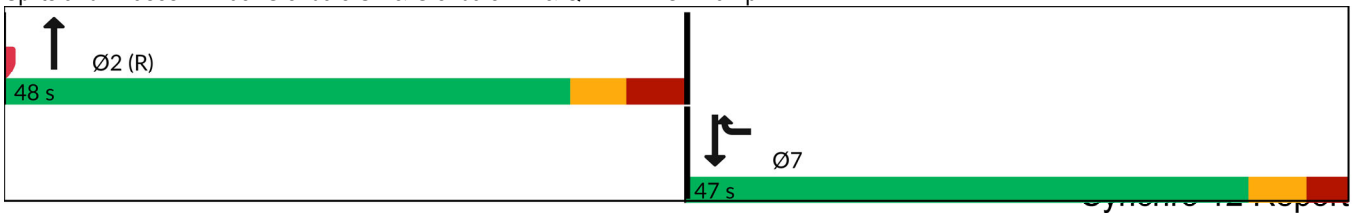
Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	281	451	482
Future Volume (vph)	281	451	482
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	305	490	524
Shared Lane Traffic (%)			
Lane Group Flow (vph)	305	490	524
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	28.3	55.7	28.3
Actuated g/C Ratio	0.30	0.59	0.30
v/c Ratio	0.69	0.28	0.58
Control Delay (s/veh)	37.0	11.4	30.0
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	37.0	11.4	30.0
LOS	D	B	C
Approach Delay (s/veh)		11.4	30.0
Approach LOS		B	C
Stops (vph)	237	219	385
Fuel Used(l)	15	11	21
CO Emissions (g/hr)	284	212	398
NOx Emissions (g/hr)	55	41	77
VOC Emissions (g/hr)	65	49	92
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay (s/veh): 24.7		Intersection LOS: C	
Intersection Capacity Utilization 41.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	305	490	524
v/c Ratio	0.69	0.28	0.58
Control Delay (s/veh)	37.0	11.4	30.0
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	37.0	11.4	30.0
Queue Length 50th (m)	51.9	22.7	45.0
Queue Length 95th (m)	69.7	41.0	52.3
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	656	1773	1348
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.46	0.28	0.39

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	281	451	482
Future Volume (vph)	281	451	482
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	305	490	524
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	305	490	524
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	26.3	53.7	26.3
Effective Green, g (s)	28.3	55.7	28.3
Actuated g/C Ratio	0.30	0.59	0.30
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	442	1772	908
v/s Ratio Prot	c0.21	c0.16	0.17
v/s Ratio Perm			
v/c Ratio	0.69	0.28	0.58
Uniform Delay, d1	29.5	9.7	28.3
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	4.6	0.4	0.9
Delay (s)	34.1	10.1	29.2
Level of Service	C	B	C
Approach Delay (s/veh)		10.1	29.2
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

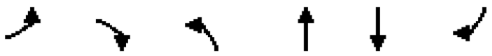
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	223	0	0	0	0	482
Future Volume (vph)	223	0	0	0	0	482
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	242	0	0	0	0	524
Shared Lane Traffic (%)						
Lane Group Flow (vph)	242	0	0	0	0	524
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	223	0	0	0	0	482
Future Volume (Veh/h)	223	0	0	0	0	482
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	242	0	0	0	0	524
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	262	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	262	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	66	100			100	
cM capacity (veh/h)	705	1084			1622	

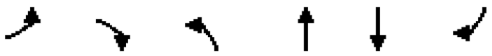
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	242	262	262
Volume Left	242	0	0
Volume Right	0	0	0
cSH	705	1700	1700
Volume to Capacity	0.34	0.15	0.15
Queue Length 95th (m)	12.2	0.0	0.0
Control Delay (s/veh)	12.8	0.0	0.0
Lane LOS	B		
Approach Delay (s/veh)	12.8	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	34.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	334	0	0	470	0	0
Future Volume (vph)	334	0	0	470	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	363	0	0	511	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	363	0	0	511	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 63.3%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	334	0	0	470	0	0
Future Volume (Veh/h)	334	0	0	470	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	363	0	0	511	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	256	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	256	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	49	100	100			
cM capacity (veh/h)	711	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	363	256	256
Volume Left	363	0	0
Volume Right	0	0	0
cSH	711	1700	1700
Volume to Capacity	0.51	0.15	0.15
Queue Length 95th (m)	23.4	0.0	0.0
Control Delay (s/veh)	15.2	0.0	0.0
Lane LOS	C		
Approach Delay (s/veh)	15.2	0.0	
Approach LOS	C		

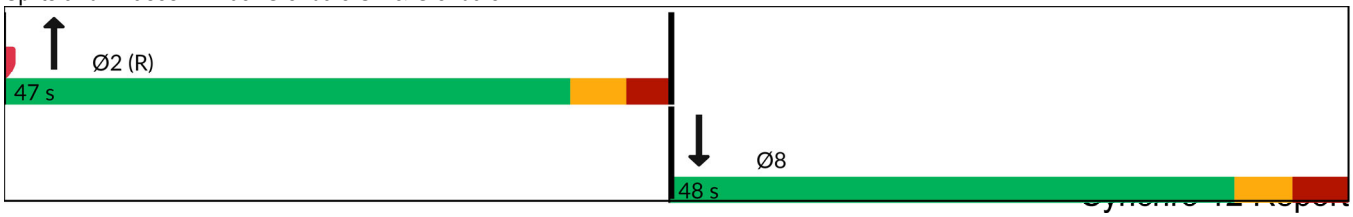
Intersection Summary			
Average Delay	6.3		
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	470	0	0	318	0	0	0	0	0	0	0
Future Volume (vph)	0	470	0	0	318	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	511	0	0	346	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	511	0	0	346	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		64.6			15.4							
Actuated g/C Ratio		0.68			0.16							
v/c Ratio		0.23			0.64							
Control Delay (s/veh)		6.4			42.6							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		6.4			42.6							
LOS		A			D							
Approach Delay (s/veh)		6.4			42.6							
Approach LOS		A			D							
Stops (vph)		167			287							
Fuel Used(l)		8			18							
CO Emissions (g/hr)		153			343							
NOx Emissions (g/hr)		30			66							
VOC Emissions (g/hr)		35			79							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay (s/veh): 21.0		Intersection LOS: C	
Intersection Capacity Utilization 19.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	511	346
v/c Ratio	0.23	0.64
Control Delay (s/veh)	6.4	42.6
Queue Delay	0.0	0.0
Total Delay (s/veh)	6.4	42.6
Queue Length 50th (m)	17.2	33.2
Queue Length 95th (m)	27.9	45.5
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	2262	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.23	0.25

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	470	0	0	318	0	0	0	0	0	0	0
Future Volume (vph)	0	470	0	0	318	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	511	0	0	346	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	511	0	0	346	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		64.6			15.4							
Effective Green, g (s)		64.6			15.4							
Actuated g/C Ratio		0.68			0.16							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		2261			539							
v/s Ratio Prot		c0.15			c0.10							
v/s Ratio Perm												
v/c Ratio		0.23			0.64							
Uniform Delay, d1		5.7			37.2							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.2			2.6							
Delay (s)		6.0			39.8							
Level of Service		A			D							
Approach Delay (s/veh)		6.0			39.8			0.0			0.0	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	19.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:20:32 PM

Summary of intersection performance

	AM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - Base						
Leg North	0.06	~1	6.00	0.05	A	5.66	A
Leg West	0.12	~1	3.74	0.10	A		
Leg South	0.82	~1	5.42	0.42	A		
Leg East	1.09	?	7.72	0.49	A		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM " model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:20:31 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - Base, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
Base, AM	Base	AM		PHF	08:00	09:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				5.66	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

	V - Approach road half-width	E - Entry width	l' - Effective flare length	R - Entry radius	D - Inscribed circle diameter	PHI - Conflict (entry) angle	Exit

Leg	(m)	(m)	(m)	(m)	(m)	(deg)	Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	36.00	100.000
West	PHF	✓	395.00	100.000
South	PHF	✓	944.00	100.000
East	PHF	✓	471.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	36.00	0.92	SecondQuarter
West	395.00	0.92	SecondQuarter
South	944.00	0.92	SecondQuarter
East	471.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	13.000	20.000	3.000
	West	2.000	0.000	287.000	106.000
	South	14.000	489.000	0.000	441.000
	East	0.000	123.000	347.000	1.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.36	0.56	0.08
	West	0.01	0.00	0.73	0.27
	South	0.01	0.52	0.00	0.47
	East	0.00	0.26	0.74	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.154	1.200	1.333
	West	1.000	1.000	1.139	1.047
	South	1.071	1.119	1.000	1.095
	East	1.000	1.057	1.170	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	15.4	20.0	33.3
	West	0.0	0.0	13.9	4.7
	South	7.1	11.9	0.0	9.5
	East	0.0	5.7	17.0	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.05	6.00	0.06	~1	A	36.00	36.00	3.36	5.60	0.06	3.36	5.60
West	0.10	3.74	0.12	~1	A	395.00	108.00	6.54	3.63	0.11	6.54	3.63
South	0.42	5.42	0.82	~1	A	944.00	503.00	42.64	5.09	0.71	42.65	5.09
East	0.49	7.72	1.09	?	A	471.00	471.00	54.20	6.90	0.90	54.22	6.91

Main Results for each time segment

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	33.91	33.91	8.48	0.00	0.00	33.71	14.99	898.75	0.00	837.29	384.25	0.041	0.00	0.05	5.342	A
West	372.10	101.74	25.43	270.36	0.00	101.34	585.40	347.06	0.00	1156.58	848.37	0.088	0.00	0.10	3.569	A
South	889.28	473.84	118.46	415.43	270.36	471.29	343.32	105.08	0.00	1296.63	846.86	0.365	0.00	0.64	4.860	A
East	443.70	443.70	110.92	0.00	415.43	440.58	103.21	473.16	0.00	1083.60	858.23	0.409	0.00	0.78	6.340	A

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	39.13	39.13	9.78	0.00	0.00	39.07	17.37	1041.56	0.00	754.63	384.25	0.052	0.05	0.06	6.000	A
West	429.35	117.39	29.35	311.96	0.00	117.31	678.31	402.32	0.00	1124.60	848.37	0.104	0.10	0.12	3.738	A
South	1026.09	546.74	136.68	479.35	311.96	546.02	397.98	121.65	0.00	1287.04	846.86	0.425	0.64	0.82	5.423	A
East	511.96	511.96	127.99	0.00	479.35	510.73	119.48	548.20	0.00	1040.17	858.23	0.492	0.78	1.09	7.718	A

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	37.04	37.04	9.26	0.00	0.00	37.06	16.47	988.50	0.00	785.34	384.25	0.047	0.06	0.06	5.737	A
West	406.45	111.13	27.78	295.32	0.00	111.16	643.48	382.09	0.00	1136.31	848.37	0.098	0.12	0.11	3.672	A
South	971.36	517.58	129.39	453.78	295.32	517.83	377.97	115.28	0.00	1290.73	846.86	0.401	0.82	0.75	5.207	A
East	484.65	484.65	121.16	0.00	453.78	485.09	113.22	519.89	0.00	1056.55	858.23	0.459	1.09	0.98	7.173	A

Main results: (08:45-09:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	33.91	33.91	8.48	0.00	0.00	33.95	15.09	905.47	0.00	833.40	384.25	0.041	0.06	0.05	5.372	A
West	372.10	101.74	25.43	270.36	0.00	101.79	589.38	350.04	0.00	1154.86	848.37	0.088	0.11	0.10	3.578	A
South	889.28	473.84	118.46	415.43	270.36	474.26	346.26	105.56	0.00	1296.35	846.86	0.366	0.75	0.65	4.896	A
East	443.70	443.70	110.92	0.00	415.43	444.40	103.68	476.15	0.00	1081.87	858.23	0.410	0.98	0.80	6.432	A

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-08:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.73	0.05	5.342	A	A
West	1.48	0.10	3.569	A	A
South	9.28	0.62	4.860	A	A
East	11.23	0.75	6.340	A	A

Queueing Delay results: (08:15-08:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.95	0.06	6.000	A	A
West	1.80	0.12	3.738	A	A
South	11.98	0.80	5.423	A	A
East	15.73	1.05	7.718	A	A

Queueing Delay results: (08:30-08:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.90	0.06	5.737	A	A
West	1.72	0.11	3.672	A	A
South	11.48	0.77	5.207	A	A
East	14.94	1.00	7.173	A	A

Queueing Delay results: (08:45-09:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.77	0.05	5.372	A	A
West	1.54	0.10	3.578	A	A
South	9.91	0.66	4.896	A	A
East	12.30	0.82	6.432	A	A

Queue Variation Results for each time segment

Queue Variation results: (08:00-08:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.10	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.64	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.78	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:15-08:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.12	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.82	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.09	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:30-08:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.11	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.75	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.98	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:45-09:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.10	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.65	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.80	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	17	25	0	12	23
Future Volume (vph)	0	17	25	0	12	23
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.865				0.911	
Flt Protected				0.950	0.983	
Satd. Flow (prot)	1514	0	0	1662	1567	0
Flt Permitted				0.950	0.983	
Satd. Flow (perm)	1514	0	0	1662	1567	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	18	27	0	13	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	0	27	38	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	17	25	0	12	23
Future Volume (Veh/h)	0	17	25	0	12	23
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	18	27	0	13	25
Pedestrians					1	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	51	1	58	39	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	51	1	58	39	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	97	100	99	
cM capacity (veh/h)	838	1089	922	851	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	18	27	38
Volume Left	0	27	13
Volume Right	18	0	25
cSH	1089	922	1636
Volume to Capacity	0.02	0.03	0.01
Queue Length 95th (m)	0.4	0.7	0.2
Control Delay (s/veh)	8.4	9.0	2.5
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.0	2.5
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

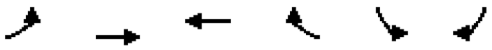
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1	6	0	0	10	25
Future Volume (vph)	1	6	0	0	10	25
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.882				0.904	
Flt Protected					0.986	
Satd. Flow (prot)	1544	0	0	1750	1549	0
Flt Permitted					0.986	
Satd. Flow (perm)	1544	0	0	1750	1549	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	1	7	0	0	11	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	0	38	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1	6	0	0	10	25
Future Volume (Veh/h)	1	6	0	0	10	25
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	7	0	0	11	27
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	49	0	43	36	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	49	0	43	36	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	100	100	99	
cM capacity (veh/h)	841	1091	953	855	1636	

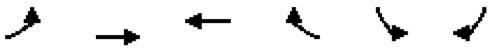
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	8	0	38
Volume Left	0	0	11
Volume Right	7	0	27
cSH	1052	1700	1636
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.2	0.0	0.2
Control Delay (s/veh)	8.4	0.0	2.1
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	0.0	2.1
Approach LOS	A	A	

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	56	477	600	12	8	38
Future Volume (vph)	56	477	600	12	8	38
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.997		0.889	
Flt Protected	0.950				0.991	
Satd. Flow (prot)	1662	3325	3315	0	1542	0
Flt Permitted	0.950				0.991	
Satd. Flow (perm)	1662	3325	3315	0	1542	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Confl. Peds. (#/hr)	1			1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	61	518	652	13	9	41
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	518	665	0	50	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

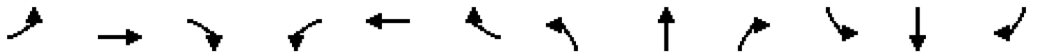
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	56	477	600	12	8	38
Future Volume (Veh/h)	56	477	600	12	8	38
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	61	518	652	13	9	41
Pedestrians		1			1	
Lane Width (m)		3.6			3.6	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	666				1041	335
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	666				1041	335
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				96	94
cM capacity (veh/h)	932				214	666

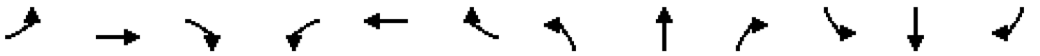
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	61	259	259	435	230	50
Volume Left	61	0	0	0	0	9
Volume Right	0	0	0	0	13	41
cSH	932	1700	1700	1700	1700	482
Volume to Capacity	0.07	0.15	0.15	0.26	0.14	0.10
Queue Length 95th (m)	1.7	0.0	0.0	0.0	0.0	2.8
Control Delay (s/veh)	9.1	0.0	0.0	0.0	0.0	13.3
Lane LOS	A					B
Approach Delay (s/veh)	1.0			0.0		13.3
Approach LOS						B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	35.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	385	0	0	453	10	3	0	0	10	0	173
Future Volume (vph)	84	385	0	0	453	10	3	0	0	10	0	173
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.997						0.872	
Flt Protected		0.991						0.950			0.997	
Satd. Flow (prot)	0	1734	0	0	1745	0	0	1662	0	0	1521	0
Flt Permitted		0.991						0.950			0.997	
Satd. Flow (perm)	0	1734	0	0	1745	0	0	1662	0	0	1521	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	91	418	0	0	492	11	3	0	0	11	0	188
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	509	0	0	503	0	0	3	0	0	199	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 75.6%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	385	0	0	453	10	3	0	0	10	0	173
Future Volume (Veh/h)	84	385	0	0	453	10	3	0	0	10	0	173
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	91	418	0	0	492	11	3	0	0	11	0	188
Pedestrians		1									1	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	504			418			1287	1104	418	1099	1099	500
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	504			418			1287	1104	418	1099	1099	500
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 %	91			100			97	100	100	94	100	67
cM capacity (veh/h)	1070			1152			90	195	639	179	196	574

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	509	503	3	199
Volume Left	91	0	3	11
Volume Right	0	11	0	188
cSH	1070	1152	90	512
Volume to Capacity	0.09	0.00	0.03	0.39
Queue Length 95th (m)	2.2	0.0	0.8	14.6
Control Delay (s/veh)	2.4	0.0	46.6	16.4
Lane LOS	A		E	C
Approach Delay (s/veh)	2.4	0.0	46.6	16.4
Approach LOS			E	C

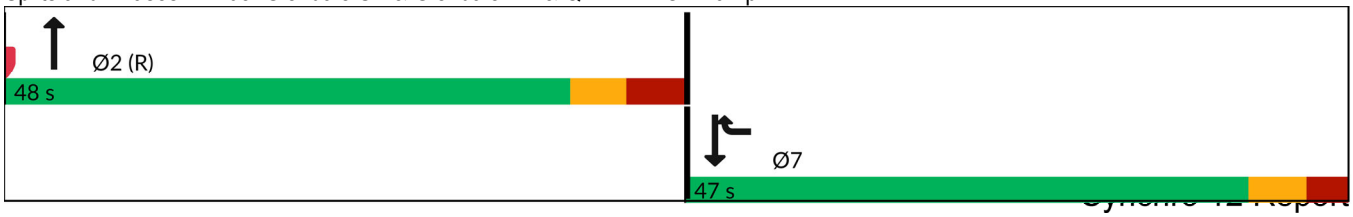
Intersection Summary				
Average Delay	3.8			
Intersection Capacity Utilization	75.6%	ICU Level of Service	D	
Analysis Period (min)	15			

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	220	367	889
Future Volume (vph)	220	367	889
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	239	399	966
Shared Lane Traffic (%)			
Lane Group Flow (vph)	239	399	966
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	38.7	45.3	38.7
Actuated g/C Ratio	0.41	0.48	0.41
v/c Ratio	0.40	0.28	0.78
Control Delay (s/veh)	21.1	16.7	28.8
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	21.1	16.7	28.8
LOS	C	B	C
Approach Delay (s/veh)		16.7	28.8
Approach LOS		B	C
Stops (vph)	146	218	732
Fuel Used(l)	8	12	39
CO Emissions (g/hr)	155	217	729
NOx Emissions (g/hr)	30	42	141
VOC Emissions (g/hr)	36	50	168
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay (s/veh): 24.7		Intersection LOS: C	
Intersection Capacity Utilization 35.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	239	399	966
v/c Ratio	0.40	0.28	0.78
Control Delay (s/veh)	21.1	16.7	28.8
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	21.1	16.7	28.8
Queue Length 50th (m)	31.4	23.8	82.1
Queue Length 95th (m)	46.0	38.3	95.9
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	665	1460	1367
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.36	0.27	0.71

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	220	367	889
Future Volume (vph)	220	367	889
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	239	399	966
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	239	399	966
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	36.7	43.3	36.7
Effective Green, g (s)	38.7	45.3	38.7
Actuated g/C Ratio	0.41	0.48	0.41
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	604	1441	1242
v/s Ratio Prot	0.16	c0.13	c0.32
v/s Ratio Perm			
v/c Ratio	0.40	0.28	0.78
Uniform Delay, d1	19.9	15.0	24.4
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.5	3.1
Delay (s)	20.3	15.5	27.6
Level of Service	C	B	C
Approach Delay (s/veh)		15.5	27.6
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

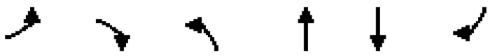
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	319	0	0	0	0	889
Future Volume (vph)	319	0	0	0	0	889
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	347	0	0	0	0	966
Shared Lane Traffic (%)						
Lane Group Flow (vph)	347	0	0	0	0	966
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	319	0	0	0	0	889
Future Volume (Veh/h)	319	0	0	0	0	889
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	347	0	0	0	0	966
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	483	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	483	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	32	100			100	
cM capacity (veh/h)	513	1084			1622	

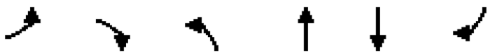
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	347	483	483
Volume Left	347	0	0
Volume Right	0	0	0
cSH	513	1700	1700
Volume to Capacity	0.68	0.28	0.28
Queue Length 95th (m)	40.4	0.0	0.0
Control Delay (s/veh)	25.5	0.0	0.0
Lane LOS	D		
Approach Delay (s/veh)	25.5	0.0	
Approach LOS	D		

Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	262	0	0	976	0	0
Future Volume (vph)	262	0	0	976	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	285	0	0	1061	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	285	0	0	1061	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	262	0	0	976	0	0
Future Volume (Veh/h)	262	0	0	976	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	285	0	0	1061	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	531	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	531	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	40	100	100			
cM capacity (veh/h)	478	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	285	531	531
Volume Left	285	0	0
Volume Right	0	0	0
cSH	478	1700	1700
Volume to Capacity	0.60	0.31	0.31
Queue Length 95th (m)	30.5	0.0	0.0
Control Delay (s/veh)	23.0	0.0	0.0
Lane LOS	C		
Approach Delay (s/veh)	23.0	0.0	
Approach LOS	C		

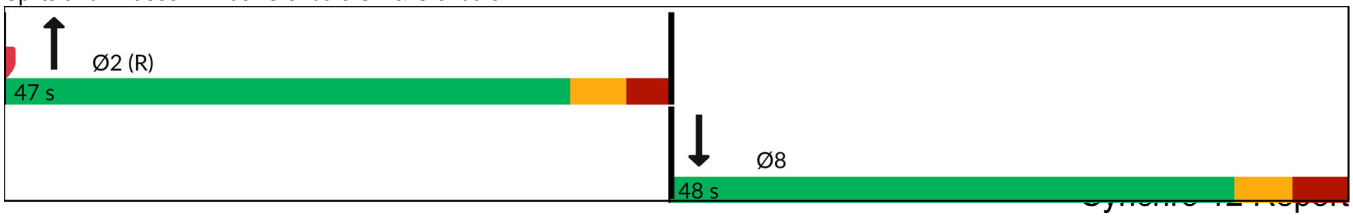
Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	976	0	0	472	0	0	0	0	0	0	0
Future Volume (vph)	0	976	0	0	472	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1061	0	0	513	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1061	0	0	513	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		59.5			20.5							
Actuated g/C Ratio		0.63			0.22							
v/c Ratio		0.51			0.72							
Control Delay (s/veh)		11.4			40.1							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		11.4			40.1							
LOS		B			D							
Approach Delay (s/veh)		11.4			40.1							
Approach LOS		B			D							
Stops (vph)		514			420							
Fuel Used(l)		25			26							
CO Emissions (g/hr)		459			489							
NOx Emissions (g/hr)		89			94							
VOC Emissions (g/hr)		106			113							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay (s/veh): 20.8		Intersection LOS: C	
Intersection Capacity Utilization 35.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	1061	513
v/c Ratio	0.51	0.72
Control Delay (s/veh)	11.4	40.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	11.4	40.1
Queue Length 50th (m)	53.4	48.7
Queue Length 95th (m)	83.2	61.2
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	2083	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.51	0.37

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	976	0	0	472	0	0	0	0	0	0	0
Future Volume (vph)	0	976	0	0	472	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1061	0	0	513	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1061	0	0	513	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		59.5			20.5							
Effective Green, g (s)		59.5			20.5							
Actuated g/C Ratio		0.63			0.22							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		2082			717							
v/s Ratio Prot		c0.32			c0.15							
v/s Ratio Perm												
v/c Ratio		0.51			0.72							
Uniform Delay, d1		9.7			34.5							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.9			3.4							
Delay (s)		10.6			38.0							
Level of Service		B			D							
Approach Delay (s/veh)		10.6			38.0			0.0			0.0	
Approach LOS		B			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	35.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:21:26 PM

Summary of intersection performance

	PM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - Base						
Leg North	0.07	~1	5.24	0.06	A	5.82	A
Leg West	0.08	~1	3.97	0.07	A		
Leg South	0.53	1.12	4.55	0.32	A		
Leg East	1.72	2.11	9.03	0.63	A		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM " model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:21:25 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - Base, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
Base, PM	Base	PM		PHF	16:00	17:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				5.82	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

	V - Approach road half-width	E - Entry width	l' - Effective flare length	R - Entry radius	D - Inscribed circle diameter	PHI - Conflict (entry) angle	Exit

Leg	(m)	(m)	(m)	(m)	(m)	(deg)	Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	42.00	100.000
West	PHF	✓	534.00	100.000
South	PHF	✓	819.00	100.000
East	PHF	✓	639.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	42.00	0.92	SecondQuarter
West	534.00	0.92	SecondQuarter
South	819.00	0.92	SecondQuarter
East	639.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	8.000	32.000	2.000
	West	3.000	0.000	465.000	66.000
	South	30.000	360.000	0.000	429.000
	East	4.000	152.000	483.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.19	0.76	0.05
	West	0.01	0.00	0.87	0.12
	South	0.04	0.44	0.00	0.52
	East	0.01	0.24	0.76	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.097	1.061
	South	1.033	1.133	1.000	1.196
	East	1.000	1.079	1.048	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	9.7	6.1
	South	3.3	13.3	0.0	19.6
	East	0.0	7.9	4.8	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.06	5.24	0.07	~1	A	42.00	42.00	3.41	4.87	0.06	3.41	4.87
West	0.07	3.97	0.08	~1	A	534.00	69.00	4.42	3.84	0.07	4.42	3.84
South	0.32	4.55	0.53	1.12	A	819.00	390.00	28.34	4.36	0.47	28.34	4.36
East	0.63	9.03	1.72	2.11	A	639.00	639.00	82.82	7.78	1.38	82.86	7.78

Main Results for each time segment

Main results: (16:00-16:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	39.57	39.57	9.89	0.00	0.00	39.36	34.68	931.15	0.00	818.54	410.87	0.048	0.00	0.05	4.619	A
West	503.04	65.00	16.25	438.04	0.00	64.73	487.13	483.38	0.00	1077.68	803.09	0.060	0.00	0.07	3.760	A
South	771.52	367.39	91.85	404.13	438.04	365.67	481.51	66.60	0.00	1318.90	881.33	0.279	0.00	0.43	4.239	A
East	601.96	601.96	150.49	0.00	404.13	597.35	63.79	368.48	0.00	1144.18	827.16	0.526	0.00	1.15	6.887	A

Main results: (16:15-16:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	45.65	45.65	11.41	0.00	0.00	45.59	40.17	1078.90	0.00	733.02	410.87	0.062	0.05	0.07	5.236	A
West	580.43	75.00	18.75	505.43	0.00	74.94	564.29	560.20	0.00	1033.23	803.09	0.073	0.07	0.08	3.975	A
South	890.22	423.91	105.98	466.30	505.43	423.51	558.03	77.11	0.00	1312.82	881.33	0.323	0.43	0.53	4.550	A
East	694.57	694.57	173.64	0.00	466.30	692.30	73.85	426.77	0.00	1110.45	827.16	0.625	1.15	1.72	9.031	A

Main results: (16:30-16:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	43.22	43.22	10.80	0.00	0.00	43.24	38.09	1024.77	0.00	764.35	410.87	0.057	0.07	0.06	4.992	A
West	549.48	71.00	17.75	478.48	0.00	71.02	535.40	532.61	0.00	1049.19	803.09	0.068	0.08	0.08	3.895	A
South	842.74	401.30	100.33	441.43	478.48	401.45	530.55	73.08	0.00	1315.15	881.33	0.305	0.53	0.50	4.433	A
East	657.52	657.52	164.38	0.00	441.43	658.32	69.99	404.53	0.00	1123.32	827.16	0.585	1.72	1.52	8.185	A

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	39.57	39.57	9.89	0.00	0.00	39.60	34.88	938.84	0.00	814.08	410.87	0.049	0.06	0.05	4.649	A
West	503.04	65.00	16.25	438.04	0.00	65.03	490.39	488.04	0.00	1074.99	803.09	0.060	0.08	0.07	3.771	A
South	771.52	367.39	91.85	404.13	438.04	367.63	486.16	66.92	0.00	1318.71	881.33	0.279	0.50	0.44	4.259	A
East	601.96	601.96	150.49	0.00	404.13	603.26	64.09	370.46	0.00	1143.04	827.16	0.527	1.52	1.19	7.055	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:00-16:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.74	0.05	4.619	A	A
West	0.99	0.07	3.760	A	A
South	6.30	0.42	4.239	A	A
East	16.45	1.10	6.887	A	A

Queueing Delay results: (16:15-16:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.97	0.06	5.236	A	A
West	1.22	0.08	3.975	A	A
South	7.85	0.52	4.550	A	A
East	24.57	1.64	9.031	A	A

Queueing Delay results: (16:30-16:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.91	0.06	4.992	A	A
West	1.17	0.08	3.895	A	A
South	7.54	0.50	4.433	A	A
East	23.35	1.56	8.185	A	A

Queueing Delay results: (16:45-17:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.78	0.05	4.649	A	A
West	1.04	0.07	3.771	A	A
South	6.65	0.44	4.259	A	A
East	18.45	1.23	7.055	A	A

Queue Variation Results for each time segment

Queue Variation results: (16:00-16:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.43	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.15	0.00	0.00	1.05	2.11			N/A	N/A

Queue Variation results: (16:15-16:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.53	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.72	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (16:30-16:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.50	0.00	0.00	0.00	1.12			N/A	N/A
East	1.52	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (16:45-17:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.44	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.19	0.00	0.00	1.05	2.11			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	12	10	0	16	16
Future Volume (vph)	0	12	10	0	16	16
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.932	
Flt Protected				0.950	0.976	
Satd. Flow (prot)	1514	0	0	1662	1592	0
Flt Permitted				0.950	0.976	
Satd. Flow (perm)	1514	0	0	1662	1592	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	13	11	0	17	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	0	0	11	34	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	12	10	0	16	16
Future Volume (Veh/h)	0	12	10	0	16	16
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	13	11	0	17	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	51	0	56	43	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	51	0	56	43	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	99	100	99	
cM capacity (veh/h)	836	1091	928	844	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	13	11	34
Volume Left	0	11	17
Volume Right	13	0	17
cSH	1091	928	1636
Volume to Capacity	0.01	0.01	0.01
Queue Length 95th (m)	0.3	0.3	0.3
Control Delay (s/veh)	8.3	8.9	3.6
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	8.9	3.6
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	17.3%	ICU Level of Service	A
Analysis Period (min)	15		

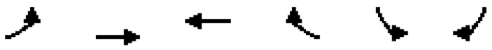
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	4	0	0	3	2
Future Volume (vph)	0	4	0	0	3	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.946	
Flt Protected					0.971	
Satd. Flow (prot)	1514	0	0	1750	1607	0
Flt Permitted					0.971	
Satd. Flow (perm)	1514	0	0	1750	1607	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	4	0	0	3	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	0	0	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	4	0	0	3	2
Future Volume (Veh/h)	0	4	0	0	3	2
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	4	0	0	3	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	8	0	11	7	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	8	0	11	7	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	100	100	100	
cM capacity (veh/h)	889	1091	1007	891	1636	

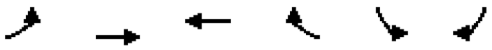
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	4	0	5
Volume Left	0	0	3
Volume Right	4	0	2
cSH	1091	1700	1636
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s/veh)	8.3	0.0	4.3
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	0.0	4.3
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	26	437	357	4	3	25
Future Volume (vph)	26	437	357	4	3	25
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.998		0.878	
Flt Protected	0.950				0.995	
Satd. Flow (prot)	1662	3325	3318	0	1529	0
Flt Permitted	0.950				0.995	
Satd. Flow (perm)	1662	3325	3318	0	1529	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	28	475	388	4	3	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	475	392	0	30	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

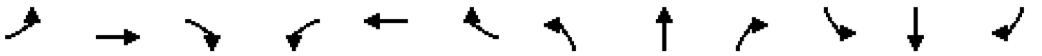
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 27.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	26	437	357	4	3	25
Future Volume (Veh/h)	26	437	357	4	3	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	475	388	4	3	27
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	392				684	196
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	392				684	196
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				99	97
cM capacity (veh/h)	1178				378	819

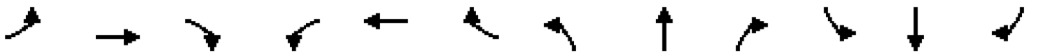
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	28	238	238	259	133	30
Volume Left	28	0	0	0	0	3
Volume Right	0	0	0	0	4	27
cSH	1178	1700	1700	1700	1700	733
Volume to Capacity	0.02	0.14	0.14	0.15	0.08	0.04
Queue Length 95th (m)	0.6	0.0	0.0	0.0	0.0	1.0
Control Delay (s/veh)	8.1	0.0	0.0	0.0	0.0	10.1
Lane LOS	A					B
Approach Delay (s/veh)	0.5			0.0		10.1
Approach LOS						B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	27.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	410	0	1	316	4	3	0	0	2	0	43
Future Volume (vph)	34	410	0	1	316	4	3	0	0	2	0	43
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.998						0.871	
Flt Protected		0.996						0.950			0.998	
Satd. Flow (prot)	0	1743	0	0	1746	0	0	1662	0	0	1521	0
Flt Permitted		0.996						0.950			0.998	
Satd. Flow (perm)	0	1743	0	0	1746	0	0	1662	0	0	1521	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	37	446	0	1	343	4	3	0	0	2	0	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	483	0	0	348	0	0	3	0	0	49	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.2%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	410	0	1	316	4	3	0	0	2	0	43
Future Volume (Veh/h)	34	410	0	1	316	4	3	0	0	2	0	43
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	37	446	0	1	343	4	3	0	0	2	0	47
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	347			446			914	869	446	867	867	345
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	347			446			914	869	446	867	867	345
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 %	97			100			99	100	100	99	100	93
cM capacity (veh/h)	1223			1125			233	283	617	269	284	702

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	483	348	3	49
Volume Left	37	1	3	2
Volume Right	0	4	0	47
cSH	1223	1125	233	659
Volume to Capacity	0.03	0.00	0.01	0.07
Queue Length 95th (m)	0.7	0.0	0.3	1.9
Control Delay (s/veh)	0.9	0.0	20.6	10.9
Lane LOS	A	A	C	B
Approach Delay (s/veh)	0.9	0.0	20.6	10.9
Approach LOS			C	B

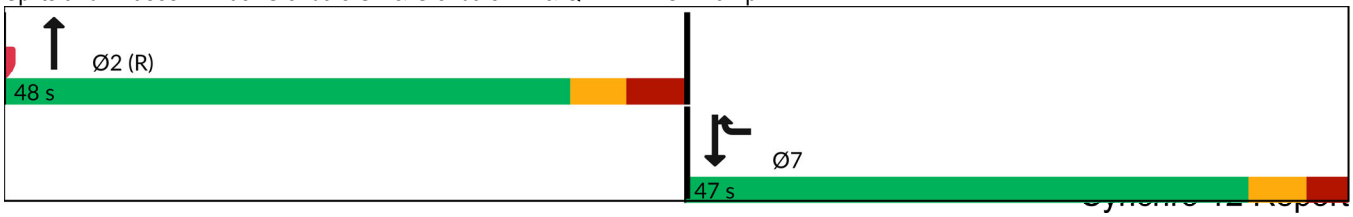
Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	164	511	475
Future Volume (vph)	164	511	475
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	178	555	516
Shared Lane Traffic (%)			
Lane Group Flow (vph)	178	555	516
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	24.4	59.6	24.4
Actuated g/C Ratio	0.26	0.63	0.26
v/c Ratio	0.47	0.29	0.66
Control Delay (s/veh)	33.0	9.3	35.3
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	33.0	9.3	35.3
LOS	C	A	D
Approach Delay (s/veh)		9.3	35.3
Approach LOS		A	D
Stops (vph)	133	226	406
Fuel Used(l)	8	12	24
CO Emissions (g/hr)	154	215	439
NOx Emissions (g/hr)	30	42	85
VOC Emissions (g/hr)	36	50	101
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay (s/veh): 23.4		Intersection LOS: C	
Intersection Capacity Utilization 35.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	178	555	516
v/c Ratio	0.47	0.29	0.66
Control Delay (s/veh)	33.0	9.3	35.3
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	33.0	9.3	35.3
Queue Length 50th (m)	28.9	23.5	46.7
Queue Length 95th (m)	44.9	39.4	58.3
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	656	1896	1348
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.27	0.29	0.38

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	164	511	475
Future Volume (vph)	164	511	475
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	178	555	516
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	178	555	516
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	22.4	57.6	22.4
Effective Green, g (s)	24.4	59.6	24.4
Actuated g/C Ratio	0.26	0.63	0.26
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	381	1896	783
v/s Ratio Prot	0.12	c0.18	c0.17
v/s Ratio Perm			
v/c Ratio	0.47	0.29	0.66
Uniform Delay, d1	29.8	8.1	31.6
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.4	2.0
Delay (s)	30.7	8.5	33.6
Level of Service	C	A	C
Approach Delay (s/veh)		8.5	33.6
Approach LOS		A	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	35.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

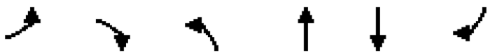
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	488	0	0	0	0	475
Future Volume (vph)	488	0	0	0	0	475
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	530	0	0	0	0	516
Shared Lane Traffic (%)						
Lane Group Flow (vph)	530	0	0	0	0	516
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	488	0	0	0	0	475
Future Volume (Veh/h)	488	0	0	0	0	475
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	530	0	0	0	0	516
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	258	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	258	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	25	100			100	
cM capacity (veh/h)	709	1084			1622	

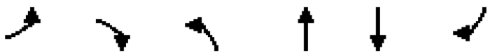
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	530	258	258
Volume Left	530	0	0
Volume Right	0	0	0
cSH	709	1700	1700
Volume to Capacity	0.75	0.15	0.15
Queue Length 95th (m)	54.5	0.0	0.0
Control Delay (s/veh)	23.5	0.0	0.0
Lane LOS	C		
Approach Delay (s/veh)	23.5	0.0	
Approach LOS	C		

Intersection Summary			
Average Delay	11.9		
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	379	0	0	1156	0	0
Future Volume (vph)	379	0	0	1156	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	412	0	0	1257	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	412	0	0	1257	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	103.3%	ICU Level of Service	G
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	379	0	0	1156	0	0
Future Volume (Veh/h)	379	0	0	1156	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	412	0	0	1257	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	629	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	629	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	1	100	100			
cM capacity (veh/h)	415	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	412	629	629
Volume Left	412	0	0
Volume Right	0	0	0
cSH	415	1700	1700
Volume to Capacity	0.99	0.37	0.37
Queue Length 95th (m)	98.1	0.0	0.0
Control Delay (s/veh)	74.5	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	74.5	0.0	
Approach LOS	F		

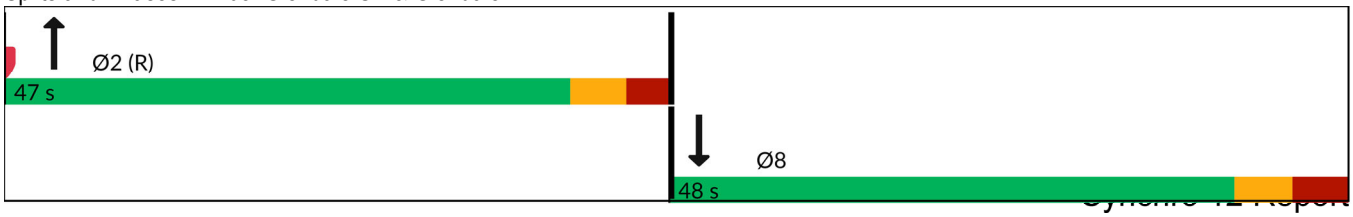
Intersection Summary			
Average Delay	18.4		
Intersection Capacity Utilization	103.3%	ICU Level of Service	G
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1156	0	0	563	0	0	0	0	0	0	0
Future Volume (vph)	0	1156	0	0	563	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1257	0	0	612	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1257	0	0	612	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		56.4			23.6							
Actuated g/C Ratio		0.59			0.25							
v/c Ratio		0.64			0.74							
Control Delay (s/veh)		15.3			38.4							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		15.3			38.4							
LOS		B			D							
Approach Delay (s/veh)		15.3			38.4							
Approach LOS		B			D							
Stops (vph)		735			499							
Fuel Used(l)		35			31							
CO Emissions (g/hr)		659			568							
NOx Emissions (g/hr)		127			110							
VOC Emissions (g/hr)		152			131							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay (s/veh): 22.9		Intersection LOS: C	
Intersection Capacity Utilization 40.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	1257	612
v/c Ratio	0.64	0.74
Control Delay (s/veh)	15.3	38.4
Queue Delay	0.0	0.0
Total Delay (s/veh)	15.3	38.4
Queue Length 50th (m)	76.3	57.6
Queue Length 95th (m)	117.1	70.3
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1975	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.64	0.44

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1156	0	0	563	0	0	0	0	0	0	0
Future Volume (vph)	0	1156	0	0	563	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1257	0	0	612	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1257	0	0	612	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		56.4			23.6							
Effective Green, g (s)		56.4			23.6							
Actuated g/C Ratio		0.59			0.25							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1974			826							
v/s Ratio Prot		c0.38			c0.18							
v/s Ratio Perm												
v/c Ratio		0.64			0.74							
Uniform Delay, d1		12.6			32.9							
Progression Factor		1.00			1.00							
Incremental Delay, d2		1.6			3.6							
Delay (s)		14.2			36.5							
Level of Service		B			D							
Approach Delay (s/veh)		14.2			36.5			0.0			0.0	
Approach LOS		B			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	40.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:21:52 PM

Summary of intersection performance

	Sat						
	Queue (PCE)	**95% Queue (PCE)**	**Delay (s)**	**V/C Ratio**	**LOS**	**Intersection Delay (s)**	**Intersection LOS**
	A1 - Base						
Leg North	0.04	~1	4.58	0.04	A	4.65	A
Leg West	0.09	~1	3.27	0.08	A		
Leg South	0.71	~1	4.82	0.41	A		
Leg East	0.66	~1	5.81	0.40	A		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat " model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:21:50 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - Base, Sat

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
Base, Sat	Base	Sat		PHF	12:00	13:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				4.65	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

	V - Approach road half-width	E - Entry width	l' - Effective flare length	R - Entry radius	D - Inscribed circle diameter	PHI - Conflict (entry) angle	Exit

Leg	(m)	(m)	(m)	(m)	(m)	(deg)	Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	30.00	100.000
West	PHF	✓	423.00	100.000
South	PHF	✓	873.00	100.000
East	PHF	✓	381.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	30.00	0.92	SecondQuarter
West	423.00	0.92	SecondQuarter
South	873.00	0.92	SecondQuarter
East	381.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	10.000	16.000	4.000
	West	7.000	0.000	332.000	84.000
	South	12.000	482.000	0.000	379.000
	East	4.000	147.000	230.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.33	0.53	0.13
	West	0.02	0.00	0.78	0.20
	South	0.01	0.55	0.00	0.43
	East	0.01	0.39	0.60	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.036	1.000
	South	1.000	1.021	1.000	1.029
	East	1.000	1.007	1.022	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	3.6	0.0
	South	0.0	2.1	0.0	2.9
	East	0.0	0.7	2.2	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.04	4.58	0.04	~1	A	30.00	30.00	2.17	4.33	0.04	2.17	4.33
West	0.08	3.27	0.09	~1	A	423.00	91.00	4.86	3.20	0.08	4.86	3.20
South	0.41	4.82	0.71	~1	A	873.00	494.00	37.36	4.54	0.62	37.37	4.54
East	0.40	5.81	0.66	~1	A	381.00	381.00	33.85	5.33	0.56	33.86	5.33

Main Results for each time segment

Main results: (12:00-12:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	28.26	28.26	7.07	0.00	0.00	28.13	21.57	805.04	0.00	891.52	415.29	0.032	0.00	0.03	4.169	A
West	398.48	85.72	21.43	312.75	0.00	85.42	598.96	234.22	0.00	1221.89	899.66	0.070	0.00	0.08	3.167	A
South	822.39	465.36	116.34	357.03	312.75	463.12	230.47	89.17	0.00	1305.83	804.71	0.356	0.00	0.56	4.348	A
East	358.91	358.91	89.73	0.00	357.03	356.92	82.60	469.69	0.00	1085.61	851.66	0.331	0.00	0.50	5.006	A

Main results: (12:15-12:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	32.61	32.61	8.15	0.00	0.00	32.57	24.97	932.45	0.00	817.78	415.29	0.040	0.03	0.04	4.584	A
West	459.78	98.91	24.73	360.87	0.00	98.86	693.70	271.32	0.00	1200.42	899.66	0.082	0.08	0.09	3.267	A
South	948.91	536.96	134.24	411.96	360.87	536.34	266.97	103.20	0.00	1297.72	804.71	0.414	0.56	0.71	4.821	A
East	414.13	414.13	103.53	0.00	411.96	413.47	95.59	543.95	0.00	1042.63	851.66	0.397	0.50	0.66	5.807	A

Main results: (12:30-12:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	30.87	30.87	7.72	0.00	0.00	30.88	23.68	884.35	0.00	845.62	415.29	0.037	0.04	0.04	4.420	A
West	435.26	93.64	23.41	341.62	0.00	93.66	657.83	257.40	0.00	1208.47	899.66	0.077	0.09	0.08	3.231	A
South	898.30	508.32	127.08	389.99	341.62	508.54	253.28	97.78	0.00	1300.86	804.71	0.391	0.71	0.66	4.637	A
East	392.04	392.04	98.01	0.00	389.99	392.28	90.57	515.74	0.00	1058.96	851.66	0.370	0.66	0.60	5.489	A

Main results: (12:45-13:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	28.26	28.26	7.07	0.00	0.00	28.28	21.68	809.93	0.00	888.69	415.29	0.032	0.04	0.03	4.185	A
West	398.48	85.72	21.43	312.75	0.00	85.76	602.46	235.75	0.00	1221.00	899.66	0.070	0.08	0.08	3.170	A
South	822.39	465.36	116.34	357.03	312.75	465.72	231.98	89.53	0.00	1305.63	804.71	0.356	0.66	0.57	4.377	A
East	358.91	358.91	89.73	0.00	357.03	359.30	82.93	472.32	0.00	1084.09	851.66	0.331	0.60	0.51	5.050	A

Queueing Delay Results for each time segment

Queueing Delay results: (12:00-12:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.48	0.03	4.169	A	A
West	1.11	0.07	3.167	A	A
South	8.17	0.54	4.348	A	A
East	7.24	0.48	5.006	A	A

Queueing Delay results: (12:15-12:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.61	0.04	4.584	A	A
West	1.33	0.09	3.267	A	A
South	10.49	0.70	4.821	A	A
East	9.70	0.65	5.807	A	A

Queueing Delay results: (12:30-12:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.58	0.04	4.420	A	A
West	1.27	0.08	3.231	A	A
South	10.02	0.67	4.637	A	A
East	9.18	0.61	5.489	A	A

Queueing Delay results: (12:45-13:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.50	0.03	4.185	A	A
West	1.15	0.08	3.170	A	A
South	8.68	0.58	4.377	A	A
East	7.74	0.52	5.050	A	A

Queue Variation Results for each time segment

Queue Variation results: (12:00-12:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.03	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.56	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.50	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:15-12:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.04	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.09	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.71	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.66	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:30-12:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.04	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.66	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.60	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:45-13:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.03	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.57	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.51	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

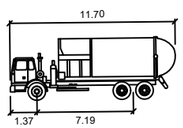
Appendix D

AutoTURN Assessment

THIS AUTOTURN SWEPT PATH ANALYSIS HAS BEEN PREPARED USING BASE PLANS PROVIDED BY OTHERS. THE PRACTITIONER HAS NOT INSPECTED THE ACCURACY AND/OR THE COMPLETENESS OF THESE BASE PLANS AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

NO.	DATE	INITIAL	REVISION DETAIL
01	2024-12-12	LC	UPDATED SITE PLAN

DESIGN VEHICLE:



Molok

	meters
Width	: 2.47
Track	: 2.47
Lock to Lock Time	: 6.0
Steering Angle	: 53.0

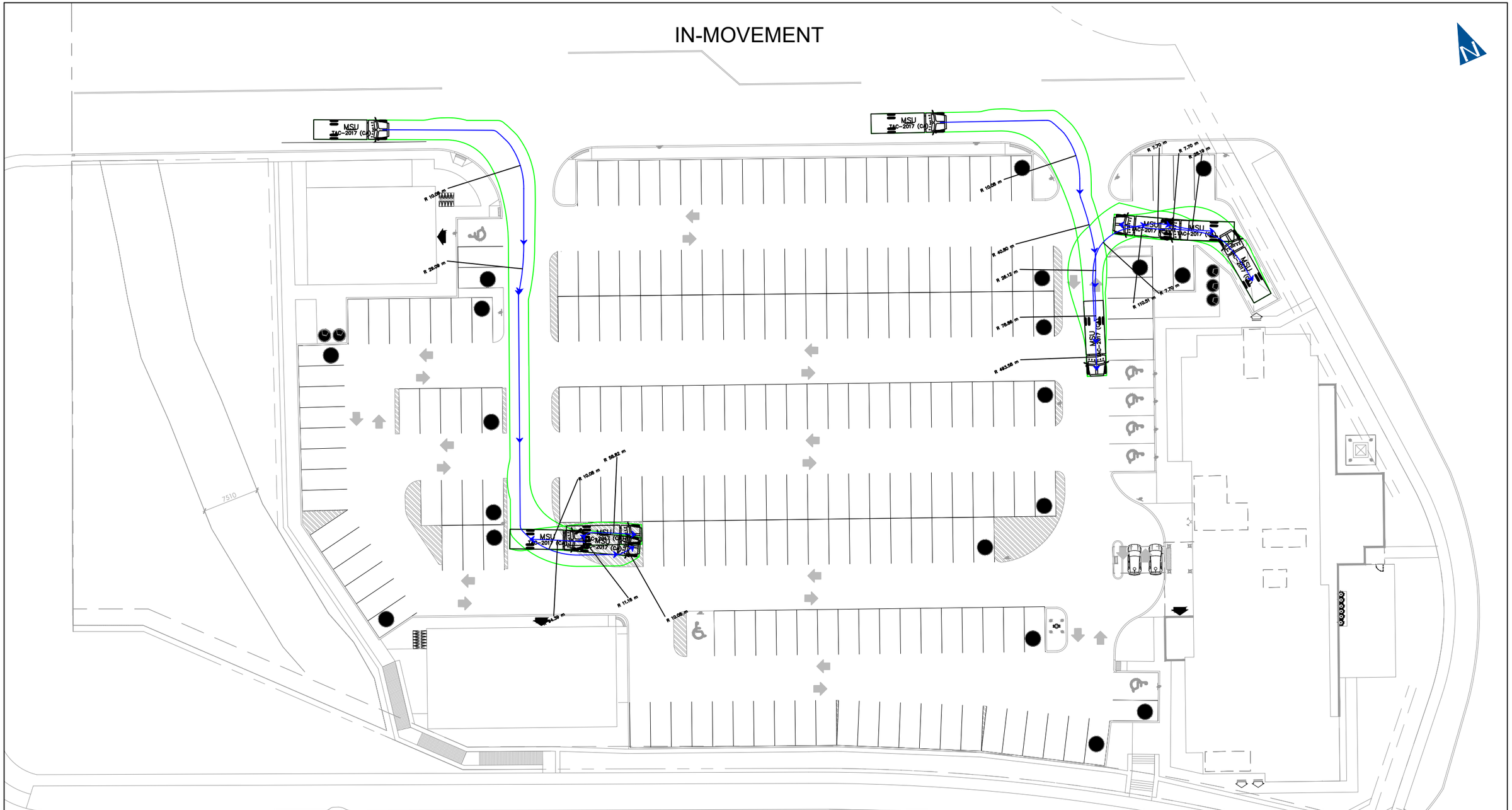
AUTOTURN ASSESSMENT
524 YORK ROAD
TOWN OF NIAGARA-ON-THE-LAKE

	PROJECT NO.: 240479	DATE: DEC 2024	SCALE: 1:500
	DESIGN: LC	DRAWN: LC	CHECK: AMa

DRAWING NO.: 01

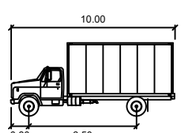
THIS AUTOTURN SWEPT PATH ANALYSIS HAS BEEN PREPARED USING BASE PLANS PROVIDED BY OTHERS. THE PRACTITIONER HAS NOT INSPECTED THE ACCURACY AND/OR THE COMPLETENESS OF THESE BASE PLANS AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

IN-MOVEMENT



NO.	DATE	INITIAL	REVISION DETAIL
01	2024-12-12	LC	UPDATED SITE PLAN

DESIGN VEHICLE:



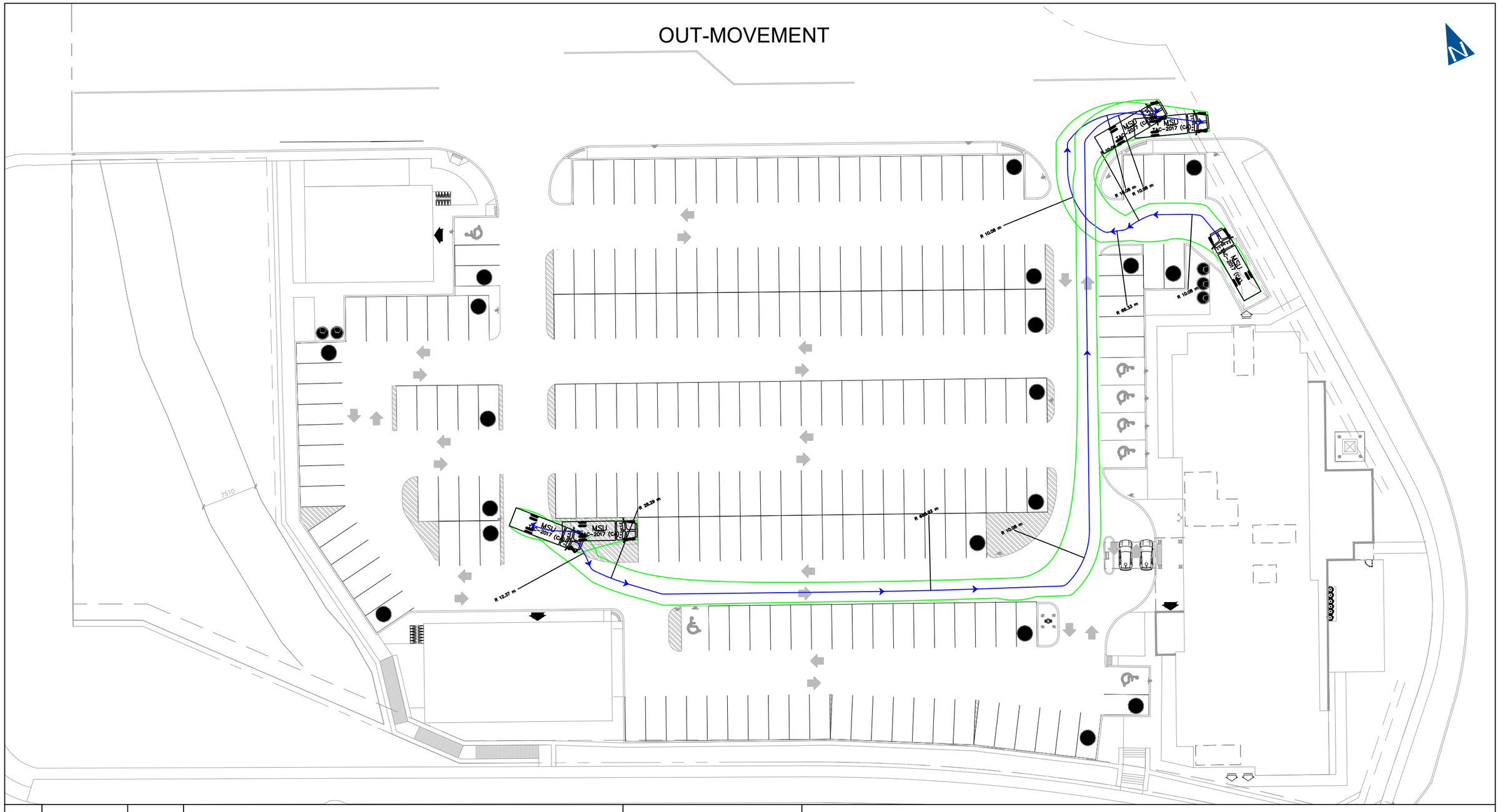
MSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.2

AUTOTURN ASSESSMENT
524 YORK ROAD
TOWN OF NIAGARA-ON-THE-LAKE

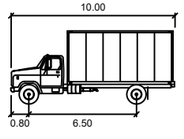
PROJECT NO.: 240479	DATE: DEC 2024	SCALE: 1:500	DRAWING NO.: 02
DESIGN: LC	DRAWN: LC	CHECK: AMa	

THIS AUTOTURN SWEPT PATH ANALYSIS HAS BEEN PREPARED USING BASE PLANS PROVIDED BY OTHERS. THE PRACTITIONER HAS NOT INSPECTED THE ACCURACY AND/OR THE COMPLETENESS OF THESE BASE PLANS AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.



01	2024-12-12	LC	UPDATED SITE PLAN
NO.	DATE	INITIAL	REVISION DETAIL

DESIGN VEHICLE:



MSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.2

AUTOTURN ASSESSMENT
524 YORK ROAD
TOWN OF NIAGARA-ON-THE-LAKE

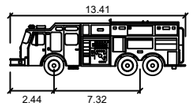
	PROJECT NO.: 240479	DATE: DEC 2024	SCALE: 1:500
	DESIGN: LC	DRAWN: LC	CHECK: AMa

DRAWING NO.: 03

THIS AUTOTURN SWEPT PATH ANALYSIS HAS BEEN PREPARED USING BASE PLANS PROVIDED BY OTHERS. THE PRACTITIONER HAS NOT INSPECTED THE ACCURACY AND/OR THE COMPLETENESS OF THESE BASE PLANS AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

NO.	DATE	INITIAL	REVISION DETAIL
01	2024-12-12	LC	UPDATED SITE PLAN

DESIGN VEHICLE:



Pumper Fire Truck

	meters
Width	: 2.59
Track	: 2.59
Lock to Lock Time	: 6.0
Steering Angle	: 37.8

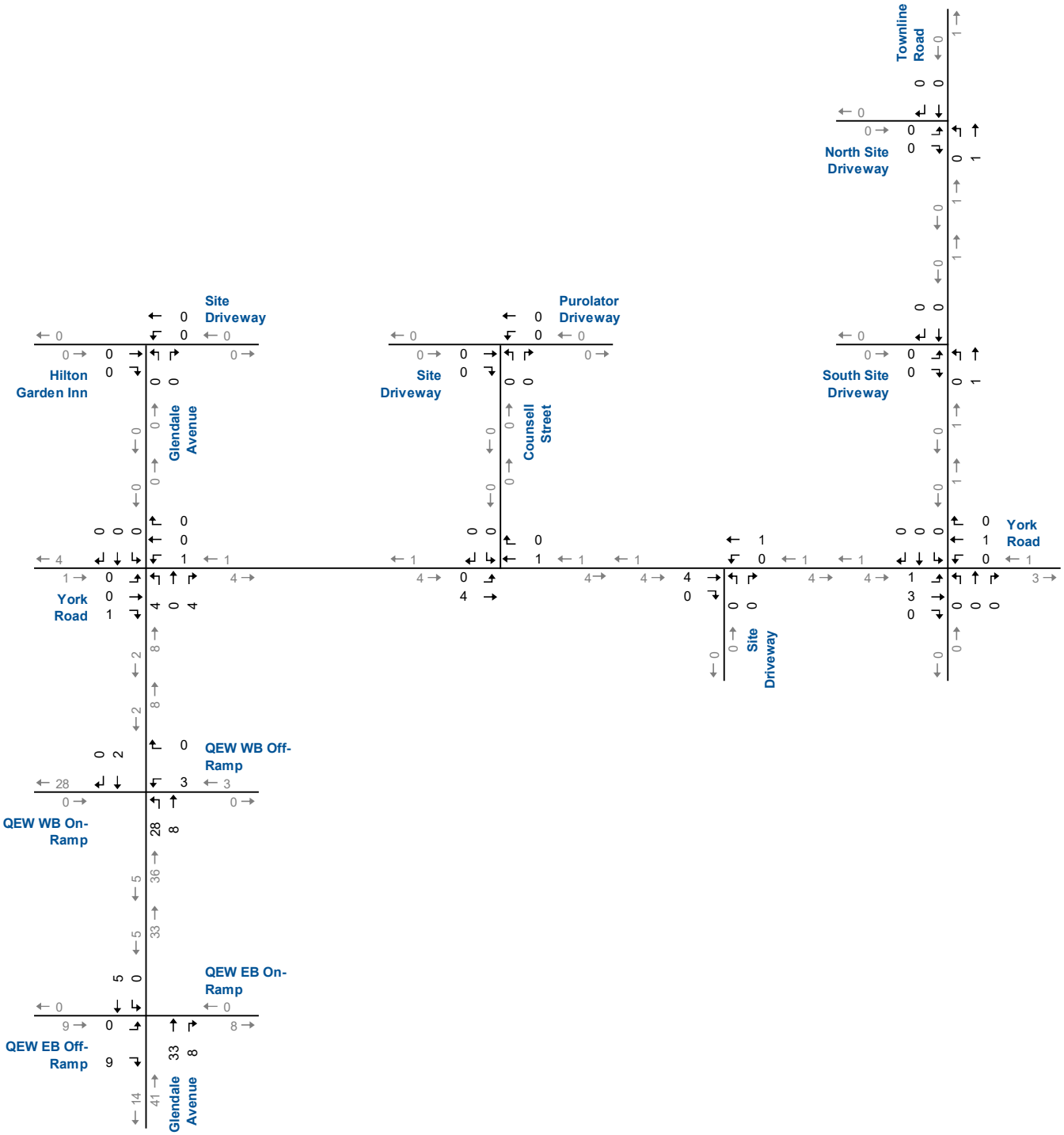
AUTOTURN ASSESSMENT
524 YORK ROAD
TOWN OF NIAGARA-ON-THE-LAKE

	PROJECT NO.: 240479	DATE: DEC 2024	SCALE: 1:500
	DESIGN: LC	DRAWN: LC	CHECK: AMa

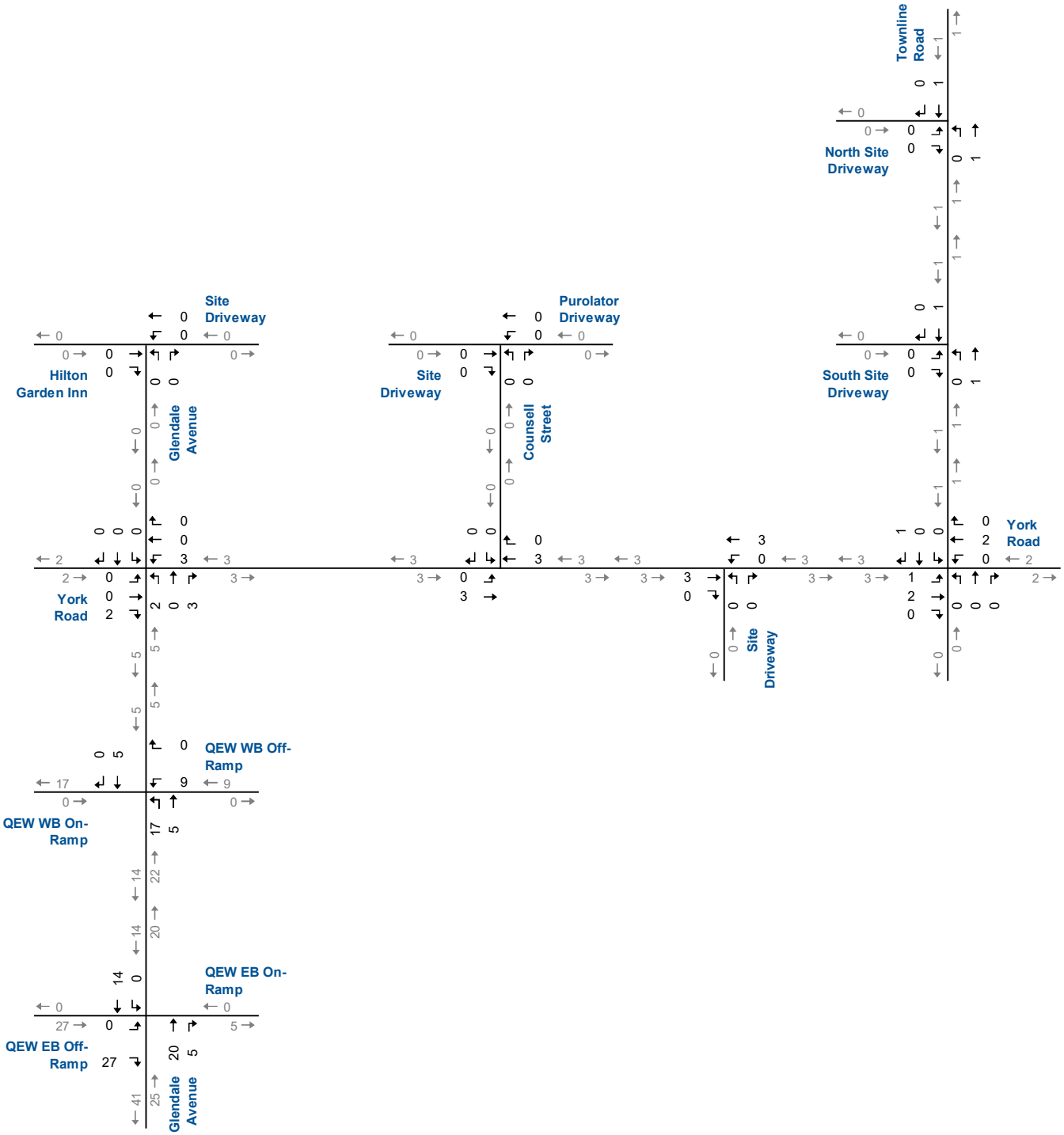
DRAWING NO.: 04

Appendix E

Development Traffic Volumes



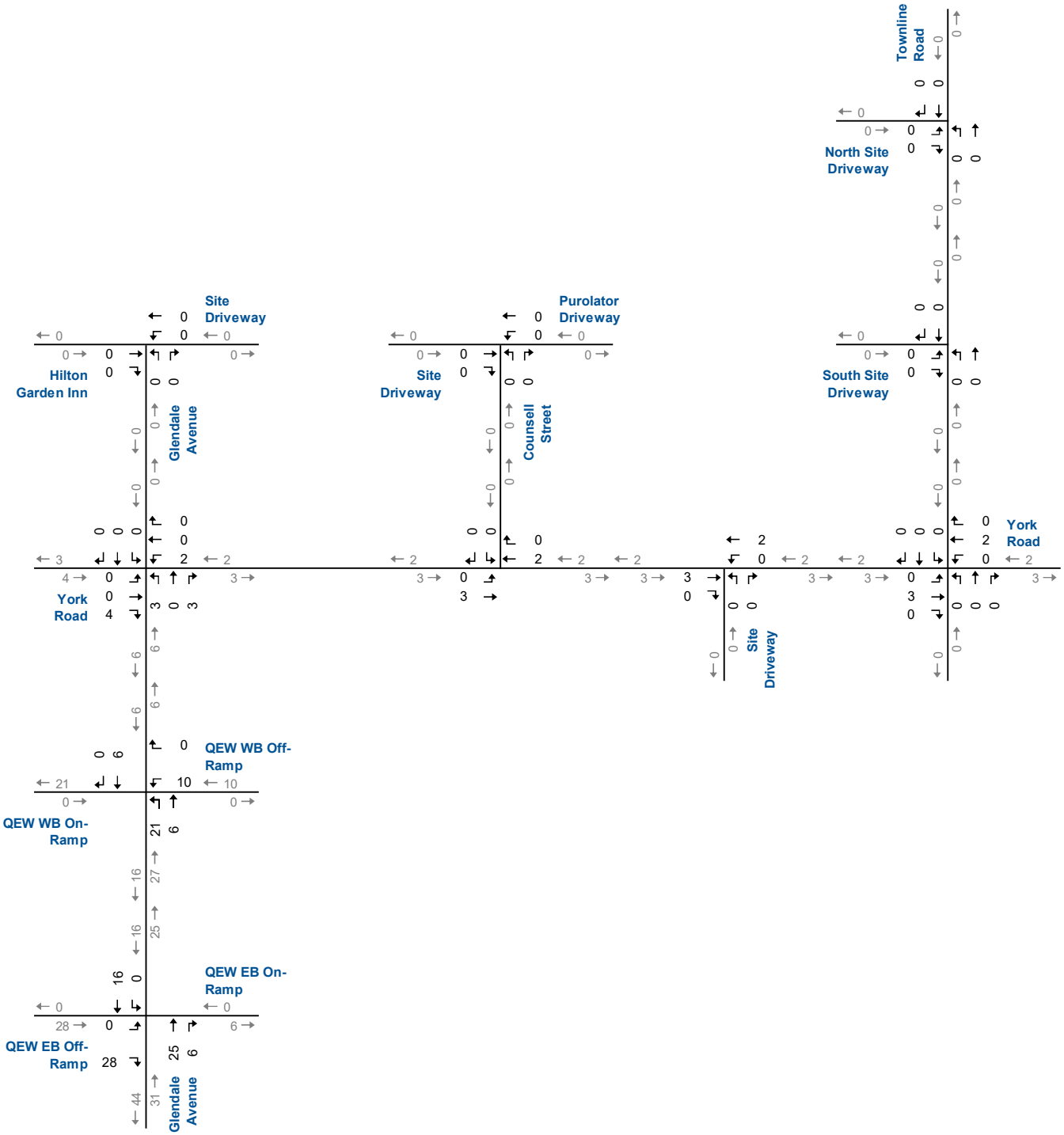
White Oaks – Phase 1 (2027) AM Peak Hour



White Oaks – Phase 1 (2027) PM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

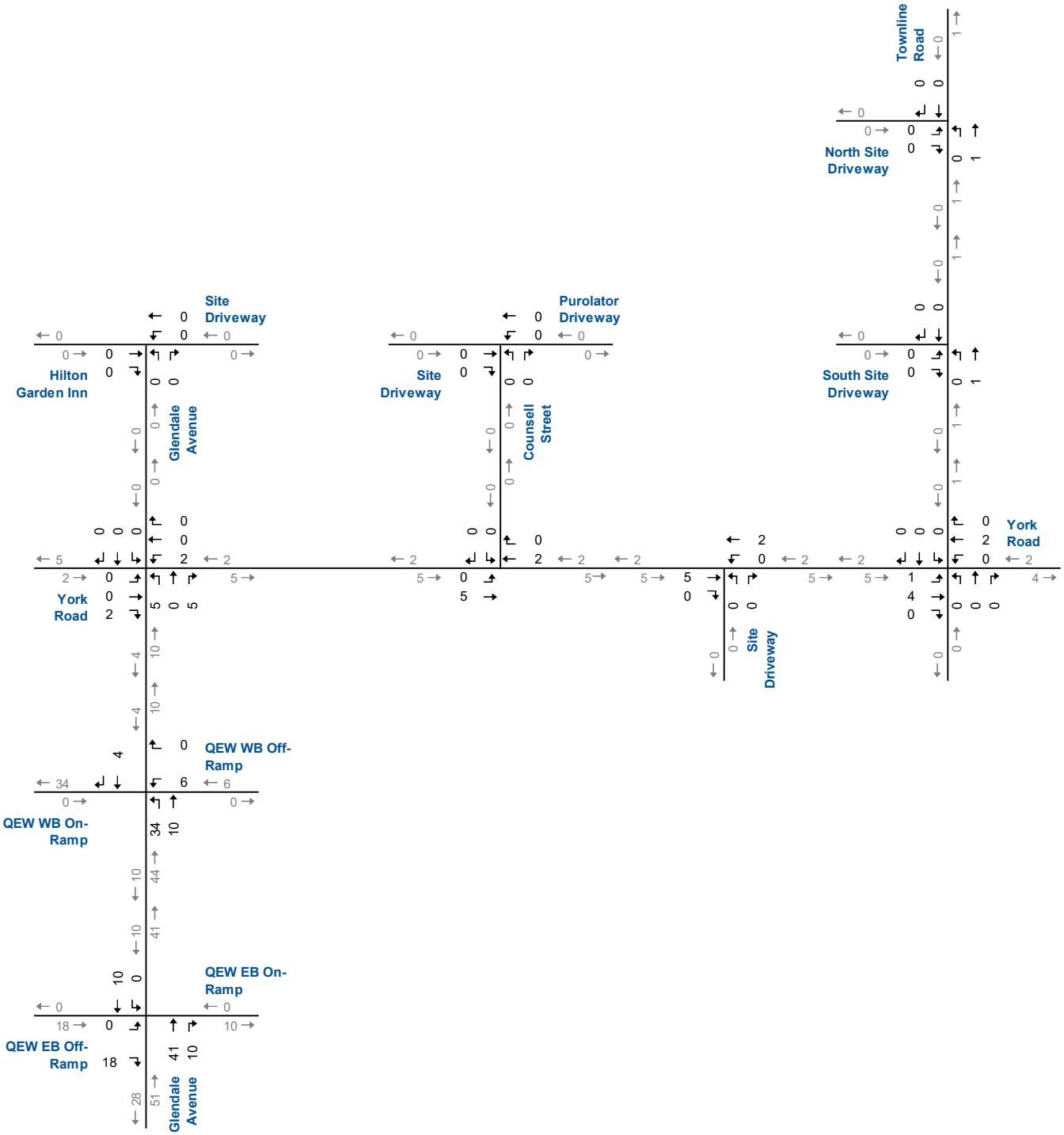
Appendix E



White Oaks – Phase 1 (2027) Saturday Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

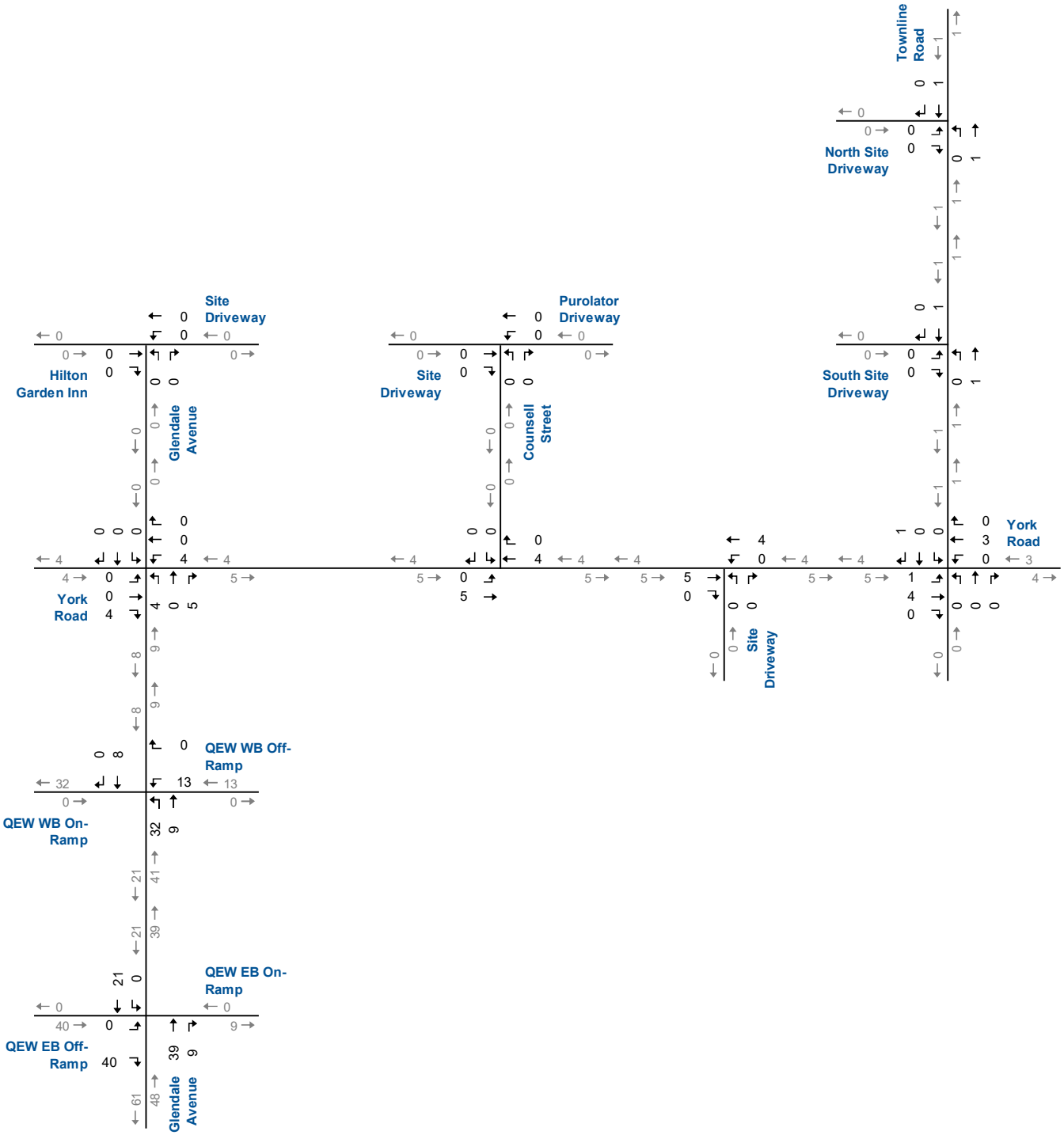
Appendix E



White Oaks – Phase 2 (2030) AM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

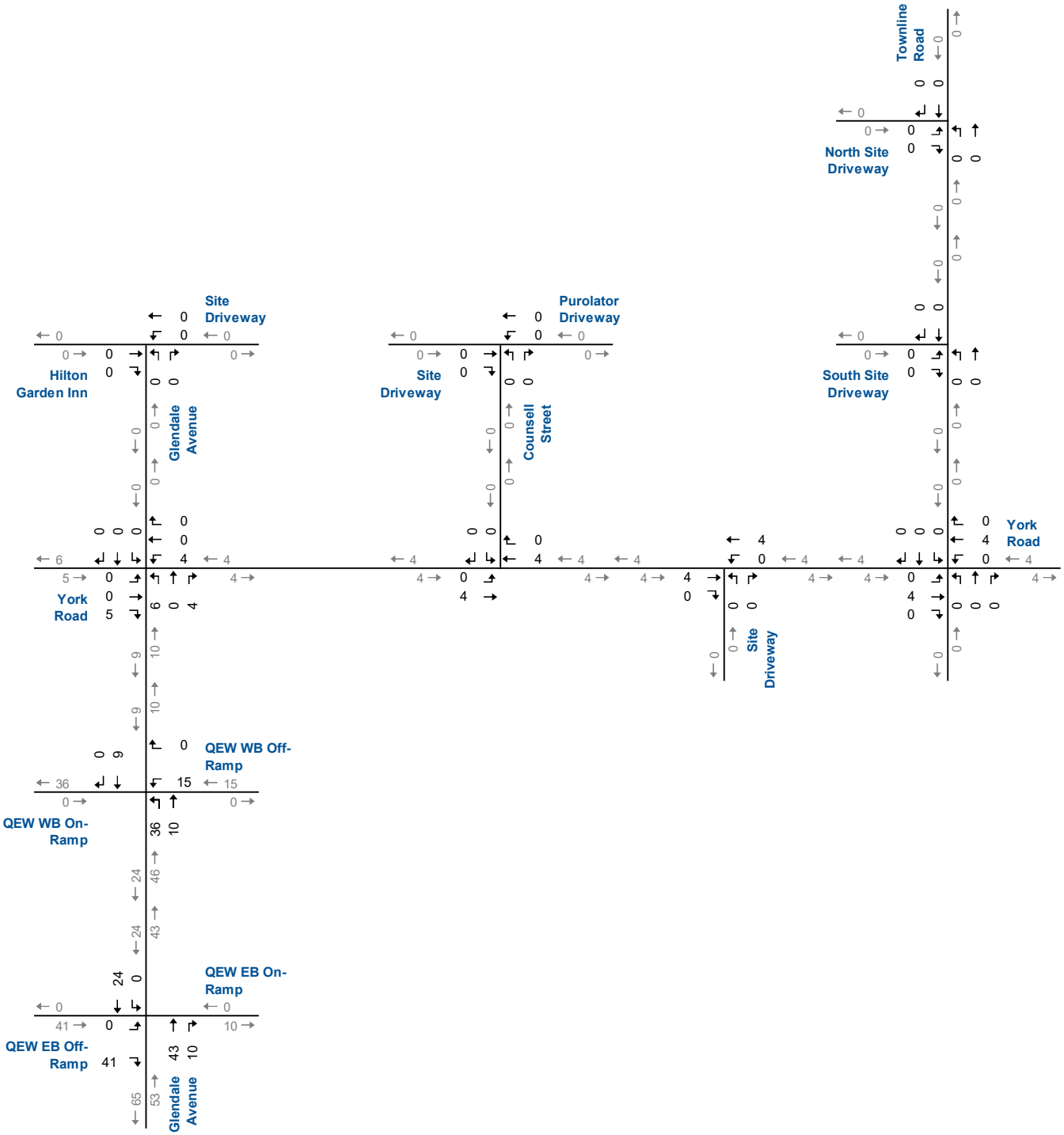
Appendix E



White Oaks – Phase 2 (2030) PM Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

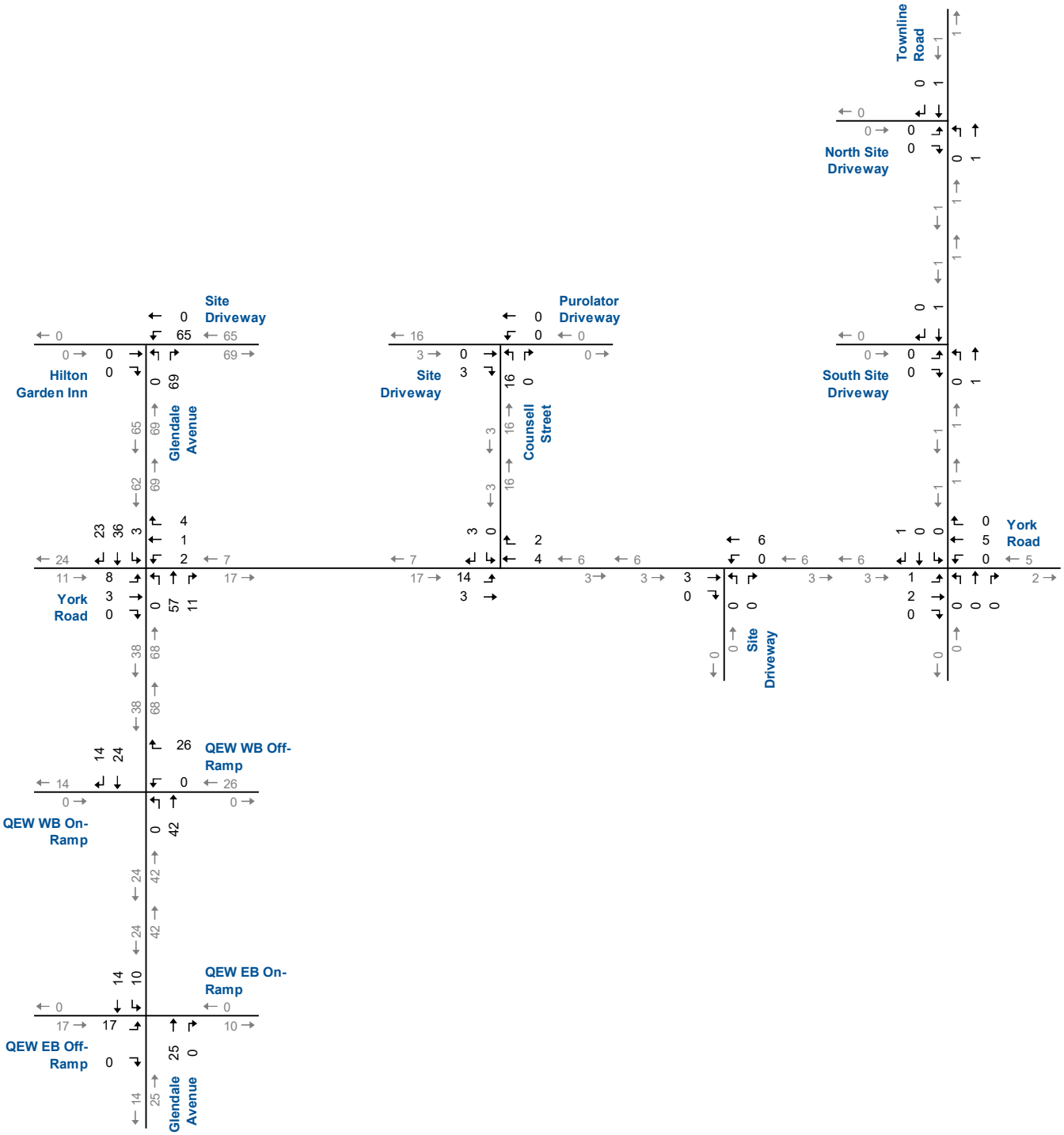
Appendix E



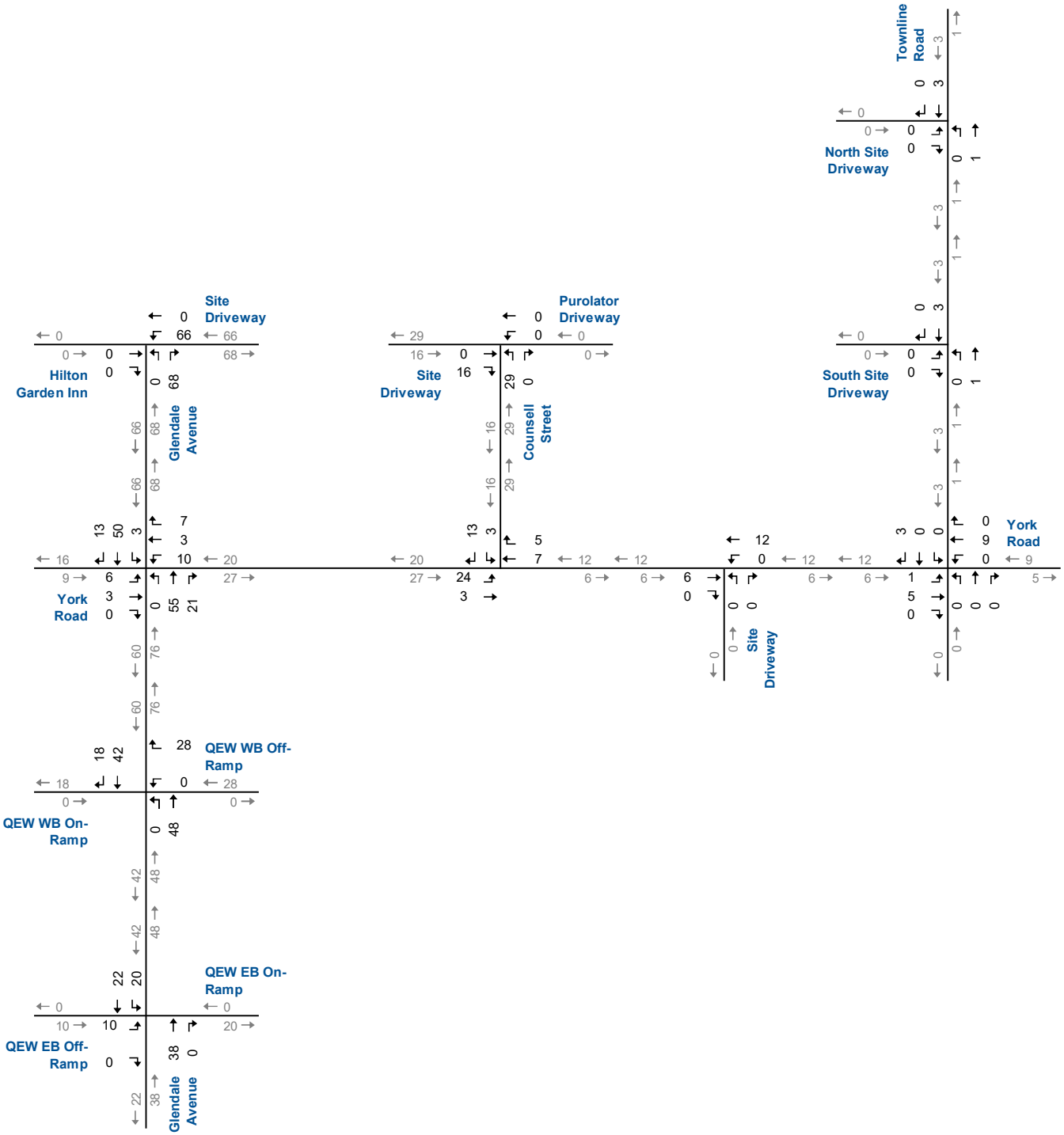
White Oaks – Phase 2 (2030) Saturday Peak Hour

524 York Road, Town of Niagara-on-the-Lake, MD-TIS
240479

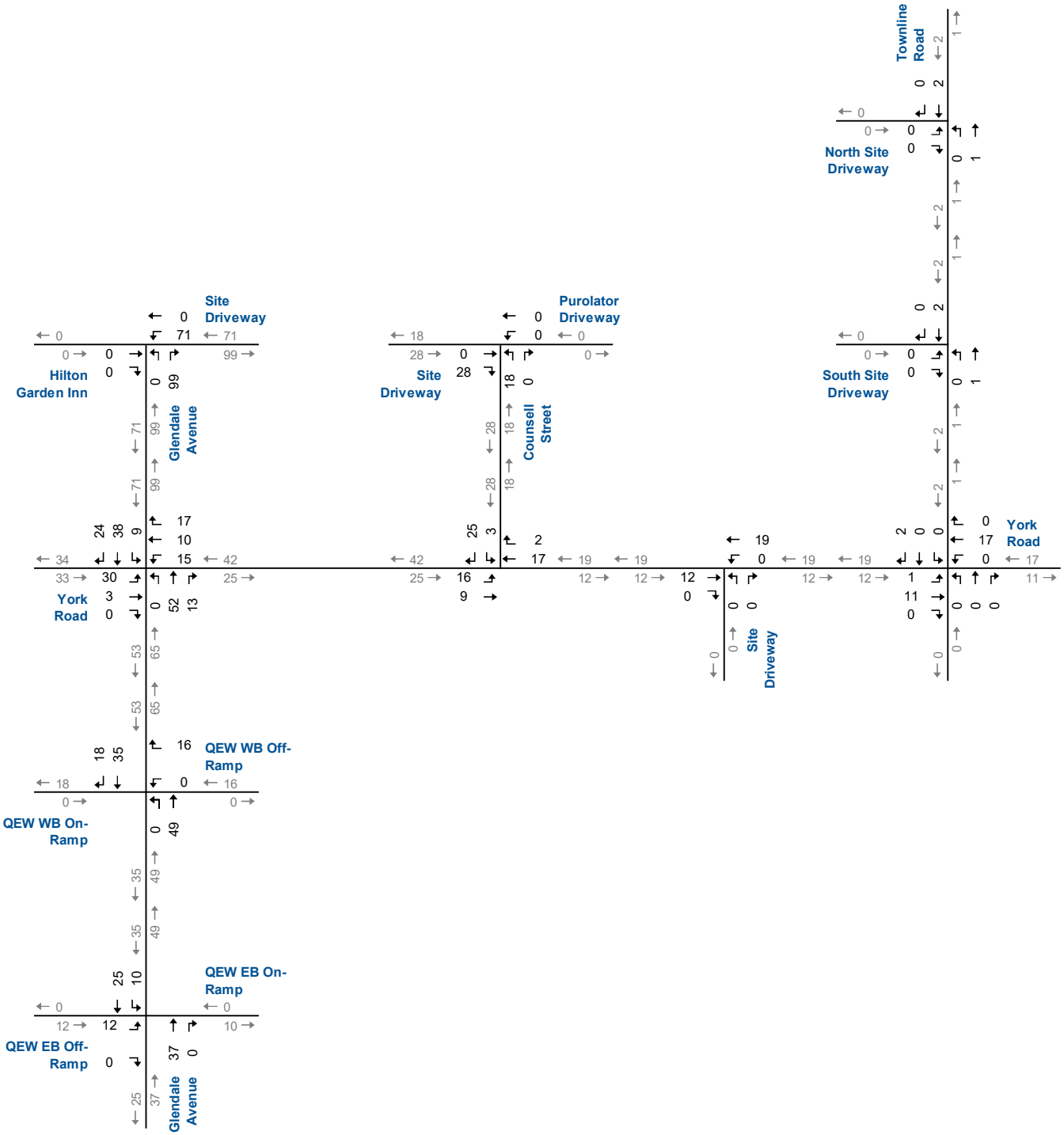
Appendix E



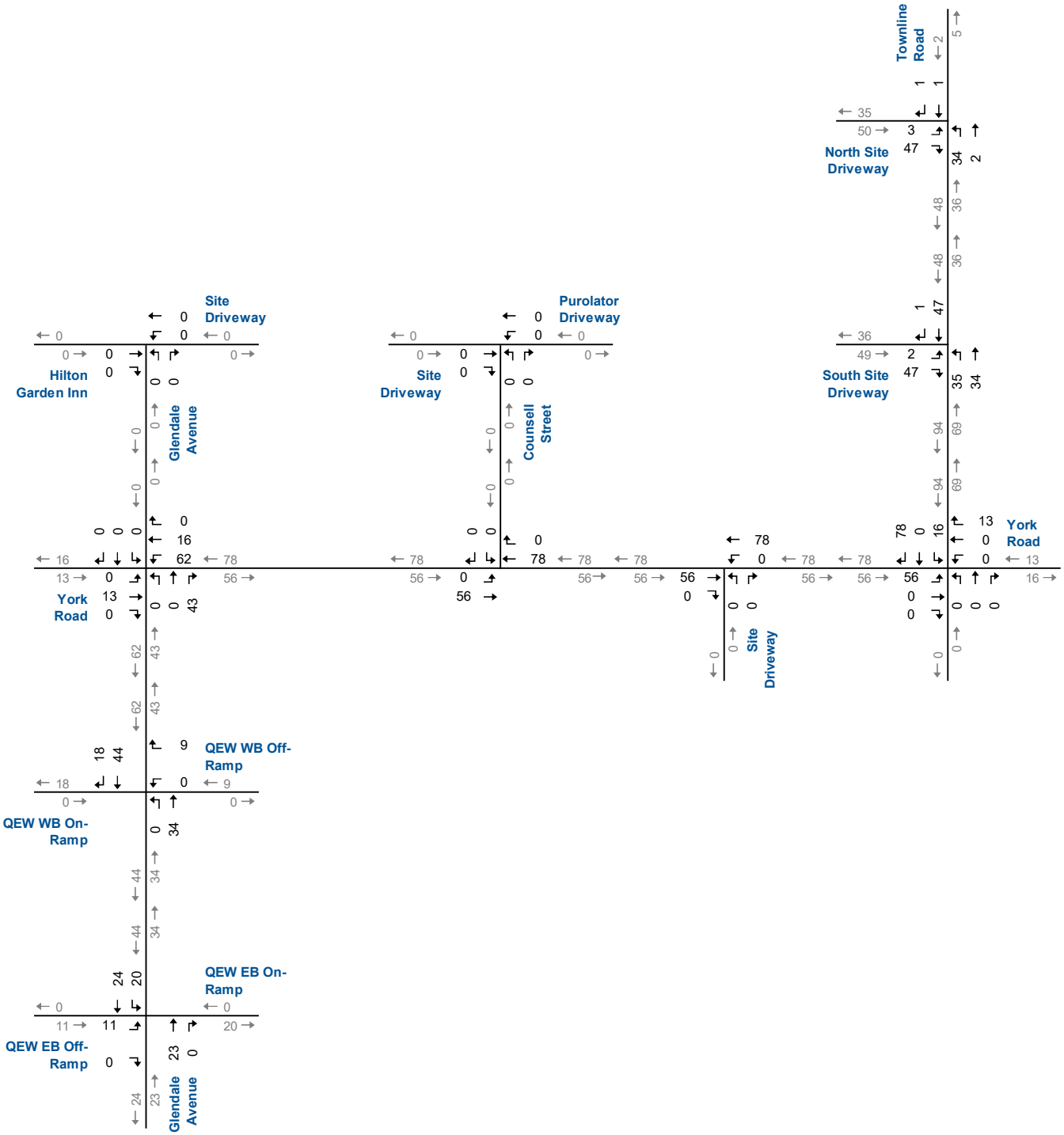
524 York (Phase 2) – Phase 1 (2030) AM Peak Hour



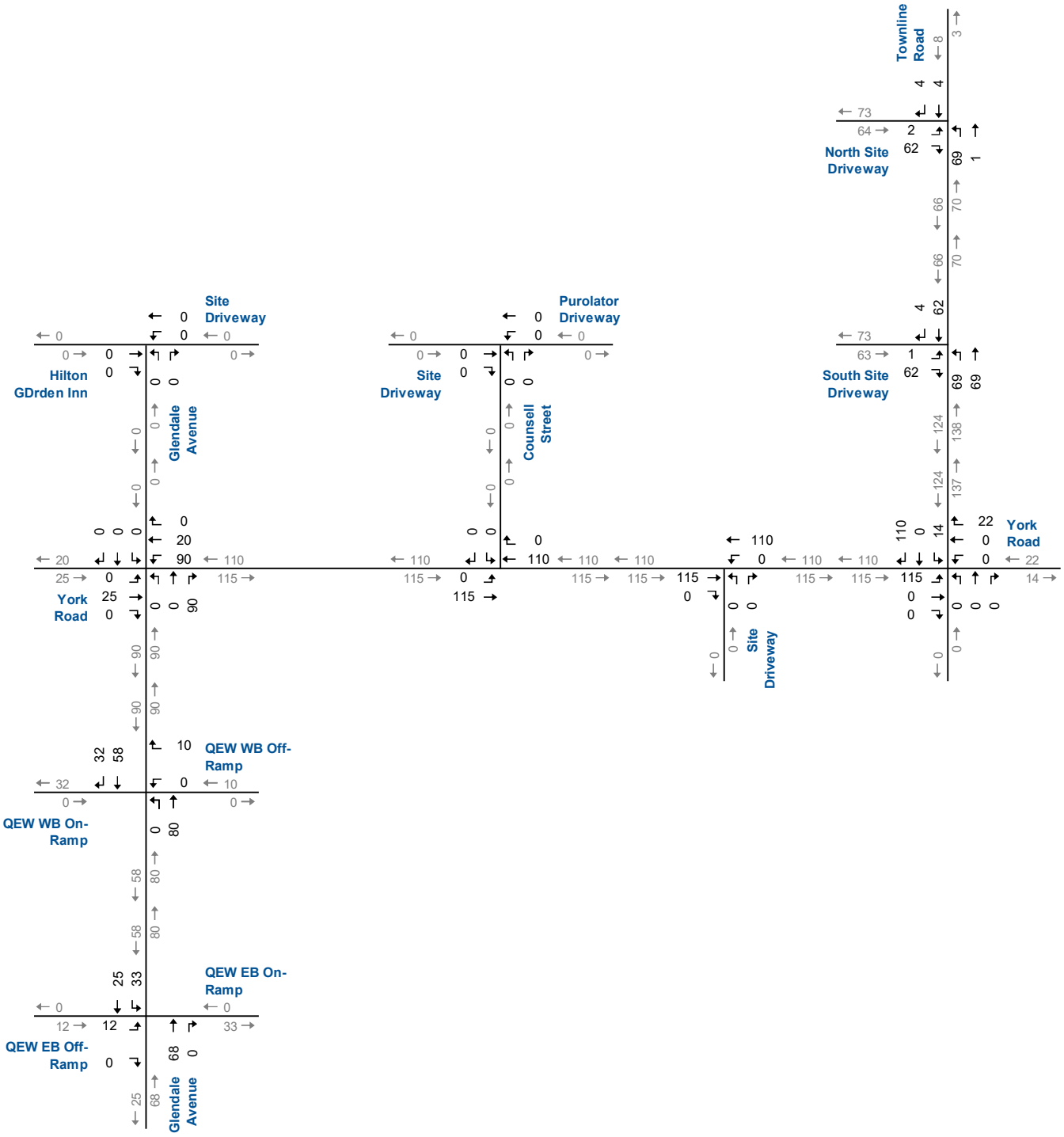
524 York (Phase 2) – Phase 1 (2030) PM Peak Hour



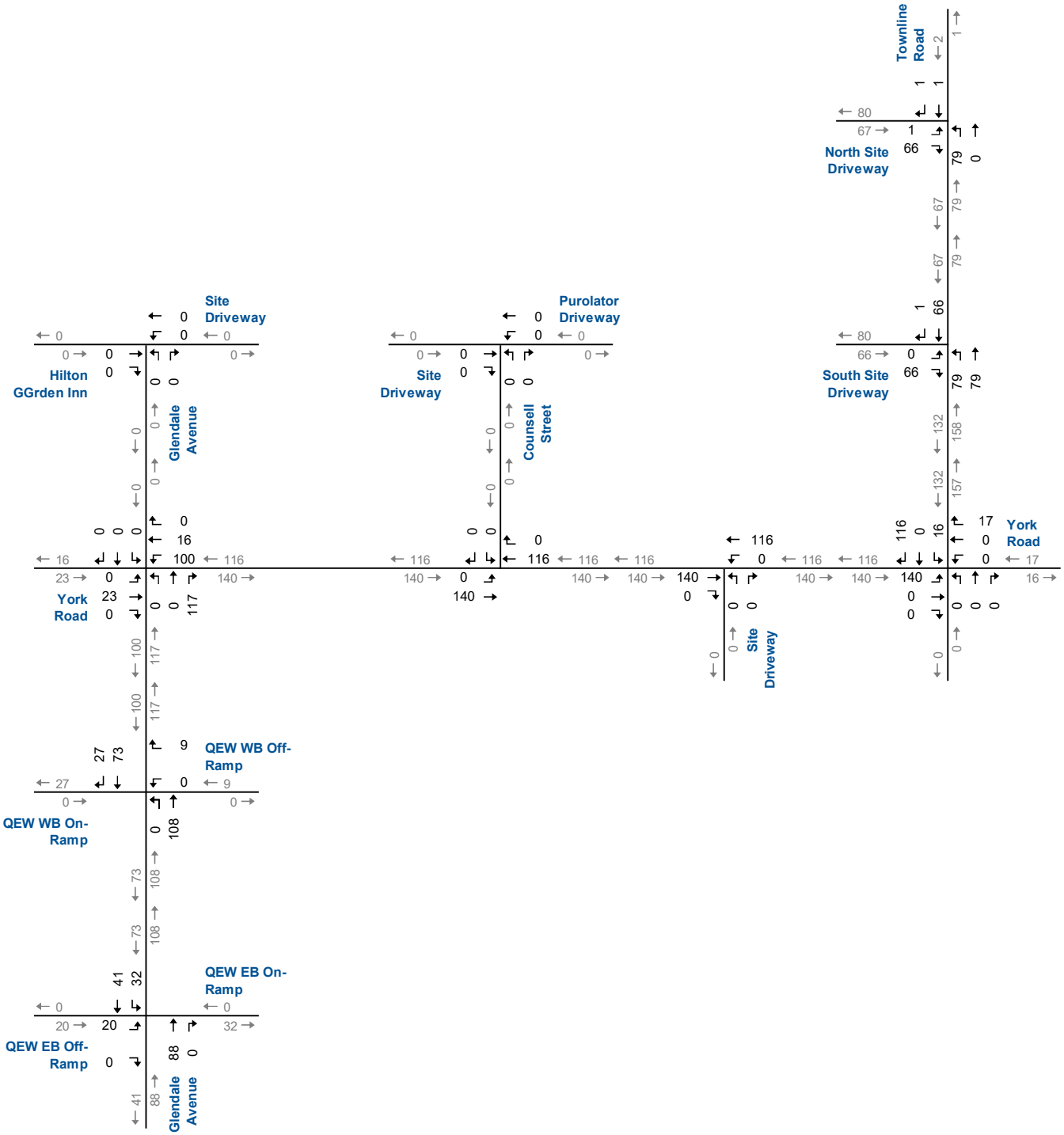
524 York (Phase 2) – Phase 1 (2030) Saturday Peak Hour



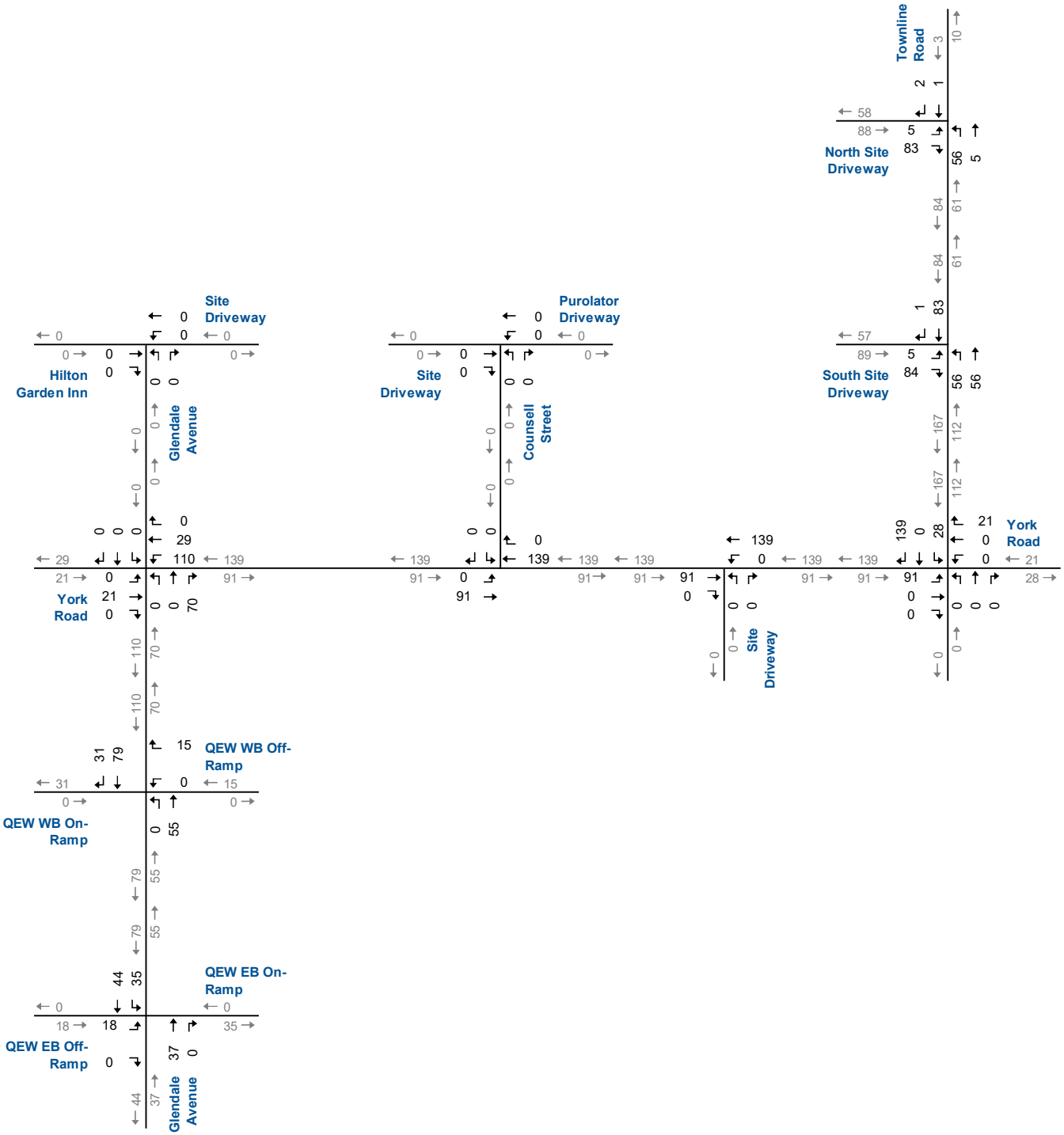
524 York Parcel 6 – Phase 1 (2030) AM Peak Hour



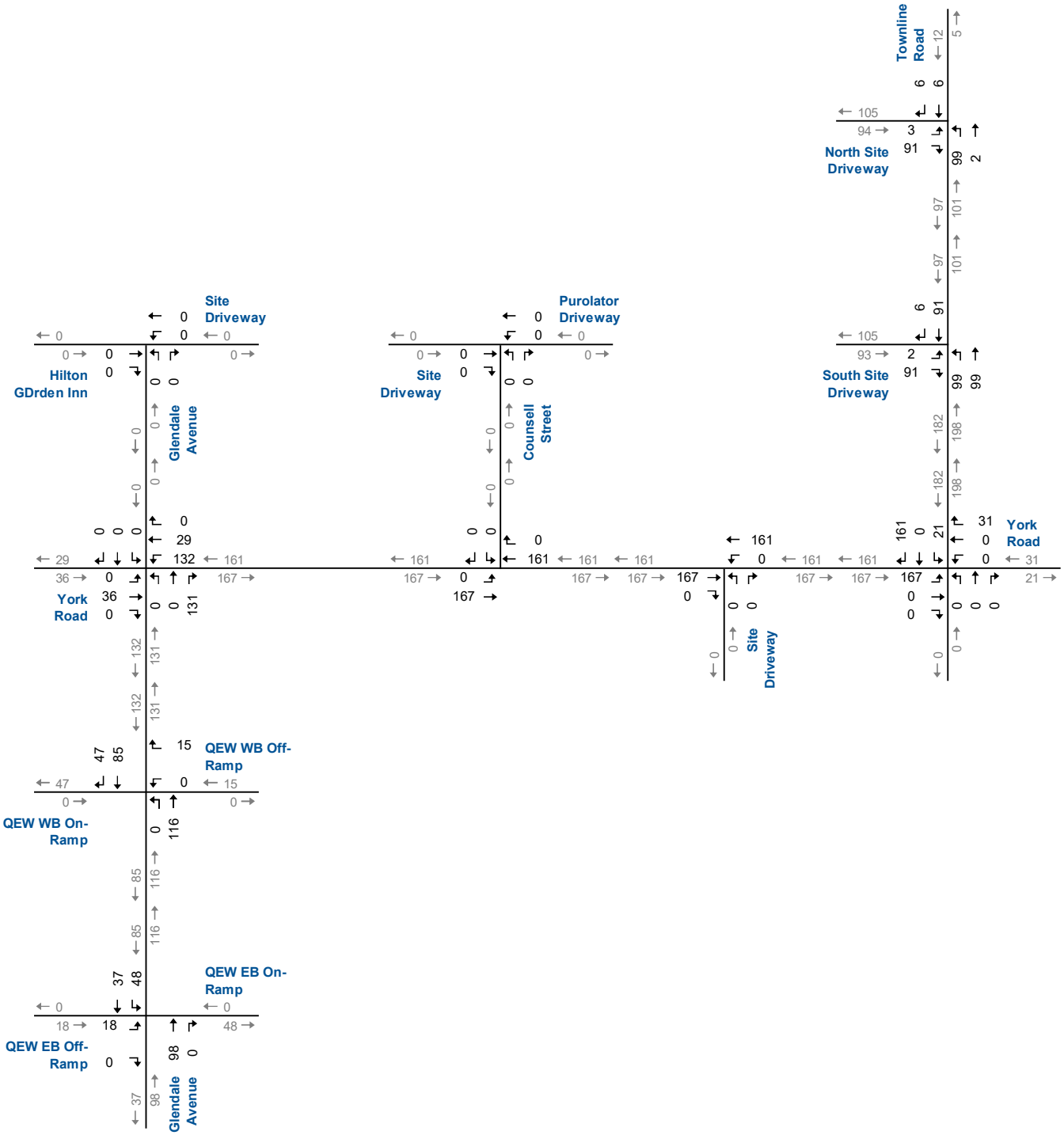
524 York Parcel 6 – Phase 1 (2030) PM Peak Hour



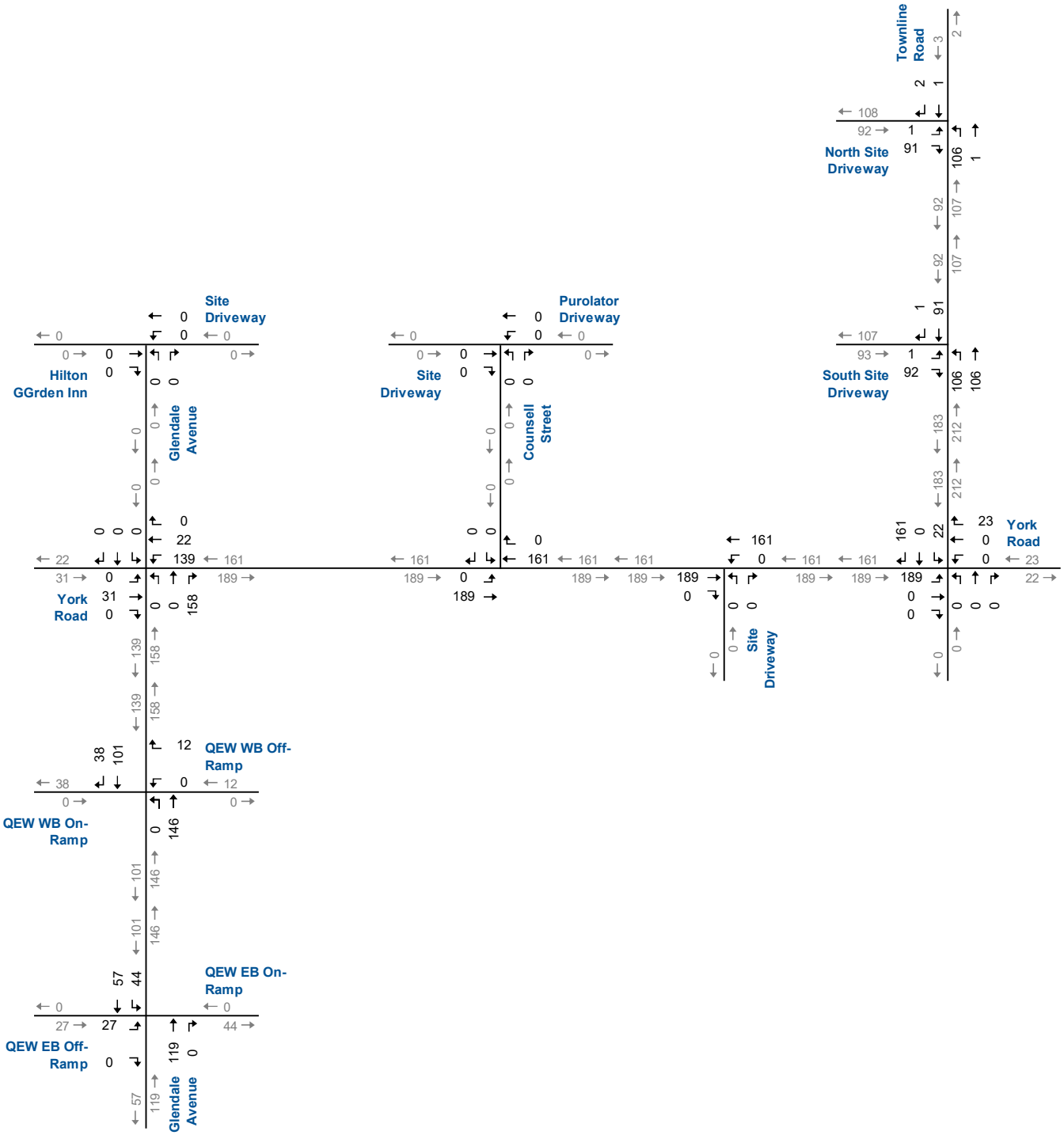
524 York Parcel 6 – Phase 1 (2030) Saturday Peak Hour



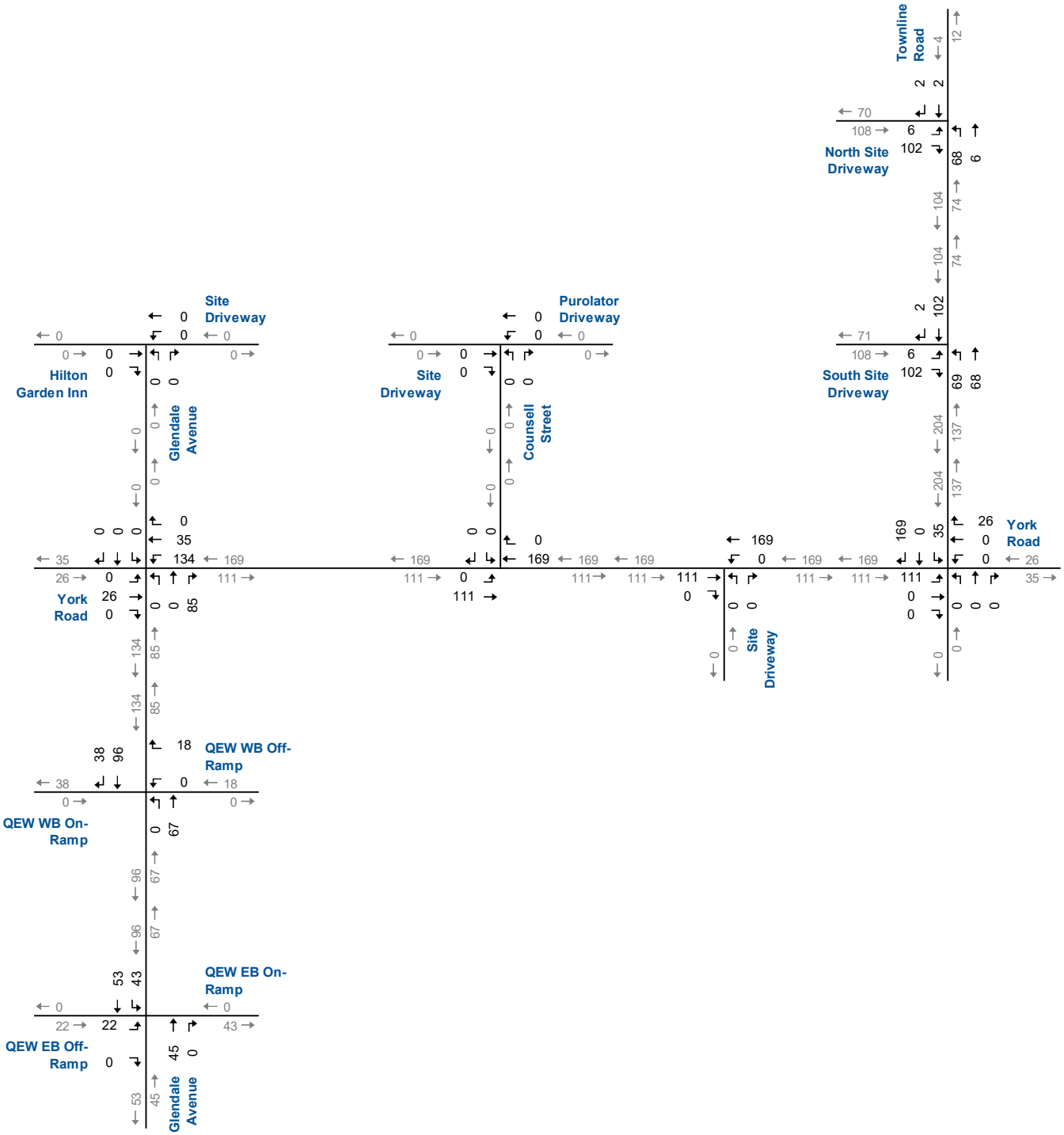
524 York Parcel 6 – Phase 2 (2032) AM Peak Hour



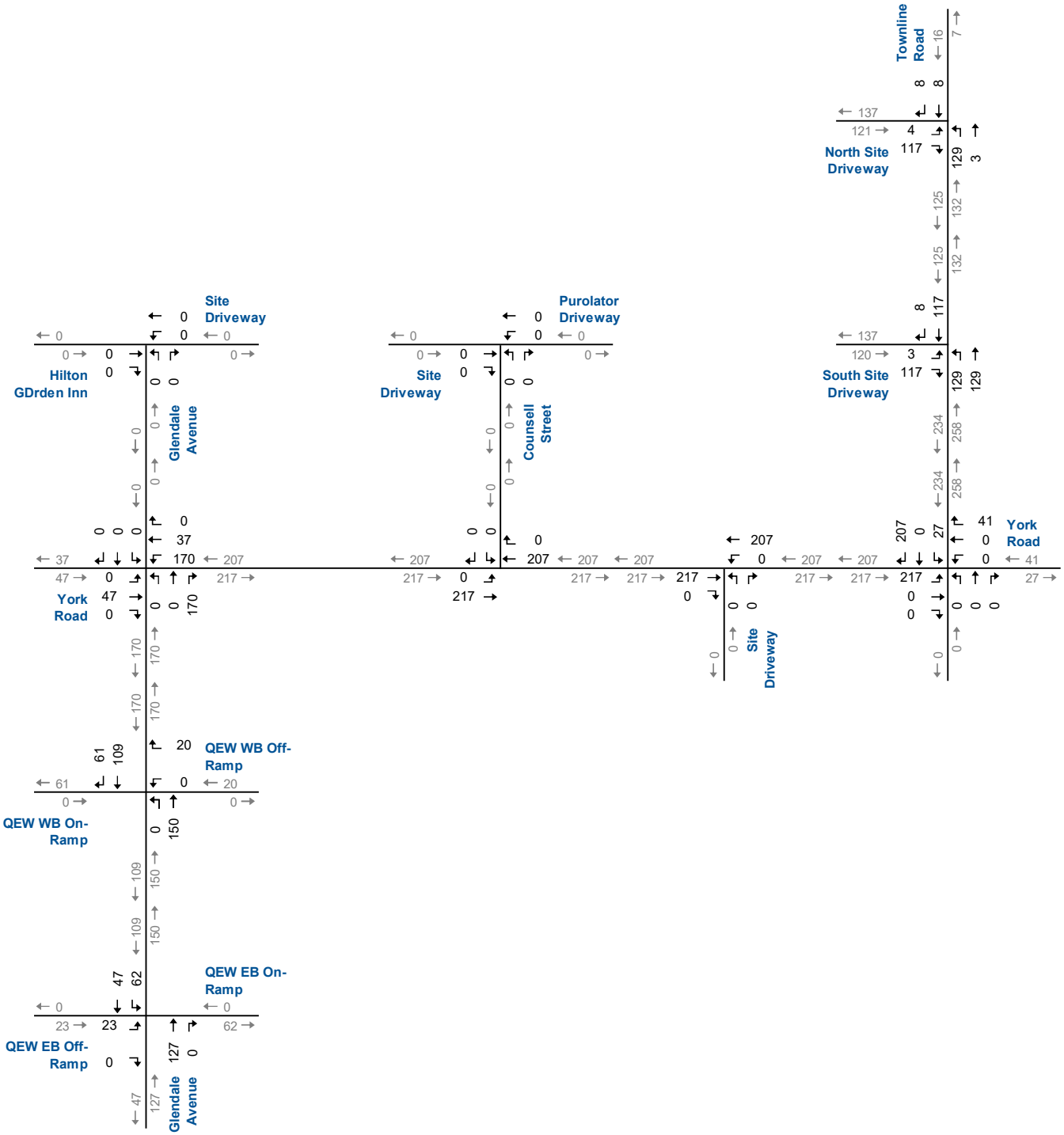
524 York Parcel 6 – Phase 2 (2032) PM Peak Hour



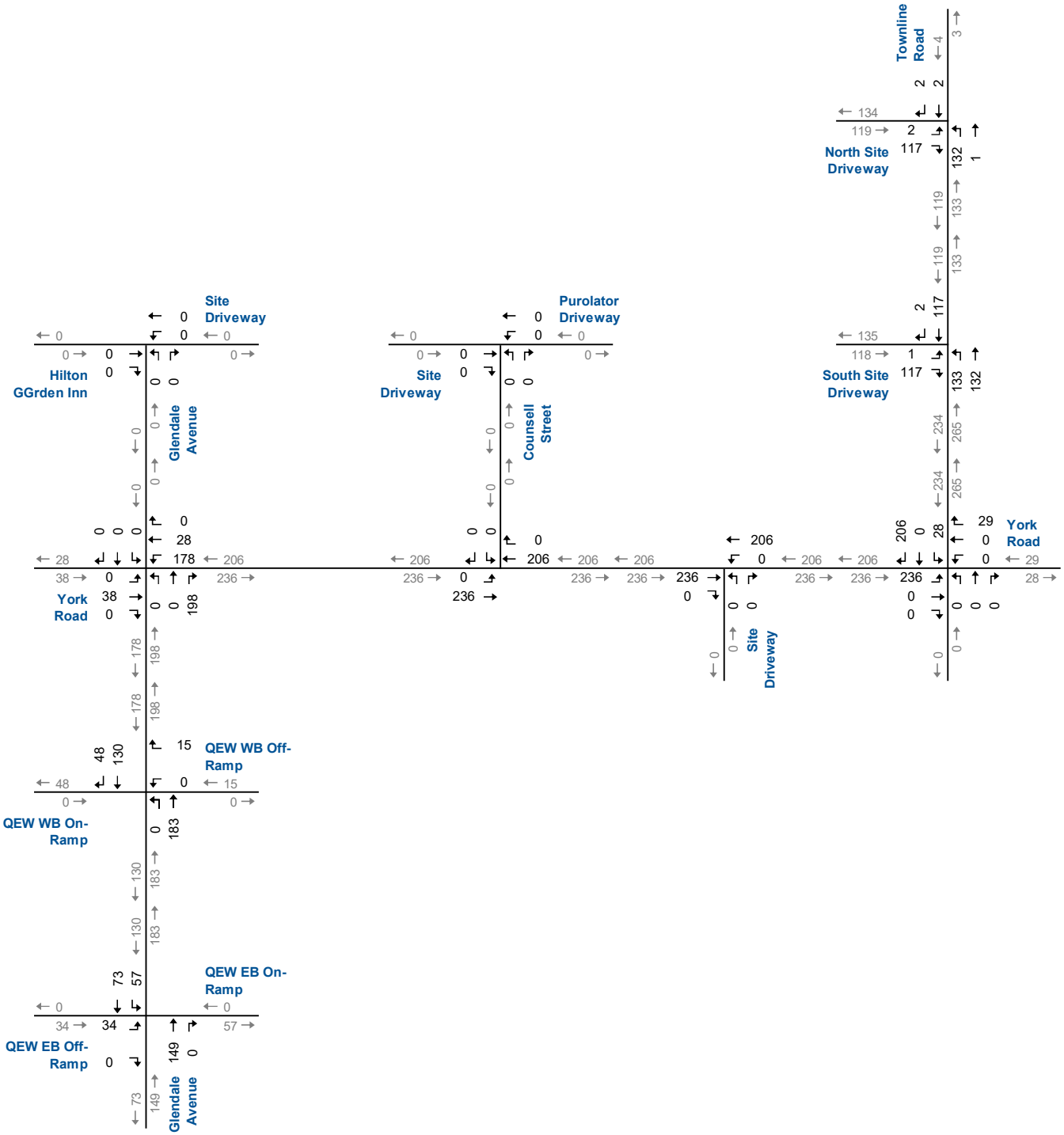
524 York Parcel 6 – Phase 2 (2032) Saturday Peak Hour



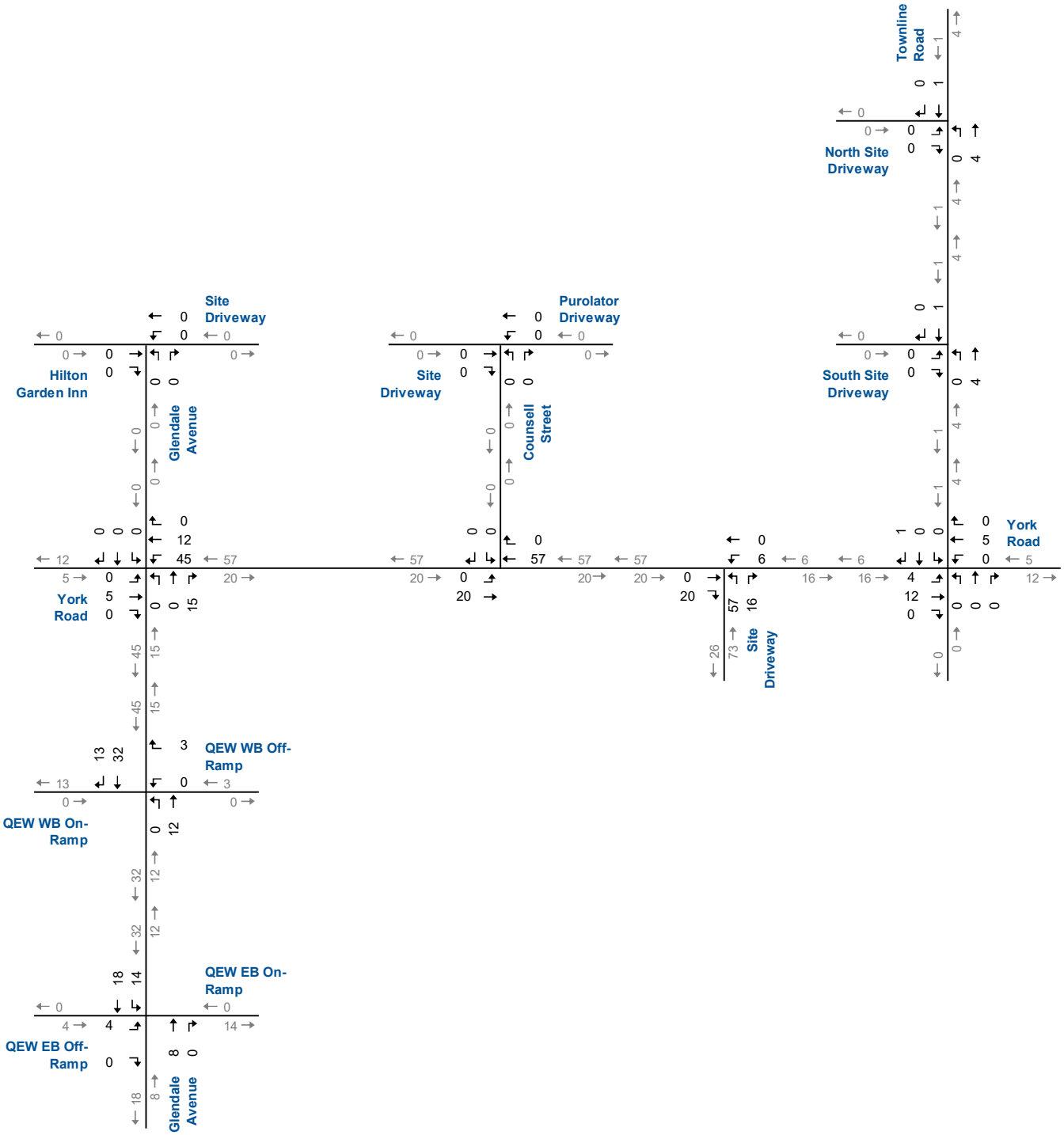
524 York Parcel 6 – Phase 3 (2034) AM Peak Hour



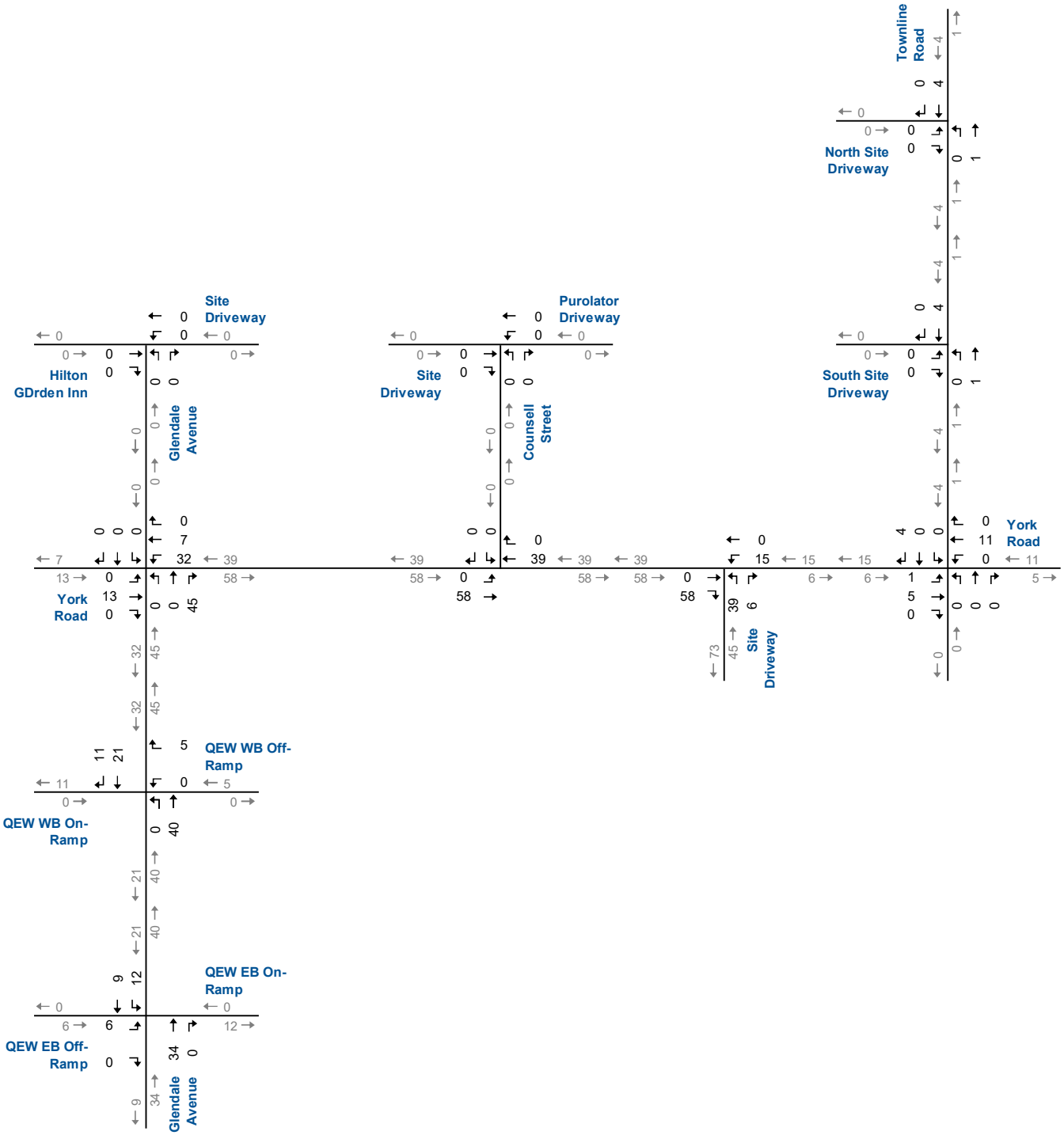
524 York Parcel 6 – Phase 3 (2034) PM Peak Hour



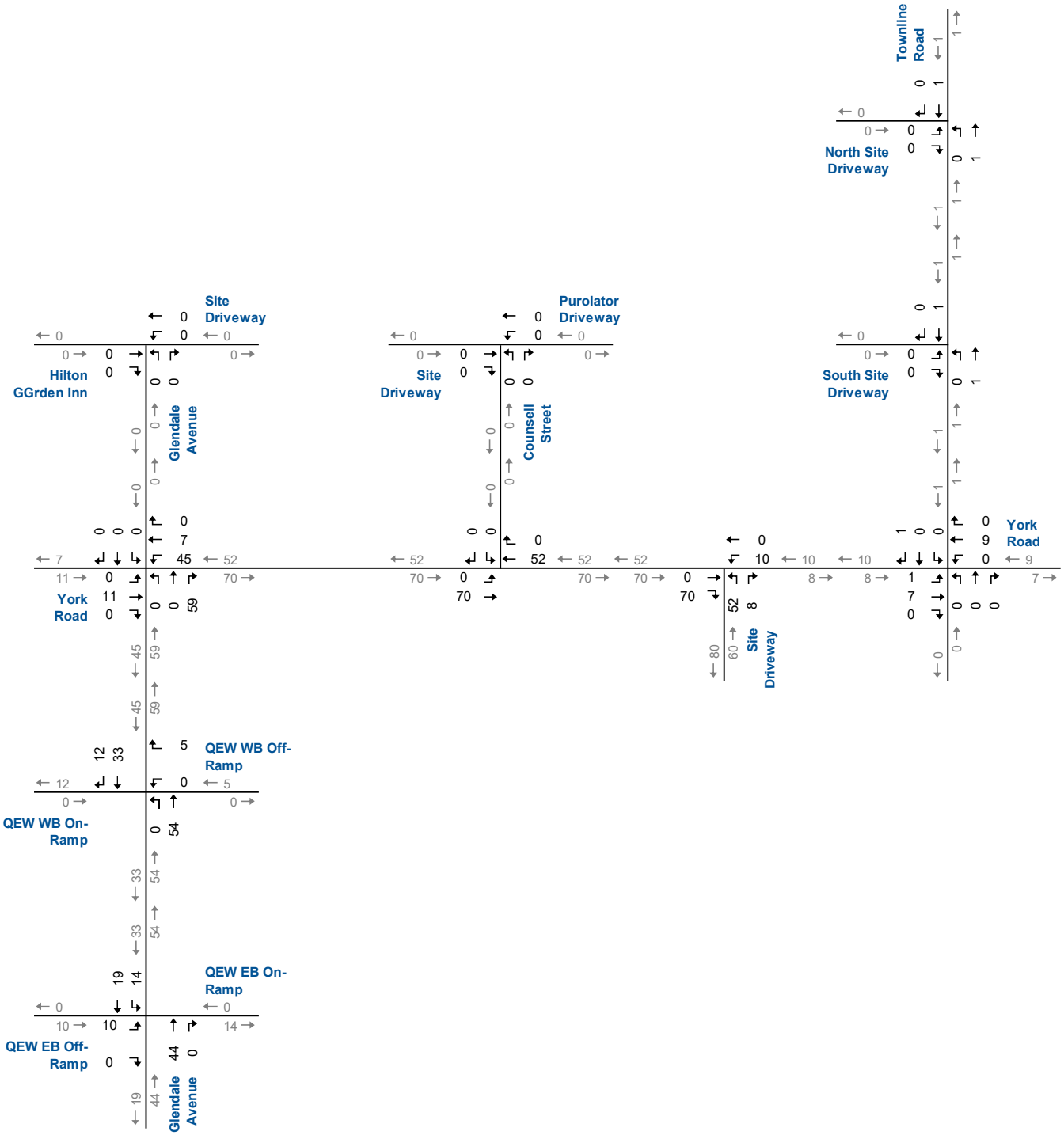
524 York Parcel 6 – Phase 3 (2034) Saturday Peak Hour



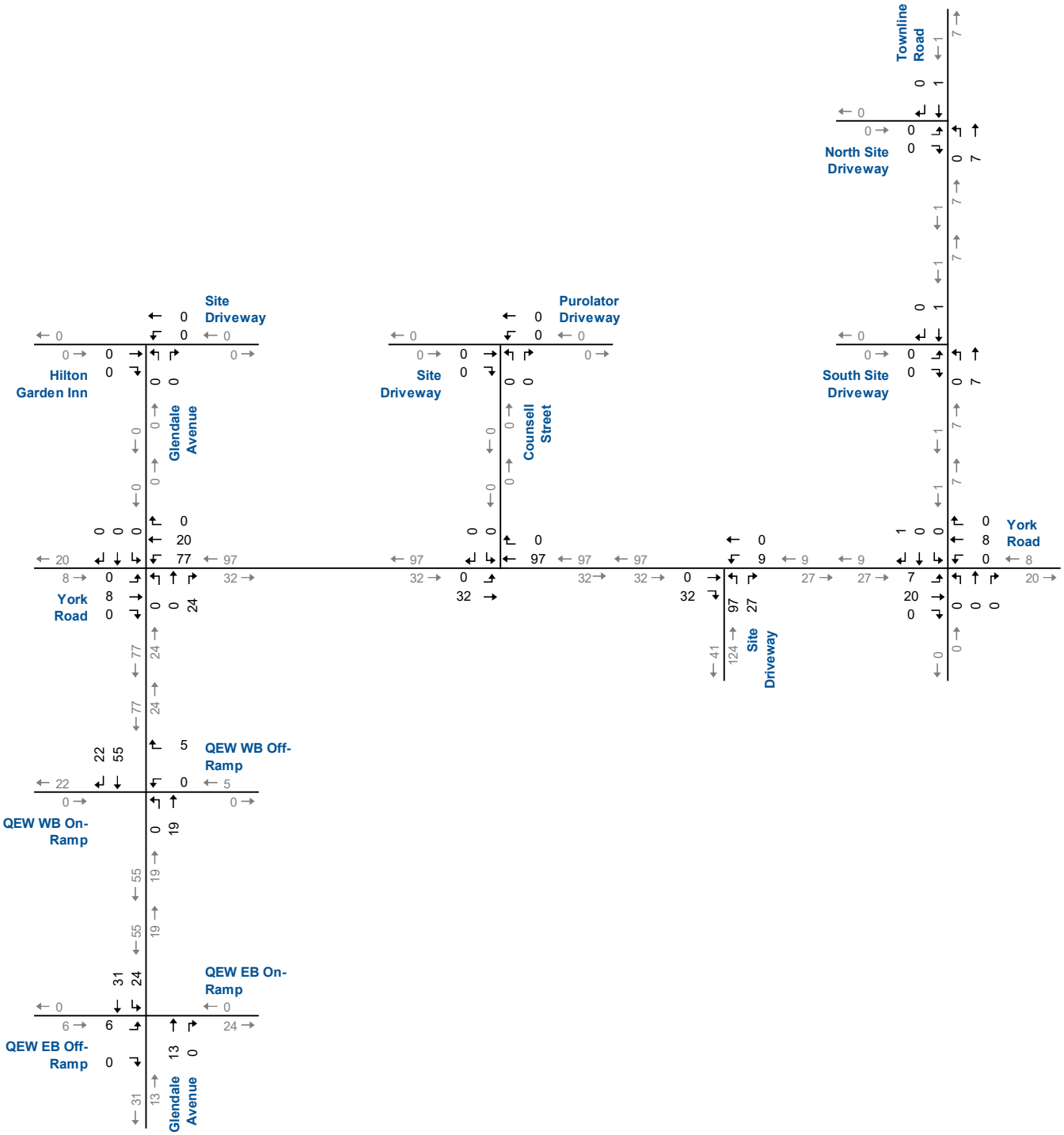
524 York Parcel 7 – Phase 2 (2032) AM Peak Hour



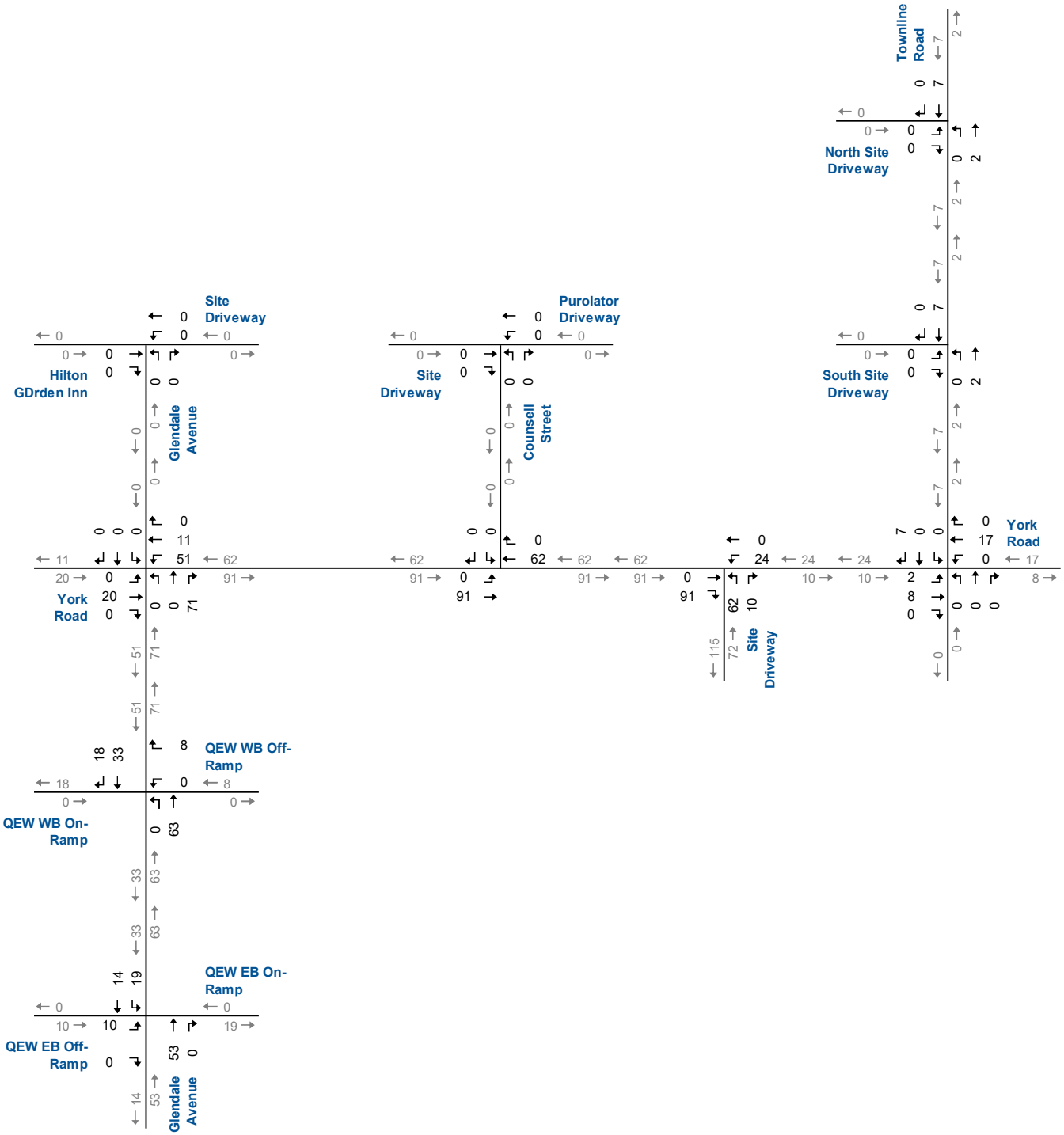
524 York Parcel 7 – Phase 2 (2032) PM Peak Hour



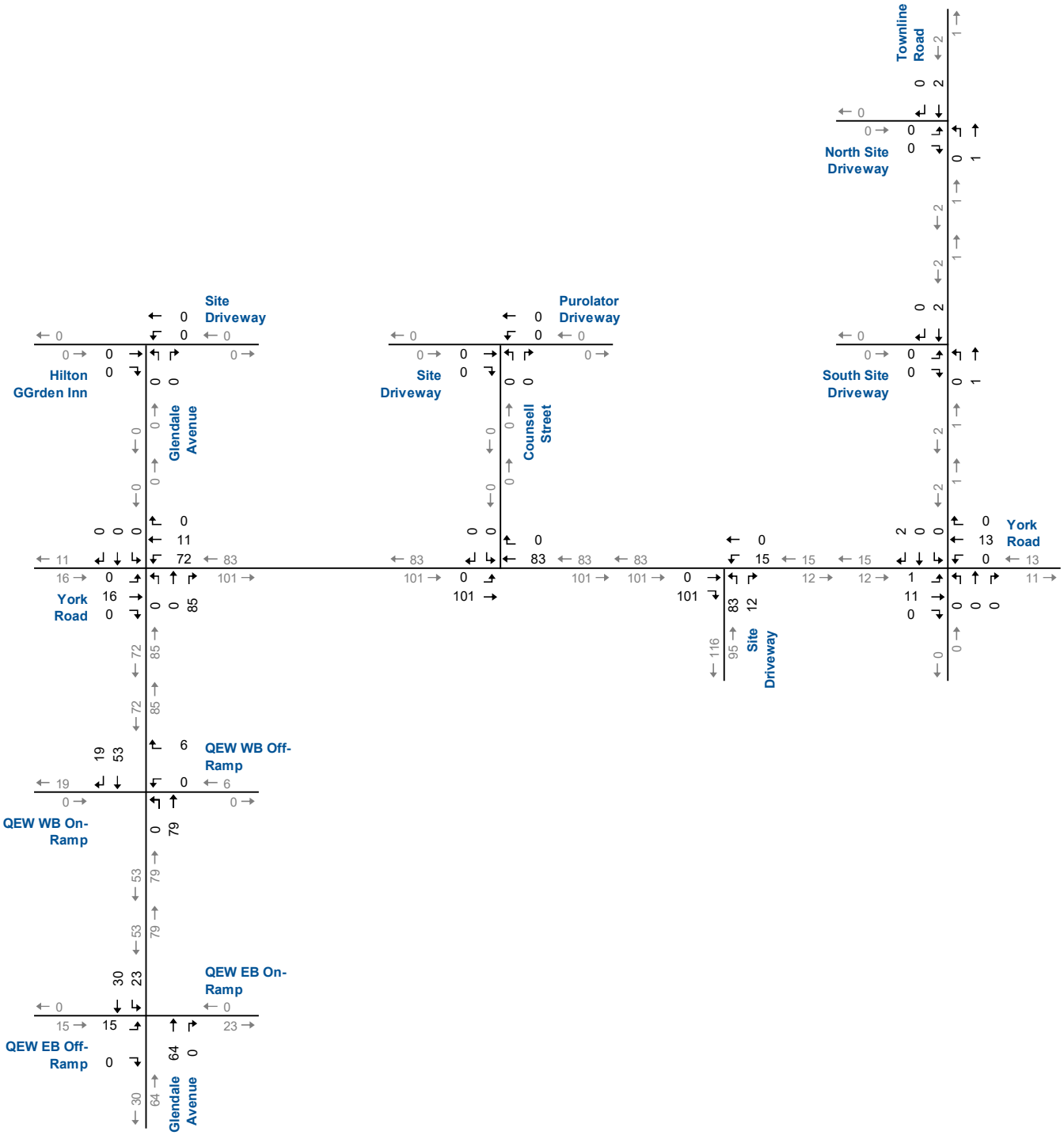
524 York Parcel 7 – Phase 2 (2032) Saturday Peak Hour



524 York Parcel 7 – Phase 3 (2034) AM Peak Hour



524 York Parcel 7 – Phase 3 (2034) PM Peak Hour



524 York Parcel 7 – Phase 3 (2034) Saturday Peak Hour

Appendix F

Background Traffic Operations

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	14	25	1	8	13
Future Volume (vph)	0	14	25	1	8	13
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.918	
Flt Protected				0.954	0.981	
Satd. Flow (prot)	1514	0	0	1669	1576	0
Flt Permitted				0.954	0.981	
Satd. Flow (perm)	1514	0	0	1669	1576	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	0	15	27	1	9	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	15	0	0	28	23	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	14	25	1	8	13
Future Volume (Veh/h)	0	14	25	1	8	13
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	15	27	1	9	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	32	0	40	25	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	32	0	40	25	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	97	100	99	
cM capacity (veh/h)	860	1091	952	866	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	15	28	23
Volume Left	0	27	9
Volume Right	15	0	14
cSH	1091	948	1636
Volume to Capacity	0.01	0.03	0.01
Queue Length 95th (m)	0.3	0.7	0.1
Control Delay (s/veh)	8.3	8.9	2.8
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	8.9	2.8
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

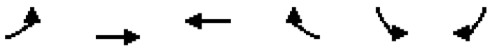
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	38	11	3	1
Future Volume (vph)	0	0	38	11	3	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.966	
Flt Protected				0.963	0.964	
Satd. Flow (prot)	1750	0	0	1669	1626	0
Flt Permitted				0.963	0.964	
Satd. Flow (perm)	1750	0	0	1669	1626	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	1%	0%	1%
Adj. Flow (vph)	0	0	41	12	3	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	53	4	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	38	11	3	1
Future Volume (Veh/h)	0	0	38	11	3	1
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	41	12	3	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	7	0	7	7	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	7	0	7	7	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	96	99	100	
cM capacity (veh/h)	891	1091	1015	889	1636	

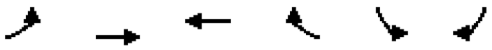
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	0	53	4
Volume Left	0	41	3
Volume Right	0	0	1
cSH	1700	983	1636
Volume to Capacity	0.00	0.05	0.00
Queue Length 95th (m)	0.0	1.4	0.0
Control Delay (s/veh)	0.0	8.9	5.4
Lane LOS	A	A	A
Approach Delay (s/veh)	0.0	8.9	5.4
Approach LOS	A	A	

Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	64	536	455	8	4	62
Future Volume (vph)	64	536	455	8	4	62
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.997		0.873	
Flt Protected	0.950				0.997	
Satd. Flow (prot)	1662	3325	3315	0	1523	0
Flt Permitted	0.950				0.997	
Satd. Flow (perm)	1662	3325	3315	0	1523	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	70	583	495	9	4	67
Shared Lane Traffic (%)						
Lane Group Flow (vph)	70	583	504	0	71	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	64	536	455	8	4	62
Future Volume (Veh/h)	64	536	455	8	4	62
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	583	495	9	4	67
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	504				931	252
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	504				931	252
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				98	91
cM capacity (veh/h)	1071				252	754

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	70	292	292	330	174	71
Volume Left	70	0	0	0	0	4
Volume Right	0	0	0	0	9	67
cSH	1071	1700	1700	1700	1700	678
Volume to Capacity	0.07	0.17	0.17	0.19	0.10	0.10
Queue Length 95th (m)	1.7	0.0	0.0	0.0	0.0	2.8
Control Delay (s/veh)	8.6	0.0	0.0	0.0	0.0	10.9
Lane LOS	A					B
Approach Delay (s/veh)	0.9			0.0		10.9
Approach LOS						B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	32.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	408	5	1	403	12	7	0	2	3	0	58
Future Volume (vph)	132	408	5	1	403	12	7	0	2	3	0	58
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.996			0.973			0.871	
Flt Protected		0.988						0.962			0.998	
Satd. Flow (prot)	0	1727	0	0	1743	0	0	1638	0	0	1521	0
Flt Permitted		0.988						0.962			0.998	
Satd. Flow (perm)	0	1727	0	0	1743	0	0	1638	0	0	1521	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	143	443	5	1	438	13	8	0	2	3	0	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	591	0	0	452	0	0	10	0	0	66	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 69.5%		ICU Level of Service C	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	132	408	5	1	403	12	7	0	2	3	0	58
Future Volume (Veh/h)	132	408	5	1	403	12	7	0	2	3	0	58
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	143	443	5	1	438	13	8	0	2	3	0	63
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	451			448			1241	1185	446	1180	1181	445
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	451			448			1241	1185	446	1180	1181	445
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 %	87			100			94	100	100	98	100	90
cM capacity (veh/h)	1120			1123			124	166	617	152	167	618

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	591	452	10	66
Volume Left	143	1	8	3
Volume Right	5	13	2	63
cSH	1120	1123	148	542
Volume to Capacity	0.13	0.00	0.07	0.12
Queue Length 95th (m)	3.5	0.0	1.7	3.3
Control Delay (s/veh)	3.2	0.0	31.2	12.6
Lane LOS	A	A	D	B
Approach Delay (s/veh)	3.2	0.0	31.2	12.6
Approach LOS			D	B

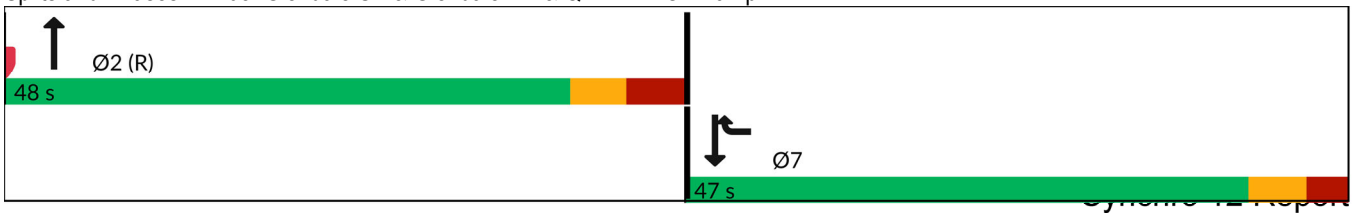
Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	69.5%	ICU Level of Service	C	
Analysis Period (min)	15			

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	298	479	512
Future Volume (vph)	298	479	512
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	324	521	557
Shared Lane Traffic (%)			
Lane Group Flow (vph)	324	521	557
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	29.4	54.6	29.4
Actuated g/C Ratio	0.31	0.57	0.31
v/c Ratio	0.71	0.30	0.59
Control Delay (s/veh)	36.7	12.3	29.5
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	36.7	12.3	29.5
LOS	D	B	C
Approach Delay (s/veh)		12.3	29.5
Approach LOS		B	C
Stops (vph)	250	244	407
Fuel Used(l)	16	13	22
CO Emissions (g/hr)	299	236	418
NOx Emissions (g/hr)	58	45	81
VOC Emissions (g/hr)	69	54	96
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay (s/veh): 24.7		Intersection LOS: C	
Intersection Capacity Utilization 43.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	324	521	557
v/c Ratio	0.71	0.30	0.59
Control Delay (s/veh)	36.7	12.3	29.5
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	36.7	12.3	29.5
Queue Length 50th (m)	55.0	25.3	47.5
Queue Length 95th (m)	72.6	45.1	54.5
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	656	1736	1348
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.49	0.30	0.41

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	298	479	512
Future Volume (vph)	298	479	512
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	324	521	557
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	324	521	557
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	27.4	52.6	27.4
Effective Green, g (s)	29.4	54.6	29.4
Actuated g/C Ratio	0.31	0.57	0.31
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	459	1737	943
v/s Ratio Prot	c0.22	c0.17	0.18
v/s Ratio Perm			
v/c Ratio	0.71	0.30	0.59
Uniform Delay, d1	29.0	10.4	27.7
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	4.9	0.4	1.0
Delay (s)	33.9	10.8	28.7
Level of Service	C	B	C
Approach Delay (s/veh)		10.8	28.7
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

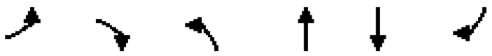
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	237	0	0	0	0	512
Future Volume (vph)	237	0	0	0	0	512
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	258	0	0	0	0	557
Shared Lane Traffic (%)						
Lane Group Flow (vph)	258	0	0	0	0	557
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	237	0	0	0	0	512
Future Volume (Veh/h)	237	0	0	0	0	512
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	258	0	0	0	0	557
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	279	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	279	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	63	100			100	
cM capacity (veh/h)	688	1084			1622	

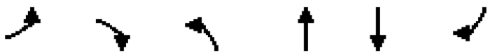
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	258	279	279
Volume Left	258	0	0
Volume Right	0	0	0
cSH	688	1700	1700
Volume to Capacity	0.37	0.16	0.16
Queue Length 95th (m)	13.9	0.0	0.0
Control Delay (s/veh)	13.3	0.0	0.0
Lane LOS	B		
Approach Delay (s/veh)	13.3	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	354	0	0	499	0	0
Future Volume (vph)	354	0	0	499	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	385	0	0	542	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	385	0	0	542	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 66.5%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	354	0	0	499	0	0
Future Volume (Veh/h)	354	0	0	499	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	385	0	0	542	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	271	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	271	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	45	100	100			
cM capacity (veh/h)	696	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	385	271	271
Volume Left	385	0	0
Volume Right	0	0	0
cSH	696	1700	1700
Volume to Capacity	0.55	0.16	0.16
Queue Length 95th (m)	27.3	0.0	0.0
Control Delay (s/veh)	16.4	0.0	0.0
Lane LOS	C		
Approach Delay (s/veh)	16.4	0.0	
Approach LOS	C		

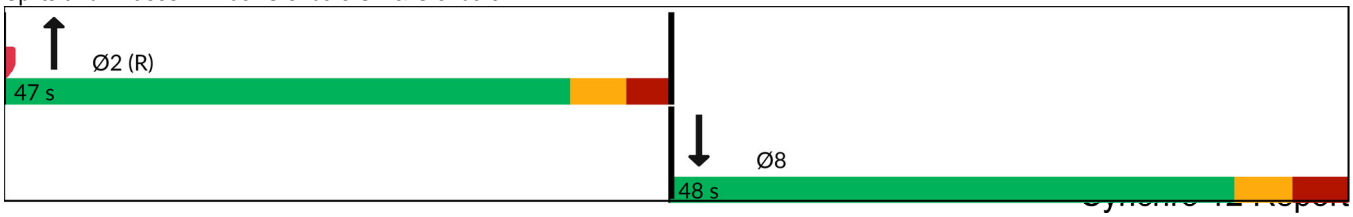
Intersection Summary			
Average Delay	6.8		
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	499	0	0	337	0	0	0	0	0	0	0
Future Volume (vph)	0	499	0	0	337	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	542	0	0	366	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	542	0	0	366	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		64.0			16.0							
Actuated g/C Ratio		0.67			0.17							
v/c Ratio		0.24			0.65							
Control Delay (s/veh)		6.8			42.4							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		6.8			42.4							
LOS		A			D							
Approach Delay (s/veh)		6.8			42.4							
Approach LOS		A			D							
Stops (vph)		184			304							
Fuel Used(l)		9			19							
CO Emissions (g/hr)		168			362							
NOx Emissions (g/hr)		32			70							
VOC Emissions (g/hr)		39			83							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay (s/veh): 21.1		Intersection LOS: C	
Intersection Capacity Utilization 20.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	542	366
v/c Ratio	0.24	0.65
Control Delay (s/veh)	6.8	42.4
Queue Delay	0.0	0.0
Total Delay (s/veh)	6.8	42.4
Queue Length 50th (m)	18.9	35.1
Queue Length 95th (m)	30.5	47.5
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	2240	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.24	0.26

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	499	0	0	337	0	0	0	0	0	0	0
Future Volume (vph)	0	499	0	0	337	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	542	0	0	366	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	542	0	0	366	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		64.0			16.0							
Effective Green, g (s)		64.0			16.0							
Actuated g/C Ratio		0.67			0.17							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		2240			560							
v/s Ratio Prot		c0.16			c0.11							
v/s Ratio Perm												
v/c Ratio		0.24			0.65							
Uniform Delay, d1		6.0			36.9							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.3			2.7							
Delay (s)		6.3			39.7							
Level of Service		A			D							
Approach Delay (s/veh)		6.3			39.7			0.0			0.0	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	20.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:22:20 PM

Summary of intersection performance

	AM						
	Queue (PCE)	**95% Queue (PCE)**	**Delay (s)**	**V/C Ratio**	**LOS**	**Intersection Delay (s)**	**Intersection LOS**
	A1 - BG (2027)						
Leg North	0.07	~1	6.34	0.06	A	6.04	A
Leg West	0.13	~1	3.81	0.11	A		
Leg South	0.91	~1	5.71	0.45	A		
Leg East	1.27	1.14	8.53	0.53	A		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM " model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:22:19 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - BG (2027), AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
BG (2027), AM	BG (2027)	AM		PHF	08:00	09:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				6.04	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	38.00	100.000
West	PHF	✓	419.00	100.000
South	PHF	✓	1002.00	100.000
East	PHF	✓	500.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	38.00	0.92	SecondQuarter
West	419.00	0.92	SecondQuarter
South	1002.00	0.92	SecondQuarter
East	500.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	14.000	21.000	3.000
	West	2.000	0.000	305.000	112.000
	South	15.000	519.000	0.000	468.000

	East	0.000	131.000	368.000	1.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.37	0.55	0.08
	West	0.00	0.00	0.73	0.27
	South	0.01	0.52	0.00	0.47
	East	0.00	0.26	0.74	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.154	1.200	1.333
	West	1.000	1.000	1.139	1.047
	South	1.071	1.119	1.000	1.095
	East	1.000	1.057	1.170	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	15.4	20.0	33.3
	West	0.0	0.0	13.9	4.7
	South	7.1	11.9	0.0	9.5
	East	0.0	5.7	17.0	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.06	6.34	0.07	~1	A	38.00	38.00	3.72	5.88	0.06	3.72	5.88
West	0.11	3.81	0.13	~1	A	419.00	114.00	7.03	3.70	0.12	7.03	3.70
South	0.45	5.71	0.91	~1	A	1002.00	534.00	47.34	5.32	0.79	47.36	5.32
East	0.53	8.53	1.27	1.14	A	500.00	500.00	62.56	7.51	1.04	62.58	7.51

Main Results for each time segment

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	35.80	35.80	8.95	0.00	0.00	35.58	15.93	953.64	0.00	805.52	384.12	0.044	0.00	0.06	5.571	A
West	394.71	107.39	26.85	287.32	0.00	106.96	621.76	367.46	0.00	1144.77	850.26	0.094	0.00	0.11	3.626	A
South	943.91	503.04	125.76	440.87	287.32	500.22	363.72	110.70	0.00	1293.37	846.81	0.389	0.00	0.70	5.057	A
East	471.01	471.01	117.75	0.00	440.87	467.47	108.83	502.10	0.00	1066.85	858.72	0.442	0.00	0.89	6.795	A

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	41.30	41.30	10.33	0.00	0.00	41.24	18.45	1105.27	0.00	717.76	384.12	0.058	0.06	0.07	6.342	A

West	455.43	123.91	30.98	331.52	0.00	123.82	720.50	426.00	0.00	1110.89	850.26	0.112	0.11	0.13	3.814	A
South	1089.13	580.43	145.11	508.70	331.52	579.60	421.66	128.16	0.00	1283.27	846.81	0.452	0.70	0.91	5.710	A
East	543.48	543.48	135.87	0.00	508.70	541.94	125.99	581.78	0.00	1020.74	858.72	0.532	0.89	1.27	8.526	A

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	39.10	39.10	9.78	0.00	0.00	39.13	17.50	1049.36	0.00	750.12	384.12	0.052	0.07	0.07	6.036	A
West	431.14	117.30	29.33	313.84	0.00	117.34	683.68	404.81	0.00	1123.16	850.26	0.104	0.13	0.12	3.746	A
South	1031.04	549.48	137.37	481.57	313.84	549.77	400.69	121.46	0.00	1287.15	846.81	0.427	0.91	0.84	5.458	A
East	514.49	514.49	128.62	0.00	481.57	515.04	119.40	551.83	0.00	1038.07	858.72	0.496	1.27	1.14	7.841	A

Main results: (08:45-09:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	35.80	35.80	8.95	0.00	0.00	35.84	16.03	961.29	0.00	801.09	384.12	0.045	0.07	0.06	5.608	A
West	394.71	107.39	26.85	287.32	0.00	107.45	626.23	370.89	0.00	1142.79	850.26	0.094	0.12	0.11	3.639	A
South	943.91	503.04	125.76	440.87	287.32	503.53	367.12	111.22	0.00	1293.08	846.81	0.389	0.84	0.72	5.100	A
East	471.01	471.01	117.75	0.00	440.87	471.90	109.33	505.42	0.00	1064.93	858.72	0.442	1.14	0.91	6.919	A

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-08:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.80	0.05	5.571	A	A
West	1.59	0.11	3.626	A	A
South	10.23	0.68	5.057	A	A
East	12.74	0.85	6.795	A	A

Queueing Delay results: (08:15-08:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.06	0.07	6.342	A	A
West	1.94	0.13	3.814	A	A
South	13.35	0.89	5.710	A	A
East	18.33	1.22	8.526	A	A

Queueing Delay results: (08:30-08:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.00	0.07	6.036	A	A
West	1.85	0.12	3.746	A	A
South	12.79	0.85	5.458	A	A
East	17.40	1.16	7.841	A	A

Queueing Delay results: (08:45-09:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.85	0.06	5.608	A	A
West	1.65	0.11	3.639	A	A
South	10.97	0.73	5.100	A	A
East	14.09	0.94	6.919	A	A

Queue Variation Results for each time segment

Queue Variation results: (08:00-08:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.11	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.70	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.89	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:15-08:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.13	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.91	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.27	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:30-08:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.12	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.84	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.14	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:45-09:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.11	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.72	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.91	0.00	0.00	0.00	1.14			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	18	25	0	13	23
Future Volume (vph)	0	18	25	0	13	23
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.865				0.913	
Flt Protected				0.950	0.982	
Satd. Flow (prot)	1514	0	0	1662	1569	0
Flt Permitted				0.950	0.982	
Satd. Flow (perm)	1514	0	0	1662	1569	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	20	27	0	14	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	0	0	27	39	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	18	25	0	13	23
Future Volume (Veh/h)	0	18	25	0	13	23
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	20	27	0	14	25
Pedestrians					1	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	53	1	62	41	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	53	1	62	41	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	97	100	99	
cM capacity (veh/h)	835	1089	915	848	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	20	27	39
Volume Left	0	27	14
Volume Right	20	0	25
cSH	1089	915	1636
Volume to Capacity	0.02	0.03	0.01
Queue Length 95th (m)	0.4	0.7	0.2
Control Delay (s/veh)	8.4	9.1	2.6
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.1	2.6
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

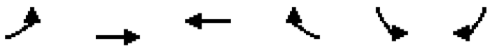
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1	6	0	0	10	27
Future Volume (vph)	1	6	0	0	10	27
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.882				0.902	
Flt Protected					0.986	
Satd. Flow (prot)	1544	0	0	1750	1545	0
Flt Permitted					0.986	
Satd. Flow (perm)	1544	0	0	1750	1545	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	1	7	0	0	11	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	0	40	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1	6	0	0	10	27
Future Volume (Veh/h)	1	6	0	0	10	27
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	7	0	0	11	29
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	51	0	44	37	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	51	0	44	37	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	100	100	99	
cM capacity (veh/h)	839	1091	951	854	1636	

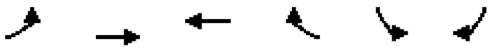
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	8	0	40
Volume Left	0	0	11
Volume Right	7	0	29
cSH	1051	1700	1636
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.2	0.0	0.2
Control Delay (s/veh)	8.5	0.0	2.0
Lane LOS	A	A	A
Approach Delay (s/veh)	8.5	0.0	2.0
Approach LOS	A	A	

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	59	506	637	13	8	40
Future Volume (vph)	59	506	637	13	8	40
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.997		0.888	
Flt Protected	0.950				0.991	
Satd. Flow (prot)	1662	3325	3315	0	1540	0
Flt Permitted	0.950				0.991	
Satd. Flow (perm)	1662	3325	3315	0	1540	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Confl. Peds. (#/hr)	1			1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	64	550	692	14	9	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	550	706	0	52	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

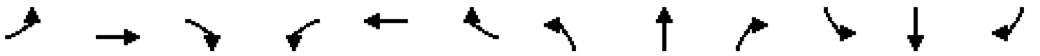
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	59	506	637	13	8	40
Future Volume (Veh/h)	59	506	637	13	8	40
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	64	550	692	14	9	43
Pedestrians		1			1	
Lane Width (m)		3.6			3.6	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	707				1103	355
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	707				1103	355
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				95	93
cM capacity (veh/h)	900				194	646

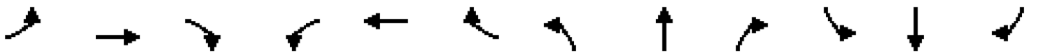
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	64	275	275	461	245	52
Volume Left	64	0	0	0	0	9
Volume Right	0	0	0	0	14	43
cSH	900	1700	1700	1700	1700	460
Volume to Capacity	0.07	0.16	0.16	0.27	0.14	0.11
Queue Length 95th (m)	1.8	0.0	0.0	0.0	0.0	3.0
Control Delay (s/veh)	9.3	0.0	0.0	0.0	0.0	13.8
Lane LOS	A					B
Approach Delay (s/veh)	1.0			0.0		13.8
Approach LOS						B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	409	0	0	481	11	3	0	0	11	0	184
Future Volume (vph)	89	409	0	0	481	11	3	0	0	11	0	184
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.997						0.873	
Flt Protected		0.991						0.950			0.997	
Satd. Flow (prot)	0	1734	0	0	1745	0	0	1662	0	0	1523	0
Flt Permitted		0.991						0.950			0.997	
Satd. Flow (perm)	0	1734	0	0	1745	0	0	1662	0	0	1523	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	97	445	0	0	523	12	3	0	0	12	0	200
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	542	0	0	535	0	0	3	0	0	212	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 79.7%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	409	0	0	481	11	3	0	0	11	0	184
Future Volume (Veh/h)	89	409	0	0	481	11	3	0	0	11	0	184
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	97	445	0	0	523	12	3	0	0	12	0	200
Pedestrians		1									1	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	536			445			1369	1175	445	1169	1169	531
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	536			445			1369	1175	445	1169	1169	531
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 %	91			100			96	100	100	92	100	64
cM capacity (veh/h)	1041			1126			74	175	617	159	176	551

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	542	535	3	212
Volume Left	97	0	3	12
Volume Right	0	12	0	200
cSH	1041	1126	74	484
Volume to Capacity	0.09	0.00	0.04	0.44
Queue Length 95th (m)	2.5	0.0	1.0	17.6
Control Delay (s/veh)	2.5	0.0	55.8	18.1
Lane LOS	A		F	C
Approach Delay (s/veh)	2.5	0.0	55.8	18.1
Approach LOS			F	C

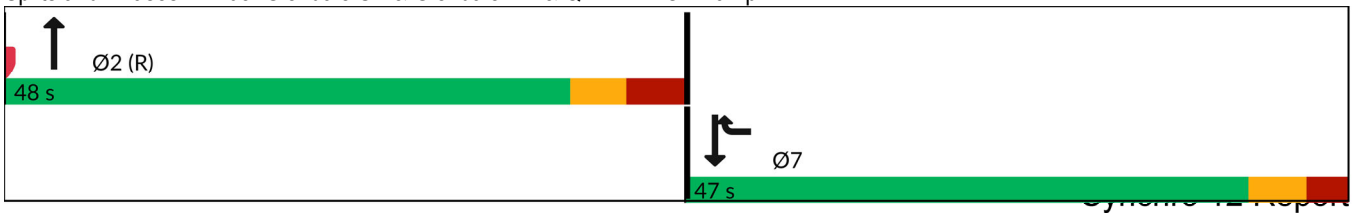
Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	233	389	943
Future Volume (vph)	233	389	943
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	253	423	1025
Shared Lane Traffic (%)			
Lane Group Flow (vph)	253	423	1025
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	40.0	44.0	40.0
Actuated g/C Ratio	0.42	0.46	0.42
v/c Ratio	0.40	0.30	0.80
Control Delay (s/veh)	20.5	17.6	28.9
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	20.5	17.6	28.9
LOS	C	B	C
Approach Delay (s/veh)		17.6	28.9
Approach LOS		B	C
Stops (vph)	153	239	781
Fuel Used(l)	9	13	42
CO Emissions (g/hr)	162	238	775
NOx Emissions (g/hr)	31	46	150
VOC Emissions (g/hr)	37	55	179
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay (s/veh): 24.8		Intersection LOS: C	
Intersection Capacity Utilization 36.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	253	423	1025
v/c Ratio	0.40	0.30	0.80
Control Delay (s/veh)	20.5	17.6	28.9
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	20.5	17.6	28.9
Queue Length 50th (m)	32.7	26.3	87.1
Queue Length 95th (m)	48.0	41.3	102.4
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	671	1430	1380
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.38	0.30	0.74

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	233	389	943
Future Volume (vph)	233	389	943
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	253	423	1025
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	253	423	1025
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	38.0	42.0	38.0
Effective Green, g (s)	40.0	44.0	40.0
Actuated g/C Ratio	0.42	0.46	0.42
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	624	1400	1284
v/s Ratio Prot	0.17	c0.14	c0.34
v/s Ratio Perm			
v/c Ratio	0.41	0.30	0.80
Uniform Delay, d1	19.2	15.9	24.0
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.6	3.6
Delay (s)	19.6	16.5	27.5
Level of Service	B	B	C
Approach Delay (s/veh)		16.5	27.5
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

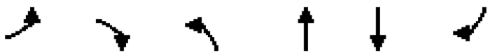
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	339	0	0	0	0	943
Future Volume (vph)	339	0	0	0	0	943
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	368	0	0	0	0	1025
Shared Lane Traffic (%)						
Lane Group Flow (vph)	368	0	0	0	0	1025
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.4%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	339	0	0	0	0	943
Future Volume (Veh/h)	339	0	0	0	0	943
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	368	0	0	0	0	1025
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	513	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	513	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	25	100			100	
cM capacity (veh/h)	491	1084			1622	

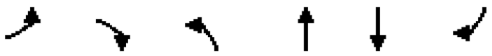
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	368	513	513
Volume Left	368	0	0
Volume Right	0	0	0
cSH	491	1700	1700
Volume to Capacity	0.75	0.30	0.30
Queue Length 95th (m)	50.8	0.0	0.0
Control Delay (s/veh)	31.1	0.0	0.0
Lane LOS	D		
Approach Delay (s/veh)	31.1	0.0	
Approach LOS	D		

Intersection Summary			
Average Delay	8.2		
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	278	0	0	1036	0	0
Future Volume (vph)	278	0	0	1036	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	302	0	0	1126	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	302	0	0	1126	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 73.7%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	278	0	0	1036	0	0
Future Volume (Veh/h)	278	0	0	1036	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	302	0	0	1126	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	563	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	563	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	34	100	100			
cM capacity (veh/h)	456	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	302	563	563
Volume Left	302	0	0
Volume Right	0	0	0
cSH	456	1700	1700
Volume to Capacity	0.66	0.33	0.33
Queue Length 95th (m)	37.7	0.0	0.0
Control Delay (s/veh)	27.0	0.0	0.0
Lane LOS	D		
Approach Delay (s/veh)	27.0	0.0	
Approach LOS	D		

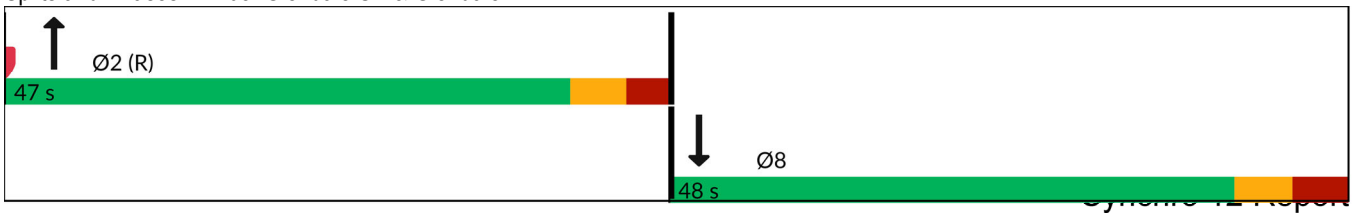
Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1036	0	0	501	0	0	0	0	0	0	0
Future Volume (vph)	0	1036	0	0	501	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1126	0	0	545	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1126	0	0	545	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		58.6			21.4							
Actuated g/C Ratio		0.62			0.23							
v/c Ratio		0.55			0.73							
Control Delay (s/veh)		12.5			39.7							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		12.5			39.7							
LOS		B			D							
Approach Delay (s/veh)		12.5			39.7							
Approach LOS		B			D							
Stops (vph)		581			446							
Fuel Used(l)		28			28							
CO Emissions (g/hr)		518			516							
NOx Emissions (g/hr)		100			100							
VOC Emissions (g/hr)		119			119							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay (s/veh): 21.4		Intersection LOS: C	
Intersection Capacity Utilization 36.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	1126	545
v/c Ratio	0.55	0.73
Control Delay (s/veh)	12.5	39.7
Queue Delay	0.0	0.0
Total Delay (s/veh)	12.5	39.7
Queue Length 50th (m)	60.3	51.6
Queue Length 95th (m)	93.4	64.1
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	2050	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.55	0.39

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1036	0	0	501	0	0	0	0	0	0	0
Future Volume (vph)	0	1036	0	0	501	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1126	0	0	545	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1126	0	0	545	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		58.6			21.4							
Effective Green, g (s)		58.6			21.4							
Actuated g/C Ratio		0.62			0.23							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		2051			749							
v/s Ratio Prot		c0.34			c0.16							
v/s Ratio Perm												
v/c Ratio		0.55			0.73							
Uniform Delay, d1		10.5			34.1							
Progression Factor		1.00			1.00							
Incremental Delay, d2		1.1			3.5							
Delay (s)		11.6			37.6							
Level of Service		B			D							
Approach Delay (s/veh)		11.6			37.6			0.0			0.0	
Approach LOS		B			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:22:57 PM

Summary of intersection performance

	PM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - BG (2027)						
Leg North	0.07	~1	5.56	0.07	A	6.35	A
Leg West	0.09	~1	4.08	0.08	A		
Leg South	0.58	1.12	4.70	0.34	A		
Leg East	2.10	3.16	10.42	0.67	B		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM " model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:22:56 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - BG (2027), PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
BG (2027), PM	BG (2027)	PM		PHF	16:00	17:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				6.35	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	44.00	100.000
West	PHF	✓	566.00	100.000
South	PHF	✓	869.00	100.000
East	PHF	✓	678.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	44.00	0.92	SecondQuarter
West	566.00	0.92	SecondQuarter
South	869.00	0.92	SecondQuarter
East	678.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	8.000	34.000	2.000
	West	3.000	0.000	493.000	70.000
	South	32.000	382.000	0.000	455.000

	East	4.000	161.000	513.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.18	0.77	0.05
	West	0.01	0.00	0.87	0.12
	South	0.04	0.44	0.00	0.52
	East	0.01	0.24	0.76	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.097	1.061
	South	1.033	1.133	1.000	1.196
	East	1.000	1.079	1.048	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	9.7	6.1
	South	3.3	13.3	0.0	19.6
	East	0.0	7.9	4.8	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.07	5.56	0.07	~1	A	44.00	44.00	3.76	5.13	0.06	3.76	5.13
West	0.08	4.08	0.09	~1	A	566.00	73.00	4.79	3.93	0.08	4.79	3.93
South	0.34	4.70	0.58	1.12	A	869.00	414.00	30.96	4.49	0.52	30.97	4.49
East	0.67	10.42	2.10	3.16	B	678.00	678.00	98.79	8.74	1.65	98.84	8.75

Main Results for each time segment

Main results: (16:00-16:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	41.45	41.45	10.36	0.00	0.00	41.23	36.55	987.71	0.00	785.80	409.88	0.053	0.00	0.06	4.834	A
West	533.19	68.77	17.19	464.42	0.00	68.48	516.01	512.93	0.00	1060.58	801.06	0.065	0.00	0.07	3.839	A
South	818.62	390.00	97.50	428.62	464.42	388.12	511.06	70.35	0.00	1316.73	883.04	0.296	0.00	0.47	4.351	A
East	638.70	638.70	159.67	0.00	428.62	633.33	67.54	390.93	0.00	1131.19	827.32	0.565	0.00	1.34	7.549	A

Main results: (16:15-16:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	47.83	47.83	11.96	0.00	0.00	47.75	42.34	1144.40	0.00	695.11	409.88	0.069	0.06	0.07	5.561	A

West	615.22	79.35	19.84	535.87	0.00	79.28	597.76	594.39	0.00	1013.44	801.06	0.078	0.07	0.09	4.078	A
South	944.57	450.00	112.50	494.57	535.87	449.55	592.22	81.45	0.00	1310.30	883.04	0.343	0.47	0.58	4.701	A
East	736.96	736.96	184.24	0.00	494.57	733.93	78.19	452.80	0.00	1095.38	827.32	0.673	1.34	2.10	10.416	B

Main results: (16:30-16:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	45.28	45.28	11.32	0.00	0.00	45.30	40.15	1087.82	0.00	727.86	409.88	0.062	0.07	0.07	5.273	A
West	582.41	75.12	18.78	507.29	0.00	75.14	567.38	565.74	0.00	1030.02	801.06	0.073	0.09	0.08	3.989	A
South	894.19	426.00	106.50	468.19	507.29	426.16	563.68	77.20	0.00	1312.77	883.04	0.325	0.58	0.54	4.568	A
East	697.65	697.65	174.41	0.00	468.19	698.72	74.11	429.25	0.00	1109.01	827.32	0.629	2.10	1.83	9.286	A

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	41.45	41.45	10.36	0.00	0.00	41.49	36.77	996.76	0.00	780.56	409.88	0.053	0.07	0.06	4.872	A
West	533.19	68.77	17.19	464.42	0.00	68.81	519.73	518.52	0.00	1057.34	801.06	0.065	0.08	0.07	3.855	A
South	818.62	390.00	97.50	428.62	464.42	390.27	516.64	70.69	0.00	1316.53	883.04	0.296	0.54	0.48	4.373	A
East	638.70	638.70	159.67	0.00	428.62	640.43	67.87	393.10	0.00	1129.94	827.32	0.565	1.83	1.40	7.788	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:00-16:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.81	0.05	4.834	A	A
West	1.07	0.07	3.839	A	A
South	6.86	0.46	4.351	A	A
East	19.04	1.27	7.549	A	A

Queueing Delay results: (16:15-16:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.08	0.07	5.561	A	A
West	1.32	0.09	4.078	A	A
South	8.59	0.57	4.701	A	A
East	29.71	1.98	10.416	B	B

Queueing Delay results: (16:30-16:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.01	0.07	5.273	A	A
West	1.27	0.08	3.989	A	A
South	8.25	0.55	4.568	A	A
East	28.30	1.89	9.286	A	A

Queueing Delay results: (16:45-17:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.86	0.06	4.872	A	A
West	1.12	0.07	3.855	A	A
South	7.25	0.48	4.373	A	A
East	21.74	1.45	7.788	A	A

Queue Variation Results for each time segment

Queue Variation results: (16:00-16:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.47	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.34	0.00	0.00	2.11	3.16			N/A	N/A

Queue Variation results: (16:15-16:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.09	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.58	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	2.10	0.00	0.00	0.00	3.16			N/A	N/A

Queue Variation results: (16:30-16:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.54	0.00	0.00	0.00	1.12			N/A	N/A
East	1.83	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (16:45-17:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.48	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.40	0.00	0.00	2.11	3.16			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	13	10	0	16	16
Future Volume (vph)	0	13	10	0	16	16
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.932	
Flt Protected				0.950	0.976	
Satd. Flow (prot)	1514	0	0	1662	1592	0
Flt Permitted				0.950	0.976	
Satd. Flow (perm)	1514	0	0	1662	1592	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	14	11	0	17	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	0	11	34	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	13	10	0	16	16
Future Volume (Veh/h)	0	13	10	0	16	16
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	14	11	0	17	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	51	0	57	43	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	51	0	57	43	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	99	100	99	
cM capacity (veh/h)	836	1091	926	844	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	14	11	34
Volume Left	0	11	17
Volume Right	14	0	17
cSH	1091	926	1636
Volume to Capacity	0.01	0.01	0.01
Queue Length 95th (m)	0.3	0.3	0.3
Control Delay (s/veh)	8.3	8.9	3.6
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	8.9	3.6
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	17.3%	ICU Level of Service	A
Analysis Period (min)	15		

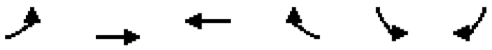
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	4	0	0	3	2
Future Volume (vph)	0	4	0	0	3	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.946	
Flt Protected					0.971	
Satd. Flow (prot)	1514	0	0	1750	1607	0
Flt Permitted					0.971	
Satd. Flow (perm)	1514	0	0	1750	1607	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	4	0	0	3	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	0	0	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	4	0	0	3	2
Future Volume (Veh/h)	0	4	0	0	3	2
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	4	0	0	3	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	8	0	11	7	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	8	0	11	7	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	100	100	100	
cM capacity (veh/h)	889	1091	1007	891	1636	

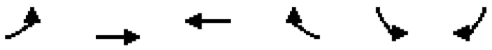
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	4	0	5
Volume Left	0	0	3
Volume Right	4	0	2
cSH	1091	1700	1636
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s/veh)	8.3	0.0	4.3
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	0.0	4.3
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	28	464	379	4	3	27
Future Volume (vph)	28	464	379	4	3	27
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.999		0.878	
Flt Protected	0.950				0.995	
Satd. Flow (prot)	1662	3325	3322	0	1529	0
Flt Permitted	0.950				0.995	
Satd. Flow (perm)	1662	3325	3322	0	1529	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	30	504	412	4	3	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	30	504	416	0	32	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	28	464	379	4	3	27
Future Volume (Veh/h)	28	464	379	4	3	27
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	504	412	4	3	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	416				726	208
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	416				726	208
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				99	96
cM capacity (veh/h)	1154				354	804

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	30	252	252	275	141	32
Volume Left	30	0	0	0	0	3
Volume Right	0	0	0	0	4	29
cSH	1154	1700	1700	1700	1700	719
Volume to Capacity	0.03	0.15	0.15	0.16	0.08	0.04
Queue Length 95th (m)	0.6	0.0	0.0	0.0	0.0	1.1
Control Delay (s/veh)	8.2	0.0	0.0	0.0	0.0	10.2
Lane LOS	A					B
Approach Delay (s/veh)	0.5			0.0		10.2
Approach LOS						B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	28.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	435	0	1	335	4	3	0	0	2	0	46
Future Volume (vph)	36	435	0	1	335	4	3	0	0	2	0	46
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.999						0.870	
Flt Protected		0.996						0.950			0.998	
Satd. Flow (prot)	0	1743	0	0	1748	0	0	1662	0	0	1519	0
Flt Permitted		0.996						0.950			0.998	
Satd. Flow (perm)	0	1743	0	0	1748	0	0	1662	0	0	1519	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	39	473	0	1	364	4	3	0	0	2	0	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	512	0	0	369	0	0	3	0	0	52	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 59.8%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	435	0	1	335	4	3	0	0	2	0	46
Future Volume (Veh/h)	36	435	0	1	335	4	3	0	0	2	0	46
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	473	0	1	364	4	3	0	0	2	0	50
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	368			473			969	921	473	919	919	366
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	368			473			969	921	473	919	919	366
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 %	97			100			99	100	100	99	100	93
cM capacity (veh/h)	1202			1099			212	263	595	247	264	684

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	512	369	3	52
Volume Left	39	1	3	2
Volume Right	0	4	0	50
cSH	1202	1099	212	640
Volume to Capacity	0.03	0.00	0.01	0.08
Queue Length 95th (m)	0.8	0.0	0.3	2.1
Control Delay (s/veh)	1.0	0.0	22.2	11.1
Lane LOS	A	A	C	B
Approach Delay (s/veh)	1.0	0.0	22.2	11.1
Approach LOS			C	B

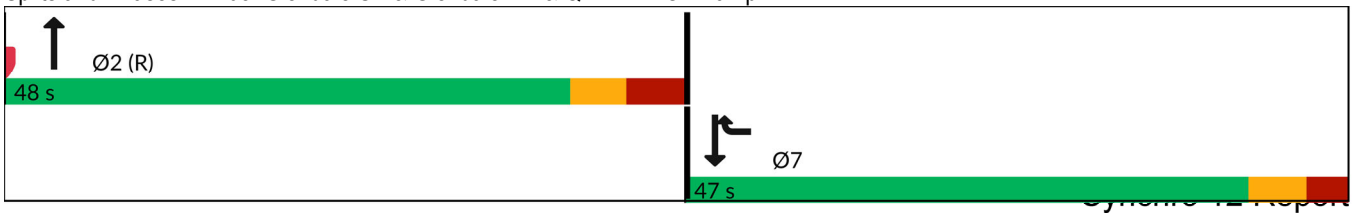
Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	174	542	504
Future Volume (vph)	174	542	504
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	189	589	548
Shared Lane Traffic (%)			
Lane Group Flow (vph)	189	589	548
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	25.4	58.6	25.4
Actuated g/C Ratio	0.27	0.62	0.27
v/c Ratio	0.48	0.32	0.67
Control Delay (s/veh)	32.4	10.0	34.9
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	32.4	10.0	34.9
LOS	C	A	C
Approach Delay (s/veh)		10.0	34.9
Approach LOS		A	C
Stops (vph)	139	249	431
Fuel Used(l)	9	13	25
CO Emissions (g/hr)	161	238	463
NOx Emissions (g/hr)	31	46	89
VOC Emissions (g/hr)	37	55	107
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay (s/veh): 23.5		Intersection LOS: C	
Intersection Capacity Utilization 37.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	189	589	548
v/c Ratio	0.48	0.32	0.67
Control Delay (s/veh)	32.4	10.0	34.9
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	32.4	10.0	34.9
Queue Length 50th (m)	30.5	26.2	49.5
Queue Length 95th (m)	46.5	43.5	61.1
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	656	1864	1348
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.29	0.32	0.41

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	174	542	504
Future Volume (vph)	174	542	504
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	189	589	548
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	189	589	548
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	23.4	56.6	23.4
Effective Green, g (s)	25.4	58.6	25.4
Actuated g/C Ratio	0.27	0.62	0.27
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	396	1864	815
v/s Ratio Prot	0.13	c0.19	c0.18
v/s Ratio Perm			
v/c Ratio	0.48	0.32	0.67
Uniform Delay, d1	29.2	8.7	31.1
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.4	2.2
Delay (s)	30.1	9.1	33.3
Level of Service	C	A	C
Approach Delay (s/veh)		9.1	33.3
Approach LOS		A	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	37.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

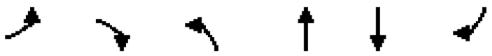
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	518	0	0	0	0	504
Future Volume (vph)	518	0	0	0	0	504
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	563	0	0	0	0	548
Shared Lane Traffic (%)						
Lane Group Flow (vph)	563	0	0	0	0	548
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	518	0	0	0	0	504
Future Volume (Veh/h)	518	0	0	0	0	504
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	563	0	0	0	0	548
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	274	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	274	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	19	100			100	
cM capacity (veh/h)	693	1084			1622	

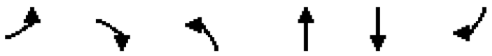
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	563	274	274
Volume Left	563	0	0
Volume Right	0	0	0
cSH	693	1700	1700
Volume to Capacity	0.81	0.16	0.16
Queue Length 95th (m)	68.3	0.0	0.0
Control Delay (s/veh)	28.7	0.0	0.0
Lane LOS	D		
Approach Delay (s/veh)	28.7	0.0	
Approach LOS	D		

Intersection Summary			
Average Delay	14.5		
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	402	0	0	1227	0	0
Future Volume (vph)	402	0	0	1227	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	437	0	0	1334	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	437	0	0	1334	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	109.0%	ICU Level of Service	G
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	402	0	0	1227	0	0
Future Volume (Veh/h)	402	0	0	1227	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	437	0	0	1334	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	667	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	667	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	100	100			
cM capacity (veh/h)	392	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	437	667	667
Volume Left	437	0	0
Volume Right	0	0	0
cSH	392	1700	1700
Volume to Capacity	1.11	0.39	0.39
Queue Length 95th (m)	127.3	0.0	0.0
Control Delay (s/veh)	112.6	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	112.6	0.0	
Approach LOS	F		

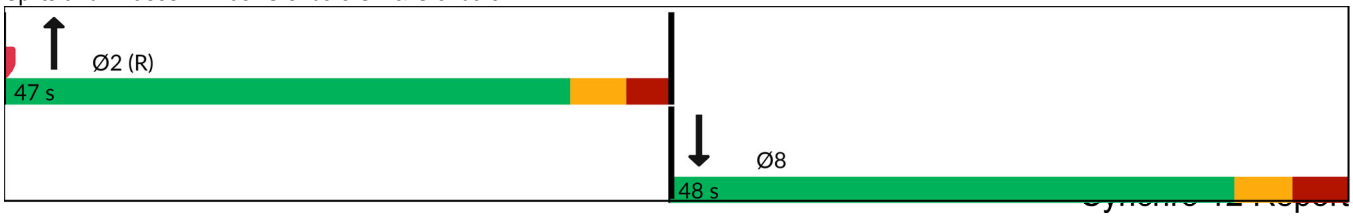
Intersection Summary			
Average Delay	27.8		
Intersection Capacity Utilization	109.0%	ICU Level of Service	G
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1227	0	0	597	0	0	0	0	0	0	0
Future Volume (vph)	0	1227	0	0	597	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1334	0	0	649	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1334	0	0	649	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		55.4			24.6							
Actuated g/C Ratio		0.58			0.26							
v/c Ratio		0.69			0.75							
Control Delay (s/veh)		17.1			38.0							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		17.1			38.0							
LOS		B			D							
Approach Delay (s/veh)		17.1			38.0							
Approach LOS		B			D							
Stops (vph)		836			526							
Fuel Used(l)		41			32							
CO Emissions (g/hr)		755			598							
NOx Emissions (g/hr)		146			115							
VOC Emissions (g/hr)		174			138							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay (s/veh): 23.9		Intersection LOS: C	
Intersection Capacity Utilization 42.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	1334	649
v/c Ratio	0.69	0.75
Control Delay (s/veh)	17.1	38.0
Queue Delay	0.0	0.0
Total Delay (s/veh)	17.1	38.0
Queue Length 50th (m)	87.0	61.0
Queue Length 95th (m)	133.0	73.5
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1938	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.69	0.46

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	1227	0	0	597	0	0	0	0	0	0	0
Future Volume (vph)	0	1227	0	0	597	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1334	0	0	649	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1334	0	0	649	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		55.4			24.6							
Effective Green, g (s)		55.4			24.6							
Actuated g/C Ratio		0.58			0.26							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1939			861							
v/s Ratio Prot		c0.40			c0.20							
v/s Ratio Perm												
v/c Ratio		0.69			0.75							
Uniform Delay, d1		13.8			32.4							
Progression Factor		1.00			1.00							
Incremental Delay, d2		2.0			3.8							
Delay (s)		15.8			36.2							
Level of Service		B			D							
Approach Delay (s/veh)		15.8			36.2			0.0			0.0	
Approach LOS		B			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:25:33 PM

Summary of intersection performance

	Sat						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - BG (2027)						
Leg North	0.05	~1	4.84	0.04	A	4.94	A
Leg West	0.10	~1	3.31	0.09	A		
Leg South	0.82	~1	5.13	0.45	A		
Leg East	0.76	~1	6.30	0.43	A		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat " model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:25:32 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - BG (2027), Sat

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
BG (2027), Sat	BG (2027)	Sat		PHF	12:00	13:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				4.94	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	32.00	100.000
West	PHF	✓	448.00	100.000
South	PHF	✓	936.00	100.000
East	PHF	✓	404.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	32.00	0.92	SecondQuarter
West	448.00	0.92	SecondQuarter
South	936.00	0.92	SecondQuarter
East	404.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	11.000	17.000	4.000
	West	7.000	0.000	352.000	89.000
	South	13.000	521.000	0.000	402.000

	East	4.000	156.000	244.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.34	0.53	0.13
	West	0.02	0.00	0.79	0.20
	South	0.01	0.56	0.00	0.43
	East	0.01	0.39	0.60	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.036	1.000
	South	1.000	1.021	1.000	1.029
	East	1.000	1.007	1.022	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	3.6	0.0
	South	0.0	2.1	0.0	2.9
	East	0.0	0.7	2.2	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.04	4.84	0.05	~1	A	32.00	32.00	2.42	4.54	0.04	2.42	4.54
West	0.09	3.31	0.10	~1	A	448.00	96.00	5.19	3.24	0.09	5.19	3.24
South	0.45	5.13	0.82	~1	A	936.00	534.00	42.66	4.79	0.71	42.67	4.79
East	0.43	6.30	0.76	~1	A	404.00	404.00	38.52	5.72	0.64	38.53	5.72

Main Results for each time segment

Main results: (12:00-12:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	30.14	30.14	7.54	0.00	0.00	30.00	22.50	862.91	0.00	858.03	413.72	0.035	0.00	0.04	4.348	A
West	422.03	90.43	22.61	331.59	0.00	90.11	644.72	248.19	0.00	1213.80	902.07	0.075	0.00	0.08	3.203	A
South	881.74	503.04	125.76	378.70	331.59	500.50	244.44	93.86	0.00	1303.12	805.43	0.386	0.00	0.64	4.562	A
East	380.58	380.58	95.14	0.00	378.70	378.34	87.29	507.07	0.00	1063.97	853.22	0.358	0.00	0.56	5.317	A

Main results: (12:15-12:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	34.78	34.78	8.70	0.00	0.00	34.74	26.06	999.57	0.00	778.94	413.72	0.045	0.04	0.05	4.837	A

West	486.96	104.35	26.09	382.61	0.00	104.29	746.78	287.53	0.00	1191.03	902.07	0.088	0.08	0.10	3.312	A
South	1017.39	580.43	145.11	436.96	382.61	579.70	283.19	108.63	0.00	1294.58	805.43	0.448	0.64	0.82	5.133	A
East	439.13	439.13	109.78	0.00	436.96	438.32	101.02	587.30	0.00	1017.54	853.22	0.432	0.56	0.76	6.305	A

Main results: (12:30-12:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	32.93	32.93	8.23	0.00	0.00	32.94	24.71	948.24	0.00	808.64	413.72	0.041	0.05	0.04	4.642	A
West	460.99	98.78	24.70	362.20	0.00	98.80	708.32	272.87	0.00	1199.52	902.07	0.082	0.10	0.09	3.269	A
South	963.13	549.48	137.37	413.65	362.20	549.74	268.75	102.92	0.00	1297.88	805.43	0.423	0.82	0.76	4.912	A
East	415.71	415.71	103.93	0.00	413.65	416.00	95.72	556.94	0.00	1035.11	853.22	0.402	0.76	0.69	5.910	A

Main results: (12:45-13:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	30.14	30.14	7.54	0.00	0.00	30.17	22.63	868.49	0.00	854.80	413.72	0.035	0.04	0.04	4.367	A
West	422.03	90.43	22.61	331.59	0.00	90.47	648.73	249.93	0.00	1212.79	902.07	0.075	0.09	0.08	3.206	A
South	881.74	503.04	125.76	378.70	331.59	503.48	246.16	94.24	0.00	1302.90	805.43	0.386	0.76	0.65	4.599	A
East	380.58	380.58	95.14	0.00	378.70	381.05	87.65	510.08	0.00	1062.23	853.22	0.358	0.69	0.57	5.372	A

Queueing Delay Results for each time segment

Queueing Delay results: (12:00-12:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.53	0.04	4.348	A	A
West	1.18	0.08	3.203	A	A
South	9.26	0.62	4.562	A	A
East	8.13	0.54	5.317	A	A

Queueing Delay results: (12:15-12:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.69	0.05	4.837	A	A
West	1.42	0.09	3.312	A	A
South	12.04	0.80	5.133	A	A
East	11.12	0.74	6.305	A	A

Queueing Delay results: (12:30-12:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.65	0.04	4.642	A	A
West	1.36	0.09	3.269	A	A
South	11.49	0.77	4.912	A	A
East	10.50	0.70	5.910	A	A

Queueing Delay results: (12:45-13:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.56	0.04	4.367	A	A
West	1.22	0.08	3.206	A	A
South	9.88	0.66	4.599	A	A
East	8.76	0.58	5.372	A	A

Queue Variation Results for each time segment

Queue Variation results: (12:00-12:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.04	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.64	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.56	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:15-12:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.10	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.82	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.76	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:30-12:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.04	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.09	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.76	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.69	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:45-13:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.04	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.65	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.57	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	15	25	1	9	13
Future Volume (vph)	0	15	25	1	9	13
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.921	
Flt Protected				0.954	0.980	
Satd. Flow (prot)	1514	0	0	1669	1580	0
Flt Permitted				0.954	0.980	
Satd. Flow (perm)	1514	0	0	1669	1580	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	0	16	27	1	10	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	28	24	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	15	25	1	9	13
Future Volume (Veh/h)	0	15	25	1	9	13
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	16	27	1	10	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	34	0	43	27	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	34	0	43	27	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	97	100	99	
cM capacity (veh/h)	857	1091	946	863	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	16	28	24
Volume Left	0	27	10
Volume Right	16	0	14
cSH	1091	943	1636
Volume to Capacity	0.01	0.03	0.01
Queue Length 95th (m)	0.4	0.7	0.1
Control Delay (s/veh)	8.3	8.9	3.0
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	8.9	3.0
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

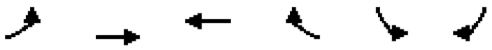
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	41	11	3	1
Future Volume (vph)	0	0	41	11	3	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.966	
Flt Protected				0.962	0.964	
Satd. Flow (prot)	1750	0	0	1667	1626	0
Flt Permitted				0.962	0.964	
Satd. Flow (perm)	1750	0	0	1667	1626	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	1%	0%	1%
Adj. Flow (vph)	0	0	45	12	3	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	57	4	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	41	11	3	1
Future Volume (Veh/h)	0	0	41	11	3	1
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	45	12	3	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	7	0	7	7	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	7	0	7	7	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	96	99	100	
cM capacity (veh/h)	891	1091	1015	889	1636	

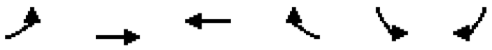
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	0	57	4
Volume Left	0	45	3
Volume Right	0	0	1
cSH	1700	985	1636
Volume to Capacity	0.00	0.06	0.00
Queue Length 95th (m)	0.0	1.5	0.0
Control Delay (s/veh)	0.0	8.9	5.4
Lane LOS	A	A	A
Approach Delay (s/veh)	0.0	8.9	5.4
Approach LOS	A	A	

Intersection Summary			
Average Delay	8.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	68	569	483	9	5	65
Future Volume (vph)	68	569	483	9	5	65
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.997		0.874	
Flt Protected	0.950				0.997	
Satd. Flow (prot)	1662	3325	3315	0	1525	0
Flt Permitted	0.950				0.997	
Satd. Flow (perm)	1662	3325	3315	0	1525	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	74	618	525	10	5	71
Shared Lane Traffic (%)						
Lane Group Flow (vph)	74	618	535	0	76	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

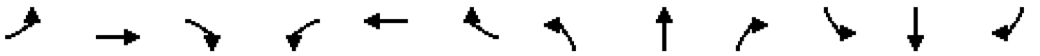
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	68	569	483	9	5	65
Future Volume (Veh/h)	68	569	483	9	5	65
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	74	618	525	10	5	71
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	535				987	268
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	535				987	268
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				98	90
cM capacity (veh/h)	1043				230	737

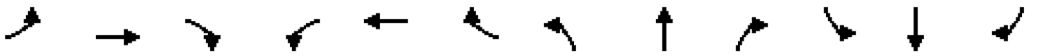
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	74	309	309	350	185	76
Volume Left	74	0	0	0	0	5
Volume Right	0	0	0	0	10	71
cSH	1043	1700	1700	1700	1700	644
Volume to Capacity	0.07	0.18	0.18	0.21	0.11	0.12
Queue Length 95th (m)	1.8	0.0	0.0	0.0	0.0	3.2
Control Delay (s/veh)	8.7	0.0	0.0	0.0	0.0	11.3
Lane LOS	A					B
Approach Delay (s/veh)	0.9			0.0		11.3
Approach LOS						B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	33.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	432	6	1	428	12	8	0	2	3	0	62
Future Volume (vph)	140	432	6	1	428	12	8	0	2	3	0	62
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.996			0.975			0.871	
Flt Protected		0.988						0.961			0.998	
Satd. Flow (prot)	0	1726	0	0	1743	0	0	1640	0	0	1521	0
Flt Permitted		0.988						0.961			0.998	
Satd. Flow (perm)	0	1726	0	0	1743	0	0	1640	0	0	1521	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	152	470	7	1	465	13	9	0	2	3	0	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	629	0	0	479	0	0	11	0	0	70	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 73.3%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	432	6	1	428	12	8	0	2	3	0	62
Future Volume (Veh/h)	140	432	6	1	428	12	8	0	2	3	0	62
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	152	470	7	1	465	13	9	0	2	3	0	67
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	478			477			1318	1258	474	1253	1255	472
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	478			477			1318	1258	474	1253	1255	472
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 %	86			100			92	100	100	98	100	89
cM capacity (veh/h)	1095			1096			107	148	595	134	149	596

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	629	479	11	70
Volume Left	152	1	9	3
Volume Right	7	13	2	67
cSH	1095	1096	126	519
Volume to Capacity	0.14	0.00	0.09	0.13
Queue Length 95th (m)	3.9	0.0	2.2	3.7
Control Delay (s/veh)	3.4	0.0	36.2	13.0
Lane LOS	A	A	E	B
Approach Delay (s/veh)	3.4	0.0	36.2	13.0
Approach LOS			E	B

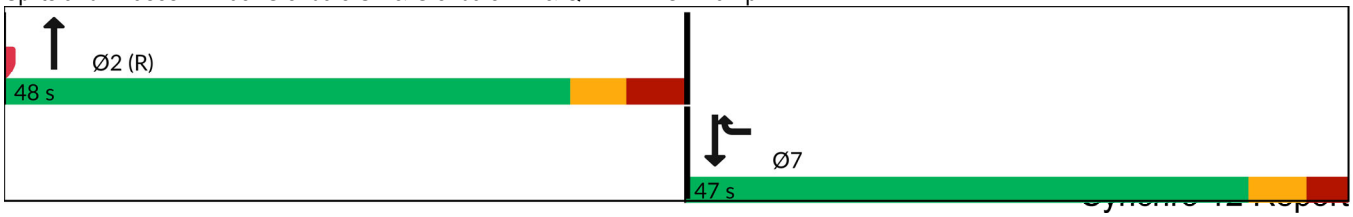
Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	316	508	543
Future Volume (vph)	316	508	543
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	343	552	590
Shared Lane Traffic (%)			
Lane Group Flow (vph)	343	552	590
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	30.7	53.3	30.7
Actuated g/C Ratio	0.32	0.56	0.32
v/c Ratio	0.72	0.33	0.60
Control Delay (s/veh)	36.1	13.2	28.8
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	36.1	13.2	28.8
LOS	D	B	C
Approach Delay (s/veh)		13.2	28.8
Approach LOS		B	C
Stops (vph)	263	270	429
Fuel Used(l)	17	14	23
CO Emissions (g/hr)	313	261	437
NOx Emissions (g/hr)	61	50	84
VOC Emissions (g/hr)	72	60	101
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay (s/veh): 24.7		Intersection LOS: C	
Intersection Capacity Utilization 45.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	343	552	590
v/c Ratio	0.72	0.33	0.60
Control Delay (s/veh)	36.1	13.2	28.8
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	36.1	13.2	28.8
Queue Length 50th (m)	57.2	28.6	49.3
Queue Length 95th (m)	76.3	49.2	56.8
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	656	1696	1348
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.52	0.33	0.44

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	316	508	543
Future Volume (vph)	316	508	543
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	343	552	590
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	343	552	590
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	28.7	51.3	28.7
Effective Green, g (s)	30.7	53.3	30.7
Actuated g/C Ratio	0.32	0.56	0.32
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	479	1696	985
v/s Ratio Prot	c0.23	c0.18	0.19
v/s Ratio Perm			
v/c Ratio	0.72	0.33	0.60
Uniform Delay, d1	28.3	11.2	27.0
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	5.1	0.5	1.0
Delay (s)	33.4	11.7	28.0
Level of Service	C	B	C
Approach Delay (s/veh)		11.7	28.0
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

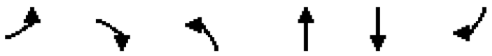
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	251	0	0	0	0	543
Future Volume (vph)	251	0	0	0	0	543
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	273	0	0	0	0	590
Shared Lane Traffic (%)						
Lane Group Flow (vph)	273	0	0	0	0	590
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	251	0	0	0	0	543
Future Volume (Veh/h)	251	0	0	0	0	543
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	273	0	0	0	0	590
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	295	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	295	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	59	100			100	
cM capacity (veh/h)	672	1084			1622	

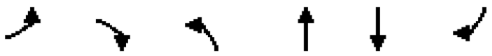
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	273	295	295
Volume Left	273	0	0
Volume Right	0	0	0
cSH	672	1700	1700
Volume to Capacity	0.41	0.17	0.17
Queue Length 95th (m)	15.8	0.0	0.0
Control Delay (s/veh)	14.0	0.0	0.0
Lane LOS	B		
Approach Delay (s/veh)	14.0	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	38.1%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	376	0	0	529	0	0
Future Volume (vph)	376	0	0	529	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	409	0	0	575	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	409	0	0	575	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 70.0%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	376	0	0	529	0	0
Future Volume (Veh/h)	376	0	0	529	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	409	0	0	575	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	288	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	288	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	40	100	100			
cM capacity (veh/h)	679	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	409	288	288
Volume Left	409	0	0
Volume Right	0	0	0
cSH	679	1700	1700
Volume to Capacity	0.60	0.17	0.17
Queue Length 95th (m)	32.4	0.0	0.0
Control Delay (s/veh)	18.0	0.0	0.0
Lane LOS	C		
Approach Delay (s/veh)	18.0	0.0	
Approach LOS	C		

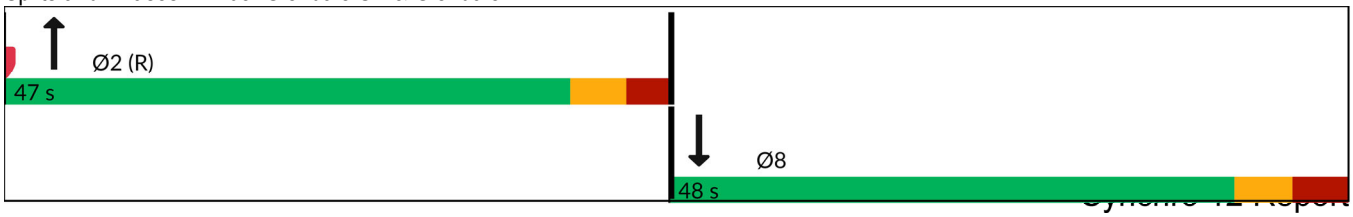
Intersection Summary			
Average Delay	7.5		
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	529	0	0	358	0	0	0	0	0	0	0
Future Volume (vph)	0	529	0	0	358	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	575	0	0	389	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	575	0	0	389	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		63.4			16.6							
Actuated g/C Ratio		0.67			0.17							
v/c Ratio		0.26			0.67							
Control Delay (s/veh)		7.1			42.2							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		7.1			42.2							
LOS		A			D							
Approach Delay (s/veh)		7.1			42.2							
Approach LOS		A			D							
Stops (vph)		201			322							
Fuel Used(l)		10			21							
CO Emissions (g/hr)		184			383							
NOx Emissions (g/hr)		35			74							
VOC Emissions (g/hr)		42			88							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay (s/veh): 21.3		Intersection LOS: C	
Intersection Capacity Utilization 21.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	575	389
v/c Ratio	0.26	0.67
Control Delay (s/veh)	7.1	42.2
Queue Delay	0.0	0.0
Total Delay (s/veh)	7.1	42.2
Queue Length 50th (m)	20.8	37.3
Queue Length 95th (m)	33.5	49.9
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	2218	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.26	0.28

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	529	0	0	358	0	0	0	0	0	0	0
Future Volume (vph)	0	529	0	0	358	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	575	0	0	389	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	575	0	0	389	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		63.4			16.6							
Effective Green, g (s)		63.4			16.6							
Actuated g/C Ratio		0.67			0.17							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		2219			581							
v/s Ratio Prot		c0.17			c0.12							
v/s Ratio Perm												
v/c Ratio		0.26			0.67							
Uniform Delay, d1		6.4			36.6							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.3			2.9							
Delay (s)		6.6			39.6							
Level of Service		A			D							
Approach Delay (s/veh)		6.6			39.6			0.0			0.0	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	21.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:38:18 PM

Summary of intersection performance

	AM						
	Queue (PCE)	**95% Queue (PCE)**	**Delay (s)**	**V/C Ratio**	**LOS**	**Intersection Delay (s)**	**Intersection LOS**
	A1 - BG (2030)						
Leg North	0.08	~1	6.76	0.07	A	6.51	A
Leg West	0.14	~1	3.91	0.12	A		
Leg South	1.03	?	6.05	0.48	A		
Leg East	1.52	1.14	9.59	0.58	A		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM " model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:38:18 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - BG (2030), AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
BG (2030), AM	BG (2030)	AM		PHF	08:00	09:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				6.51	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	41.00	100.000
West	PHF	✓	444.00	100.000
South	PHF	✓	1064.00	100.000
East	PHF	✓	531.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	41.00	0.92	SecondQuarter
West	444.00	0.92	SecondQuarter
South	1064.00	0.92	SecondQuarter
East	531.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	15.000	23.000	3.000
	West	2.000	0.000	323.000	119.000
	South	16.000	551.000	0.000	497.000

	East	0.000	139.000	391.000	1.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.37	0.56	0.07
	West	0.00	0.00	0.73	0.27
	South	0.02	0.52	0.00	0.47
	East	0.00	0.26	0.74	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.154	1.200	1.333
	West	1.000	1.000	1.139	1.047
	South	1.071	1.119	1.000	1.095
	East	1.000	1.057	1.170	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	15.4	20.0	33.3
	West	0.0	0.0	13.9	4.7
	South	7.1	11.9	0.0	9.5
	East	0.0	5.7	17.0	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.07	6.76	0.08	~1	A	41.00	41.00	4.25	6.22	0.07	4.25	6.22
West	0.12	3.91	0.14	~1	A	444.00	121.00	7.62	3.78	0.13	7.62	3.78
South	0.48	6.05	1.03	?	A	1064.00	567.00	52.88	5.60	0.88	52.90	5.60
East	0.58	9.59	1.52	1.14	A	531.00	531.00	73.28	8.28	1.22	73.32	8.28

Main Results for each time segment

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	38.62	38.62	9.66	0.00	0.00	38.37	16.86	1012.15	0.00	771.65	383.55	0.050	0.00	0.06	5.847	A
West	418.26	113.99	28.50	304.28	0.00	113.52	659.93	390.60	0.00	1131.38	849.95	0.101	0.00	0.12	3.698	A
South	1002.32	534.13	133.53	468.19	304.28	531.00	386.85	117.26	0.00	1289.58	848.35	0.414	0.00	0.78	5.283	A
East	500.22	500.22	125.05	0.00	468.19	496.13	115.38	532.88	0.00	1049.04	858.32	0.477	0.00	1.02	7.357	A

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	44.57	44.57	11.14	0.00	0.00	44.48	19.54	1173.16	0.00	678.47	383.55	0.066	0.06	0.08	6.764	A

West	482.61	131.52	32.88	351.09	0.00	131.42	764.81	452.83	0.00	1095.36	849.95	0.120	0.12	0.14	3.907	A
South	1156.52	616.30	154.08	540.22	351.09	615.33	448.49	135.76	0.00	1278.87	848.35	0.482	0.78	1.03	6.055	A
East	577.17	577.17	144.29	0.00	540.22	575.19	133.59	617.50	0.00	1000.06	858.32	0.577	1.02	1.52	9.594	A

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	42.19	42.19	10.55	0.00	0.00	42.22	18.53	1114.39	0.00	712.48	383.55	0.059	0.08	0.08	6.400	A
West	456.87	124.51	31.13	332.36	0.00	124.54	725.96	430.65	0.00	1108.20	849.95	0.112	0.14	0.13	3.828	A
South	1094.84	583.43	145.86	511.41	332.36	583.77	426.53	128.66	0.00	1282.98	848.35	0.455	1.03	0.94	5.759	A
East	546.39	546.39	136.60	0.00	511.41	547.09	126.60	585.83	0.00	1018.39	858.32	0.537	1.52	1.34	8.706	A

Main results: (08:45-09:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	38.62	38.62	9.66	0.00	0.00	38.67	16.97	1020.97	0.00	766.55	383.55	0.050	0.08	0.06	5.891	A
West	418.26	113.99	28.50	304.28	0.00	114.05	665.00	394.64	0.00	1129.04	849.95	0.101	0.13	0.12	3.709	A
South	1002.32	534.13	133.53	468.19	304.28	534.71	390.86	117.82	0.00	1289.26	848.35	0.414	0.94	0.80	5.335	A
East	500.22	500.22	125.05	0.00	468.19	501.35	115.93	536.59	0.00	1046.89	858.32	0.478	1.34	1.06	7.526	A

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-08:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.91	0.06	5.847	A	A
West	1.72	0.11	3.698	A	A
South	11.33	0.76	5.283	A	A
East	14.59	0.97	7.357	A	A

Queueing Delay results: (08:15-08:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.22	0.08	6.764	A	A
West	2.10	0.14	3.907	A	A
South	14.99	1.00	6.055	A	A
East	21.73	1.45	9.594	A	A

Queueing Delay results: (08:30-08:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.15	0.08	6.400	A	A
West	2.01	0.13	3.828	A	A
South	14.35	0.96	5.759	A	A
East	20.62	1.37	8.706	A	A

Queueing Delay results: (08:45-09:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.97	0.06	5.891	A	A
West	1.79	0.12	3.709	A	A
South	12.22	0.81	5.335	A	A
East	16.35	1.09	7.526	A	A

Queue Variation Results for each time segment

Queue Variation results: (08:00-08:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.12	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.78	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.02	0.00	0.00	1.14	1.14			N/A	N/A

Queue Variation results: (08:15-08:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.14	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.03	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.52	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:30-08:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.13	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.94	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.34	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:45-09:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.12	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.80	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.06	0.00	0.00	1.14	1.14			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	19	25	0	14	23
Future Volume (vph)	0	19	25	0	14	23
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.865				0.916	
Flt Protected				0.950	0.982	
Satd. Flow (prot)	1514	0	0	1662	1574	0
Flt Permitted				0.950	0.982	
Satd. Flow (perm)	1514	0	0	1662	1574	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	21	27	0	15	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	0	0	27	40	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	19	25	0	14	23
Future Volume (Veh/h)	0	19	25	0	14	23
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	21	27	0	15	25
Pedestrians					1	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	55	1	65	43	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	55	1	65	43	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	97	100	99	
cM capacity (veh/h)	832	1089	909	846	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	21	27	40
Volume Left	0	27	15
Volume Right	21	0	25
cSH	1089	909	1636
Volume to Capacity	0.02	0.03	0.01
Queue Length 95th (m)	0.5	0.7	0.2
Control Delay (s/veh)	8.4	9.1	2.7
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.1	2.7
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

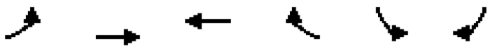
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1	6	0	0	10	28
Future Volume (vph)	1	6	0	0	10	28
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.882				0.901	
Flt Protected					0.987	
Satd. Flow (prot)	1544	0	0	1750	1545	0
Flt Permitted					0.987	
Satd. Flow (perm)	1544	0	0	1750	1545	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	1	7	0	0	11	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	0	41	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1	6	0	0	10	28
Future Volume (Veh/h)	1	6	0	0	10	28
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	7	0	0	11	30
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	52	0	45	37	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	52	0	45	37	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	100	100	99	
cM capacity (veh/h)	838	1091	951	853	1636	

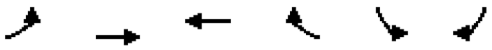
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	8	0	41
Volume Left	0	0	11
Volume Right	7	0	30
cSH	1051	1700	1636
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.2	0.0	0.2
Control Delay (s/veh)	8.5	0.0	2.0
Lane LOS	A	A	A
Approach Delay (s/veh)	8.5	0.0	2.0
Approach LOS	A	A	

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	63	537	676	14	9	43
Future Volume (vph)	63	537	676	14	9	43
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.997		0.889	
Flt Protected	0.950				0.991	
Satd. Flow (prot)	1662	3325	3315	0	1542	0
Flt Permitted	0.950				0.991	
Satd. Flow (perm)	1662	3325	3315	0	1542	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Confl. Peds. (#/hr)	1			1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	68	584	735	15	10	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	68	584	750	0	57	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

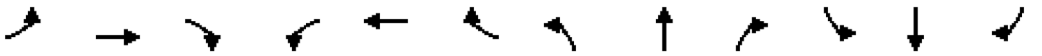
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	63	537	676	14	9	43
Future Volume (Veh/h)	63	537	676	14	9	43
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	584	735	15	10	47
Pedestrians		1			1	
Lane Width (m)		3.6			3.6	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	751				1172	377
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	751				1172	377
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				94	92
cM capacity (veh/h)	867				174	625

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	68	292	292	490	260	57
Volume Left	68	0	0	0	0	10
Volume Right	0	0	0	0	15	47
cSH	867	1700	1700	1700	1700	429
Volume to Capacity	0.08	0.17	0.17	0.29	0.15	0.13
Queue Length 95th (m)	2.0	0.0	0.0	0.0	0.0	3.6
Control Delay (s/veh)	9.5	0.0	0.0	0.0	0.0	14.7
Lane LOS	A					B
Approach Delay (s/veh)	1.0			0.0		14.7
Approach LOS						B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	38.4%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	434	0	0	510	11	3	0	0	11	0	195
Future Volume (vph)	95	434	0	0	510	11	3	0	0	11	0	195
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.997						0.872	
Flt Protected		0.991						0.950			0.997	
Satd. Flow (prot)	0	1734	0	0	1745	0	0	1662	0	0	1521	0
Flt Permitted		0.991						0.950			0.997	
Satd. Flow (perm)	0	1734	0	0	1745	0	0	1662	0	0	1521	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	103	472	0	0	554	12	3	0	0	12	0	212
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	575	0	0	566	0	0	3	0	0	224	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 83.9%		ICU Level of Service E	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	434	0	0	510	11	3	0	0	11	0	195
Future Volume (Veh/h)	95	434	0	0	510	11	3	0	0	11	0	195
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	103	472	0	0	554	12	3	0	0	12	0	212
Pedestrians		1									1	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	567			472			1451	1245	472	1239	1239	562
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	567			472			1451	1245	472	1239	1239	562
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 %	90			100			95	100	100	92	100	60
cM capacity (veh/h)	1014			1100			61	158	596	142	159	529

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	575	566	3	224
Volume Left	103	0	3	12
Volume Right	0	12	0	212
cSH	1014	1100	61	462
Volume to Capacity	0.10	0.00	0.05	0.49
Queue Length 95th (m)	2.7	0.0	1.2	20.8
Control Delay (s/veh)	2.6	0.0	67.5	19.9
Lane LOS	A		F	C
Approach Delay (s/veh)	2.6	0.0	67.5	19.9
Approach LOS			F	C

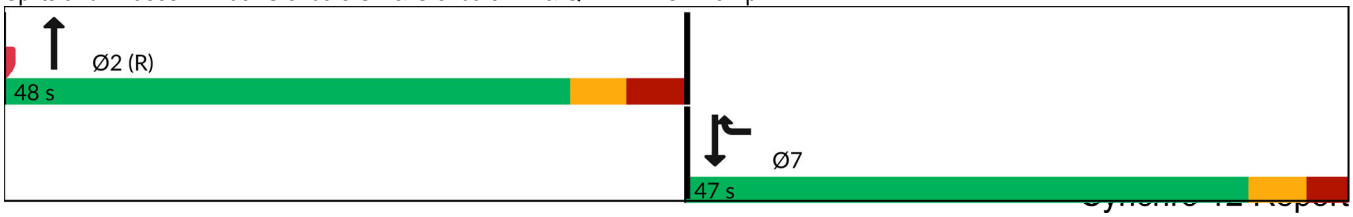
Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	248	413	1001
Future Volume (vph)	248	413	1001
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	270	449	1088
Shared Lane Traffic (%)			
Lane Group Flow (vph)	270	449	1088
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	41.6	42.4	41.6
Actuated g/C Ratio	0.44	0.45	0.44
v/c Ratio	0.42	0.33	0.82
Control Delay (s/veh)	19.9	18.8	28.8
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	19.9	18.8	28.8
LOS	B	B	C
Approach Delay (s/veh)		18.8	28.8
Approach LOS		B	C
Stops (vph)	161	262	834
Fuel Used(l)	9	14	44
CO Emissions (g/hr)	170	263	824
NOx Emissions (g/hr)	33	51	159
VOC Emissions (g/hr)	39	61	190
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay (s/veh): 25.0		Intersection LOS: C	
Intersection Capacity Utilization 38.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	270	449	1088
v/c Ratio	0.42	0.33	0.82
Control Delay (s/veh)	19.9	18.8	28.8
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	19.9	18.8	28.8
Queue Length 50th (m)	34.1	29.3	91.8
Queue Length 95th (m)	51.3	44.2	111.7
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	678	1395	1393
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.40	0.32	0.78

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	248	413	1001
Future Volume (vph)	248	413	1001
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	270	449	1088
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	270	449	1088
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	39.6	40.4	39.6
Effective Green, g (s)	41.6	42.4	41.6
Actuated g/C Ratio	0.44	0.45	0.44
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	649	1349	1335
v/s Ratio Prot	0.18	c0.15	c0.36
v/s Ratio Perm			
v/c Ratio	0.42	0.33	0.81
Uniform Delay, d1	18.4	17.1	23.3
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.7	3.9
Delay (s)	18.8	17.8	27.3
Level of Service	B	B	C
Approach Delay (s/veh)		17.8	27.3
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	38.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

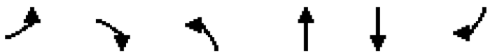
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	359	0	0	0	0	1001
Future Volume (vph)	359	0	0	0	0	1001
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	390	0	0	0	0	1088
Shared Lane Traffic (%)						
Lane Group Flow (vph)	390	0	0	0	0	1088
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.3%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	359	0	0	0	0	1001
Future Volume (Veh/h)	359	0	0	0	0	1001
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	390	0	0	0	0	1088
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	544	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	544	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	17	100			100	
cM capacity (veh/h)	469	1084			1622	

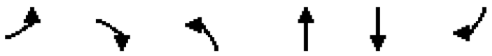
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	390	544	544
Volume Left	390	0	0
Volume Right	0	0	0
cSH	469	1700	1700
Volume to Capacity	0.83	0.32	0.32
Queue Length 95th (m)	65.0	0.0	0.0
Control Delay (s/veh)	40.4	0.0	0.0
Lane LOS	E		
Approach Delay (s/veh)	40.4	0.0	
Approach LOS	E		

Intersection Summary			
Average Delay	10.7		
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	295	0	0	1099	0	0
Future Volume (vph)	295	0	0	1099	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	321	0	0	1195	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	321	0	0	1195	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 77.6%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	295	0	0	1099	0	0
Future Volume (Veh/h)	295	0	0	1099	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	321	0	0	1195	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	598	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	598	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	26	100	100			
cM capacity (veh/h)	434	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	321	598	598
Volume Left	321	0	0
Volume Right	0	0	0
cSH	434	1700	1700
Volume to Capacity	0.74	0.35	0.35
Queue Length 95th (m)	47.9	0.0	0.0
Control Delay (s/veh)	33.4	0.0	0.0
Lane LOS	D		
Approach Delay (s/veh)	33.4	0.0	
Approach LOS	D		

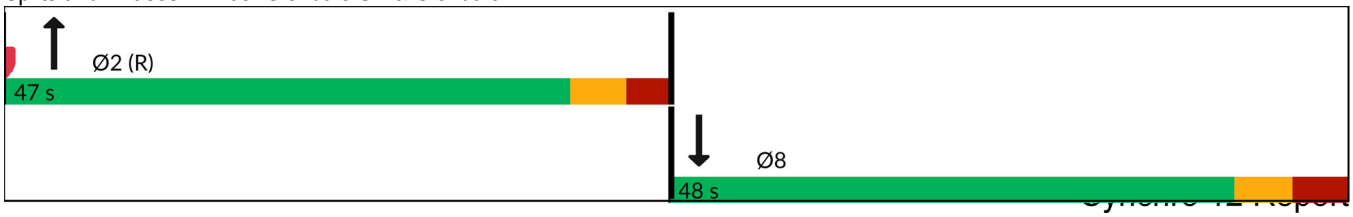
Intersection Summary			
Average Delay	7.1		
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1099	0	0	532	0	0	0	0	0	0	0
Future Volume (vph)	0	1099	0	0	532	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1195	0	0	578	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1195	0	0	578	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		57.6			22.4							
Actuated g/C Ratio		0.61			0.24							
v/c Ratio		0.59			0.74							
Control Delay (s/veh)		13.8			39.2							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		13.8			39.2							
LOS		B			D							
Approach Delay (s/veh)		13.8			39.2							
Approach LOS		B			D							
Stops (vph)		655			472							
Fuel Used(l)		31			29							
CO Emissions (g/hr)		585			543							
NOx Emissions (g/hr)		113			105							
VOC Emissions (g/hr)		135			125							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay (s/veh): 22.1		Intersection LOS: C	
Intersection Capacity Utilization 38.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	1195	578
v/c Ratio	0.59	0.74
Control Delay (s/veh)	13.8	39.2
Queue Delay	0.0	0.0
Total Delay (s/veh)	13.8	39.2
Queue Length 50th (m)	68.4	54.5
Queue Length 95th (m)	105.2	67.1
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	2016	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.59	0.41

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	1099	0	0	532	0	0	0	0	0	0	0
Future Volume (vph)	0	1099	0	0	532	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1195	0	0	578	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1195	0	0	578	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		57.6			22.4							
Effective Green, g (s)		57.6			22.4							
Actuated g/C Ratio		0.61			0.24							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		2016			784							
v/s Ratio Prot		c0.36			c0.17							
v/s Ratio Perm												
v/c Ratio		0.59			0.74							
Uniform Delay, d1		11.5			33.6							
Progression Factor		1.00			1.00							
Incremental Delay, d2		1.3			3.6							
Delay (s)		12.8			37.2							
Level of Service		B			D							
Approach Delay (s/veh)		12.8			37.2			0.0			0.0	
Approach LOS		B			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	38.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:38:39 PM

Summary of intersection performance

	PM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - BG (2030)						
Leg North	0.08	~1	5.95	0.08	A	7.09	A
Leg West	0.10	~1	4.19	0.08	A		
Leg South	0.64	1.12	4.87	0.36	A		
Leg East	2.65	6.33	12.42	0.72	B		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM " model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:38:38 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - BG (2030), PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
BG (2030), PM	BG (2030)	PM		PHF	16:00	17:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				7.09	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	47.00	100.000
West	PHF	✓	601.00	100.000
South	PHF	✓	922.00	100.000
East	PHF	✓	720.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	47.00	0.92	SecondQuarter
West	601.00	0.92	SecondQuarter
South	922.00	0.92	SecondQuarter
East	720.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	9.000	36.000	2.000
	West	3.000	0.000	524.000	74.000
	South	34.000	405.000	0.000	483.000

	East	5.000	171.000	544.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.19	0.77	0.04
	West	0.00	0.00	0.87	0.12
	South	0.04	0.44	0.00	0.52
	East	0.01	0.24	0.76	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.097	1.061
	South	1.033	1.133	1.000	1.196
	East	1.000	1.079	1.048	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	9.7	6.1
	South	3.3	13.3	0.0	19.6
	East	0.0	7.9	4.8	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.08	5.95	0.08	~1	A	47.00	47.00	4.27	5.45	0.07	4.27	5.45
West	0.08	4.19	0.10	~1	A	601.00	77.00	5.17	4.03	0.09	5.17	4.03
South	0.36	4.87	0.64	1.12	A	922.00	439.00	33.86	4.63	0.56	33.87	4.63
East	0.72	12.42	2.65	6.33	B	720.00	720.00	121.00	10.08	2.02	121.08	10.09

Main Results for each time segment

Main results: (16:00-16:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	44.28	44.28	11.07	0.00	0.00	44.03	39.35	1046.87	0.00	751.56	410.04	0.059	0.00	0.06	5.087	A
West	566.16	72.54	18.13	493.62	0.00	72.22	547.64	543.25	0.00	1043.03	803.24	0.070	0.00	0.08	3.924	A
South	868.55	413.55	103.39	455.00	493.62	411.50	541.38	74.09	0.00	1314.56	882.46	0.315	0.00	0.51	4.473	A
East	678.26	678.26	169.57	0.00	455.00	671.90	71.28	414.31	0.00	1117.66	828.60	0.607	0.00	1.59	8.405	A

Main results: (16:15-16:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	51.09	51.09	12.77	0.00	0.00	51.00	45.58	1212.70	0.00	655.58	410.04	0.078	0.06	0.08	5.954	A

West	653.26	83.70	20.92	569.57	0.00	83.62	634.37	629.33	0.00	993.22	803.24	0.084	0.08	0.10	4.189	A
South	1002.17	477.17	119.29	525.00	569.57	476.66	627.16	85.79	0.00	1307.79	882.46	0.365	0.51	0.64	4.867	A
East	782.61	782.61	195.65	0.00	525.00	778.36	82.54	479.92	0.00	1079.69	828.60	0.725	1.59	2.65	12.422	B

Main results: (16:30-16:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	48.36	48.36	12.09	0.00	0.00	48.39	43.24	1154.10	0.00	689.50	410.04	0.070	0.08	0.08	5.617	A
West	618.42	79.23	19.81	539.19	0.00	79.26	602.48	600.02	0.00	1010.18	803.24	0.078	0.10	0.09	4.093	A
South	948.72	451.72	112.93	497.00	539.19	451.90	597.96	81.32	0.00	1310.38	882.46	0.345	0.64	0.60	4.716	A
East	740.87	740.87	185.22	0.00	497.00	742.35	78.23	454.99	0.00	1094.11	828.60	0.677	2.65	2.28	10.852	B

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	44.28	44.28	11.07	0.00	0.00	44.32	39.61	1057.78	0.00	745.25	410.04	0.059	0.08	0.06	5.137	A
West	566.16	72.54	18.13	493.62	0.00	72.58	551.96	550.15	0.00	1039.04	803.24	0.070	0.09	0.08	3.944	A
South	868.55	413.55	103.39	455.00	493.62	413.85	548.26	74.47	0.00	1314.35	882.46	0.315	0.60	0.52	4.497	A
East	678.26	678.26	169.57	0.00	455.00	680.70	71.64	416.68	0.00	1116.29	828.60	0.608	2.28	1.67	8.767	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:00-16:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.91	0.06	5.087	A	A
West	1.16	0.08	3.924	A	A
South	7.47	0.50	4.473	A	A
East	22.37	1.49	8.405	A	A

Queueing Delay results: (16:15-16:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.23	0.08	5.954	A	A
West	1.43	0.10	4.189	A	A
South	9.42	0.63	4.867	A	A
East	37.00	2.47	12.422	B	B

Queueing Delay results: (16:30-16:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.15	0.08	5.617	A	A
West	1.37	0.09	4.093	A	A
South	9.05	0.60	4.716	A	A
East	35.45	2.36	10.852	B	B

Queueing Delay results: (16:45-17:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.97	0.06	5.137	A	A
West	1.21	0.08	3.944	A	A
South	7.92	0.53	4.497	A	A
East	26.18	1.75	8.767	A	A

Queue Variation Results for each time segment

Queue Variation results: (16:00-16:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.51	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.59	0.00	0.00	3.16	4.22			N/A	N/A

Queue Variation results: (16:15-16:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.10	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.64	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	2.65	0.00	0.00	0.00	6.33			N/A	N/A

Queue Variation results: (16:30-16:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.09	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.60	0.00	0.00	0.00	1.12			N/A	N/A
East	2.28	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (16:45-17:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.52	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.67	0.00	0.00	3.16	5.27			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	14	10	0	16	16
Future Volume (vph)	0	14	10	0	16	16
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.932	
Flt Protected				0.950	0.976	
Satd. Flow (prot)	1514	0	0	1662	1592	0
Flt Permitted				0.950	0.976	
Satd. Flow (perm)	1514	0	0	1662	1592	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	15	11	0	17	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	15	0	0	11	34	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	14	10	0	16	16
Future Volume (Veh/h)	0	14	10	0	16	16
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	15	11	0	17	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	51	0	58	43	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	51	0	58	43	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	99	100	99	
cM capacity (veh/h)	836	1091	924	844	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	15	11	34
Volume Left	0	11	17
Volume Right	15	0	17
cSH	1091	924	1636
Volume to Capacity	0.01	0.01	0.01
Queue Length 95th (m)	0.3	0.3	0.3
Control Delay (s/veh)	8.3	8.9	3.6
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	8.9	3.6
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	17.3%	ICU Level of Service	A
Analysis Period (min)	15		

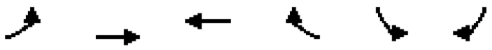
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	4	0	0	3	2
Future Volume (vph)	0	4	0	0	3	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.946	
Flt Protected					0.971	
Satd. Flow (prot)	1514	0	0	1750	1607	0
Flt Permitted					0.971	
Satd. Flow (perm)	1514	0	0	1750	1607	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	4	0	0	3	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	0	0	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	4	0	0	3	2
Future Volume (Veh/h)	0	4	0	0	3	2
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	4	0	0	3	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	8	0	11	7	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	8	0	11	7	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	100	100	100	
cM capacity (veh/h)	889	1091	1007	891	1636	

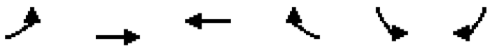
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	4	0	5
Volume Left	0	0	3
Volume Right	4	0	2
cSH	1091	1700	1636
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s/veh)	8.3	0.0	4.3
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	0.0	4.3
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	29	492	402	5	3	28
Future Volume (vph)	29	492	402	5	3	28
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.998		0.877	
Flt Protected	0.950				0.995	
Satd. Flow (prot)	1662	3325	3318	0	1527	0
Flt Permitted	0.950				0.995	
Satd. Flow (perm)	1662	3325	3318	0	1527	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	32	535	437	5	3	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	535	442	0	33	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	492	402	5	3	28
Future Volume (Veh/h)	29	492	402	5	3	28
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	535	437	5	3	30
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	442				771	221
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	442				771	221
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				99	96
cM capacity (veh/h)	1129				331	789

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	32	268	268	291	151	33
Volume Left	32	0	0	0	0	3
Volume Right	0	0	0	0	5	30
cSH	1129	1700	1700	1700	1700	701
Volume to Capacity	0.03	0.16	0.16	0.17	0.09	0.05
Queue Length 95th (m)	0.7	0.0	0.0	0.0	0.0	1.2
Control Delay (s/veh)	8.3	0.0	0.0	0.0	0.0	10.4
Lane LOS	A					B
Approach Delay (s/veh)	0.5			0.0		10.4
Approach LOS						B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	28.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	462	0	1	356	5	3	0	0	2	0	48
Future Volume (vph)	38	462	0	1	356	5	3	0	0	2	0	48
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.998						0.870	
Flt Protected		0.996						0.950			0.998	
Satd. Flow (prot)	0	1743	0	0	1746	0	0	1662	0	0	1519	0
Flt Permitted		0.996						0.950			0.998	
Satd. Flow (perm)	0	1743	0	0	1746	0	0	1662	0	0	1519	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	41	502	0	1	387	5	3	0	0	2	0	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	543	0	0	393	0	0	3	0	0	54	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 62.7%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	462	0	1	356	5	3	0	0	2	0	48
Future Volume (Veh/h)	38	462	0	1	356	5	3	0	0	2	0	48
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	41	502	0	1	387	5	3	0	0	2	0	52
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	392			502			1028	978	502	976	976	390
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	392			502			1028	978	502	976	976	390
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 %	97			100			98	100	100	99	100	92
cM capacity (veh/h)	1178			1073			192	243	573	226	244	663

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	543	393	3	54
Volume Left	41	1	3	2
Volume Right	0	5	0	52
cSH	1178	1073	192	619
Volume to Capacity	0.03	0.00	0.02	0.09
Queue Length 95th (m)	0.9	0.0	0.4	2.3
Control Delay (s/veh)	1.0	0.0	24.0	11.4
Lane LOS	A	A	C	B
Approach Delay (s/veh)	1.0	0.0	24.0	11.4
Approach LOS			C	B

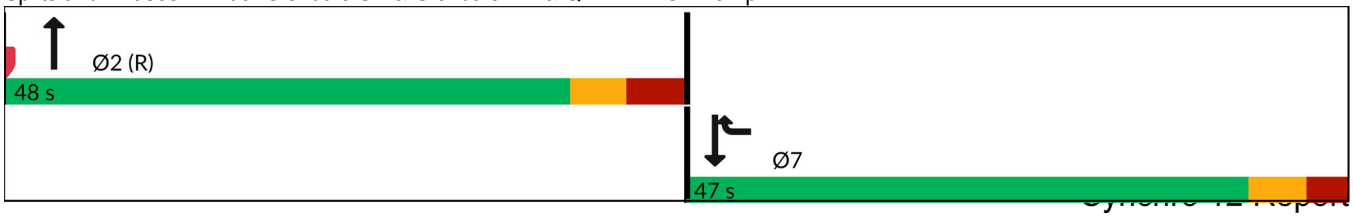
Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	62.7%	ICU Level of Service	B	
Analysis Period (min)	15			

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	185	575	535
Future Volume (vph)	185	575	535
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	201	625	582
Shared Lane Traffic (%)			
Lane Group Flow (vph)	201	625	582
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	26.5	57.5	26.5
Actuated g/C Ratio	0.28	0.61	0.28
v/c Ratio	0.49	0.34	0.68
Control Delay (s/veh)	31.8	10.8	34.4
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	31.8	10.8	34.4
LOS	C	B	C
Approach Delay (s/veh)		10.8	34.4
Approach LOS		B	C
Stops (vph)	146	278	454
Fuel Used(l)	9	14	26
CO Emissions (g/hr)	169	264	487
NOx Emissions (g/hr)	33	51	94
VOC Emissions (g/hr)	39	61	112
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay (s/veh): 23.5		Intersection LOS: C	
Intersection Capacity Utilization 38.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	201	625	582
v/c Ratio	0.49	0.34	0.68
Control Delay (s/veh)	31.8	10.8	34.4
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	31.8	10.8	34.4
Queue Length 50th (m)	32.2	29.2	52.4
Queue Length 95th (m)	48.6	48.1	63.8
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	656	1829	1348
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.31	0.34	0.43

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	185	575	535
Future Volume (vph)	185	575	535
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	201	625	582
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	201	625	582
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	24.5	55.5	24.5
Effective Green, g (s)	26.5	57.5	26.5
Actuated g/C Ratio	0.28	0.61	0.28
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	413	1829	850
v/s Ratio Prot	0.14	c0.21	c0.19
v/s Ratio Perm			
v/c Ratio	0.49	0.34	0.68
Uniform Delay, d1	28.6	9.3	30.5
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.5	2.3
Delay (s)	29.5	9.8	32.8
Level of Service	C	A	C
Approach Delay (s/veh)		9.8	32.8
Approach LOS		A	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	38.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

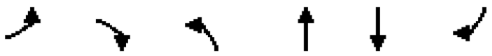
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	550	0	0	0	0	535
Future Volume (vph)	550	0	0	0	0	535
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	598	0	0	0	0	582
Shared Lane Traffic (%)						
Lane Group Flow (vph)	598	0	0	0	0	582
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.8%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	550	0	0	0	0	535
Future Volume (Veh/h)	550	0	0	0	0	535
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	598	0	0	0	0	582
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	291	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	291	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	12	100			100	
cM capacity (veh/h)	676	1084			1622	

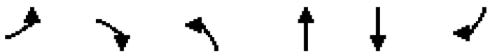
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	598	291	291
Volume Left	598	0	0
Volume Right	0	0	0
cSH	676	1700	1700
Volume to Capacity	0.88	0.17	0.17
Queue Length 95th (m)	87.0	0.0	0.0
Control Delay (s/veh)	37.2	0.0	0.0
Lane LOS	E		
Approach Delay (s/veh)	37.2	0.0	
Approach LOS	E		

Intersection Summary			
Average Delay	18.9		
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	427	0	0	1302	0	0
Future Volume (vph)	427	0	0	1302	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	464	0	0	1415	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	464	0	0	1415	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	115.0%	ICU Level of Service	H
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	427	0	0	1302	0	0
Future Volume (Veh/h)	427	0	0	1302	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	464	0	0	1415	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	708	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	708	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	100	100			
cM capacity (veh/h)	369	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	464	708	708
Volume Left	464	0	0
Volume Right	0	0	0
cSH	369	1700	1700
Volume to Capacity	1.26	0.42	0.42
Queue Length 95th (m)	162.9	0.0	0.0
Control Delay (s/veh)	166.3	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	166.3	0.0	
Approach LOS	F		

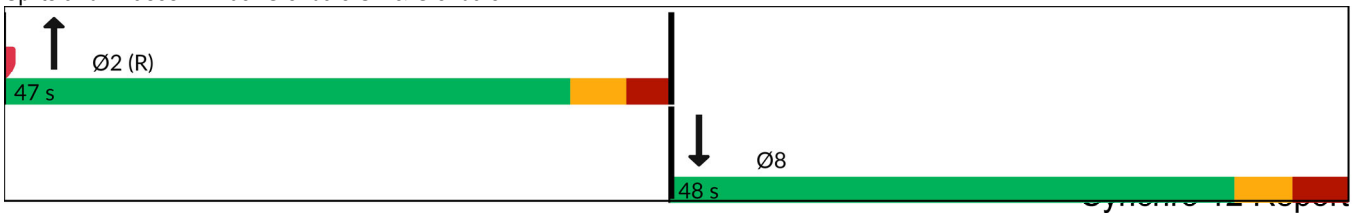
Intersection Summary			
Average Delay	41.1		
Intersection Capacity Utilization	115.0%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1302	0	0	634	0	0	0	0	0	0	0
Future Volume (vph)	0	1302	0	0	634	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1415	0	0	689	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1415	0	0	689	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		54.0			26.0							
Actuated g/C Ratio		0.57			0.27							
v/c Ratio		0.75			0.76							
Control Delay (s/veh)		19.6			37.0							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		19.6			37.0							
LOS		B			D							
Approach Delay (s/veh)		19.6			37.0							
Approach LOS		B			D							
Stops (vph)		948			556							
Fuel Used(l)		47			34							
CO Emissions (g/hr)		874			625							
NOx Emissions (g/hr)		169			121							
VOC Emissions (g/hr)		202			144							
Dilemma Vehicles (#)		0			0							

Intersection Summary	
Area Type:	Other
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay (s/veh): 25.3	Intersection LOS: C
Intersection Capacity Utilization 44.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	1415	689
v/c Ratio	0.75	0.76
Control Delay (s/veh)	19.6	37.0
Queue Delay	0.0	0.0
Total Delay (s/veh)	19.6	37.0
Queue Length 50th (m)	101.6	63.6
Queue Length 95th (m)	151.4	77.1
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1891	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.75	0.49

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	1302	0	0	634	0	0	0	0	0	0	0
Future Volume (vph)	0	1302	0	0	634	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1415	0	0	689	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1415	0	0	689	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		54.0			26.0							
Effective Green, g (s)		54.0			26.0							
Actuated g/C Ratio		0.57			0.27							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1890			910							
v/s Ratio Prot		c0.43			c0.21							
v/s Ratio Perm												
v/c Ratio		0.75			0.76							
Uniform Delay, d1		15.4			31.6							
Progression Factor		1.00			1.00							
Incremental Delay, d2		2.8			3.6							
Delay (s)		18.2			35.2							
Level of Service		B			D							
Approach Delay (s/veh)		18.2			35.2			0.0			0.0	
Approach LOS		B			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:39:10 PM

Summary of intersection performance

	Sat						
	Queue (PCE)	**95% Queue (PCE)**	**Delay (s)**	**V/C Ratio**	**LOS**	**Intersection Delay (s)**	**Intersection LOS**
	A1 - BG (2030)						
Leg North	0.05	~1	5.05	0.05	A	5.18	A
Leg West	0.10	~1	3.37	0.09	A		
Leg South	0.89	~1	5.36	0.47	A		
Leg East	0.88	~1	6.81	0.47	A		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat " model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:39:09 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - BG (2030), Sat

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
BG (2030), Sat	BG (2030)	Sat		PHF	12:00	13:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				5.18	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	34.00	100.000
West	PHF	✓	477.00	100.000
South	PHF	✓	984.00	100.000
East	PHF	✓	430.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	34.00	0.92	SecondQuarter
West	477.00	0.92	SecondQuarter
South	984.00	0.92	SecondQuarter
East	430.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	11.000	18.000	5.000
	West	8.000	0.000	374.000	95.000
	South	14.000	543.000	0.000	427.000

	East	5.000	166.000	259.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.32	0.53	0.15
	West	0.02	0.00	0.78	0.20
	South	0.01	0.55	0.00	0.43
	East	0.01	0.39	0.60	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.036	1.000
	South	1.000	1.021	1.000	1.029
	East	1.000	1.007	1.022	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	3.6	0.0
	South	0.0	2.1	0.0	2.9
	East	0.0	0.7	2.2	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.05	5.05	0.05	~1	A	34.00	34.00	2.67	4.72	0.04	2.67	4.72
West	0.09	3.37	0.10	~1	A	477.00	103.00	5.65	3.29	0.09	5.65	3.29
South	0.47	5.36	0.89	~1	A	984.00	557.00	46.18	4.97	0.77	46.19	4.98
East	0.47	6.81	0.88	~1	A	430.00	430.00	43.76	6.11	0.73	43.77	6.11

Main Results for each time segment

Main results: (12:00-12:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	32.03	32.03	8.01	0.00	0.00	31.87	25.31	906.72	0.00	832.67	416.85	0.038	0.00	0.04	4.494	A
West	449.35	97.03	24.26	352.32	0.00	96.68	674.56	264.03	0.00	1204.64	897.06	0.081	0.00	0.09	3.249	A
South	926.96	524.71	131.18	402.25	352.32	521.97	259.34	101.37	0.00	1298.78	802.78	0.404	0.00	0.69	4.713	A
East	405.07	405.07	101.27	0.00	402.25	402.55	93.86	529.48	0.00	1051.01	852.50	0.385	0.00	0.63	5.619	A

Main results: (12:15-12:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	36.96	36.96	9.24	0.00	0.00	36.91	29.31	1050.40	0.00	749.52	416.85	0.049	0.04	0.05	5.051	A

West	518.48	111.96	27.99	406.52	0.00	111.89	781.41	305.90	0.00	1180.40	897.06	0.095	0.09	0.10	3.368	A
South	1069.57	605.43	151.36	464.13	406.52	604.60	300.47	117.32	0.00	1289.55	802.78	0.469	0.69	0.89	5.356	A
East	467.39	467.39	116.85	0.00	464.13	466.41	108.63	613.29	0.00	1002.50	852.50	0.466	0.63	0.88	6.809	A

Main results: (12:30-12:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	34.99	34.99	8.75	0.00	0.00	35.00	27.80	996.70	0.00	780.60	416.85	0.045	0.05	0.05	4.828	A
West	490.83	105.99	26.50	384.84	0.00	106.01	741.30	290.40	0.00	1189.37	897.06	0.089	0.10	0.10	3.324	A
South	1012.52	573.14	143.29	439.38	384.84	573.44	285.25	111.16	0.00	1293.11	802.78	0.443	0.89	0.82	5.108	A
East	442.46	442.46	110.62	0.00	439.38	442.82	102.92	581.67	0.00	1020.80	852.50	0.433	0.88	0.79	6.331	A

Main results: (12:45-13:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	32.03	32.03	8.01	0.00	0.00	32.06	25.46	912.92	0.00	829.09	416.85	0.039	0.05	0.04	4.516	A
West	449.35	97.03	24.26	352.32	0.00	97.07	678.96	266.01	0.00	1203.49	897.06	0.081	0.10	0.09	3.255	A
South	926.96	524.71	131.18	402.25	352.32	525.20	261.30	101.78	0.00	1298.54	802.78	0.404	0.82	0.70	4.753	A
East	405.07	405.07	101.27	0.00	402.25	405.64	94.24	532.74	0.00	1049.12	852.50	0.386	0.79	0.65	5.688	A

Queueing Delay Results for each time segment

Queueing Delay results: (12:00-12:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.58	0.04	4.494	A	A
West	1.29	0.09	3.249	A	A
South	9.96	0.66	4.713	A	A
East	9.13	0.61	5.619	A	A

Queueing Delay results: (12:15-12:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.76	0.05	5.051	A	A
West	1.55	0.10	3.368	A	A
South	13.07	0.87	5.356	A	A
East	12.73	0.85	6.809	A	A

Queueing Delay results: (12:30-12:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.72	0.05	4.828	A	A
West	1.48	0.10	3.324	A	A
South	12.48	0.83	5.108	A	A
East	12.01	0.80	6.331	A	A

Queueing Delay results: (12:45-13:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.61	0.04	4.516	A	A
West	1.33	0.09	3.255	A	A
South	10.66	0.71	4.753	A	A
East	9.89	0.66	5.688	A	A

Queue Variation Results for each time segment

Queue Variation results: (12:00-12:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.04	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.09	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.69	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.63	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:15-12:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.10	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.89	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.88	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:30-12:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.10	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.82	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.79	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:45-13:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.04	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.09	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.70	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.65	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	15	25	1	9	13
Future Volume (vph)	0	15	25	1	9	13
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.921	
Flt Protected				0.954	0.980	
Satd. Flow (prot)	1514	0	0	1669	1580	0
Flt Permitted				0.954	0.980	
Satd. Flow (perm)	1514	0	0	1669	1580	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	0	16	27	1	10	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	28	24	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	15	25	1	9	13
Future Volume (Veh/h)	0	15	25	1	9	13
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	16	27	1	10	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	34	0	43	27	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	34	0	43	27	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	97	100	99	
cM capacity (veh/h)	857	1091	946	863	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	16	28	24
Volume Left	0	27	10
Volume Right	16	0	14
cSH	1091	943	1636
Volume to Capacity	0.01	0.03	0.01
Queue Length 95th (m)	0.4	0.7	0.1
Control Delay (s/veh)	8.3	8.9	3.0
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	8.9	3.0
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

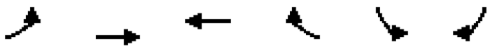
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	42	11	3	1
Future Volume (vph)	0	0	42	11	3	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.966	
Flt Protected				0.962	0.964	
Satd. Flow (prot)	1750	0	0	1667	1626	0
Flt Permitted				0.962	0.964	
Satd. Flow (perm)	1750	0	0	1667	1626	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	1%	0%	1%
Adj. Flow (vph)	0	0	46	12	3	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	58	4	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	42	11	3	1
Future Volume (Veh/h)	0	0	42	11	3	1
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	46	12	3	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	7	0	7	7	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	7	0	7	7	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	95	99	100	
cM capacity (veh/h)	891	1091	1015	889	1636	

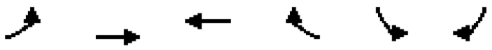
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	0	58	4
Volume Left	0	46	3
Volume Right	0	0	1
cSH	1700	986	1636
Volume to Capacity	0.00	0.06	0.00
Queue Length 95th (m)	0.0	1.5	0.0
Control Delay (s/veh)	0.0	8.9	5.4
Lane LOS	A	A	A
Approach Delay (s/veh)	0.0	8.9	5.4
Approach LOS	A	A	

Intersection Summary			
Average Delay	8.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	70	592	503	9	5	68
Future Volume (vph)	70	592	503	9	5	68
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.997		0.874	
Flt Protected	0.950				0.997	
Satd. Flow (prot)	1662	3325	3315	0	1525	0
Flt Permitted	0.950				0.997	
Satd. Flow (perm)	1662	3325	3315	0	1525	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	76	643	547	10	5	74
Shared Lane Traffic (%)						
Lane Group Flow (vph)	76	643	557	0	79	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.5%		ICU Level of Service A	
Analysis Period (min) 15			



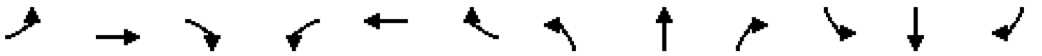
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	592	503	9	5	68
Future Volume (Veh/h)	70	592	503	9	5	68
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	643	547	10	5	74
Pedestrians						
Lane 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	557				1026	279
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	557				1026	279
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				98	90
cM capacity (veh/h)	1024				217	725

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	76	322	322	365	192	79
Volume Left	76	0	0	0	0	5
Volume Right	0	0	0	0	10	74
cSH	1024	1700	1700	1700	1700	631
Volume to Capacity	0.07	0.19	0.19	0.21	0.11	0.13
Queue Length 95th (m)	1.9	0.0	0.0	0.0	0.0	3.4
Control Delay (s/veh)	8.8	0.0	0.0	0.0	0.0	11.5
Lane LOS	A					B
Approach Delay (s/veh)	0.9			0.0		11.5
Approach LOS						B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	34.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	450	6	1	445	13	8	0	2	4	0	64
Future Volume (vph)	145	450	6	1	445	13	8	0	2	4	0	64
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.996			0.975			0.872	
Flt Protected		0.988						0.961			0.997	
Satd. Flow (prot)	0	1727	0	0	1743	0	0	1640	0	0	1521	0
Flt Permitted		0.988						0.961			0.997	
Satd. Flow (perm)	0	1727	0	0	1743	0	0	1640	0	0	1521	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	158	489	7	1	484	14	9	0	2	4	0	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	654	0	0	499	0	0	11	0	0	74	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 75.6%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	450	6	1	445	13	8	0	2	4	0	64
Future Volume (Veh/h)	145	450	6	1	445	13	8	0	2	4	0	64
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	158	489	7	1	484	14	9	0	2	4	0	70
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	498			496			1372	1309	493	1304	1305	491
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	498			496			1372	1309	493	1304	1305	491
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 %	85			100			91	100	100	97	100	88
cM capacity (veh/h)	1076			1078			97	137	580	123	138	582

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	654	499	11	74
Volume Left	158	1	9	4
Volume Right	7	14	2	70
cSH	1076	1078	114	484
Volume to Capacity	0.15	0.00	0.10	0.15
Queue Length 95th (m)	4.1	0.0	2.5	4.3
Control Delay (s/veh)	3.6	0.0	39.8	13.8
Lane LOS	A	A	E	B
Approach Delay (s/veh)	3.6	0.0	39.8	13.8
Approach LOS			E	B

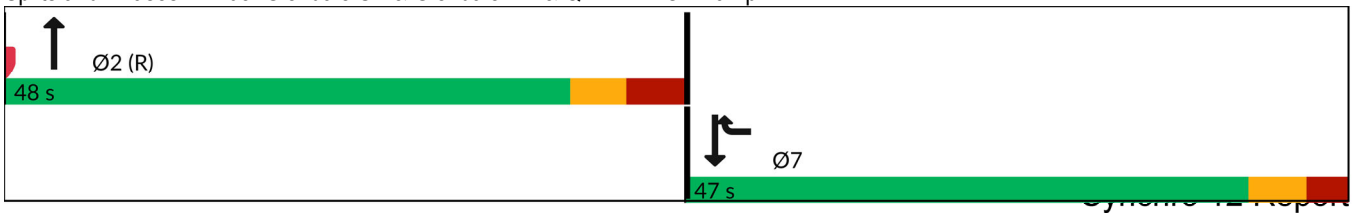
Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	329	528	565
Future Volume (vph)	329	528	565
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	358	574	614
Shared Lane Traffic (%)			
Lane Group Flow (vph)	358	574	614
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	31.6	52.4	31.6
Actuated g/C Ratio	0.33	0.55	0.33
v/c Ratio	0.72	0.34	0.60
Control Delay (s/veh)	35.8	13.9	28.3
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	35.8	13.9	28.3
LOS	D	B	C
Approach Delay (s/veh)		13.9	28.3
Approach LOS		B	C
Stops (vph)	275	290	444
Fuel Used(l)	18	15	24
CO Emissions (g/hr)	326	281	450
NOx Emissions (g/hr)	63	54	87
VOC Emissions (g/hr)	75	65	104
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay (s/veh): 24.7		Intersection LOS: C	
Intersection Capacity Utilization 47.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	358	574	614
v/c Ratio	0.72	0.34	0.60
Control Delay (s/veh)	35.8	13.9	28.3
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	35.8	13.9	28.3
Queue Length 50th (m)	59.5	30.9	51.0
Queue Length 95th (m)	78.9	52.4	58.5
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	656	1666	1348
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.55	0.34	0.46

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	329	528	565
Future Volume (vph)	329	528	565
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	358	574	614
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	358	574	614
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	29.6	50.4	29.6
Effective Green, g (s)	31.6	52.4	31.6
Actuated g/C Ratio	0.33	0.55	0.33
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	493	1667	1014
v/s Ratio Prot	c0.24	c0.19	0.20
v/s Ratio Perm			
v/c Ratio	0.73	0.34	0.61
Uniform Delay, d1	27.9	11.8	26.5
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	5.3	0.6	1.0
Delay (s)	33.2	12.4	27.5
Level of Service	C	B	C
Approach Delay (s/veh)		12.4	27.5
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

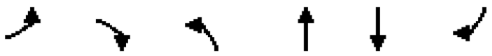
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	261	0	0	0	0	565
Future Volume (vph)	261	0	0	0	0	565
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	284	0	0	0	0	614
Shared Lane Traffic (%)						
Lane Group Flow (vph)	284	0	0	0	0	614
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	261	0	0	0	0	565
Future Volume (Veh/h)	261	0	0	0	0	565
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	284	0	0	0	0	614
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	307	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	307	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	57	100			100	
cM capacity (veh/h)	661	1084			1622	

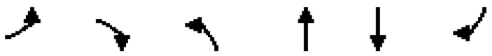
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	284	307	307
Volume Left	284	0	0
Volume Right	0	0	0
cSH	661	1700	1700
Volume to Capacity	0.43	0.18	0.18
Queue Length 95th (m)	17.3	0.0	0.0
Control Delay (s/veh)	14.5	0.0	0.0
Lane LOS	B		
Approach Delay (s/veh)	14.5	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	391	0	0	551	0	0
Future Volume (vph)	391	0	0	551	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	425	0	0	599	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	425	0	0	599	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	391	0	0	551	0	0
Future Volume (Veh/h)	391	0	0	551	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	425	0	0	599	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	300	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	300	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	36	100	100			
cM capacity (veh/h)	668	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	425	300	300
Volume Left	425	0	0
Volume Right	0	0	0
cSH	668	1700	1700
Volume to Capacity	0.64	0.18	0.18
Queue Length 95th (m)	36.5	0.0	0.0
Control Delay (s/veh)	19.3	0.0	0.0
Lane LOS	C		
Approach Delay (s/veh)	19.3	0.0	
Approach LOS	C		

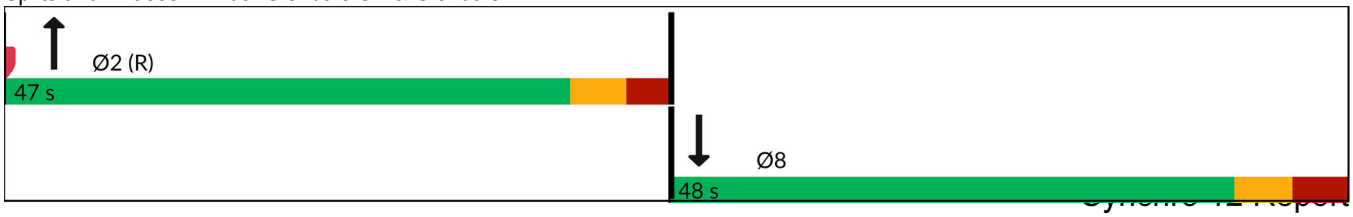
Intersection Summary			
Average Delay	8.0		
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	551	0	0	373	0	0	0	0	0	0	0
Future Volume (vph)	0	551	0	0	373	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	599	0	0	405	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	599	0	0	405	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		62.9			17.1							
Actuated g/C Ratio		0.66			0.18							
v/c Ratio		0.27			0.68							
Control Delay (s/veh)		7.4			41.9							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		7.4			41.9							
LOS		A			D							
Approach Delay (s/veh)		7.4			41.9							
Approach LOS		A			D							
Stops (vph)		215			335							
Fuel Used(l)		11			21							
CO Emissions (g/hr)		196			397							
NOx Emissions (g/hr)		38			77							
VOC Emissions (g/hr)		45			92							
Dilemma Vehicles (#)		0			0							

Intersection Summary	
Area Type:	Other
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay (s/veh): 21.3	Intersection LOS: C
Intersection Capacity Utilization 22.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	599	405
v/c Ratio	0.27	0.68
Control Delay (s/veh)	7.4	41.9
Queue Delay	0.0	0.0
Total Delay (s/veh)	7.4	41.9
Queue Length 50th (m)	22.3	38.8
Queue Length 95th (m)	35.6	51.5
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	2201	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.27	0.29

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	551	0	0	373	0	0	0	0	0	0	0
Future Volume (vph)	0	551	0	0	373	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	599	0	0	405	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	599	0	0	405	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		62.9			17.1							
Effective Green, g (s)		62.9			17.1							
Actuated g/C Ratio		0.66			0.18							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		2201			598							
v/s Ratio Prot		c0.18			c0.12							
v/s Ratio Perm												
v/c Ratio		0.27			0.68							
Uniform Delay, d1		6.6			36.4							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.3			3.0							
Delay (s)		6.9			39.4							
Level of Service		A			D							
Approach Delay (s/veh)		6.9			39.4			0.0			0.0	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	22.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:41:17 PM

Summary of intersection performance

	AM						
	Queue (PCE)	**95% Queue (PCE)**	**Delay (s)**	**V/C Ratio**	**LOS**	**Intersection Delay (s)**	**Intersection LOS**
	A1 - BG (2032)						
Leg North	0.09	~1	7.09	0.07	A	6.89	A
Leg West	0.15	~1	3.97	0.13	A		
Leg South	1.11	?	6.31	0.50	A		
Leg East	1.72	2.28	10.47	0.61	B		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM " model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:41:16 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - BG (2032), AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
BG (2032), AM	BG (2032)	AM		PHF	08:00	09:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				6.89	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	42.00	100.000
West	PHF	✓	462.00	100.000
South	PHF	✓	1106.00	100.000
East	PHF	✓	552.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	42.00	0.92	SecondQuarter
West	462.00	0.92	SecondQuarter
South	1106.00	0.92	SecondQuarter
East	552.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	15.000	23.000	4.000
	West	2.000	0.000	336.000	124.000
	South	16.000	573.000	0.000	517.000

	East	0.000	144.000	407.000	1.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.36	0.55	0.10
	West	0.00	0.00	0.73	0.27
	South	0.01	0.52	0.00	0.47
	East	0.00	0.26	0.74	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.154	1.200	1.333
	West	1.000	1.000	1.139	1.047
	South	1.071	1.119	1.000	1.095
	East	1.000	1.057	1.170	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	15.4	20.0	33.3
	West	0.0	0.0	13.9	4.7
	South	7.1	11.9	0.0	9.5
	East	0.0	5.7	17.0	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.07	7.09	0.09	~1	A	42.00	42.00	4.54	6.48	0.08	4.54	6.48
West	0.13	3.97	0.15	~1	A	462.00	126.00	8.06	3.84	0.13	8.06	3.84
South	0.50	6.31	1.11	?	A	1106.00	589.00	56.97	5.80	0.95	56.99	5.81
East	0.61	10.47	1.72	2.28	B	552.00	552.00	81.88	8.90	1.36	81.92	8.90

Main Results for each time segment

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	39.57	39.57	9.89	0.00	0.00	39.30	16.86	1052.02	0.00	748.58	383.50	0.053	0.00	0.07	6.061	A
West	435.22	118.70	29.67	316.52	0.00	118.20	685.03	406.29	0.00	1122.30	846.70	0.106	0.00	0.12	3.748	A
South	1041.88	554.86	138.71	487.03	316.52	551.50	401.61	122.88	0.00	1286.33	845.37	0.431	0.00	0.84	5.450	A
East	520.00	520.00	130.00	0.00	487.03	515.50	121.00	553.38	0.00	1037.17	860.40	0.501	0.00	1.12	7.787	A

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	45.65	45.65	11.41	0.00	0.00	45.56	19.53	1219.39	0.00	651.71	383.50	0.070	0.07	0.09	7.093	A

West	502.17	136.96	34.24	365.22	0.00	136.85	793.94	471.01	0.00	1084.84	846.70	0.126	0.12	0.15	3.973	A
South	1202.17	640.22	160.05	561.96	365.22	639.12	465.59	142.27	0.00	1275.11	845.37	0.502	0.84	1.11	6.314	A
East	600.00	600.00	150.00	0.00	561.96	597.62	140.10	641.30	0.00	986.29	860.40	0.608	1.12	1.72	10.473	B

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	43.22	43.22	10.80	0.00	0.00	43.25	18.53	1158.82	0.00	686.77	383.50	0.063	0.09	0.08	6.683	A
West	475.39	129.65	32.41	345.74	0.00	129.69	753.82	448.25	0.00	1098.02	846.70	0.118	0.15	0.14	3.889	A
South	1138.06	606.07	151.52	531.99	345.74	606.45	443.10	134.84	0.00	1279.40	845.37	0.474	1.11	1.02	5.984	A
East	568.00	568.00	142.00	0.00	531.99	568.84	132.78	608.51	0.00	1005.26	860.40	0.565	1.72	1.51	9.409	A

Main results: (08:45-09:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	39.57	39.57	9.89	0.00	0.00	39.62	16.97	1061.77	0.00	742.94	383.50	0.053	0.08	0.07	6.113	A
West	435.22	118.70	29.67	316.52	0.00	118.76	690.56	410.82	0.00	1119.68	846.70	0.106	0.14	0.12	3.762	A
South	1041.88	554.86	138.71	487.03	316.52	555.50	406.11	123.48	0.00	1285.98	845.37	0.431	1.02	0.86	5.514	A
East	520.00	520.00	130.00	0.00	487.03	521.36	121.59	557.38	0.00	1034.85	860.40	0.502	1.51	1.17	7.999	A

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-08:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.96	0.06	6.061	A	A
West	1.81	0.12	3.748	A	A
South	12.12	0.81	5.450	A	A
East	16.01	1.07	7.787	A	A

Queueing Delay results: (08:15-08:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.31	0.09	7.093	A	A
West	2.23	0.15	3.973	A	A
South	16.20	1.08	6.314	A	A
East	24.49	1.63	10.473	B	B

Queueing Delay results: (08:30-08:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.23	0.08	6.683	A	A
West	2.13	0.14	3.889	A	A
South	15.52	1.03	5.984	A	A
East	23.26	1.55	9.409	A	A

Queueing Delay results: (08:45-09:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.03	0.07	6.113	A	A
West	1.89	0.13	3.762	A	A
South	13.13	0.88	5.514	A	A
East	18.13	1.21	7.999	A	A

Queue Variation Results for each time segment

Queue Variation results: (08:00-08:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.12	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.84	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.12	0.00	0.00	1.14	1.14			N/A	N/A

Queue Variation results: (08:15-08:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.09	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.15	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.11	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.72	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:30-08:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.14	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.02	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.51	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:45-09:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.12	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.86	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.17	0.00	0.00	1.14	2.28			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	20	25	0	14	23
Future Volume (vph)	0	20	25	0	14	23
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.865				0.916	
Flt Protected				0.950	0.982	
Satd. Flow (prot)	1514	0	0	1662	1574	0
Flt Permitted				0.950	0.982	
Satd. Flow (perm)	1514	0	0	1662	1574	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	22	27	0	15	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	0	0	27	40	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	20	25	0	14	23
Future Volume (Veh/h)	0	20	25	0	14	23
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	22	27	0	15	25
Pedestrians					1	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	55	1	66	43	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	55	1	66	43	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	97	100	99	
cM capacity (veh/h)	832	1089	907	846	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	22	27	40
Volume Left	0	27	15
Volume Right	22	0	25
cSH	1089	907	1636
Volume to Capacity	0.02	0.03	0.01
Queue Length 95th (m)	0.5	0.7	0.2
Control Delay (s/veh)	8.4	9.1	2.7
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.1	2.7
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

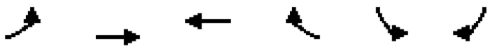
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1	6	0	0	10	29
Future Volume (vph)	1	6	0	0	10	29
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.882				0.900	
Flt Protected					0.987	
Satd. Flow (prot)	1544	0	0	1750	1543	0
Flt Permitted					0.987	
Satd. Flow (perm)	1544	0	0	1750	1543	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	1	7	0	0	11	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	0	43	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1	6	0	0	10	29
Future Volume (Veh/h)	1	6	0	0	10	29
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	7	0	0	11	32
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	54	0	46	38	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	54	0	46	38	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	100	100	99	
cM capacity (veh/h)	835	1091	949	852	1636	

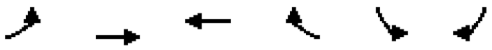
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	8	0	43
Volume Left	0	0	11
Volume Right	7	0	32
cSH	1051	1700	1636
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.2	0.0	0.2
Control Delay (s/veh)	8.5	0.0	1.9
Lane LOS	A	A	A
Approach Delay (s/veh)	8.5	0.0	1.9
Approach LOS	A	A	

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	66	559	703	14	9	45
Future Volume (vph)	66	559	703	14	9	45
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.997		0.888	
Flt Protected	0.950				0.992	
Satd. Flow (prot)	1662	3325	3315	0	1542	0
Flt Permitted	0.950				0.992	
Satd. Flow (perm)	1662	3325	3315	0	1542	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Confl. Peds. (#/hr)	1			1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	72	608	764	15	10	49
Shared Lane Traffic (%)						
Lane Group Flow (vph)	72	608	779	0	59	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

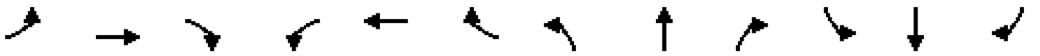
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	66	559	703	14	9	45
Future Volume (Veh/h)	66	559	703	14	9	45
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	72	608	764	15	10	49
Pedestrians		1			1	
Lane Width (m)		3.6			3.6	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	780				1221	392
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	780				1221	392
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				94	92
cM capacity (veh/h)	846				160	612

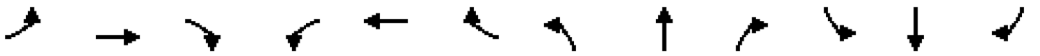
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	72	304	304	509	270	59
Volume Left	72	0	0	0	0	10
Volume Right	0	0	0	0	15	49
cSH	846	1700	1700	1700	1700	414
Volume to Capacity	0.09	0.18	0.18	0.30	0.16	0.14
Queue Length 95th (m)	2.2	0.0	0.0	0.0	0.0	3.9
Control Delay (s/veh)	9.7	0.0	0.0	0.0	0.0	15.1
Lane LOS	A					C
Approach Delay (s/veh)	1.0			0.0		15.1
Approach LOS						C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	39.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	451	0	0	531	12	4	0	0	12	0	203
Future Volume (vph)	98	451	0	0	531	12	4	0	0	12	0	203
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.997						0.872	
Flt Protected		0.991						0.950			0.997	
Satd. Flow (prot)	0	1734	0	0	1745	0	0	1662	0	0	1521	0
Flt Permitted		0.991						0.950			0.997	
Satd. Flow (perm)	0	1734	0	0	1745	0	0	1662	0	0	1521	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	107	490	0	0	577	13	4	0	0	13	0	221
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	597	0	0	590	0	0	4	0	0	234	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 86.9%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	451	0	0	531	12	4	0	0	12	0	203
Future Volume (Veh/h)	98	451	0	0	531	12	4	0	0	12	0	203
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	107	490	0	0	577	13	4	0	0	13	0	221
Pedestrians		1									1	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	591			490			1510	1295	490	1289	1289	586
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	591			490			1510	1295	490	1289	1289	586
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 %	89			100			92	100	100	90	100	57
cM capacity (veh/h)	994			1084			52	146	582	130	147	513

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	597	590	4	234
Volume Left	107	0	4	13
Volume Right	0	13	0	221
cSH	994	1084	52	441
Volume to Capacity	0.11	0.00	0.08	0.53
Queue Length 95th (m)	2.9	0.0	1.9	24.3
Control Delay (s/veh)	2.7	0.0	79.7	22.0
Lane LOS	A		F	C
Approach Delay (s/veh)	2.7	0.0	79.7	22.0
Approach LOS			F	C

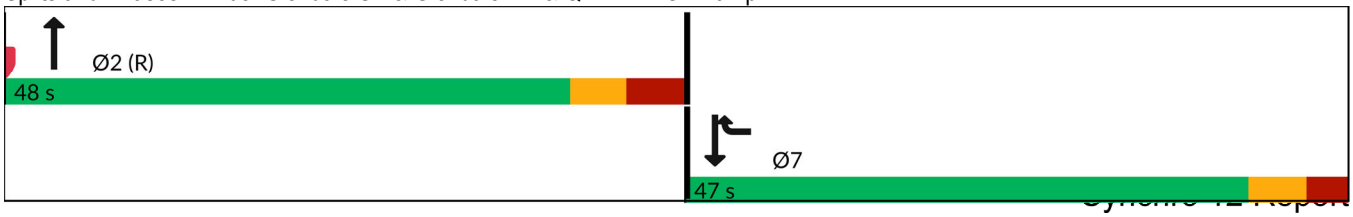
Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	258	430	1042
Future Volume (vph)	258	430	1042
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	280	467	1133
Shared Lane Traffic (%)			
Lane Group Flow (vph)	280	467	1133
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	42.6	41.4	42.6
Actuated g/C Ratio	0.45	0.44	0.45
v/c Ratio	0.42	0.35	0.83
Control Delay (s/veh)	19.4	19.6	28.8
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	19.4	19.6	28.8
LOS	B	B	C
Approach Delay (s/veh)		19.6	28.8
Approach LOS		B	C
Stops (vph)	166	280	872
Fuel Used(l)	9	15	46
CO Emissions (g/hr)	174	282	859
NOx Emissions (g/hr)	34	54	166
VOC Emissions (g/hr)	40	65	198
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay (s/veh): 25.1		Intersection LOS: C	
Intersection Capacity Utilization 39.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	280	467	1133
v/c Ratio	0.42	0.35	0.83
Control Delay (s/veh)	19.4	19.6	28.8
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	19.4	19.6	28.8
Queue Length 50th (m)	34.8	31.3	95.7
Queue Length 95th (m)	52.5	46.7	116.7
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	685	1377	1408
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.41	0.34	0.80

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	258	430	1042
Future Volume (vph)	258	430	1042
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	280	467	1133
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	280	467	1133
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	40.6	39.4	40.6
Effective Green, g (s)	42.6	41.4	42.6
Actuated g/C Ratio	0.45	0.44	0.45
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	665	1317	1367
v/s Ratio Prot	0.19	c0.15	c0.37
v/s Ratio Perm			
v/c Ratio	0.42	0.35	0.83
Uniform Delay, d1	17.8	17.9	23.0
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.7	4.3
Delay (s)	18.2	18.6	27.3
Level of Service	B	B	C
Approach Delay (s/veh)		18.6	27.3
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	39.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

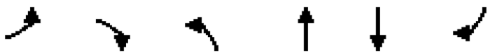
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	374	0	0	0	0	1042
Future Volume (vph)	374	0	0	0	0	1042
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	407	0	0	0	0	1133
Shared Lane Traffic (%)						
Lane Group Flow (vph)	407	0	0	0	0	1133
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 60.4%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	374	0	0	0	0	1042
Future Volume (Veh/h)	374	0	0	0	0	1042
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	407	0	0	0	0	1133
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	567	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	567	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	10	100			100	
cM capacity (veh/h)	454	1084			1622	

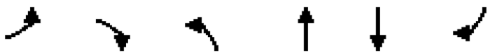
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	407	567	567
Volume Left	407	0	0
Volume Right	0	0	0
cSH	454	1700	1700
Volume to Capacity	0.90	0.33	0.33
Queue Length 95th (m)	78.1	0.0	0.0
Control Delay (s/veh)	50.8	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	50.8	0.0	
Approach LOS	F		

Intersection Summary			
Average Delay	13.4		
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	307	0	0	1144	0	0
Future Volume (vph)	307	0	0	1144	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	334	0	0	1243	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	334	0	0	1243	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 80.3%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	307	0	0	1144	0	0
Future Volume (Veh/h)	307	0	0	1144	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	334	0	0	1243	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	622	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	622	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	20	100	100			
cM capacity (veh/h)	419	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	334	622	622
Volume Left	334	0	0
Volume Right	0	0	0
cSH	419	1700	1700
Volume to Capacity	0.80	0.37	0.37
Queue Length 95th (m)	56.6	0.0	0.0
Control Delay (s/veh)	39.8	0.0	0.0
Lane LOS	E		
Approach Delay (s/veh)	39.8	0.0	
Approach LOS	E		

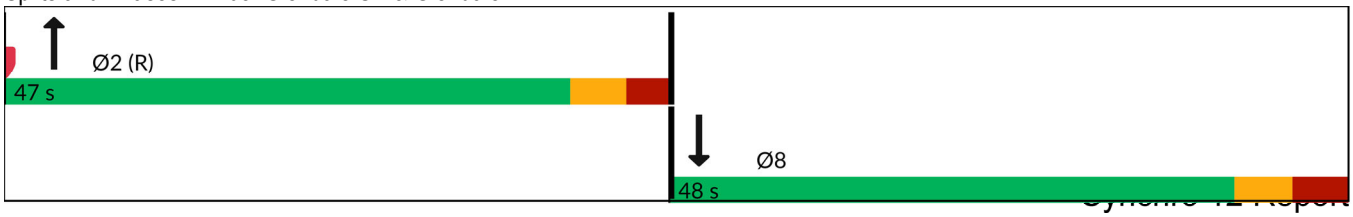
Intersection Summary			
Average Delay	8.4		
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1144	0	0	553	0	0	0	0	0	0	0
Future Volume (vph)	0	1144	0	0	553	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1243	0	0	601	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1243	0	0	601	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		56.7			23.3							
Actuated g/C Ratio		0.60			0.25							
v/c Ratio		0.63			0.74							
Control Delay (s/veh)		14.9			38.5							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		14.9			38.5							
LOS		B			D							
Approach Delay (s/veh)		14.9			38.5							
Approach LOS		B			D							
Stops (vph)		717			490							
Fuel Used(l)		35			30							
CO Emissions (g/hr)		642			559							
NOx Emissions (g/hr)		124			108							
VOC Emissions (g/hr)		148			129							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay (s/veh): 22.6		Intersection LOS: C	
Intersection Capacity Utilization 40.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	1243	601
v/c Ratio	0.63	0.74
Control Delay (s/veh)	14.9	38.5
Queue Delay	0.0	0.0
Total Delay (s/veh)	14.9	38.5
Queue Length 50th (m)	74.3	56.6
Queue Length 95th (m)	114.2	69.1
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1986	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.63	0.43

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1144	0	0	553	0	0	0	0	0	0	0
Future Volume (vph)	0	1144	0	0	553	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1243	0	0	601	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1243	0	0	601	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		56.7			23.3							
Effective Green, g (s)		56.7			23.3							
Actuated g/C Ratio		0.60			0.25							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1984			815							
v/s Ratio Prot		c0.37			c0.18							
v/s Ratio Perm												
v/c Ratio		0.63			0.74							
Uniform Delay, d1		12.3			33.0							
Progression Factor		1.00			1.00							
Incremental Delay, d2		1.5			3.5							
Delay (s)		13.8			36.5							
Level of Service		B			D							
Approach Delay (s/veh)		13.8			36.5			0.0			0.0	
Approach LOS		B			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	40.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:41:43 PM

Summary of intersection performance

	PM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - BG (2032)						
Leg North	0.09	~1	6.26	0.08	A	7.77	A
Leg West	0.10	~1	4.27	0.09	A		
Leg South	0.69	1.12	5.00	0.38	A		
Leg East	3.18	9.49	14.34	0.76	B		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM " model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:41:42 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - BG (2032), PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
BG (2032), PM	BG (2032)	PM		PHF	16:00	17:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				7.77	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	48.00	100.000
West	PHF	✓	626.00	100.000
South	PHF	✓	960.00	100.000
East	PHF	✓	749.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	48.00	0.92	SecondQuarter
West	626.00	0.92	SecondQuarter
South	960.00	0.92	SecondQuarter
East	749.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	9.000	37.000	2.000
	West	4.000	0.000	545.000	77.000
	South	35.000	422.000	0.000	503.000

	East	5.000	178.000	566.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.19	0.77	0.04
	West	0.01	0.00	0.87	0.12
	South	0.04	0.44	0.00	0.52
	East	0.01	0.24	0.76	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.097	1.061
	South	1.033	1.133	1.000	1.196
	East	1.000	1.079	1.048	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	9.7	6.1
	South	3.3	13.3	0.0	19.6
	East	0.0	7.9	4.8	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.08	6.26	0.09	~1	A	48.00	48.00	4.55	5.69	0.08	4.55	5.69
West	0.09	4.27	0.10	~1	A	626.00	81.00	5.54	4.10	0.09	5.54	4.10
South	0.38	5.00	0.69	1.12	A	960.00	457.00	36.10	4.74	0.60	36.10	4.74
East	0.76	14.34	3.18	9.49	B	749.00	749.00	141.30	11.32	2.35	141.40	11.33

Main Results for each time segment

Main results: (16:00-16:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	45.22	45.22	11.30	0.00	0.00	44.95	41.22	1089.24	0.00	727.04	412.23	0.062	0.00	0.07	5.278	A
West	589.71	76.30	19.08	513.41	0.00	75.97	569.92	564.27	0.00	1030.87	803.35	0.074	0.00	0.08	3.987	A
South	904.35	430.51	107.63	473.84	513.41	428.33	562.40	77.84	0.00	1312.39	882.56	0.328	0.00	0.54	4.569	A
East	705.58	705.58	176.39	0.00	473.84	698.37	74.09	432.08	0.00	1107.38	823.70	0.637	0.00	1.80	9.133	A

Main results: (16:15-16:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	52.17	52.17	13.04	0.00	0.00	52.08	47.74	1261.38	0.00	627.41	412.23	0.083	0.07	0.09	6.257	A

West	680.43	88.04	22.01	592.39	0.00	87.96	660.11	653.35	0.00	979.31	803.35	0.090	0.08	0.10	4.272	A
South	1043.48	496.74	124.18	546.74	592.39	496.18	651.18	90.13	0.00	1305.28	882.56	0.381	0.54	0.69	5.001	A
East	814.13	814.13	203.53	0.00	546.74	808.60	85.79	500.52	0.00	1067.76	823.70	0.762	1.80	3.18	14.339	B

Main results: (16:30-16:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	49.39	49.39	12.35	0.00	0.00	49.43	45.30	1201.88	0.00	661.85	412.23	0.075	0.09	0.08	5.878	A
West	644.14	83.35	20.84	560.80	0.00	83.38	627.29	624.01	0.00	996.29	803.35	0.084	0.10	0.10	4.171	A
South	987.83	470.25	117.56	517.58	560.80	470.44	621.95	85.44	0.00	1308.00	882.56	0.360	0.69	0.64	4.834	A
East	770.71	770.71	192.68	0.00	517.58	772.62	81.32	474.56	0.00	1082.79	823.70	0.712	3.18	2.71	12.337	B

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	45.22	45.22	11.30	0.00	0.00	45.27	41.50	1101.87	0.00	719.72	412.23	0.063	0.08	0.07	5.337	A
West	589.71	76.30	19.08	513.41	0.00	76.35	574.77	572.38	0.00	1026.18	803.35	0.074	0.10	0.09	4.010	A
South	904.35	430.51	107.63	473.84	513.41	430.84	570.49	78.24	0.00	1312.16	882.56	0.328	0.64	0.55	4.595	A
East	705.58	705.58	176.39	0.00	473.84	708.76	74.47	434.61	0.00	1105.91	823.70	0.638	2.71	1.91	9.639	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:00-16:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.96	0.06	5.278	A	A
West	1.24	0.08	3.987	A	A
South	7.94	0.53	4.569	A	A
East	25.16	1.68	9.133	A	A

Queueing Delay results: (16:15-16:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.32	0.09	6.257	A	A
West	1.54	0.10	4.272	A	A
South	10.07	0.67	5.001	A	A
East	43.76	2.92	14.339	B	B

Queueing Delay results: (16:30-16:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.23	0.08	5.878	A	A
West	1.47	0.10	4.171	A	A
South	9.66	0.64	4.834	A	A
East	42.26	2.82	12.337	B	B

Queueing Delay results: (16:45-17:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.03	0.07	5.337	A	A
West	1.30	0.09	4.010	A	A
South	8.43	0.56	4.595	A	A
East	30.12	2.01	9.639	A	A

Queue Variation Results for each time segment

Queue Variation results: (16:00-16:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.54	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.80	0.00	0.00	3.16	5.27			N/A	N/A

Queue Variation results: (16:15-16:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.09	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.10	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.69	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	3.18	0.00	0.00	2.11	9.49			N/A	N/A

Queue Variation results: (16:30-16:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.10	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.64	0.00	0.00	0.00	1.12			N/A	N/A
East	2.71	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (16:45-17:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.09	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.55	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.91	0.00	0.00	4.22	6.33			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	14	10	0	16	16
Future Volume (vph)	0	14	10	0	16	16
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.932	
Flt Protected				0.950	0.976	
Satd. Flow (prot)	1514	0	0	1662	1592	0
Flt Permitted				0.950	0.976	
Satd. Flow (perm)	1514	0	0	1662	1592	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	15	11	0	17	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	15	0	0	11	34	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	14	10	0	16	16
Future Volume (Veh/h)	0	14	10	0	16	16
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	15	11	0	17	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	51	0	58	43	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	51	0	58	43	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	99	100	99	
cM capacity (veh/h)	836	1091	924	844	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	15	11	34
Volume Left	0	11	17
Volume Right	15	0	17
cSH	1091	924	1636
Volume to Capacity	0.01	0.01	0.01
Queue Length 95th (m)	0.3	0.3	0.3
Control Delay (s/veh)	8.3	8.9	3.6
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	8.9	3.6
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	17.3%	ICU Level of Service	A
Analysis Period (min)	15		

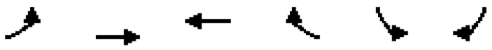
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	4	0	0	3	2
Future Volume (vph)	0	4	0	0	3	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.946	
Flt Protected					0.971	
Satd. Flow (prot)	1514	0	0	1750	1607	0
Flt Permitted					0.971	
Satd. Flow (perm)	1514	0	0	1750	1607	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	4	0	0	3	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	0	0	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	4	0	0	3	2
Future Volume (Veh/h)	0	4	0	0	3	2
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	4	0	0	3	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	8	0	11	7	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	8	0	11	7	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	100	100	100	
cM capacity (veh/h)	889	1091	1007	891	1636	

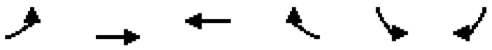
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	4	0	5
Volume Left	0	0	3
Volume Right	4	0	2
cSH	1091	1700	1636
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s/veh)	8.3	0.0	4.3
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	0.0	4.3
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	30	512	418	5	4	29
Future Volume (vph)	30	512	418	5	4	29
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.998		0.880	
Flt Protected	0.950				0.994	
Satd. Flow (prot)	1662	3325	3318	0	1531	0
Flt Permitted	0.950				0.994	
Satd. Flow (perm)	1662	3325	3318	0	1531	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	33	557	454	5	4	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	557	459	0	36	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.4%		ICU Level of Service A	
Analysis Period (min) 15			



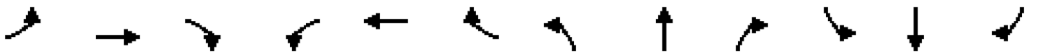
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	512	418	5	4	29
Future Volume (Veh/h)	30	512	418	5	4	29
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	557	454	5	4	32
Pedestrians						
Lane Width (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	459				801	230
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	459				801	230
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				99	96
cM capacity (veh/h)	1113				316	779

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	33	279	279	303	156	36
Volume Left	33	0	0	0	0	4
Volume Right	0	0	0	0	5	32
cSH	1113	1700	1700	1700	1700	670
Volume to Capacity	0.03	0.16	0.16	0.18	0.09	0.05
Queue Length 95th (m)	0.7	0.0	0.0	0.0	0.0	1.4
Control Delay (s/veh)	8.3	0.0	0.0	0.0	0.0	10.7
Lane LOS	A					B
Approach Delay (s/veh)	0.5			0.0		10.7
Approach LOS						B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	29.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	480	0	1	370	5	4	0	0	2	0	50
Future Volume (vph)	40	480	0	1	370	5	4	0	0	2	0	50
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.998						0.870	
Flt Protected		0.996						0.950			0.998	
Satd. Flow (prot)	0	1743	0	0	1746	0	0	1662	0	0	1519	0
Flt Permitted		0.996						0.950			0.998	
Satd. Flow (perm)	0	1743	0	0	1746	0	0	1662	0	0	1519	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	43	522	0	1	402	5	4	0	0	2	0	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	565	0	0	408	0	0	4	0	0	56	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 64.8%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	480	0	1	370	5	4	0	0	2	0	50
Future Volume (Veh/h)	40	480	0	1	370	5	4	0	0	2	0	50
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	522	0	1	402	5	4	0	0	2	0	54
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	407			522			1069	1017	522	1015	1015	405
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	407			522			1069	1017	522	1015	1015	405
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 %	96			100			98	100	100	99	100	92
cM capacity (veh/h)	1163			1055			179	230	559	212	231	651

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	565	408	4	56
Volume Left	43	1	4	2
Volume Right	0	5	0	54
cSH	1163	1055	179	606
Volume to Capacity	0.04	0.00	0.02	0.09
Queue Length 95th (m)	0.9	0.0	0.5	2.4
Control Delay (s/veh)	1.0	0.0	25.6	11.5
Lane LOS	A	A	D	B
Approach Delay (s/veh)	1.0	0.0	25.6	11.5
Approach LOS			D	B

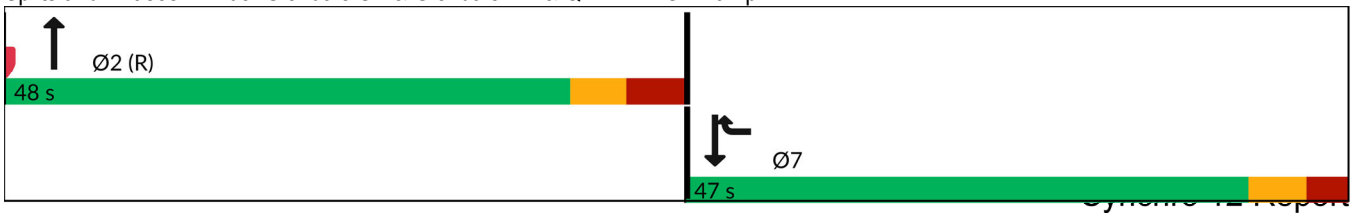
Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	64.8%	ICU Level of Service	C	
Analysis Period (min)	15			

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	192	599	557
Future Volume (vph)	192	599	557
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	209	651	605
Shared Lane Traffic (%)			
Lane Group Flow (vph)	209	651	605
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	27.5	56.5	27.5
Actuated g/C Ratio	0.29	0.59	0.29
v/c Ratio	0.49	0.36	0.68
Control Delay (s/veh)	30.9	11.5	33.6
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	30.9	11.5	33.6
LOS	C	B	C
Approach Delay (s/veh)		11.5	33.6
Approach LOS		B	C
Stops (vph)	151	302	471
Fuel Used(l)	9	15	27
CO Emissions (g/hr)	173	287	500
NOx Emissions (g/hr)	33	55	96
VOC Emissions (g/hr)	40	66	115
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay (s/veh): 23.4		Intersection LOS: C	
Intersection Capacity Utilization 40.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	209	651	605
v/c Ratio	0.49	0.36	0.68
Control Delay (s/veh)	30.9	11.5	33.6
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	30.9	11.5	33.6
Queue Length 50th (m)	33.2	31.5	54.3
Queue Length 95th (m)	49.8	51.4	65.8
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	656	1796	1348
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.32	0.36	0.45

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	192	599	557
Future Volume (vph)	192	599	557
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	209	651	605
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	209	651	605
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	25.5	54.5	25.5
Effective Green, g (s)	27.5	56.5	27.5
Actuated g/C Ratio	0.29	0.59	0.29
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	429	1797	882
v/s Ratio Prot	0.14	c0.22	c0.20
v/s Ratio Perm			
v/c Ratio	0.49	0.36	0.69
Uniform Delay, d1	27.9	9.9	29.9
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.6	2.2
Delay (s)	28.8	10.5	32.2
Level of Service	C	B	C
Approach Delay (s/veh)		10.5	32.2
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	40.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

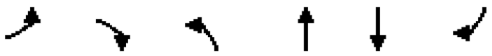
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	572	0	0	0	0	557
Future Volume (vph)	572	0	0	0	0	557
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	622	0	0	0	0	605
Shared Lane Traffic (%)						
Lane Group Flow (vph)	622	0	0	0	0	605
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.8%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	572	0	0	0	0	557
Future Volume (Veh/h)	572	0	0	0	0	557
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	622	0	0	0	0	605
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	303	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	303	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	6	100			100	
cM capacity (veh/h)	665	1084			1622	

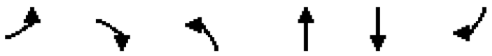
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	622	303	303
Volume Left	622	0	0
Volume Right	0	0	0
cSH	665	1700	1700
Volume to Capacity	0.94	0.18	0.18
Queue Length 95th (m)	102.6	0.0	0.0
Control Delay (s/veh)	45.8	0.0	0.0
Lane LOS	E		
Approach Delay (s/veh)	45.8	0.0	
Approach LOS	E		

Intersection Summary			
Average Delay	23.2		
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	444	0	0	1354	0	0
Future Volume (vph)	444	0	0	1354	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	483	0	0	1472	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	483	0	0	1472	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	119.2%	ICU Level of Service	H
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	444	0	0	1354	0	0
Future Volume (Veh/h)	444	0	0	1354	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	483	0	0	1472	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	736	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	736	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	100	100			
cM capacity (veh/h)	354	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	483	736	736
Volume Left	483	0	0
Volume Right	0	0	0
cSH	354	1700	1700
Volume to Capacity	1.36	0.43	0.43
Queue Length 95th (m)	189.8	0.0	0.0
Control Delay (s/veh)	210.5	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	210.5	0.0	
Approach LOS	F		

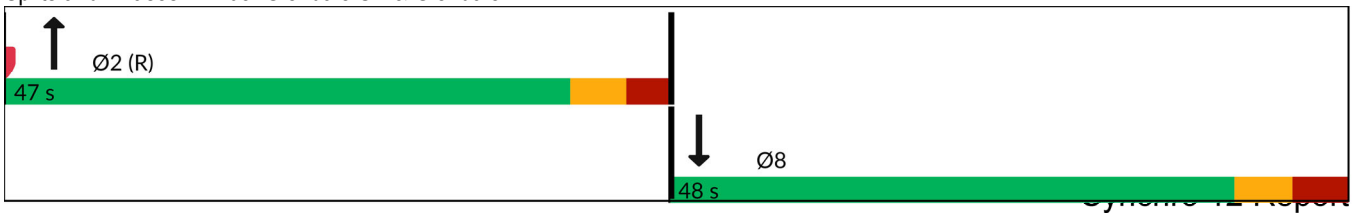
Intersection Summary			
Average Delay	52.0		
Intersection Capacity Utilization	119.2%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1354	0	0	660	0	0	0	0	0	0	0
Future Volume (vph)	0	1354	0	0	660	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1472	0	0	717	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1472	0	0	717	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		53.1			26.9							
Actuated g/C Ratio		0.56			0.28							
v/c Ratio		0.79			0.76							
Control Delay (s/veh)		21.9			36.5							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		21.9			36.5							
LOS		C			D							
Approach Delay (s/veh)		21.9			36.5							
Approach LOS		C			D							
Stops (vph)		1000			576							
Fuel Used(l)		52			35							
CO Emissions (g/hr)		958			644							
NOx Emissions (g/hr)		185			124							
VOC Emissions (g/hr)		221			149							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay (s/veh): 26.7		Intersection LOS: C	
Intersection Capacity Utilization 46.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	1472	717
v/c Ratio	0.79	0.76
Control Delay (s/veh)	21.9	36.5
Queue Delay	0.0	0.0
Total Delay (s/veh)	21.9	36.5
Queue Length 50th (m)	111.6	66.2
Queue Length 95th (m)	#184.1	78.4
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1860	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.79	0.51

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	1354	0	0	660	0	0	0	0	0	0	0
Future Volume (vph)	0	1354	0	0	660	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1472	0	0	717	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1472	0	0	717	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		53.1			26.9							
Effective Green, g (s)		53.1			26.9							
Actuated g/C Ratio		0.56			0.28							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1858			941							
v/s Ratio Prot		c0.44			c0.22							
v/s Ratio Perm												
v/c Ratio		0.79			0.76							
Uniform Delay, d1		16.6			31.1							
Progression Factor		1.00			1.00							
Incremental Delay, d2		3.6			3.7							
Delay (s)		20.1			34.8							
Level of Service		C			C							
Approach Delay (s/veh)		20.1			34.8			0.0			0.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:42:21 PM

Summary of intersection performance

	Sat						
	Queue (PCE)	**95% Queue (PCE)**	**Delay (s)**	**V/C Ratio**	**LOS**	**Intersection Delay (s)**	**Intersection LOS**
	A1 - BG (2032)						
Leg North	0.06	~1	5.24	0.05	A	5.39	A
Leg West	0.11	~1	3.40	0.10	A		
Leg South	0.96	~1	5.56	0.49	A		
Leg East	0.96	~1	7.22	0.49	A		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat " model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:42:19 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - BG (2032), Sat

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
BG (2032), Sat	BG (2032)	Sat		PHF	12:00	13:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				5.39	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	36.00	100.000
West	PHF	✓	495.00	100.000
South	PHF	✓	1023.00	100.000
East	PHF	✓	446.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	36.00	0.92	SecondQuarter
West	495.00	0.92	SecondQuarter
South	1023.00	0.92	SecondQuarter
East	446.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	12.000	19.000	5.000
	West	8.000	0.000	389.000	98.000
	South	14.000	565.000	0.000	444.000

	East	5.000	172.000	269.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.33	0.53	0.14
	West	0.02	0.00	0.79	0.20
	South	0.01	0.55	0.00	0.43
	East	0.01	0.39	0.60	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.036	1.000
	South	1.000	1.021	1.000	1.029
	East	1.000	1.007	1.022	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	3.6	0.0
	South	0.0	2.1	0.0	2.9
	East	0.0	0.7	2.2	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.05	5.24	0.06	~1	A	36.00	36.00	2.92	4.87	0.05	2.92	4.87
West	0.10	3.40	0.11	~1	A	495.00	106.00	5.87	3.32	0.10	5.87	3.32
South	0.49	5.56	0.96	~1	A	1023.00	579.00	49.61	5.14	0.83	49.62	5.14
East	0.49	7.22	0.96	~1	A	446.00	446.00	47.71	6.42	0.80	47.73	6.42

Main Results for each time segment

Main results: (12:00-12:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	33.91	33.91	8.48	0.00	0.00	33.74	25.31	942.12	0.00	812.18	415.43	0.042	0.00	0.04	4.623	A
West	466.30	99.86	24.96	366.45	0.00	99.49	701.61	274.25	0.00	1198.72	899.36	0.083	0.00	0.09	3.275	A
South	963.70	545.43	136.36	418.26	366.45	542.50	269.57	104.18	0.00	1297.15	803.54	0.420	0.00	0.73	4.850	A
East	420.14	420.14	105.04	0.00	418.26	417.42	96.67	550.01	0.00	1039.12	853.11	0.404	0.00	0.68	5.857	A

Main results: (12:15-12:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	39.13	39.13	9.78	0.00	0.00	39.08	29.31	1091.47	0.00	725.75	415.43	0.054	0.04	0.06	5.242	A

West	538.04	115.22	28.80	422.83	0.00	115.15	812.78	317.77	0.00	1173.54	899.36	0.098	0.09	0.11	3.400	A
South	1111.96	629.35	157.34	482.61	422.83	628.42	312.34	120.57	0.00	1287.66	803.54	0.489	0.73	0.96	5.564	A
East	484.78	484.78	121.20	0.00	482.61	483.66	111.88	637.12	0.00	988.71	853.11	0.490	0.68	0.96	7.225	A

Main results: (12:30-12:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	37.04	37.04	9.26	0.00	0.00	37.06	27.80	1035.88	0.00	757.92	415.43	0.049	0.06	0.05	4.993	A
West	509.35	109.07	27.27	400.28	0.00	109.10	771.19	301.75	0.00	1182.80	899.36	0.092	0.11	0.10	3.352	A
South	1052.65	595.78	148.95	456.87	400.28	596.11	296.61	114.25	0.00	1291.32	803.54	0.461	0.96	0.88	5.286	A
East	458.93	458.93	114.73	0.00	456.87	459.34	106.01	604.34	0.00	1007.68	853.11	0.455	0.96	0.86	6.677	A

Main results: (12:45-13:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	33.91	33.91	8.48	0.00	0.00	33.94	25.46	948.85	0.00	808.29	415.43	0.042	0.05	0.04	4.648	A
West	466.30	99.86	24.96	366.45	0.00	99.90	706.37	276.42	0.00	1197.46	899.36	0.083	0.10	0.09	3.279	A
South	963.70	545.43	136.36	418.26	366.45	545.98	271.71	104.61	0.00	1296.90	803.54	0.421	0.88	0.75	4.897	A
East	420.14	420.14	105.04	0.00	418.26	420.79	97.07	553.52	0.00	1037.09	853.11	0.405	0.86	0.70	5.942	A

Queueing Delay Results for each time segment

Queueing Delay results: (12:00-12:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.64	0.04	4.623	A	A
West	1.33	0.09	3.275	A	A
South	10.64	0.71	4.850	A	A
East	9.85	0.66	5.857	A	A

Queueing Delay results: (12:15-12:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.84	0.06	5.242	A	A
West	1.61	0.11	3.400	A	A
South	14.09	0.94	5.564	A	A
East	13.97	0.93	7.225	A	A

Queueing Delay results: (12:30-12:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.78	0.05	4.993	A	A
West	1.54	0.10	3.352	A	A
South	13.45	0.90	5.286	A	A
East	13.16	0.88	6.677	A	A

Queueing Delay results: (12:45-13:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.67	0.04	4.648	A	A
West	1.38	0.09	3.279	A	A
South	11.43	0.76	4.897	A	A
East	10.74	0.72	5.942	A	A

Queue Variation Results for each time segment

Queue Variation results: (12:00-12:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.04	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.09	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.73	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.68	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:15-12:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.11	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.96	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.96	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:30-12:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.10	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.88	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.86	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:45-13:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.04	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.09	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.75	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.70	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	16	25	1	10	13
Future Volume (vph)	0	16	25	1	10	13
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.924	
Flt Protected				0.954	0.978	
Satd. Flow (prot)	1514	0	0	1669	1581	0
Flt Permitted				0.954	0.978	
Satd. Flow (perm)	1514	0	0	1669	1581	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	0	17	27	1	11	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	0	0	28	25	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	16	25	1	10	13
Future Volume (Veh/h)	0	16	25	1	10	13
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	17	27	1	11	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	36	0	46	29	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	36	0	46	29	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	97	100	99	
cM capacity (veh/h)	855	1091	941	860	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	17	28	25
Volume Left	0	27	11
Volume Right	17	0	14
cSH	1091	938	1636
Volume to Capacity	0.02	0.03	0.01
Queue Length 95th (m)	0.4	0.7	0.2
Control Delay (s/veh)	8.4	9.0	3.2
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.0	3.2
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.8		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

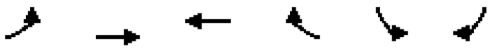
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	44	11	3	1
Future Volume (vph)	0	0	44	11	3	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.966	
Flt Protected				0.962	0.964	
Satd. Flow (prot)	1750	0	0	1667	1626	0
Flt Permitted				0.962	0.964	
Satd. Flow (perm)	1750	0	0	1667	1626	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	1%	0%	1%
Adj. Flow (vph)	0	0	48	12	3	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	60	4	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	44	11	3	1
Future Volume (Veh/h)	0	0	44	11	3	1
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	48	12	3	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	7	0	7	7	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	7	0	7	7	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	95	99	100	
cM capacity (veh/h)	891	1091	1015	889	1636	

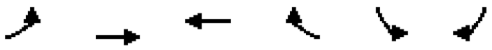
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	0	60	4
Volume Left	0	48	3
Volume Right	0	0	1
cSH	1700	987	1636
Volume to Capacity	0.00	0.06	0.00
Queue Length 95th (m)	0.0	1.6	0.0
Control Delay (s/veh)	0.0	8.9	5.4
Lane LOS	A	A	A
Approach Delay (s/veh)	0.0	8.9	5.4
Approach LOS	A	A	

Intersection Summary			
Average Delay	8.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	73	616	523	10	5	71
Future Volume (vph)	73	616	523	10	5	71
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.997		0.873	
Flt Protected	0.950				0.997	
Satd. Flow (prot)	1662	3325	3315	0	1523	0
Flt Permitted	0.950				0.997	
Satd. Flow (perm)	1662	3325	3315	0	1523	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	79	670	568	11	5	77
Shared Lane Traffic (%)						
Lane Group Flow (vph)	79	670	579	0	82	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.5%		ICU Level of Service A	
Analysis Period (min) 15			



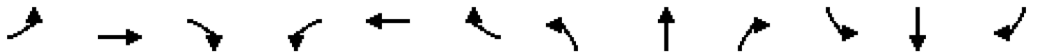
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	73	616	523	10	5	71
Future Volume (Veh/h)	73	616	523	10	5	71
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	79	670	568	11	5	77
Pedestrians						
Lane 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	579				1067	290
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	579				1067	290
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				98	89
cM capacity (veh/h)	1005				203	713

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	79	335	335	379	200	82
Volume Left	79	0	0	0	0	5
Volume Right	0	0	0	0	11	77
cSH	1005	1700	1700	1700	1700	618
Volume to Capacity	0.08	0.20	0.20	0.22	0.12	0.13
Queue Length 95th (m)	2.0	0.0	0.0	0.0	0.0	3.6
Control Delay (s/veh)	8.9	0.0	0.0	0.0	0.0	11.7
Lane LOS	A					B
Approach Delay (s/veh)	0.9			0.0		11.7
Approach LOS						B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	35.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	468	6	1	463	13	9	0	2	4	0	67
Future Volume (vph)	151	468	6	1	463	13	9	0	2	4	0	67
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.996			0.977			0.872	
Flt Protected		0.988						0.960			0.997	
Satd. Flow (prot)	0	1727	0	0	1743	0	0	1641	0	0	1521	0
Flt Permitted		0.988						0.960			0.997	
Satd. Flow (perm)	0	1727	0	0	1743	0	0	1641	0	0	1521	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	164	509	7	1	503	14	10	0	2	4	0	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	680	0	0	518	0	0	12	0	0	77	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 78.2%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	468	6	1	463	13	9	0	2	4	0	67
Future Volume (Veh/h)	151	468	6	1	463	13	9	0	2	4	0	67
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	164	509	7	1	503	14	10	0	2	4	0	73
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	517			516			1426	1360	513	1355	1356	510
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	517			516			1426	1360	513	1355	1356	510
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 %	85			100			89	100	100	96	100	87
cM capacity (veh/h)	1059			1060			88	127	566	112	127	567

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	680	518	12	77
Volume Left	164	1	10	4
Volume Right	7	14	2	73
cSH	1059	1060	102	469
Volume to Capacity	0.15	0.00	0.12	0.16
Queue Length 95th (m)	4.4	0.0	3.1	4.7
Control Delay (s/veh)	3.7	0.0	44.9	14.2
Lane LOS	A	A	E	B
Approach Delay (s/veh)	3.7	0.0	44.9	14.2
Approach LOS			E	B

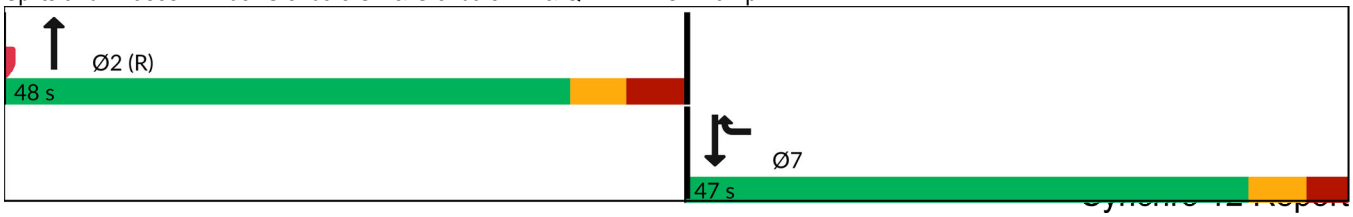
Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	343	550	588
Future Volume (vph)	343	550	588
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	373	598	639
Shared Lane Traffic (%)			
Lane Group Flow (vph)	373	598	639
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	32.7	51.3	32.7
Actuated g/C Ratio	0.34	0.54	0.34
v/c Ratio	0.73	0.37	0.61
Control Delay (s/veh)	35.2	14.8	27.6
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	35.2	14.8	27.6
LOS	D	B	C
Approach Delay (s/veh)		14.8	27.6
Approach LOS		B	C
Stops (vph)	286	313	458
Fuel Used(l)	18	16	25
CO Emissions (g/hr)	336	304	461
NOx Emissions (g/hr)	65	59	89
VOC Emissions (g/hr)	78	70	106
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay (s/veh): 24.6		Intersection LOS: C	
Intersection Capacity Utilization 48.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	373	598	639
v/c Ratio	0.73	0.37	0.61
Control Delay (s/veh)	35.2	14.8	27.6
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	35.2	14.8	27.6
Queue Length 50th (m)	61.8	33.3	52.7
Queue Length 95th (m)	81.1	56.4	59.7
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	657	1635	1351
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.57	0.37	0.47

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	343	550	588
Future Volume (vph)	343	550	588
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	373	598	639
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	373	598	639
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	30.7	49.3	30.7
Effective Green, g (s)	32.7	51.3	32.7
Actuated g/C Ratio	0.34	0.54	0.34
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	510	1632	1049
v/s Ratio Prot	c0.25	c0.20	0.21
v/s Ratio Perm			
v/c Ratio	0.73	0.37	0.61
Uniform Delay, d1	27.3	12.5	25.8
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	5.4	0.6	1.0
Delay (s)	32.7	13.2	26.9
Level of Service	C	B	C
Approach Delay (s/veh)		13.2	26.9
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

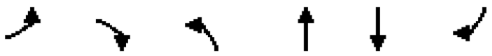
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	272	0	0	0	0	588
Future Volume (vph)	272	0	0	0	0	588
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	296	0	0	0	0	639
Shared Lane Traffic (%)						
Lane Group Flow (vph)	296	0	0	0	0	639
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 40.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	272	0	0	0	0	588
Future Volume (Veh/h)	272	0	0	0	0	588
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	296	0	0	0	0	639
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	320	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	320	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	54	100			100	
cM capacity (veh/h)	649	1084			1622	

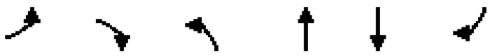
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	296	320	320
Volume Left	296	0	0
Volume Right	0	0	0
cSH	649	1700	1700
Volume to Capacity	0.46	0.19	0.19
Queue Length 95th (m)	19.1	0.0	0.0
Control Delay (s/veh)	15.1	0.0	0.0
Lane LOS	C		
Approach Delay (s/veh)	15.1	0.0	
Approach LOS	C		

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	40.7%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	407	0	0	573	0	0
Future Volume (vph)	407	0	0	573	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	442	0	0	623	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	442	0	0	623	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 74.9%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	407	0	0	573	0	0
Future Volume (Veh/h)	407	0	0	573	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	442	0	0	623	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	312	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	312	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	33	100	100			
cM capacity (veh/h)	656	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	442	312	312
Volume Left	442	0	0
Volume Right	0	0	0
cSH	656	1700	1700
Volume to Capacity	0.67	0.18	0.18
Queue Length 95th (m)	41.5	0.0	0.0
Control Delay (s/veh)	21.0	0.0	0.0
Lane LOS	C		
Approach Delay (s/veh)	21.0	0.0	
Approach LOS	C		

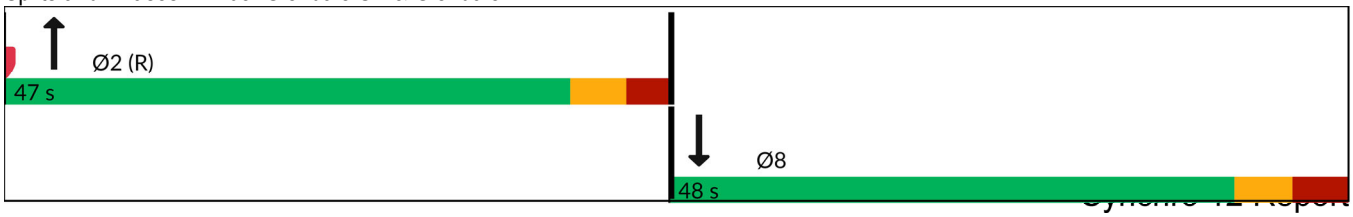
Intersection Summary			
Average Delay	8.7		
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	573	0	0	388	0	0	0	0	0	0	0
Future Volume (vph)	0	573	0	0	388	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	623	0	0	422	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	623	0	0	422	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		62.4			17.6							
Actuated g/C Ratio		0.66			0.19							
v/c Ratio		0.29			0.68							
Control Delay (s/veh)		7.8			41.7							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		7.8			41.7							
LOS		A			D							
Approach Delay (s/veh)		7.8			41.7							
Approach LOS		A			D							
Stops (vph)		230			348							
Fuel Used(l)		11			22							
CO Emissions (g/hr)		209			412							
NOx Emissions (g/hr)		40			79							
VOC Emissions (g/hr)		48			95							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay (s/veh): 21.4		Intersection LOS: C	
Intersection Capacity Utilization 23.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	623	422
v/c Ratio	0.29	0.68
Control Delay (s/veh)	7.8	41.7
Queue Delay	0.0	0.0
Total Delay (s/veh)	7.8	41.7
Queue Length 50th (m)	23.8	40.3
Queue Length 95th (m)	38.1	53.2
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	2182	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.29	0.30

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	573	0	0	388	0	0	0	0	0	0	0
Future Volume (vph)	0	573	0	0	388	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	623	0	0	422	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	623	0	0	422	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		62.4			17.6							
Effective Green, g (s)		62.4			17.6							
Actuated g/C Ratio		0.66			0.19							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		2184			616							
v/s Ratio Prot		c0.19			c0.13							
v/s Ratio Perm												
v/c Ratio		0.29			0.69							
Uniform Delay, d1		6.9			36.1							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.3			3.2							
Delay (s)		7.2			39.3							
Level of Service		A			D							
Approach Delay (s/veh)		7.2			39.3			0.0			0.0	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:44:03 PM

Summary of intersection performance

	AM						
	Queue (PCE)	**95% Queue (PCE)**	**Delay (s)**	**V/C Ratio**	**LOS**	**Intersection Delay (s)**	**Intersection LOS**
	A1 - BG (2034)						
Leg North	0.10	~1	7.46	0.08	A	7.35	A
Leg West	0.16	~1	4.04	0.13	A		
Leg South	1.21	?	6.62	0.52	A		
Leg East	1.98	2.28	11.59	0.64	B		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM " model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:44:03 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - BG (2034), AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
BG (2034), AM	BG (2034)	AM		PHF	08:00	09:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				7.35	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	44.00	100.000
West	PHF	✓	481.00	100.000
South	PHF	✓	1151.00	100.000
East	PHF	✓	574.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	44.00	0.92	SecondQuarter
West	481.00	0.92	SecondQuarter
South	1151.00	0.92	SecondQuarter
East	574.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	16.000	24.000	4.000
	West	2.000	0.000	350.000	129.000
	South	17.000	596.000	0.000	538.000

	East	0.000	150.000	423.000	1.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.36	0.55	0.09
	West	0.00	0.00	0.73	0.27
	South	0.01	0.52	0.00	0.47
	East	0.00	0.26	0.74	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.154	1.200	1.333
	West	1.000	1.000	1.139	1.047
	South	1.071	1.119	1.000	1.095
	East	1.000	1.057	1.170	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	15.4	20.0	33.3
	West	0.0	0.0	13.9	4.7
	South	7.1	11.9	0.0	9.5
	East	0.0	5.7	17.0	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.08	7.46	0.10	~1	A	44.00	44.00	4.96	6.76	0.08	4.96	6.76
West	0.13	4.04	0.16	~1	A	481.00	131.00	8.50	3.90	0.14	8.51	3.90
South	0.52	6.62	1.21	?	A	1151.00	613.00	61.71	6.04	1.03	61.73	6.04
East	0.64	11.59	1.98	2.28	B	574.00	574.00	92.51	9.67	1.54	92.56	9.68

Main Results for each time segment

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	41.45	41.45	10.36	0.00	0.00	41.16	17.79	1093.67	0.00	724.47	383.59	0.057	0.00	0.07	6.285	A
West	453.12	123.41	30.85	329.71	0.00	122.89	712.90	421.93	0.00	1113.25	848.24	0.111	0.00	0.13	3.801	A
South	1084.28	577.46	144.37	506.81	329.71	573.85	417.25	127.56	0.00	1283.62	845.47	0.450	0.00	0.90	5.641	A
East	540.72	540.72	135.18	0.00	506.81	535.73	125.69	575.73	0.00	1024.24	860.63	0.528	0.00	1.25	8.304	A

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	47.83	47.83	11.96	0.00	0.00	47.72	20.62	1267.63	0.00	623.79	383.59	0.077	0.07	0.10	7.459	A

West	522.83	142.39	35.60	380.43	0.00	142.27	826.26	489.09	0.00	1074.38	848.24	0.133	0.13	0.16	4.041	A
South	1251.09	666.30	166.58	584.78	380.43	665.07	483.67	147.69	0.00	1271.97	845.47	0.524	0.90	1.21	6.616	A
East	623.91	623.91	155.98	0.00	584.78	621.00	145.52	667.24	0.00	971.27	860.63	0.642	1.25	1.98	11.594	B

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	45.28	45.28	11.32	0.00	0.00	45.31	19.56	1205.35	0.00	659.84	383.59	0.069	0.10	0.09	6.994	A
West	494.94	134.80	33.70	360.14	0.00	134.84	784.78	465.88	0.00	1087.81	848.24	0.124	0.16	0.15	3.952	A
South	1184.36	630.77	157.69	553.59	360.14	631.19	460.73	139.99	0.00	1276.43	845.47	0.494	1.21	1.11	6.242	A
East	590.64	590.64	147.66	0.00	553.59	591.66	137.93	633.25	0.00	990.94	860.63	0.596	1.98	1.72	10.292	B

Main results: (08:45-09:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	41.45	41.45	10.36	0.00	0.00	41.51	17.92	1104.54	0.00	718.18	383.59	0.058	0.09	0.07	6.352	A
West	453.12	123.41	30.85	329.71	0.00	123.47	718.99	427.06	0.00	1110.28	848.24	0.111	0.15	0.13	3.816	A
South	1084.28	577.46	144.37	506.81	329.71	578.19	422.35	128.19	0.00	1283.25	845.47	0.450	1.11	0.92	5.712	A
East	540.72	540.72	135.18	0.00	506.81	542.39	126.31	580.07	0.00	1021.72	860.63	0.529	1.72	1.30	8.578	A

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-08:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.05	0.07	6.285	A	A
West	1.91	0.13	3.801	A	A
South	13.04	0.87	5.641	A	A
East	17.69	1.18	8.304	A	A

Queueing Delay results: (08:15-08:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.44	0.10	7.459	A	A
West	2.35	0.16	4.041	A	A
South	17.62	1.17	6.616	A	A
East	27.95	1.86	11.594	B	B

Queueing Delay results: (08:30-08:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.35	0.09	6.994	A	A
West	2.25	0.15	3.952	A	A
South	16.87	1.12	6.242	A	A
East	26.59	1.77	10.292	B	B

Queueing Delay results: (08:45-09:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.12	0.07	6.352	A	A
West	1.99	0.13	3.816	A	A
South	14.18	0.95	5.712	A	A
East	20.29	1.35	8.578	A	A

Queue Variation Results for each time segment

Queue Variation results: (08:00-08:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.13	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.90	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.25	0.00	0.00	1.14	2.28			N/A	N/A

Queue Variation results: (08:15-08:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.10	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.16	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.21	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.98	0.00	0.00	0.00	2.28			N/A	N/A

Queue Variation results: (08:30-08:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.09	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.15	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.11	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.72	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:45-09:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.13	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.92	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.30	0.00	0.00	2.28	2.28			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	21	25	0	15	23
Future Volume (vph)	0	21	25	0	15	23
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.865				0.918	
Flt Protected				0.950	0.981	
Satd. Flow (prot)	1514	0	0	1662	1576	0
Flt Permitted				0.950	0.981	
Satd. Flow (perm)	1514	0	0	1662	1576	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	23	27	0	16	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	0	0	27	41	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	21	25	0	15	23
Future Volume (Veh/h)	0	21	25	0	15	23
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	23	27	0	16	25
Pedestrians					1	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	57	1	69	45	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	57	1	69	45	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	97	100	99	
cM capacity (veh/h)	830	1089	902	843	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	23	27	41
Volume Left	0	27	16
Volume Right	23	0	25
cSH	1089	902	1636
Volume to Capacity	0.02	0.03	0.01
Queue Length 95th (m)	0.5	0.7	0.2
Control Delay (s/veh)	8.4	9.1	2.9
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.1	2.9
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

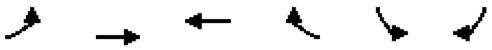
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1	6	0	0	10	30
Future Volume (vph)	1	6	0	0	10	30
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.882				0.899	
Flt Protected					0.988	
Satd. Flow (prot)	1544	0	0	1750	1543	0
Flt Permitted					0.988	
Satd. Flow (perm)	1544	0	0	1750	1543	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	1	7	0	0	11	33
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	0	44	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1	6	0	0	10	30
Future Volume (Veh/h)	1	6	0	0	10	30
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	7	0	0	11	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	55	0	46	39	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	55	0	46	39	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	100	100	99	
cM capacity (veh/h)	834	1091	949	852	1636	

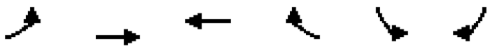
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	8	0	44
Volume Left	0	0	11
Volume Right	7	0	33
cSH	1051	1700	1636
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.2	0.0	0.2
Control Delay (s/veh)	8.5	0.0	1.8
Lane LOS	A	A	A
Approach Delay (s/veh)	8.5	0.0	1.8
Approach LOS	A	A	

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	68	581	731	15	10	46
Future Volume (vph)	68	581	731	15	10	46
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.997		0.889	
Flt Protected	0.950				0.991	
Satd. Flow (prot)	1662	3325	3315	0	1542	0
Flt Permitted	0.950				0.991	
Satd. Flow (perm)	1662	3325	3315	0	1542	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Confl. Peds. (#/hr)	1			1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	74	632	795	16	11	50
Shared Lane Traffic (%)						
Lane Group Flow (vph)	74	632	811	0	61	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

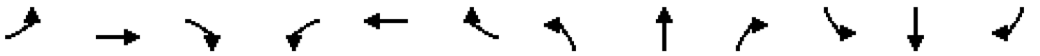
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 40.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	68	581	731	15	10	46
Future Volume (Veh/h)	68	581	731	15	10	46
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	74	632	795	16	11	50
Pedestrians		1			1	
Lane Width (m)		3.6			3.6	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	812				1268	408
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	812				1268	408
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				93	92
cM capacity (veh/h)	823				148	598

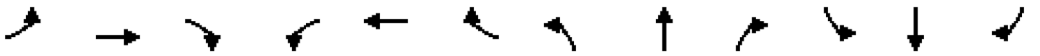
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	74	316	316	530	281	61
Volume Left	74	0	0	0	0	11
Volume Right	0	0	0	0	16	50
cSH	823	1700	1700	1700	1700	387
Volume to Capacity	0.09	0.19	0.19	0.31	0.17	0.16
Queue Length 95th (m)	2.4	0.0	0.0	0.0	0.0	4.4
Control Delay (s/veh)	9.8	0.0	0.0	0.0	0.0	16.1
Lane LOS	A					C
Approach Delay (s/veh)	1.0			0.0		16.1
Approach LOS						C

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	469	0	0	552	12	4	0	0	12	0	211
Future Volume (vph)	102	469	0	0	552	12	4	0	0	12	0	211
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.997						0.872	
Flt Protected		0.991						0.950			0.997	
Satd. Flow (prot)	0	1734	0	0	1745	0	0	1662	0	0	1521	0
Flt Permitted		0.991						0.950			0.997	
Satd. Flow (perm)	0	1734	0	0	1745	0	0	1662	0	0	1521	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	111	510	0	0	600	13	4	0	0	13	0	229
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	621	0	0	613	0	0	4	0	0	242	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 89.9%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	469	0	0	552	12	4	0	0	12	0	211
Future Volume (Veh/h)	102	469	0	0	552	12	4	0	0	12	0	211
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	111	510	0	0	600	13	4	0	0	13	0	229
Pedestrians		1									1	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	614			510			1569	1346	510	1340	1340	609
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	614			510			1569	1346	510	1340	1340	609
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 %	89			100			91	100	100	89	100	54
cM capacity (veh/h)	974			1065			45	135	567	119	136	498

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	621	613	4	242
Volume Left	111	0	4	13
Volume Right	0	13	0	229
cSH	974	1065	45	426
Volume to Capacity	0.11	0.00	0.09	0.57
Queue Length 95th (m)	3.1	0.0	2.2	27.5
Control Delay (s/veh)	2.9	0.0	93.1	24.0
Lane LOS	A		F	C
Approach Delay (s/veh)	2.9	0.0	93.1	24.0
Approach LOS			F	C

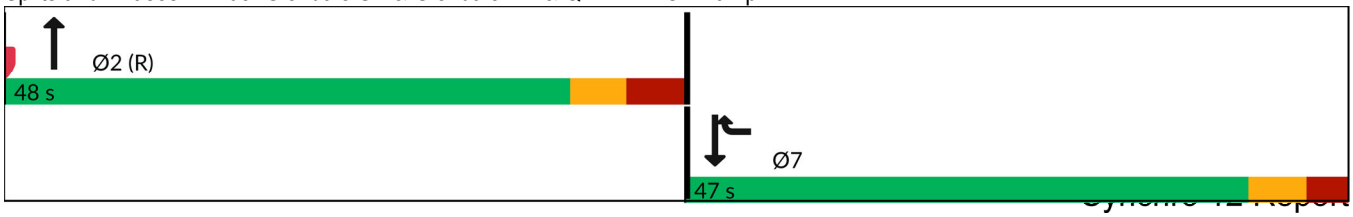
Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	268	447	1084
Future Volume (vph)	268	447	1084
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	291	486	1178
Shared Lane Traffic (%)			
Lane Group Flow (vph)	291	486	1178
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	44.2	39.8	44.2
Actuated g/C Ratio	0.47	0.42	0.47
v/c Ratio	0.42	0.38	0.83
Control Delay (s/veh)	18.3	21.2	27.7
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	18.3	21.2	27.7
LOS	B	C	C
Approach Delay (s/veh)		21.2	27.7
Approach LOS		C	C
Stops (vph)	168	304	896
Fuel Used(l)	9	17	47
CO Emissions (g/hr)	175	309	872
NOx Emissions (g/hr)	34	60	168
VOC Emissions (g/hr)	40	71	201
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay (s/veh): 24.7		Intersection LOS: C	
Intersection Capacity Utilization 40.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	291	486	1178
v/c Ratio	0.42	0.38	0.83
Control Delay (s/veh)	18.3	21.2	27.7
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	18.3	21.2	27.7
Queue Length 50th (m)	35.7	33.6	99.8
Queue Length 95th (m)	50.1	52.2	113.1
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	703	1362	1445
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.41	0.36	0.82

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	268	447	1084
Future Volume (vph)	268	447	1084
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	291	486	1178
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	291	486	1178
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	42.2	37.8	42.2
Effective Green, g (s)	44.2	39.8	44.2
Actuated g/C Ratio	0.47	0.42	0.47
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	690	1266	1419
v/s Ratio Prot	0.20	c0.16	c0.39
v/s Ratio Perm			
v/c Ratio	0.42	0.38	0.83
Uniform Delay, d1	16.9	19.1	22.1
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.9	4.3
Delay (s)	17.3	20.0	26.4
Level of Service	B	B	C
Approach Delay (s/veh)		20.0	26.4
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

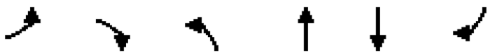
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	389	0	0	0	0	1084
Future Volume (vph)	389	0	0	0	0	1084
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	423	0	0	0	0	1178
Shared Lane Traffic (%)						
Lane Group Flow (vph)	423	0	0	0	0	1178
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 62.6%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	389	0	0	0	0	1084
Future Volume (Veh/h)	389	0	0	0	0	1084
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	423	0	0	0	0	1178
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	589	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	589	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	4	100			100	
cM capacity (veh/h)	439	1084			1622	

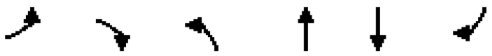
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	423	589	589
Volume Left	423	0	0
Volume Right	0	0	0
cSH	439	1700	1700
Volume to Capacity	0.96	0.35	0.35
Queue Length 95th (m)	92.9	0.0	0.0
Control Delay (s/veh)	65.0	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	65.0	0.0	
Approach LOS	F		

Intersection Summary			
Average Delay	17.2		
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	319	0	0	1190	0	0
Future Volume (vph)	319	0	0	1190	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	347	0	0	1293	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	347	0	0	1293	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 83.1%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	319	0	0	1190	0	0
Future Volume (Veh/h)	319	0	0	1190	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	347	0	0	1293	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	647	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	647	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	14	100	100			
cM capacity (veh/h)	404	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	347	647	647
Volume Left	347	0	0
Volume Right	0	0	0
cSH	404	1700	1700
Volume to Capacity	0.86	0.38	0.38
Queue Length 95th (m)	67.1	0.0	0.0
Control Delay (s/veh)	48.9	0.0	0.0
Lane LOS	E		
Approach Delay (s/veh)	48.9	0.0	
Approach LOS	E		

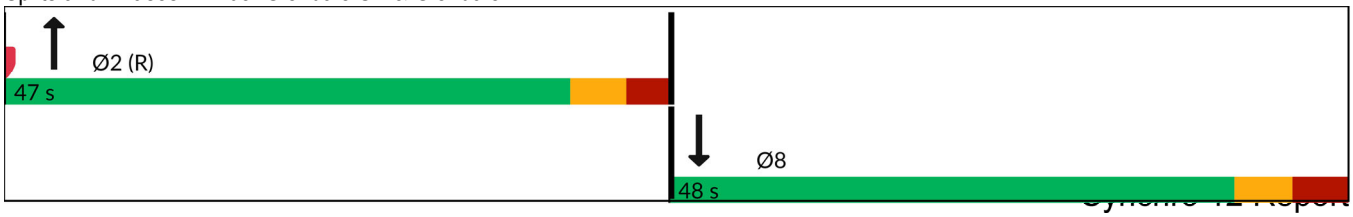
Intersection Summary			
Average Delay	10.3		
Intersection Capacity Utilization	83.1%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1190	0	0	575	0	0	0	0	0	0	0
Future Volume (vph)	0	1190	0	0	575	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1293	0	0	625	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1293	0	0	625	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		56.0			24.0							
Actuated g/C Ratio		0.59			0.25							
v/c Ratio		0.66			0.75							
Control Delay (s/veh)		16.0			38.2							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		16.0			38.2							
LOS		B			D							
Approach Delay (s/veh)		16.0			38.2							
Approach LOS		B			D							
Stops (vph)		779			508							
Fuel Used(l)		38			31							
CO Emissions (g/hr)		700			578							
NOx Emissions (g/hr)		135			112							
VOC Emissions (g/hr)		162			133							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay (s/veh): 23.2		Intersection LOS: C	
Intersection Capacity Utilization 41.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	1293	625
v/c Ratio	0.66	0.75
Control Delay (s/veh)	16.0	38.2
Queue Delay	0.0	0.0
Total Delay (s/veh)	16.0	38.2
Queue Length 50th (m)	81.0	58.7
Queue Length 95th (m)	124.1	71.2
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1961	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.66	0.45

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1190	0	0	575	0	0	0	0	0	0	0
Future Volume (vph)	0	1190	0	0	575	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1293	0	0	625	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1293	0	0	625	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		56.0			24.0							
Effective Green, g (s)		56.0			24.0							
Actuated g/C Ratio		0.59			0.25							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1960			840							
v/s Ratio Prot		c0.39			c0.19							
v/s Ratio Perm												
v/c Ratio		0.66			0.74							
Uniform Delay, d1		13.1			32.7							
Progression Factor		1.00			1.00							
Incremental Delay, d2		1.8			3.6							
Delay (s)		14.9			36.3							
Level of Service		B			D							
Approach Delay (s/veh)		14.9			36.3			0.0			0.0	
Approach LOS		B			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:44:23 PM

Summary of intersection performance

	PM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - BG (2034)						
Leg North	0.10	~1	6.62	0.09	A	8.68	A
Leg West	0.11	~1	4.36	0.09	A		
Leg South	0.73	~1	5.14	0.40	A		
Leg East	3.92	13.71	16.96	0.80	C		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM " model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:44:22 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - BG (2034), PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
BG (2034), PM	BG (2034)	PM		PHF	16:00	17:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				8.68	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	51.00	100.000
West	PHF	✓	651.00	100.000
South	PHF	✓	999.00	100.000
East	PHF	✓	779.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	51.00	0.92	SecondQuarter
West	651.00	0.92	SecondQuarter
South	999.00	0.92	SecondQuarter
East	779.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	10.000	39.000	2.000
	West	4.000	0.000	567.000	80.000
	South	37.000	439.000	0.000	523.000

	East	5.000	185.000	589.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.20	0.76	0.04
	West	0.01	0.00	0.87	0.12
	South	0.04	0.44	0.00	0.52
	East	0.01	0.24	0.76	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.097	1.061
	South	1.033	1.133	1.000	1.196
	East	1.000	1.079	1.048	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	9.7	6.1
	South	3.3	13.3	0.0	19.6
	East	0.0	7.9	4.8	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.09	6.62	0.10	~1	A	51.00	51.00	5.08	5.97	0.08	5.08	5.97
West	0.09	4.36	0.11	~1	A	651.00	84.00	5.85	4.18	0.10	5.85	4.18
South	0.40	5.14	0.73	~1	A	999.00	476.00	38.54	4.86	0.64	38.54	4.86
East	0.80	16.96	3.92	13.71	C	779.00	779.00	168.14	12.95	2.80	168.27	12.96

Main Results for each time segment

Main results: (16:00-16:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	48.04	48.04	12.01	0.00	0.00	47.75	43.08	1132.35	0.00	702.08	412.30	0.068	0.00	0.07	5.499	A
West	613.26	79.13	19.78	534.13	0.00	78.78	593.09	587.01	0.00	1017.71	804.76	0.078	0.00	0.09	4.055	A
South	941.09	448.41	112.10	492.68	534.13	446.09	585.14	80.65	0.00	1310.77	882.32	0.342	0.00	0.58	4.670	A
East	733.84	733.84	183.46	0.00	492.68	725.60	76.90	449.84	0.00	1097.10	824.61	0.669	0.00	2.06	10.014	B

Main results: (16:15-16:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	55.43	55.43	13.86	0.00	0.00	55.32	49.90	1310.53	0.00	598.96	412.30	0.093	0.07	0.10	6.620	A

West	707.61	91.30	22.83	616.30	0.00	91.22	686.78	679.07	0.00	964.43	804.76	0.095	0.09	0.11	4.361	A
South	1085.87	517.39	129.35	568.48	616.30	516.78	676.90	93.39	0.00	1303.40	882.32	0.397	0.58	0.73	5.141	A
East	846.74	846.74	211.68	0.00	568.48	839.31	89.04	521.12	0.00	1055.84	824.61	0.802	2.06	3.92	16.956	C

Main results: (16:30-16:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	52.48	52.48	13.12	0.00	0.00	52.52	47.37	1250.86	0.00	633.50	412.30	0.083	0.10	0.09	6.198	A
West	669.87	86.43	21.61	583.43	0.00	86.46	653.18	650.20	0.00	981.13	804.76	0.088	0.11	0.10	4.256	A
South	1027.96	489.80	122.45	538.16	583.43	490.01	648.14	88.52	0.00	1306.21	882.32	0.375	0.73	0.68	4.962	A
East	801.58	801.58	200.39	0.00	538.16	804.10	84.41	494.13	0.00	1071.46	824.61	0.748	3.92	3.29	14.366	B

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	48.04	48.04	12.01	0.00	0.00	48.11	43.39	1147.30	0.00	693.44	412.30	0.069	0.09	0.07	5.580	A
West	613.26	79.13	19.78	534.13	0.00	79.18	598.62	596.79	0.00	1012.05	804.76	0.078	0.10	0.09	4.084	A
South	941.09	448.41	112.10	492.68	534.13	448.77	594.90	81.07	0.00	1310.53	882.32	0.342	0.68	0.59	4.699	A
East	733.84	733.84	183.46	0.00	492.68	738.15	77.30	452.54	0.00	1095.53	824.61	0.670	3.29	2.21	10.755	B

Queueing Delay Results for each time segment

Queueing Delay results: (16:00-16:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.07	0.07	5.499	A	A
West	1.30	0.09	4.055	A	A
South	8.45	0.56	4.670	A	A
East	28.52	1.90	10.014	B	B

Queueing Delay results: (16:15-16:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.49	0.10	6.620	A	A
West	1.63	0.11	4.361	A	A
South	10.77	0.72	5.141	A	A
East	52.78	3.52	16.956	C	B

Queueing Delay results: (16:30-16:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.38	0.09	6.198	A	A
West	1.56	0.10	4.256	A	A
South	10.33	0.69	4.962	A	A
East	51.67	3.44	14.366	B	B

Queueing Delay results: (16:45-17:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.14	0.08	5.580	A	A
West	1.37	0.09	4.084	A	A
South	8.99	0.60	4.699	A	A
East	35.16	2.34	10.755	B	B

Queue Variation Results for each time segment

Queue Variation results: (16:00-16:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.09	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.58	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	2.06	0.00	0.00	4.22	6.33			N/A	N/A

Queue Variation results: (16:15-16:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.10	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.11	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.73	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	3.92	0.00	0.00	4.22	13.71			N/A	N/A

Queue Variation results: (16:30-16:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.09	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.10	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.68	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	3.29	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (16:45-17:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.09	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.59	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	2.21	0.00	0.00	4.22	7.38			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	15	10	0	16	16
Future Volume (vph)	0	15	10	0	16	16
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.932	
Flt Protected				0.950	0.976	
Satd. Flow (prot)	1514	0	0	1662	1592	0
Flt Permitted				0.950	0.976	
Satd. Flow (perm)	1514	0	0	1662	1592	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	16	11	0	17	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	11	34	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	15	10	0	16	16
Future Volume (Veh/h)	0	15	10	0	16	16
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	16	11	0	17	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	51	0	59	43	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	51	0	59	43	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	99	100	99	
cM capacity (veh/h)	836	1091	922	844	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	16	11	34
Volume Left	0	11	17
Volume Right	16	0	17
cSH	1091	922	1636
Volume to Capacity	0.01	0.01	0.01
Queue Length 95th (m)	0.4	0.3	0.3
Control Delay (s/veh)	8.3	9.0	3.6
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	9.0	3.6
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	17.3%	ICU Level of Service	A
Analysis Period (min)	15		

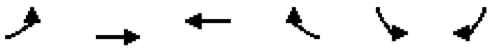
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	4	0	0	3	2
Future Volume (vph)	0	4	0	0	3	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.946	
Flt Protected					0.971	
Satd. Flow (prot)	1514	0	0	1750	1607	0
Flt Permitted					0.971	
Satd. Flow (perm)	1514	0	0	1750	1607	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	4	0	0	3	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	0	0	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	4	0	0	3	2
Future Volume (Veh/h)	0	4	0	0	3	2
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	4	0	0	3	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	8	0	11	7	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	8	0	11	7	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	100	100	100	
cM capacity (veh/h)	889	1091	1007	891	1636	

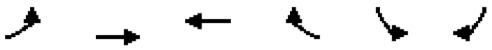
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	4	0	5
Volume Left	0	0	3
Volume Right	4	0	2
cSH	1091	1700	1636
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s/veh)	8.3	0.0	4.3
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	0.0	4.3
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	32	533	435	5	4	30
Future Volume (vph)	32	533	435	5	4	30
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.998		0.880	
Flt Protected	0.950				0.995	
Satd. Flow (prot)	1662	3325	3318	0	1532	0
Flt Permitted	0.950				0.995	
Satd. Flow (perm)	1662	3325	3318	0	1532	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	35	579	473	5	4	33
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	579	478	0	37	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	32	533	435	5	4	30
Future Volume (Veh/h)	32	533	435	5	4	30
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	35	579	473	5	4	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	478				835	239
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	478				835	239
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				99	96
cM capacity (veh/h)	1095				300	768

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	35	290	290	315	163	37
Volume Left	35	0	0	0	0	4
Volume Right	0	0	0	0	5	33
cSH	1095	1700	1700	1700	1700	658
Volume to Capacity	0.03	0.17	0.17	0.19	0.10	0.06
Queue Length 95th (m)	0.8	0.0	0.0	0.0	0.0	1.4
Control Delay (s/veh)	8.4	0.0	0.0	0.0	0.0	10.8
Lane LOS	A					B
Approach Delay (s/veh)	0.5			0.0		10.8
Approach LOS						B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	29.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	500	0	1	385	5	4	0	0	2	0	52
Future Volume (vph)	41	500	0	1	385	5	4	0	0	2	0	52
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.998						0.870	
Flt Protected		0.996						0.950			0.998	
Satd. Flow (prot)	0	1743	0	0	1746	0	0	1662	0	0	1519	0
Flt Permitted		0.996						0.950			0.998	
Satd. Flow (perm)	0	1743	0	0	1746	0	0	1662	0	0	1519	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	45	543	0	1	418	5	4	0	0	2	0	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	588	0	0	424	0	0	4	0	0	59	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.0%		ICU Level of Service C	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	500	0	1	385	5	4	0	0	2	0	52
Future Volume (Veh/h)	41	500	0	1	385	5	4	0	0	2	0	52
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	45	543	0	1	418	5	4	0	0	2	0	57
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	423			543			1113	1058	543	1056	1056	421
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	423			543			1113	1058	543	1056	1056	421
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 %	96			100			98	100	100	99	100	91
cM capacity (veh/h)	1147			1036			166	217	544	199	218	637

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	588	424	4	59
Volume Left	45	1	4	2
Volume Right	0	5	0	57
cSH	1147	1036	166	593
Volume to Capacity	0.04	0.00	0.02	0.10
Queue Length 95th (m)	1.0	0.0	0.6	2.6
Control Delay (s/veh)	1.1	0.0	27.3	11.7
Lane LOS	A	A	D	B
Approach Delay (s/veh)	1.1	0.0	27.3	11.7
Approach LOS			D	B

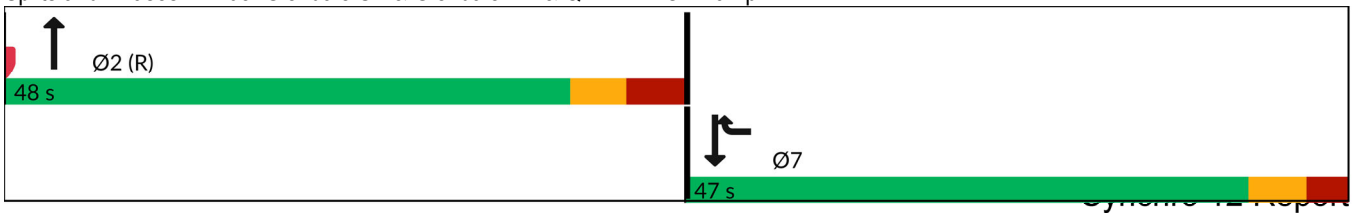
Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	200	623	579
Future Volume (vph)	200	623	579
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	217	677	629
Shared Lane Traffic (%)			
Lane Group Flow (vph)	217	677	629
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	28.4	55.6	28.4
Actuated g/C Ratio	0.30	0.59	0.30
v/c Ratio	0.49	0.38	0.69
Control Delay (s/veh)	30.3	12.2	33.1
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	30.3	12.2	33.1
LOS	C	B	C
Approach Delay (s/veh)		12.2	33.1
Approach LOS		B	C
Stops (vph)	156	324	488
Fuel Used(l)	10	17	28
CO Emissions (g/hr)	177	309	515
NOx Emissions (g/hr)	34	60	99
VOC Emissions (g/hr)	41	71	119
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay (s/veh): 23.4		Intersection LOS: C	
Intersection Capacity Utilization 41.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	217	677	629
v/c Ratio	0.49	0.38	0.69
Control Delay (s/veh)	30.3	12.2	33.1
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	30.3	12.2	33.1
Queue Length 50th (m)	34.4	33.9	56.4
Queue Length 95th (m)	50.2	55.8	67.2
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	656	1769	1348
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.33	0.38	0.47

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	200	623	579
Future Volume (vph)	200	623	579
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	217	677	629
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	217	677	629
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	26.4	53.6	26.4
Effective Green, g (s)	28.4	55.6	28.4
Actuated g/C Ratio	0.30	0.59	0.30
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	443	1769	911
v/s Ratio Prot	0.15	c0.22	c0.21
v/s Ratio Perm			
v/c Ratio	0.49	0.38	0.69
Uniform Delay, d1	27.4	10.5	29.4
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.6	2.3
Delay (s)	28.2	11.2	31.7
Level of Service	C	B	C
Approach Delay (s/veh)		11.2	31.7
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	41.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

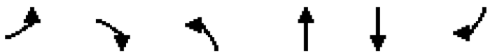
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	595	0	0	0	0	579
Future Volume (vph)	595	0	0	0	0	579
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	647	0	0	0	0	629
Shared Lane Traffic (%)						
Lane Group Flow (vph)	647	0	0	0	0	629
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 59.8%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	595	0	0	0	0	579
Future Volume (Veh/h)	595	0	0	0	0	579
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	647	0	0	0	0	629
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	315	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	315	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	1	100			100	
cM capacity (veh/h)	654	1084			1622	

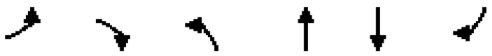
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	647	315	315
Volume Left	647	0	0
Volume Right	0	0	0
cSH	654	1700	1700
Volume to Capacity	0.99	0.19	0.19
Queue Length 95th (m)	121.4	0.0	0.0
Control Delay (s/veh)	57.8	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	57.8	0.0	
Approach LOS	F		

Intersection Summary			
Average Delay	29.3		
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	462	0	0	1409	0	0
Future Volume (vph)	462	0	0	1409	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	502	0	0	1532	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	502	0	0	1532	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	123.7%	ICU Level of Service	H
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	462	0	0	1409	0	0
Future Volume (Veh/h)	462	0	0	1409	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	502	0	0	1532	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	766	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	766	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	100	100			
cM capacity (veh/h)	339	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	502	766	766
Volume Left	502	0	0
Volume Right	0	0	0
cSH	339	1700	1700
Volume to Capacity	1.48	0.45	0.45
Queue Length 95th (m)	218.2	0.0	0.0
Control Delay (s/veh)	260.8	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	260.8	0.0	
Approach LOS	F		

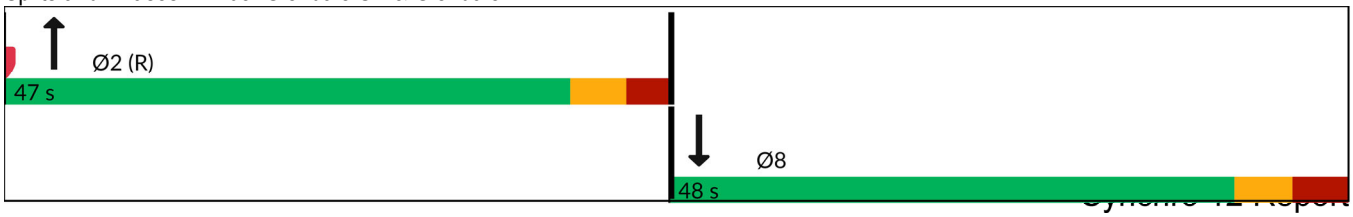
Intersection Summary			
Average Delay	64.4		
Intersection Capacity Utilization	123.7%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1409	0	0	686	0	0	0	0	0	0	0
Future Volume (vph)	0	1409	0	0	686	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1532	0	0	746	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1532	0	0	746	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		52.3			27.7							
Actuated g/C Ratio		0.55			0.29							
v/c Ratio		0.84			0.77							
Control Delay (s/veh)		24.5			36.0							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		24.5			36.0							
LOS		C			D							
Approach Delay (s/veh)		24.5			36.0							
Approach LOS		C			D							
Stops (vph)		1068			599							
Fuel Used(l)		57			36							
CO Emissions (g/hr)		1062			666							
NOx Emissions (g/hr)		205			128							
VOC Emissions (g/hr)		245			154							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay (s/veh): 28.3		Intersection LOS: C	
Intersection Capacity Utilization 48.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	1532	746
v/c Ratio	0.84	0.77
Control Delay (s/veh)	24.5	36.0
Queue Delay	0.0	0.0
Total Delay (s/veh)	24.5	36.0
Queue Length 50th (m)	123.2	68.6
Queue Length 95th (m)	#200.3	81.0
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1830	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.84	0.53

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	1409	0	0	686	0	0	0	0	0	0	0
Future Volume (vph)	0	1409	0	0	686	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1532	0	0	746	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1532	0	0	746	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		52.3			27.7							
Effective Green, g (s)		52.3			27.7							
Actuated g/C Ratio		0.55			0.29							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1830			969							
v/s Ratio Prot		c0.46			c0.22							
v/s Ratio Perm												
v/c Ratio		0.84			0.77							
Uniform Delay, d1		17.8			30.7							
Progression Factor		1.00			1.00							
Incremental Delay, d2		4.7			3.7							
Delay (s)		22.5			34.5							
Level of Service		C			C							
Approach Delay (s/veh)		22.5			34.5			0.0			0.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	26.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:44:48 PM

Summary of intersection performance

	Sat						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - BG (2034)						
Leg North	0.06	~1	5.45	0.06	A	5.66	A
Leg West	0.11	~1	3.44	0.10	A		
Leg South	1.05	?	5.82	0.51	A		
Leg East	1.07	?	7.76	0.52	A		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat " model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:44:47 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - BG (2034), Sat

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
BG (2034), Sat	BG (2034)	Sat		PHF	12:00	13:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				5.66	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	37.00	100.000
West	PHF	✓	516.00	100.000
South	PHF	✓	1065.00	100.000
East	PHF	✓	464.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	37.00	0.92	SecondQuarter
West	516.00	0.92	SecondQuarter
South	1065.00	0.92	SecondQuarter
East	464.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	12.000	20.000	5.000
	West	9.000	0.000	405.000	102.000
	South	15.000	588.000	0.000	462.000

	East	5.000	179.000	280.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.32	0.54	0.14
	West	0.02	0.00	0.78	0.20
	South	0.01	0.55	0.00	0.43
	East	0.01	0.39	0.60	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.036	1.000
	South	1.000	1.021	1.000	1.029
	East	1.000	1.007	1.022	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	3.6	0.0
	South	0.0	2.1	0.0	2.9
	East	0.0	0.7	2.2	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.06	5.45	0.06	~1	A	37.00	37.00	3.11	5.04	0.05	3.11	5.04
West	0.10	3.44	0.11	~1	A	516.00	111.00	6.21	3.36	0.10	6.21	3.36
South	0.51	5.82	1.05	?	A	1065.00	603.00	53.70	5.34	0.90	53.72	5.35
East	0.52	7.76	1.07	?	A	464.00	464.00	52.69	6.81	0.88	52.71	6.82

Main Results for each time segment

Main results: (12:00-12:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	34.86	34.86	8.71	0.00	0.00	34.67	27.18	980.27	0.00	790.10	416.78	0.044	0.00	0.05	4.764	A
West	486.09	104.57	26.14	381.52	0.00	104.18	729.55	285.40	0.00	1192.27	897.85	0.088	0.00	0.10	3.308	A
South	1003.26	568.04	142.01	435.22	381.52	564.88	280.71	108.87	0.00	1294.44	805.21	0.439	0.00	0.79	5.015	A
East	437.10	437.10	109.28	0.00	435.22	434.12	100.42	573.33	0.00	1025.62	849.29	0.426	0.00	0.75	6.153	A

Main results: (12:15-12:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	40.22	40.22	10.05	0.00	0.00	40.16	31.48	1135.73	0.00	700.13	416.78	0.057	0.05	0.06	5.454	A

West	560.87	120.65	30.16	440.22	0.00	120.58	845.20	330.69	0.00	1166.06	897.85	0.103	0.10	0.11	3.442	A
South	1157.61	655.43	163.86	502.17	440.22	654.40	325.26	126.00	0.00	1284.52	805.21	0.510	0.79	1.05	5.820	A
East	504.35	504.35	126.09	0.00	502.17	503.03	116.23	664.17	0.00	973.05	849.29	0.518	0.75	1.07	7.758	A

Main results: (12:30-12:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	38.07	38.07	9.52	0.00	0.00	38.09	29.86	1078.18	0.00	733.44	416.78	0.052	0.06	0.06	5.179	A
West	530.96	114.22	28.55	416.74	0.00	114.24	802.13	314.15	0.00	1175.63	897.85	0.097	0.11	0.11	3.391	A
South	1095.87	620.48	155.12	475.39	416.74	620.85	309.00	119.39	0.00	1288.35	805.21	0.482	1.05	0.96	5.506	A
East	477.45	477.45	119.36	0.00	475.39	477.93	110.13	630.11	0.00	992.76	849.29	0.481	1.07	0.95	7.110	A

Main results: (12:45-13:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	34.86	34.86	8.71	0.00	0.00	34.89	27.35	987.64	0.00	785.84	416.78	0.044	0.06	0.05	4.795	A
West	486.09	104.57	26.14	381.52	0.00	104.61	734.74	287.80	0.00	1190.88	897.85	0.088	0.11	0.10	3.313	A
South	1003.26	568.04	142.01	435.22	381.52	568.65	283.08	109.33	0.00	1294.17	805.21	0.439	0.96	0.81	5.069	A
East	437.10	437.10	109.28	0.00	435.22	437.85	100.84	577.13	0.00	1023.42	849.29	0.427	0.95	0.77	6.255	A

Queueing Delay Results for each time segment

Queueing Delay results: (12:00-12:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.67	0.04	4.764	A	A
West	1.41	0.09	3.308	A	A
South	11.44	0.76	5.015	A	A
East	10.74	0.72	6.153	A	A

Queueing Delay results: (12:15-12:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.89	0.06	5.454	A	A
West	1.70	0.11	3.442	A	A
South	15.31	1.02	5.820	A	A
East	15.54	1.04	7.758	A	A

Queueing Delay results: (12:30-12:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.84	0.06	5.179	A	A
West	1.63	0.11	3.391	A	A
South	14.61	0.97	5.506	A	A
East	14.62	0.97	7.110	A	A

Queueing Delay results: (12:45-13:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.71	0.05	4.795	A	A
West	1.46	0.10	3.313	A	A
South	12.34	0.82	5.069	A	A
East	11.79	0.79	6.255	A	A

Queue Variation Results for each time segment

Queue Variation results: (12:00-12:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.10	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.79	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.75	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:15-12:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.11	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.05	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.07	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:30-12:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.11	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.96	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.95	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:45-13:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.10	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.81	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.77	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	17	25	1	11	13
Future Volume (vph)	0	17	25	1	11	13
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.927	
Flt Protected				0.954	0.977	
Satd. Flow (prot)	1514	0	0	1669	1585	0
Flt Permitted				0.954	0.977	
Satd. Flow (perm)	1514	0	0	1669	1585	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	0	18	27	1	12	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	0	28	26	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	17	25	1	11	13
Future Volume (Veh/h)	0	17	25	1	11	13
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	18	27	1	12	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	38	0	49	31	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	38	0	49	31	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	97	100	99	
cM capacity (veh/h)	852	1091	935	857	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	18	28	26
Volume Left	0	27	12
Volume Right	18	0	14
cSH	1091	932	1636
Volume to Capacity	0.02	0.03	0.01
Queue Length 95th (m)	0.4	0.7	0.2
Control Delay (s/veh)	8.4	9.0	3.4
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.0	3.4
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.8		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

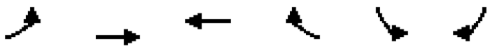
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	48	11	3	1
Future Volume (vph)	0	0	48	11	3	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.966	
Flt Protected				0.961	0.964	
Satd. Flow (prot)	1750	0	0	1665	1626	0
Flt Permitted				0.961	0.964	
Satd. Flow (perm)	1750	0	0	1665	1626	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	1%	0%	1%
Adj. Flow (vph)	0	0	52	12	3	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	64	4	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	48	11	3	1
Future Volume (Veh/h)	0	0	48	11	3	1
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	52	12	3	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	7	0	7	7	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	7	0	7	7	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	95	99	100	
cM capacity (veh/h)	891	1091	1015	889	1636	

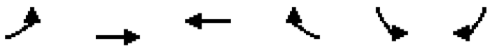
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	0	64	4
Volume Left	0	52	3
Volume Right	0	0	1
cSH	1700	988	1636
Volume to Capacity	0.00	0.06	0.00
Queue Length 95th (m)	0.0	1.7	0.0
Control Delay (s/veh)	0.0	8.9	5.4
Lane LOS	A	A	A
Approach Delay (s/veh)	0.0	8.9	5.4
Approach LOS	A	A	

Intersection Summary			
Average Delay	8.7		
Intersection Capacity Utilization	13.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	81	680	577	11	5	78
Future Volume (vph)	81	680	577	11	5	78
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.997		0.872	
Flt Protected	0.950				0.997	
Satd. Flow (prot)	1662	3325	3315	0	1521	0
Flt Permitted	0.950				0.997	
Satd. Flow (perm)	1662	3325	3315	0	1521	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	88	739	627	12	5	85
Shared Lane Traffic (%)						
Lane Group Flow (vph)	88	739	639	0	90	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.1%		ICU Level of Service A	
Analysis Period (min) 15			



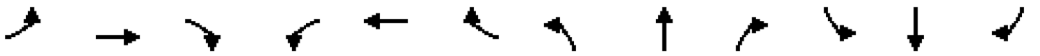
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	81	680	577	11	5	78
Future Volume (Veh/h)	81	680	577	11	5	78
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	88	739	627	12	5	85
Pedestrians						
Lane 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	639				1179	320
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	639				1179	320
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				97	88
cM capacity (veh/h)	955				169	682

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	88	370	370	418	221	90
Volume Left	88	0	0	0	0	5
Volume Right	0	0	0	0	12	85
cSH	955	1700	1700	1700	1700	584
Volume to Capacity	0.09	0.22	0.22	0.25	0.13	0.15
Queue Length 95th (m)	2.4	0.0	0.0	0.0	0.0	4.3
Control Delay (s/veh)	9.2	0.0	0.0	0.0	0.0	12.3
Lane LOS	A					B
Approach Delay (s/veh)	1.0			0.0		12.3
Approach LOS						B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	38.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	167	517	7	1	511	15	9	0	3	4	0	74
Future Volume (vph)	167	517	7	1	511	15	9	0	3	4	0	74
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.996			0.969			0.871	
Flt Protected		0.988						0.963			0.998	
Satd. Flow (prot)	0	1727	0	0	1743	0	0	1633	0	0	1521	0
Flt Permitted		0.988						0.963			0.998	
Satd. Flow (perm)	0	1727	0	0	1743	0	0	1633	0	0	1521	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	182	562	8	1	555	16	10	0	3	4	0	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	752	0	0	572	0	0	13	0	0	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 85.4%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	167	517	7	1	511	15	9	0	3	4	0	74
Future Volume (Veh/h)	167	517	7	1	511	15	9	0	3	4	0	74
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	182	562	8	1	555	16	10	0	3	4	0	80
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	571			570			1575	1503	566	1498	1499	563
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	571			570			1575	1503	566	1498	1499	563
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 %	82			100			85	100	99	95	100	85
cM capacity (veh/h)	1012			1013			66	101	528	87	101	530

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	752	572	13	84
Volume Left	182	1	10	4
Volume Right	8	16	3	80
cSH	1012	1013	82	426
Volume to Capacity	0.18	0.00	0.16	0.20
Queue Length 95th (m)	5.2	0.0	4.2	5.8
Control Delay (s/veh)	4.2	0.0	56.7	15.5
Lane LOS	A	A	F	C
Approach Delay (s/veh)	4.2	0.0	56.7	15.5
Approach LOS			F	C

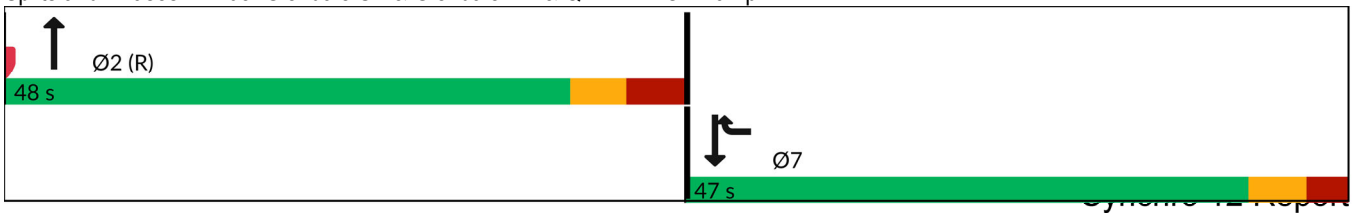
Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	378	607	649
Future Volume (vph)	378	607	649
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	411	660	705
Shared Lane Traffic (%)			
Lane Group Flow (vph)	411	660	705
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	35.1	48.9	35.1
Actuated g/C Ratio	0.37	0.51	0.37
v/c Ratio	0.75	0.42	0.63
Control Delay (s/veh)	34.3	16.8	26.4
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	34.3	16.8	26.4
LOS	C	B	C
Approach Delay (s/veh)		16.8	26.4
Approach LOS		B	C
Stops (vph)	313	372	499
Fuel Used(l)	20	20	27
CO Emissions (g/hr)	365	365	494
NOx Emissions (g/hr)	70	70	95
VOC Emissions (g/hr)	84	84	114
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay (s/veh): 24.7		Intersection LOS: C	
Intersection Capacity Utilization 52.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	411	660	705
v/c Ratio	0.75	0.42	0.63
Control Delay (s/veh)	34.3	16.8	26.4
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	34.3	16.8	26.4
Queue Length 50th (m)	67.5	40.0	57.3
Queue Length 95th (m)	87.7	65.8	64.2
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	663	1570	1363
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.62	0.42	0.52

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	378	607	649
Future Volume (vph)	378	607	649
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	411	660	705
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	411	660	705
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	33.1	46.9	33.1
Effective Green, g (s)	35.1	48.9	35.1
Actuated g/C Ratio	0.37	0.51	0.37
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	548	1556	1126
v/s Ratio Prot	c0.28	c0.22	0.23
v/s Ratio Perm			
v/c Ratio	0.75	0.42	0.63
Uniform Delay, d1	26.1	14.3	24.6
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	5.7	0.8	1.1
Delay (s)	31.8	15.2	25.7
Level of Service	C	B	C
Approach Delay (s/veh)		15.2	25.7
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

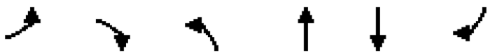
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	300	0	0	0	0	649
Future Volume (vph)	300	0	0	0	0	649
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	326	0	0	0	0	705
Shared Lane Traffic (%)						
Lane Group Flow (vph)	326	0	0	0	0	705
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	300	0	0	0	0	649
Future Volume (Veh/h)	300	0	0	0	0	649
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	326	0	0	0	0	705
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	353	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	353	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	47	100			100	
cM capacity (veh/h)	619	1084			1622	

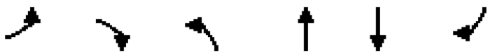
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	326	353	353
Volume Left	326	0	0
Volume Right	0	0	0
cSH	619	1700	1700
Volume to Capacity	0.53	0.21	0.21
Queue Length 95th (m)	24.6	0.0	0.0
Control Delay (s/veh)	17.1	0.0	0.0
Lane LOS	C		
Approach Delay (s/veh)	17.1	0.0	
Approach LOS	C		

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	450	0	0	633	0	0
Future Volume (vph)	450	0	0	633	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	489	0	0	688	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	489	0	0	688	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 81.8%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	450	0	0	633	0	0
Future Volume (Veh/h)	450	0	0	633	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	489	0	0	688	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	344	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	344	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	22	100	100			
cM capacity (veh/h)	626	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	489	344	344
Volume Left	489	0	0
Volume Right	0	0	0
cSH	626	1700	1700
Volume to Capacity	0.78	0.20	0.20
Queue Length 95th (m)	59.6	0.0	0.0
Control Delay (s/veh)	28.1	0.0	0.0
Lane LOS	D		
Approach Delay (s/veh)	28.1	0.0	
Approach LOS	D		

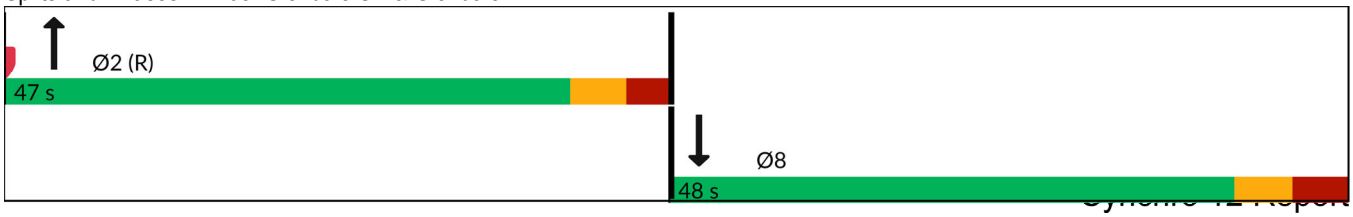
Intersection Summary			
Average Delay	11.7		
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	633	0	0	428	0	0	0	0	0	0	0
Future Volume (vph)	0	633	0	0	428	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	688	0	0	465	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	688	0	0	465	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		61.1			18.9							
Actuated g/C Ratio		0.64			0.20							
v/c Ratio		0.32			0.70							
Control Delay (s/veh)		8.6			41.1							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		8.6			41.1							
LOS		A			D							
Approach Delay (s/veh)		8.6			41.1							
Approach LOS		A			D							
Stops (vph)		272			382							
Fuel Used(l)		13			24							
CO Emissions (g/hr)		246			450							
NOx Emissions (g/hr)		48			87							
VOC Emissions (g/hr)		57			104							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay (s/veh): 21.7		Intersection LOS: C	
Intersection Capacity Utilization 24.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	688	465
v/c Ratio	0.32	0.70
Control Delay (s/veh)	8.6	41.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	8.6	41.1
Queue Length 50th (m)	28.3	44.3
Queue Length 95th (m)	44.6	57.3
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	2138	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.32	0.33

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	633	0	0	428	0	0	0	0	0	0	0
Future Volume (vph)	0	633	0	0	428	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	688	0	0	465	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	688	0	0	465	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		61.1			18.9							
Effective Green, g (s)		61.1			18.9							
Actuated g/C Ratio		0.64			0.20							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		2138			661							
v/s Ratio Prot		c0.21			c0.14							
v/s Ratio Perm												
v/c Ratio		0.32			0.70							
Uniform Delay, d1		7.6			35.4							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.4			3.4							
Delay (s)		8.0			38.8							
Level of Service		A			D							
Approach Delay (s/veh)		8.0			38.8			0.0			0.0	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	24.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:46:56 PM

Summary of intersection performance

	AM						
	Queue (PCE)	**95% Queue (PCE)**	**Delay (s)**	**V/C Ratio**	**LOS**	**Intersection Delay (s)**	**Intersection LOS**
	A1 - BG (2039)						
Leg North	0.12	~1	8.64	0.10	A	9.09	A
Leg West	0.19	~1	4.24	0.15	A		
Leg South	1.53	1.12	7.59	0.58	A		
Leg East	3.05	9.10	16.22	0.74	C		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM " model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:46:54 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - BG (2039), AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
BG (2039), AM	BG (2039)	AM		PHF	08:00	09:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				9.09	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	48.00	100.000
West	PHF	✓	532.00	100.000
South	PHF	✓	1271.00	100.000
East	PHF	✓	634.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	48.00	0.92	SecondQuarter
West	532.00	0.92	SecondQuarter
South	1271.00	0.92	SecondQuarter
East	634.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	17.000	27.000	4.000
	West	3.000	0.000	386.000	143.000
	South	19.000	658.000	0.000	594.000

	East	0.000	166.000	467.000	1.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.35	0.56	0.08
	West	0.01	0.00	0.73	0.27
	South	0.01	0.52	0.00	0.47
	East	0.00	0.26	0.74	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.154	1.200	1.333
	West	1.000	1.000	1.139	1.047
	South	1.071	1.119	1.000	1.095
	East	1.000	1.057	1.170	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	15.4	20.0	33.3
	West	0.0	0.0	13.9	4.7
	South	7.1	11.9	0.0	9.5
	East	0.0	5.7	17.0	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.10	8.64	0.12	~1	A	48.00	48.00	6.14	7.68	0.10	6.14	7.68
West	0.15	4.24	0.19	~1	A	532.00	146.00	9.91	4.07	0.17	9.91	4.07
South	0.58	7.59	1.53	1.12	A	1271.00	677.00	76.60	6.79	1.28	76.63	6.79
East	0.74	16.22	3.05	9.10	C	634.00	634.00	133.88	12.67	2.23	133.98	12.68

Main Results for each time segment

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	45.22	45.22	11.30	0.00	0.00	44.87	20.59	1206.08	0.00	659.42	384.78	0.069	0.00	0.09	6.986	A
West	501.16	137.54	34.38	363.62	0.00	136.93	786.07	464.87	0.00	1088.40	847.57	0.126	0.00	0.15	3.955	A
South	1197.32	637.75	159.44	559.57	363.62	633.34	460.20	141.60	0.00	1275.49	847.57	0.500	0.00	1.10	6.224	A
East	597.25	597.25	149.31	0.00	559.57	590.51	138.79	636.16	0.00	989.26	856.83	0.604	0.00	1.69	10.111	B

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	52.17	52.17	13.04	0.00	0.00	52.03	23.86	1397.24	0.00	548.78	384.78	0.095	0.09	0.12	8.643	A

West	578.26	158.70	39.67	419.57	0.00	158.55	910.98	538.28	0.00	1045.91	847.57	0.152	0.15	0.19	4.243	A
South	1381.52	735.87	183.97	645.65	419.57	734.15	532.86	163.97	0.00	1262.55	847.57	0.583	1.10	1.53	7.587	A
East	689.13	689.13	172.28	0.00	645.65	683.69	160.71	737.41	0.00	930.66	856.83	0.740	1.69	3.05	16.223	C

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	49.39	49.39	12.35	0.00	0.00	49.44	22.66	1331.91	0.00	586.59	384.78	0.084	0.12	0.11	7.996	A
West	547.42	150.23	37.56	397.19	0.00	150.28	866.46	514.89	0.00	1059.45	847.57	0.142	0.19	0.17	4.141	A
South	1307.84	696.62	174.16	611.22	397.19	697.21	509.74	155.43	0.00	1267.49	847.57	0.550	1.53	1.38	7.063	A
East	652.38	652.38	163.09	0.00	611.22	654.26	152.35	700.30	0.00	952.14	856.83	0.685	3.05	2.57	13.855	B

Main results: (08:45-09:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	45.22	45.22	11.30	0.00	0.00	45.30	20.75	1221.19	0.00	650.67	384.78	0.069	0.11	0.09	7.097	A
West	501.16	137.54	34.38	363.62	0.00	137.62	794.07	472.43	0.00	1084.02	847.57	0.127	0.17	0.15	3.980	A
South	1197.32	637.75	159.44	559.57	363.62	638.76	467.70	142.34	0.00	1275.06	847.57	0.500	1.38	1.13	6.335	A
East	597.25	597.25	149.31	0.00	559.57	600.36	139.51	641.59	0.00	986.12	856.83	0.606	2.57	1.80	10.706	B

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-08:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.27	0.08	6.986	A	A
West	2.21	0.15	3.955	A	A
South	15.82	1.05	6.224	A	A
East	23.51	1.57	10.111	B	B

Queueing Delay results: (08:15-08:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.81	0.12	8.643	A	A
West	2.75	0.18	4.243	A	A
South	22.13	1.48	7.587	A	A
East	41.74	2.78	16.223	C	B

Queueing Delay results: (08:30-08:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.69	0.11	7.996	A	A
West	2.63	0.18	4.141	A	A
South	21.20	1.41	7.063	A	A
East	40.26	2.68	13.855	B	B

Queueing Delay results: (08:45-09:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.37	0.09	7.097	A	A
West	2.32	0.15	3.980	A	A
South	17.45	1.16	6.335	A	A
East	28.37	1.89	10.706	B	B

Queue Variation Results for each time segment

Queue Variation results: (08:00-08:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.09	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.15	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	1.10	0.00	0.00	1.12	1.12			N/A	N/A
East	1.69	0.00	0.00	2.28	4.55			N/A	N/A

Queue Variation results: (08:15-08:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.12	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.19	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.53	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	3.05	0.00	0.00	2.28	9.10			N/A	N/A

Queue Variation results: (08:30-08:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.11	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.17	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.38	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	2.57	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:45-09:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.09	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.15	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.13	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.80	0.00	0.00	3.41	5.69			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	23	25	0	16	23
Future Volume (vph)	0	23	25	0	16	23
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.865				0.920	
Flt Protected				0.950	0.980	
Satd. Flow (prot)	1514	0	0	1662	1578	0
Flt Permitted				0.950	0.980	
Satd. Flow (perm)	1514	0	0	1662	1578	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	25	27	0	17	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	0	0	27	42	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	23	25	0	16	23
Future Volume (Veh/h)	0	23	25	0	16	23
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	25	27	0	17	25
Pedestrians					1	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	59	1	73	47	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	59	1	73	47	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	97	100	99	
cM capacity (veh/h)	827	1089	894	840	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	25	27	42
Volume Left	0	27	17
Volume Right	25	0	25
cSH	1089	894	1636
Volume to Capacity	0.02	0.03	0.01
Queue Length 95th (m)	0.6	0.7	0.3
Control Delay (s/veh)	8.4	9.2	3.0
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.2	3.0
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

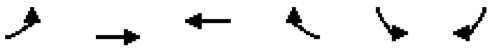
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1	6	0	0	10	34
Future Volume (vph)	1	6	0	0	10	34
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.882				0.896	
Flt Protected					0.989	
Satd. Flow (prot)	1544	0	0	1750	1539	0
Flt Permitted					0.989	
Satd. Flow (perm)	1544	0	0	1750	1539	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	1	7	0	0	11	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	0	48	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1	6	0	0	10	34
Future Volume (Veh/h)	1	6	0	0	10	34
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	7	0	0	11	37
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	59	0	48	41	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	59	0	48	41	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	100	100	99	
cM capacity (veh/h)	830	1091	946	850	1636	

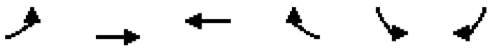
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	8	0	48
Volume Left	0	0	11
Volume Right	7	0	37
cSH	1050	1700	1636
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.2	0.0	0.2
Control Delay (s/veh)	8.5	0.0	1.7
Lane LOS	A	A	A
Approach Delay (s/veh)	8.5	0.0	1.7
Approach LOS	A	A	

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	75	642	808	16	11	51
Future Volume (vph)	75	642	808	16	11	51
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.997		0.889	
Flt Protected	0.950				0.991	
Satd. Flow (prot)	1662	3325	3315	0	1542	0
Flt Permitted	0.950				0.991	
Satd. Flow (perm)	1662	3325	3315	0	1542	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Confl. Peds. (#/hr)	1			1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	82	698	878	17	12	55
Shared Lane Traffic (%)						
Lane Group Flow (vph)	82	698	895	0	67	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

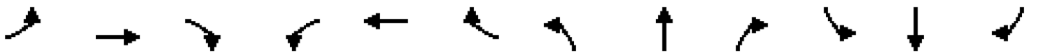
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	75	642	808	16	11	51
Future Volume (Veh/h)	75	642	808	16	11	51
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	82	698	878	17	12	55
Pedestrians		1			1	
Lane Width (m)		3.6			3.6	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	896				1401	450
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	896				1401	450
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				90	90
cM capacity (veh/h)	765				119	561

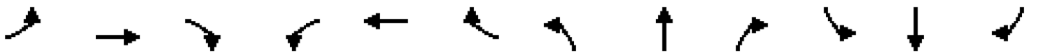
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	82	349	349	585	310	67
Volume Left	82	0	0	0	0	12
Volume Right	0	0	0	0	17	55
cSH	765	1700	1700	1700	1700	337
Volume to Capacity	0.11	0.21	0.21	0.34	0.18	0.20
Queue Length 95th (m)	2.9	0.0	0.0	0.0	0.0	5.8
Control Delay (s/veh)	10.3	0.0	0.0	0.0	0.0	18.3
Lane LOS	B					C
Approach Delay (s/veh)	1.1			0.0		18.3
Approach LOS						C

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	518	0	0	610	13	4	0	0	13	0	233
Future Volume (vph)	113	518	0	0	610	13	4	0	0	13	0	233
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.997						0.872	
Flt Protected		0.991						0.950			0.997	
Satd. Flow (prot)	0	1734	0	0	1745	0	0	1662	0	0	1521	0
Flt Permitted		0.991						0.950			0.997	
Satd. Flow (perm)	0	1734	0	0	1745	0	0	1662	0	0	1521	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	123	563	0	0	663	14	4	0	0	14	0	253
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	686	0	0	677	0	0	4	0	0	267	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 98.2%		ICU Level of Service F	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	518	0	0	610	13	4	0	0	13	0	233
Future Volume (Veh/h)	113	518	0	0	610	13	4	0	0	13	0	233
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	123	563	0	0	663	14	4	0	0	14	0	253
Pedestrians		1									1	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	678			563			1733	1487	563	1480	1480	672
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	678			563			1733	1487	563	1480	1480	672
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 %	87			100			86	100	100	85	100	45
cM capacity (veh/h)	923			1019			28	109	530	94	110	459

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	686	677	4	267
Volume Left	123	0	4	14
Volume Right	0	14	0	253
cSH	923	1019	28	381
Volume to Capacity	0.13	0.00	0.14	0.70
Queue Length 95th (m)	3.7	0.0	3.5	41.3
Control Delay (s/veh)	3.3	0.0	153.8	33.8
Lane LOS	A		F	D
Approach Delay (s/veh)	3.3	0.0	153.8	33.8
Approach LOS			F	D

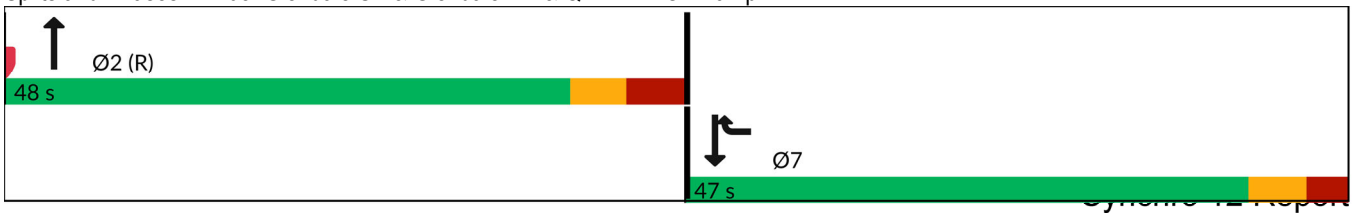
Intersection Summary			
Average Delay	7.3		
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	296	494	1196
Future Volume (vph)	296	494	1196
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	322	537	1300
Shared Lane Traffic (%)			
Lane Group Flow (vph)	322	537	1300
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	48.2	35.8	48.2
Actuated g/C Ratio	0.51	0.38	0.51
v/c Ratio	0.43	0.47	0.84
Control Delay (s/veh)	16.2	24.9	25.7
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	16.2	24.9	25.7
LOS	B	C	C
Approach Delay (s/veh)		24.9	25.7
Approach LOS		C	C
Stops (vph)	176	368	973
Fuel Used(l)	10	20	50
CO Emissions (g/hr)	180	381	921
NOx Emissions (g/hr)	35	74	178
VOC Emissions (g/hr)	42	88	212
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay (s/veh): 24.1		Intersection LOS: C	
Intersection Capacity Utilization 43.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	322	537	1300
v/c Ratio	0.43	0.47	0.84
Control Delay (s/veh)	16.2	24.9	25.7
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	16.2	24.9	25.7
Queue Length 50th (m)	38.3	39.7	111.0
Queue Length 95th (m)	51.4	62.0	121.7
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	752	1336	1547
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.43	0.40	0.84

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	296	494	1196
Future Volume (vph)	296	494	1196
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	322	537	1300
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	322	537	1300
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	46.2	33.8	46.2
Effective Green, g (s)	48.2	35.8	48.2
Actuated g/C Ratio	0.51	0.38	0.51
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	752	1139	1547
v/s Ratio Prot	0.22	c0.18	c0.43
v/s Ratio Perm			
v/c Ratio	0.43	0.47	0.84
Uniform Delay, d1	14.7	22.4	20.1
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.4	1.4	4.3
Delay (s)	15.1	23.8	24.4
Level of Service	B	C	C
Approach Delay (s/veh)		23.8	24.4
Approach LOS		C	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

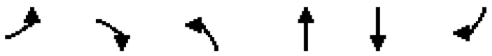
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	429	0	0	0	0	1196
Future Volume (vph)	429	0	0	0	0	1196
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	466	0	0	0	0	1300
Shared Lane Traffic (%)						
Lane Group Flow (vph)	466	0	0	0	0	1300
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.4%		ICU Level of Service C	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	429	0	0	0	0	1196
Future Volume (Veh/h)	429	0	0	0	0	1196
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	466	0	0	0	0	1300
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	650	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	650	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			100	
cM capacity (veh/h)	402	1084			1622	

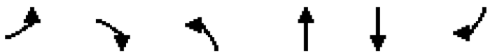
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	466	650	650
Volume Left	466	0	0
Volume Right	0	0	0
cSH	402	1700	1700
Volume to Capacity	1.16	0.38	0.38
Queue Length 95th (m)	142.5	0.0	0.0
Control Delay (s/veh)	127.0	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	127.0	0.0	
Approach LOS	F		

Intersection Summary			
Average Delay	33.5		
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	353	0	0	1314	0	0
Future Volume (vph)	353	0	0	1314	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	384	0	0	1428	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	384	0	0	1428	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	90.8%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	353	0	0	1314	0	0
Future Volume (Veh/h)	353	0	0	1314	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	384	0	0	1428	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	714	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	714	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	100	100			
cM capacity (veh/h)	366	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	384	714	714
Volume Left	384	0	0
Volume Right	0	0	0
cSH	366	1700	1700
Volume to Capacity	1.05	0.42	0.42
Queue Length 95th (m)	105.5	0.0	0.0
Control Delay (s/veh)	95.0	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	95.0	0.0	
Approach LOS	F		

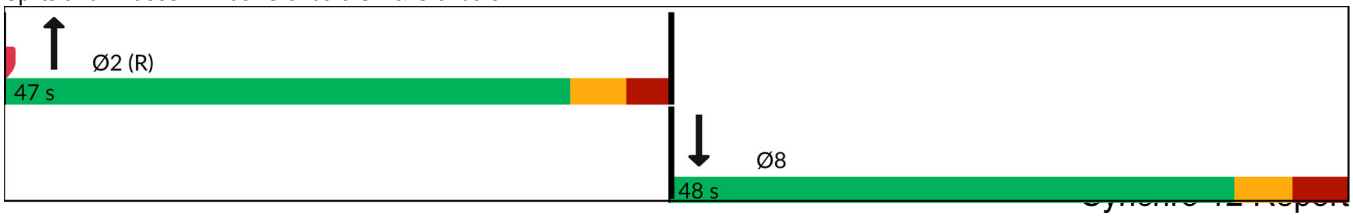
Intersection Summary			
Average Delay	20.1		
Intersection Capacity Utilization	90.8%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1314	0	0	635	0	0	0	0	0	0	0
Future Volume (vph)	0	1314	0	0	635	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1428	0	0	690	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1428	0	0	690	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		54.0			26.0							
Actuated g/C Ratio		0.57			0.27							
v/c Ratio		0.76			0.76							
Control Delay (s/veh)		19.9			37.1							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		19.9			37.1							
LOS		B			D							
Approach Delay (s/veh)		19.9			37.1							
Approach LOS		B			D							
Stops (vph)		959			557							
Fuel Used(l)		48			34							
CO Emissions (g/hr)		888			626							
NOx Emissions (g/hr)		171			121							
VOC Emissions (g/hr)		205			144							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay (s/veh): 25.5		Intersection LOS: C	
Intersection Capacity Utilization 45.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	1428	690
v/c Ratio	0.76	0.76
Control Delay (s/veh)	19.9	37.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	19.9	37.1
Queue Length 50th (m)	103.7	63.7
Queue Length 95th (m)	154.1	77.1
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1891	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.76	0.49

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	1314	0	0	635	0	0	0	0	0	0	0
Future Volume (vph)	0	1314	0	0	635	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1428	0	0	690	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1428	0	0	690	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		54.0			26.0							
Effective Green, g (s)		54.0			26.0							
Actuated g/C Ratio		0.57			0.27							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1890			910							
v/s Ratio Prot		c0.43			c0.21							
v/s Ratio Perm												
v/c Ratio		0.76			0.76							
Uniform Delay, d1		15.5			31.6							
Progression Factor		1.00			1.00							
Incremental Delay, d2		2.9			3.7							
Delay (s)		18.4			35.3							
Level of Service		B			D							
Approach Delay (s/veh)		18.4			35.3			0.0			0.0	
Approach LOS		B			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:47:31 PM

Summary of intersection performance

	PM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - BG (2039)						
Leg North	0.13	~1	7.75	0.12	A	13.08	B
Leg West	0.13	~1	4.61	0.11	A		
Leg South	0.87	~1	5.56	0.44	A		
Leg East	7.96	31.65	30.16	0.91	D		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM " model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:47:29 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - BG (2039), PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
BG (2039), PM	BG (2039)	PM		PHF	16:00	17:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				13.08	B

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	57.00	100.000
West	PHF	✓	719.00	100.000
South	PHF	✓	1102.00	100.000
East	PHF	✓	860.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	57.00	0.92	SecondQuarter
West	719.00	0.92	SecondQuarter
South	1102.00	0.92	SecondQuarter
East	860.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	11.000	43.000	3.000
	West	4.000	0.000	626.000	89.000
	South	40.000	485.000	0.000	577.000

	East	5.000	205.000	650.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.19	0.75	0.05
	West	0.01	0.00	0.87	0.12
	South	0.04	0.44	0.00	0.52
	East	0.01	0.24	0.76	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.097	1.061
	South	1.033	1.133	1.000	1.196
	East	1.000	1.079	1.048	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	9.7	6.1
	South	3.3	13.3	0.0	19.6
	East	0.0	7.9	4.8	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.12	7.75	0.13	~1	A	57.00	57.00	6.54	6.89	0.11	6.54	6.89
West	0.11	4.61	0.13	~1	A	719.00	93.00	6.83	4.41	0.11	6.83	4.41
South	0.44	5.56	0.87	~1	A	1102.00	525.00	45.52	5.20	0.76	45.53	5.20
East	0.91	30.16	7.96	31.65	D	860.00	860.00	301.29	21.02	5.02	301.63	21.04

Main Results for each time segment

Main results: (16:00-16:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	53.70	53.70	13.42	0.00	0.00	53.33	45.86	1247.54	0.00	635.42	410.45	0.085	0.00	0.09	6.180	A
West	677.32	87.61	21.90	589.71	0.00	87.20	654.84	646.03	0.00	983.55	803.47	0.089	0.00	0.10	4.248	A
South	1038.12	494.57	123.64	543.55	589.71	491.85	643.22	90.00	0.00	1305.35	879.93	0.379	0.00	0.68	4.962	A
East	810.14	810.14	202.54	0.00	543.55	797.80	86.25	495.60	0.00	1070.61	828.18	0.757	0.00	3.09	13.380	B

Main results: (16:15-16:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	61.96	61.96	15.49	0.00	0.00	61.79	53.08	1436.43	0.00	526.10	410.45	0.118	0.09	0.13	7.751	A

West	781.52	101.09	25.27	680.43	0.00	100.98	756.56	741.66	0.00	928.20	803.46	0.109	0.10	0.13	4.605	A
South	1197.83	570.65	142.66	627.17	680.43	569.88	738.41	104.24	0.00	1297.12	879.93	0.440	0.68	0.87	5.562	A
East	934.78	934.78	233.70	0.00	627.17	915.30	99.89	574.22	0.00	1025.11	828.18	0.912	3.09	7.96	30.161	D

Main results: (16:30-16:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	58.65	58.65	14.66	0.00	0.00	58.71	50.47	1384.44	0.00	556.19	410.45	0.105	0.13	0.12	7.239	A
West	739.84	95.70	23.92	644.14	0.00	95.73	722.86	720.28	0.00	940.57	803.46	0.102	0.13	0.12	4.510	A
South	1133.94	540.22	135.05	593.72	644.14	540.49	717.19	98.82	0.00	1300.25	879.93	0.415	0.87	0.81	5.332	A
East	884.93	884.93	221.23	0.00	593.72	890.31	94.70	544.60	0.00	1042.25	828.18	0.849	7.96	6.61	26.076	D

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	53.70	53.70	13.42	0.00	0.00	53.79	46.27	1275.10	0.00	619.47	410.45	0.087	0.12	0.10	6.366	A
West	677.32	87.61	21.90	589.71	0.00	87.67	663.77	665.12	0.00	972.50	803.47	0.090	0.12	0.11	4.307	A
South	1038.12	494.57	123.64	543.55	589.71	495.02	662.29	90.50	0.00	1305.07	879.93	0.379	0.81	0.69	5.002	A
East	810.14	810.14	202.54	0.00	543.55	822.57	86.73	498.79	0.00	1068.76	828.18	0.758	6.61	3.50	16.121	C

Queueing Delay Results for each time segment

Queueing Delay results: (16:00-16:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.33	0.09	6.180	A	A
West	1.51	0.10	4.248	A	A
South	9.87	0.66	4.962	A	A
East	41.22	2.75	13.380	B	B

Queueing Delay results: (16:15-16:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.93	0.13	7.751	A	A
West	1.90	0.13	4.605	A	A
South	12.80	0.85	5.562	A	A
East	96.77	6.45	30.161	D	C

Queueing Delay results: (16:30-16:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.81	0.12	7.239	A	A
West	1.82	0.12	4.510	A	A
South	12.27	0.82	5.332	A	A
East	105.61	7.04	26.076	D	C

Queueing Delay results: (16:45-17:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.46	0.10	6.366	A	A
West	1.60	0.11	4.307	A	A
South	10.57	0.70	5.002	A	A
East	57.69	3.85	16.121	C	B

Queue Variation Results for each time segment

Queue Variation results: (16:00-16:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.09	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.10	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.68	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	3.09	0.00	0.00	7.38	10.55			N/A	N/A

Queue Variation results: (16:15-16:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.13	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.13	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.87	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	7.96	0.00	0.00	18.99	31.65			N/A	N/A

Queue Variation results: (16:30-16:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.12	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.12	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.81	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	6.61	0.00	0.00	6.33	22.15			N/A	N/A

Queue Variation results: (16:45-17:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.10	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.11	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.69	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	3.50	0.00	0.00	5.27	12.66			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	16	10	0	16	16
Future Volume (vph)	0	16	10	0	16	16
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.932	
Flt Protected				0.950	0.976	
Satd. Flow (prot)	1514	0	0	1662	1592	0
Flt Permitted				0.950	0.976	
Satd. Flow (perm)	1514	0	0	1662	1592	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	17	11	0	17	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	0	0	11	34	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	16	10	0	16	16
Future Volume (Veh/h)	0	16	10	0	16	16
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	17	11	0	17	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	51	0	60	43	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	51	0	60	43	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	99	100	99	
cM capacity (veh/h)	836	1091	919	844	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	17	11	34
Volume Left	0	11	17
Volume Right	17	0	17
cSH	1091	919	1636
Volume to Capacity	0.02	0.01	0.01
Queue Length 95th (m)	0.4	0.3	0.3
Control Delay (s/veh)	8.4	9.0	3.6
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.0	3.6
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	17.3%	ICU Level of Service	A
Analysis Period (min)	15		

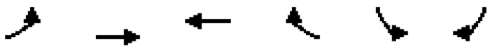
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	4	0	0	3	3
Future Volume (vph)	0	4	0	0	3	3
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.932	
Flt Protected					0.976	
Satd. Flow (prot)	1514	0	0	1750	1592	0
Flt Permitted					0.976	
Satd. Flow (perm)	1514	0	0	1750	1592	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	4	0	0	3	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	0	0	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	4	0	0	3	3
Future Volume (Veh/h)	0	4	0	0	3	3
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	4	0	0	3	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	9	0	12	8	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	9	0	12	8	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	100	100	100	
cM capacity (veh/h)	888	1091	1006	890	1636	

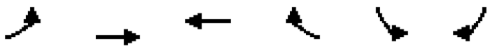
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	4	0	6
Volume Left	0	0	3
Volume Right	4	0	3
cSH	1091	1700	1636
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s/veh)	8.3	0.0	3.6
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	0.0	3.6
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	35	588	480	5	4	34
Future Volume (vph)	35	588	480	5	4	34
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.999		0.878	
Flt Protected	0.950				0.995	
Satd. Flow (prot)	1662	3325	3322	0	1529	0
Flt Permitted	0.950				0.995	
Satd. Flow (perm)	1662	3325	3322	0	1529	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	38	639	522	5	4	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	639	527	0	41	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.2%		ICU Level of Service A	
Analysis Period (min) 15			



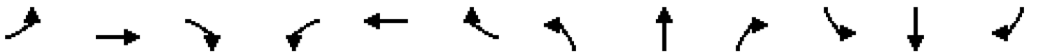
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	588	480	5	4	34
Future Volume (Veh/h)	35	588	480	5	4	34
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	639	522	5	4	37
Pedestrians						
Lane Width (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	527				920	264
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	527				920	264
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				98	95
cM capacity (veh/h)	1050				264	741

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	38	320	320	348	179	41
Volume Left	38	0	0	0	0	4
Volume Right	0	0	0	0	5	37
cSH	1050	1700	1700	1700	1700	630
Volume to Capacity	0.04	0.19	0.19	0.20	0.11	0.07
Queue Length 95th (m)	0.9	0.0	0.0	0.0	0.0	1.7
Control Delay (s/veh)	8.6	0.0	0.0	0.0	0.0	11.1
Lane LOS	A					B
Approach Delay (s/veh)	0.5			0.0		11.1
Approach LOS						B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	31.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	552	0	1	425	5	4	0	0	3	0	58
Future Volume (vph)	46	552	0	1	425	5	4	0	0	3	0	58
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.999						0.871	
Flt Protected		0.996						0.950			0.998	
Satd. Flow (prot)	0	1743	0	0	1748	0	0	1662	0	0	1521	0
Flt Permitted		0.996						0.950			0.998	
Satd. Flow (perm)	0	1743	0	0	1748	0	0	1662	0	0	1521	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	50	600	0	1	462	5	4	0	0	3	0	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	650	0	0	468	0	0	4	0	0	66	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 73.0%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	552	0	1	425	5	4	0	0	3	0	58
Future Volume (Veh/h)	46	552	0	1	425	5	4	0	0	3	0	58
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	50	600	0	1	462	5	4	0	0	3	0	63
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	467			600			1230	1169	600	1167	1167	465
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	467			600			1230	1169	600	1167	1167	465
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 %	95			100			97	100	100	98	100	90
cM capacity (veh/h)	1105			987			135	186	505	166	186	602

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	650	468	4	66
Volume Left	50	1	4	3
Volume Right	0	5	0	63
cSH	1105	987	135	538
Volume to Capacity	0.05	0.00	0.03	0.12
Queue Length 95th (m)	1.1	0.0	0.7	3.3
Control Delay (s/veh)	1.2	0.0	32.5	12.6
Lane LOS	A	A	D	B
Approach Delay (s/veh)	1.2	0.0	32.5	12.6
Approach LOS			D	B

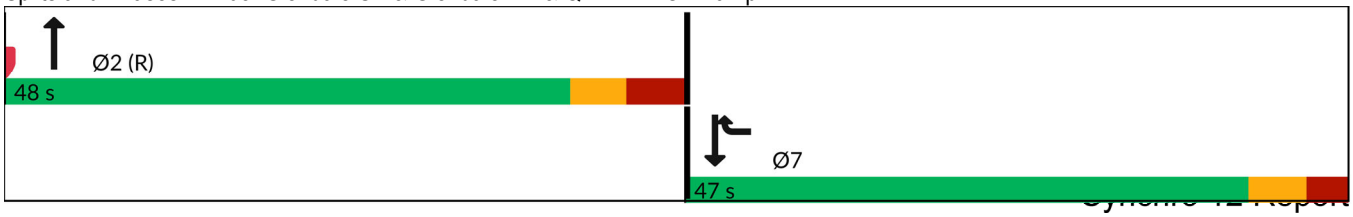
Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	221	688	639
Future Volume (vph)	221	688	639
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	240	748	695
Shared Lane Traffic (%)			
Lane Group Flow (vph)	240	748	695
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	30.6	53.4	30.6
Actuated g/C Ratio	0.32	0.56	0.32
v/c Ratio	0.50	0.44	0.71
Control Delay (s/veh)	29.0	14.1	32.0
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	29.0	14.1	32.0
LOS	C	B	C
Approach Delay (s/veh)		14.1	32.0
Approach LOS		B	C
Stops (vph)	170	390	533
Fuel Used(l)	10	20	30
CO Emissions (g/hr)	191	373	556
NOx Emissions (g/hr)	37	72	107
VOC Emissions (g/hr)	44	86	128
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay (s/veh): 23.6		Intersection LOS: C	
Intersection Capacity Utilization 44.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	240	748	695
v/c Ratio	0.50	0.44	0.71
Control Delay (s/veh)	29.0	14.1	32.0
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	29.0	14.1	32.0
Queue Length 50th (m)	36.9	41.8	61.1
Queue Length 95th (m)	53.6	66.4	72.5
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	656	1700	1348
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.37	0.44	0.52

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	221	688	639
Future Volume (vph)	221	688	639
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	240	748	695
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	240	748	695
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	28.6	51.4	28.6
Effective Green, g (s)	30.6	53.4	30.6
Actuated g/C Ratio	0.32	0.56	0.32
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	478	1699	982
v/s Ratio Prot	0.16	c0.25	c0.23
v/s Ratio Perm			
v/c Ratio	0.50	0.44	0.71
Uniform Delay, d1	26.0	12.1	28.3
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.8	2.4
Delay (s)	26.9	12.9	30.6
Level of Service	C	B	C
Approach Delay (s/veh)		12.9	30.6
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

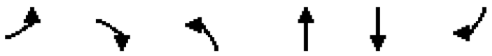
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	657	0	0	0	0	639
Future Volume (vph)	657	0	0	0	0	639
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	714	0	0	0	0	695
Shared Lane Traffic (%)						
Lane Group Flow (vph)	714	0	0	0	0	695
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.4%		ICU Level of Service C	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	657	0	0	0	0	639
Future Volume (Veh/h)	657	0	0	0	0	639
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	714	0	0	0	0	695
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	348	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	348	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			100	
cM capacity (veh/h)	623	1084			1622	

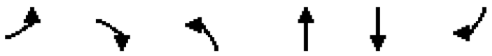
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	714	348	348
Volume Left	714	0	0
Volume Right	0	0	0
cSH	623	1700	1700
Volume to Capacity	1.15	0.20	0.20
Queue Length 95th (m)	183.9	0.0	0.0
Control Delay (s/veh)	107.1	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	107.1	0.0	
Approach LOS	F		

Intersection Summary			
Average Delay	54.3		
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	510	0	0	1556	0	0
Future Volume (vph)	510	0	0	1556	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	554	0	0	1691	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	554	0	0	1691	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	135.5%	ICU Level of Service	H
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	510	0	0	1556	0	0
Future Volume (Veh/h)	510	0	0	1556	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	554	0	0	1691	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	846	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	846	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	100	100			
cM capacity (veh/h)	302	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	554	846	846
Volume Left	554	0	0
Volume Right	0	0	0
cSH	302	1700	1700
Volume to Capacity	1.84	0.50	0.50
Queue Length 95th (m)	297.2	0.0	0.0
Control Delay (s/veh)	418.4	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	418.4	0.0	
Approach LOS	F		

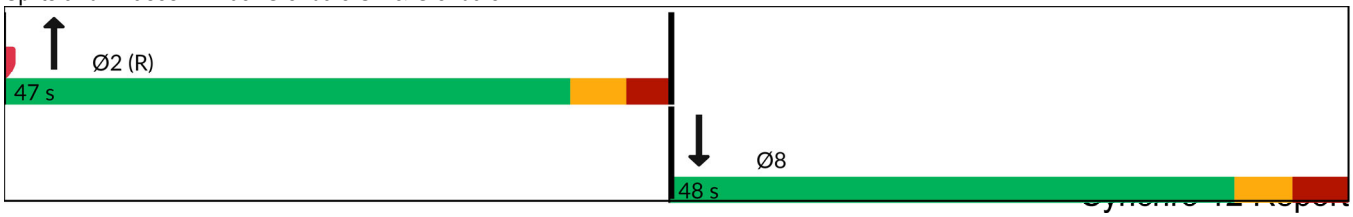
Intersection Summary			
Average Delay	103.2		
Intersection Capacity Utilization	135.5%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1556	0	0	758	0	0	0	0	0	0	0
Future Volume (vph)	0	1556	0	0	758	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1691	0	0	824	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1691	0	0	824	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		50.0			30.0							
Actuated g/C Ratio		0.53			0.32							
v/c Ratio		0.97			0.78							
Control Delay (s/veh)		38.8			34.9							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		38.8			34.9							
LOS		D			C							
Approach Delay (s/veh)		38.8			34.9							
Approach LOS		D			C							
Stops (vph)		1222			658							
Fuel Used(l)		81			39							
CO Emissions (g/hr)		1508			722							
NOx Emissions (g/hr)		291			139							
VOC Emissions (g/hr)		348			167							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay (s/veh): 37.5		Intersection LOS: D	
Intersection Capacity Utilization 52.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	1691	824
v/c Ratio	0.97	0.78
Control Delay (s/veh)	38.8	34.9
Queue Delay	0.0	0.0
Total Delay (s/veh)	38.8	34.9
Queue Length 50th (m)	157.9	75.3
Queue Length 95th (m)	#242.7	87.7
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1749	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.97	0.59

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	1556	0	0	758	0	0	0	0	0	0	0
Future Volume (vph)	0	1556	0	0	758	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1691	0	0	824	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1691	0	0	824	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		50.0			30.0							
Effective Green, g (s)		50.0			30.0							
Actuated g/C Ratio		0.53			0.32							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1750			1050							
v/s Ratio Prot		c0.51			c0.25							
v/s Ratio Perm												
v/c Ratio		0.97			0.78							
Uniform Delay, d1		21.7			29.6							
Progression Factor		1.00			1.00							
Incremental Delay, d2		14.9			3.9							
Delay (s)		36.6			33.5							
Level of Service		D			C							
Approach Delay (s/veh)		36.6			33.5			0.0			0.0	
Approach LOS		D			C			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	35.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:48:32 PM

Summary of intersection performance

	Sat						
	Queue (PCE)	**95% Queue (PCE)**	**Delay (s)**	**V/C Ratio**	**LOS**	**Intersection Delay (s)**	**Intersection LOS**
	A1 - BG (2039)						
Leg North	0.07	~1	6.12	0.07	A	6.50	A
Leg West	0.13	~1	3.55	0.12	A		
Leg South	1.31	1.02	6.59	0.57	A		
Leg East	1.47	1.02	9.60	0.60	A		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat " model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:48:31 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - BG (2039), Sat

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
BG (2039), Sat	BG (2039)	Sat		PHF	12:00	13:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				6.50	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	40.00	100.000
West	PHF	✓	569.00	100.000
South	PHF	✓	1175.00	100.000
East	PHF	✓	513.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	40.00	0.92	SecondQuarter
West	569.00	0.92	SecondQuarter
South	1175.00	0.92	SecondQuarter
East	513.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	13.000	22.000	5.000
	West	9.000	0.000	447.000	113.000
	South	16.000	649.000	0.000	510.000

	East	5.000	198.000	310.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.33	0.55	0.13
	West	0.02	0.00	0.79	0.20
	South	0.01	0.55	0.00	0.43
	East	0.01	0.39	0.60	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.036	1.000
	South	1.000	1.021	1.000	1.029
	East	1.000	1.007	1.022	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	3.6	0.0
	South	0.0	2.1	0.0	2.9
	East	0.0	0.7	2.2	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.07	6.12	0.07	~1	A	40.00	40.00	3.71	5.57	0.06	3.71	5.57
West	0.12	3.55	0.13	~1	A	569.00	122.00	7.02	3.45	0.12	7.02	3.45
South	0.57	6.59	1.31	1.02	A	1175.00	665.00	65.84	5.94	1.10	65.86	5.94
East	0.60	9.60	1.47	1.02	A	513.00	513.00	69.45	8.12	1.16	69.48	8.13

Main Results for each time segment

Main results: (12:00-12:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	37.68	37.68	9.42	0.00	0.00	37.47	28.10	1082.44	0.00	730.97	413.14	0.052	0.00	0.05	5.190	A
West	536.01	114.93	28.73	421.09	0.00	114.50	804.88	315.02	0.00	1175.12	898.20	0.098	0.00	0.11	3.392	A
South	1106.88	626.45	156.61	480.43	421.09	622.63	310.34	119.18	0.00	1288.47	807.71	0.486	0.00	0.95	5.488	A
East	483.26	483.26	120.82	0.00	480.43	479.46	110.73	631.08	0.00	992.20	851.62	0.487	0.00	0.95	7.081	A

Main results: (12:15-12:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	43.48	43.48	10.87	0.00	0.00	43.40	32.55	1254.18	0.00	631.58	413.14	0.069	0.05	0.07	6.120	A

West	618.48	132.61	33.15	485.87	0.00	132.52	932.58	365.00	0.00	1146.20	898.20	0.116	0.11	0.13	3.550	A
South	1277.17	722.83	180.71	554.35	485.87	721.41	359.58	137.94	0.00	1277.61	807.71	0.566	0.95	1.31	6.587	A
East	557.61	557.61	139.40	0.00	554.35	555.54	128.17	731.19	0.00	934.26	851.62	0.597	0.95	1.47	9.603	A

Main results: (12:30-12:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	41.16	41.16	10.29	0.00	0.00	41.19	30.89	1191.77	0.00	667.69	413.14	0.062	0.07	0.07	5.748	A
West	585.49	125.54	31.38	459.96	0.00	125.57	885.72	347.25	0.00	1156.47	898.20	0.109	0.13	0.12	3.494	A
South	1209.06	684.28	171.07	524.78	459.96	684.77	342.10	130.72	0.00	1281.79	807.71	0.534	1.31	1.18	6.161	A
East	527.87	527.87	131.97	0.00	524.78	528.63	121.45	694.04	0.00	955.76	851.62	0.552	1.47	1.28	8.581	A

Main results: (12:45-13:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	37.68	37.68	9.42	0.00	0.00	37.73	28.30	1091.89	0.00	725.50	413.14	0.052	0.07	0.06	5.234	A
West	536.01	114.93	28.73	421.09	0.00	114.98	811.42	318.20	0.00	1173.28	898.20	0.098	0.12	0.11	3.401	A
South	1106.88	626.45	156.61	480.43	421.09	627.28	313.49	119.70	0.00	1288.17	807.71	0.486	1.18	0.98	5.567	A
East	483.26	483.26	120.82	0.00	480.43	484.43	111.21	635.76	0.00	989.49	851.62	0.488	1.28	0.98	7.260	A

Queueing Delay Results for each time segment

Queueing Delay results: (12:00-12:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.79	0.05	5.190	A	A
West	1.59	0.11	3.392	A	A
South	13.76	0.92	5.488	A	A
East	13.58	0.91	7.081	A	A

Queueing Delay results: (12:15-12:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.08	0.07	6.120	A	A
West	1.93	0.13	3.550	A	A
South	18.98	1.27	6.587	A	A
East	20.96	1.40	9.603	A	A

Queueing Delay results: (12:30-12:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.00	0.07	5.748	A	A
West	1.85	0.12	3.494	A	A
South	18.10	1.21	6.161	A	A
East	19.67	1.31	8.581	A	A

Queueing Delay results: (12:45-13:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.84	0.06	5.234	A	A
West	1.65	0.11	3.401	A	A
South	15.01	1.00	5.567	A	A
East	15.24	1.02	7.260	A	A

Queue Variation Results for each time segment

Queue Variation results: (12:00-12:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.11	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.95	0.00	0.00	1.02	1.02			N/A	N/A
East	0.95	0.00	0.00	1.02	1.02			N/A	N/A

Queue Variation results: (12:15-12:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.13	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.31	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.47	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:30-12:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.12	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.18	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.28	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:45-13:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.11	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.98	0.00	0.00	1.02	1.02			N/A	N/A
East	0.98	0.00	0.00	1.02	1.02			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	19	25	1	12	13
Future Volume (vph)	0	19	25	1	12	13
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.930	
Flt Protected				0.954	0.976	
Satd. Flow (prot)	1514	0	0	1669	1588	0
Flt Permitted				0.954	0.976	
Satd. Flow (perm)	1514	0	0	1669	1588	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	0	21	27	1	13	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	0	0	28	27	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	19	25	1	12	13
Future Volume (Veh/h)	0	19	25	1	12	13
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	21	27	1	13	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	40	0	54	33	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	40	0	54	33	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	97	100	99	
cM capacity (veh/h)	849	1091	925	855	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	21	28	27
Volume Left	0	27	13
Volume Right	21	0	14
cSH	1091	923	1636
Volume to Capacity	0.02	0.03	0.01
Queue Length 95th (m)	0.5	0.8	0.2
Control Delay (s/veh)	8.4	9.0	3.5
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.0	3.5
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.9		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

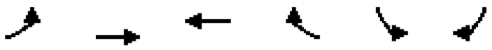
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	53	11	3	1
Future Volume (vph)	0	0	53	11	3	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.966	
Flt Protected				0.960	0.964	
Satd. Flow (prot)	1750	0	0	1663	1626	0
Flt Permitted				0.960	0.964	
Satd. Flow (perm)	1750	0	0	1663	1626	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	1%	0%	1%
Adj. Flow (vph)	0	0	58	12	3	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	70	4	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	53	11	3	1
Future Volume (Veh/h)	0	0	53	11	3	1
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	58	12	3	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	7	0	7	7	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	7	0	7	7	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	94	99	100	
cM capacity (veh/h)	891	1091	1015	889	1636	

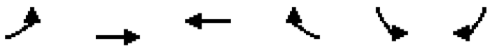
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	0	70	4
Volume Left	0	58	3
Volume Right	0	0	1
cSH	1700	991	1636
Volume to Capacity	0.00	0.07	0.00
Queue Length 95th (m)	0.0	1.8	0.0
Control Delay (s/veh)	0.0	8.9	5.4
Lane LOS	A	A	A
Approach Delay (s/veh)	0.0	8.9	5.4
Approach LOS	A	A	

Intersection Summary			
Average Delay	8.7		
Intersection Capacity Utilization	13.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	89	750	637	12	6	86
Future Volume (vph)	89	750	637	12	6	86
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.997		0.874	
Flt Protected	0.950				0.997	
Satd. Flow (prot)	1662	3325	3315	0	1525	0
Flt Permitted	0.950				0.997	
Satd. Flow (perm)	1662	3325	3315	0	1525	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	97	815	692	13	7	93
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	815	705	0	100	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	89	750	637	12	6	86
Future Volume (Veh/h)	89	750	637	12	6	86
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	97	815	692	13	7	93
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	705				1300	353
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	705				1300	353
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				95	86
cM capacity (veh/h)	902				139	650

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	97	408	408	461	244	100
Volume Left	97	0	0	0	0	7
Volume Right	0	0	0	0	13	93
cSH	902	1700	1700	1700	1700	517
Volume to Capacity	0.11	0.24	0.24	0.27	0.14	0.19
Queue Length 95th (m)	2.9	0.0	0.0	0.0	0.0	5.7
Control Delay (s/veh)	9.5	0.0	0.0	0.0	0.0	13.6
Lane LOS	A					B
Approach Delay (s/veh)	1.0			0.0		13.6
Approach LOS						B

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	184	571	7	1	565	16	10	0	3	4	0	82
Future Volume (vph)	184	571	7	1	565	16	10	0	3	4	0	82
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.996			0.971			0.871	
Flt Protected		0.988						0.962			0.998	
Satd. Flow (prot)	0	1727	0	0	1743	0	0	1635	0	0	1521	0
Flt Permitted		0.988						0.962			0.998	
Satd. Flow (perm)	0	1727	0	0	1743	0	0	1635	0	0	1521	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	200	621	8	1	614	17	11	0	3	4	0	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	829	0	0	632	0	0	14	0	0	93	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 93.2%		ICU Level of Service F	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	184	571	7	1	565	16	10	0	3	4	0	82
Future Volume (Veh/h)	184	571	7	1	565	16	10	0	3	4	0	82
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	200	621	8	1	614	17	11	0	3	4	0	89
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	631			629			1739	1658	625	1653	1654	623
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	631			629			1739	1658	625	1653	1654	623
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 %	79			100			77	100	99	94	100	82
cM capacity (veh/h)	961			963			47	78	488	66	79	490

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	829	632	14	93
Volume Left	200	1	11	4
Volume Right	8	17	3	89
cSH	961	963	59	384
Volume to Capacity	0.21	0.00	0.24	0.24
Queue Length 95th (m)	6.3	0.0	6.5	7.5
Control Delay (s/veh)	4.8	0.0	84.3	17.3
Lane LOS	A	A	F	C
Approach Delay (s/veh)	4.8	0.0	84.3	17.3
Approach LOS			F	C

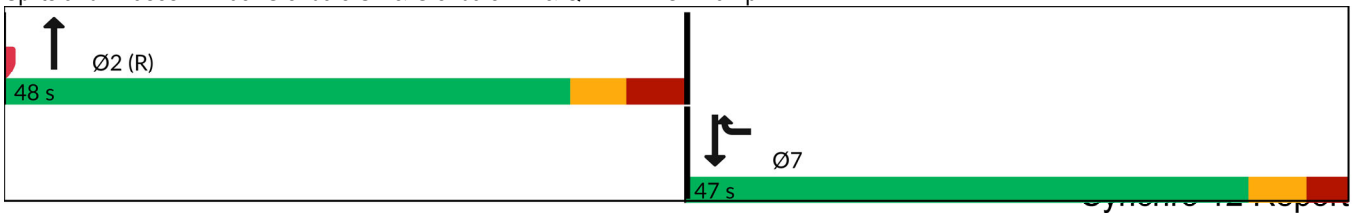
Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	93.2%	ICU Level of Service	F
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	418	670	716
Future Volume (vph)	418	670	716
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	454	728	778
Shared Lane Traffic (%)			
Lane Group Flow (vph)	454	728	778
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	37.6	46.4	37.6
Actuated g/C Ratio	0.40	0.49	0.40
v/c Ratio	0.77	0.49	0.64
Control Delay (s/veh)	33.7	19.3	25.2
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	33.7	19.3	25.2
LOS	C	B	C
Approach Delay (s/veh)		19.3	25.2
Approach LOS		B	C
Stops (vph)	346	449	545
Fuel Used(l)	21	24	29
CO Emissions (g/hr)	400	442	531
NOx Emissions (g/hr)	77	85	102
VOC Emissions (g/hr)	92	102	122
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay (s/veh): 25.0		Intersection LOS: C	
Intersection Capacity Utilization 57.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	454	728	778
v/c Ratio	0.77	0.49	0.64
Control Delay (s/veh)	33.7	19.3	25.2
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	33.7	19.3	25.2
Queue Length 50th (m)	73.5	48.8	61.7
Queue Length 95th (m)	96.3	77.2	69.2
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	671	1506	1379
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.68	0.48	0.56

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	418	670	716
Future Volume (vph)	418	670	716
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	454	728	778
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	454	728	778
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	35.6	44.4	35.6
Effective Green, g (s)	37.6	46.4	37.6
Actuated g/C Ratio	0.40	0.49	0.40
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	587	1476	1207
v/s Ratio Prot	c0.31	c0.24	0.26
v/s Ratio Perm			
v/c Ratio	0.77	0.49	0.64
Uniform Delay, d1	25.0	16.4	23.3
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	6.3	1.2	1.2
Delay (s)	31.3	17.6	24.5
Level of Service	C	B	C
Approach Delay (s/veh)		17.6	24.5
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

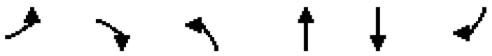
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	331	0	0	0	0	716
Future Volume (vph)	331	0	0	0	0	716
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	360	0	0	0	0	778
Shared Lane Traffic (%)						
Lane Group Flow (vph)	360	0	0	0	0	778
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	331	0	0	0	0	716
Future Volume (Veh/h)	331	0	0	0	0	716
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	360	0	0	0	0	778
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	389	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	389	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	39	100			100	
cM capacity (veh/h)	587	1084			1622	

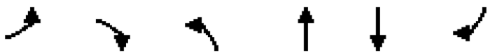
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	360	389	389
Volume Left	360	0	0
Volume Right	0	0	0
cSH	587	1700	1700
Volume to Capacity	0.61	0.23	0.23
Queue Length 95th (m)	33.2	0.0	0.0
Control Delay (s/veh)	20.4	0.0	0.0
Lane LOS	C		
Approach Delay (s/veh)	20.4	0.0	
Approach LOS	C		

Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	496	0	0	698	0	0
Future Volume (vph)	496	0	0	698	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	539	0	0	759	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	539	0	0	759	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 89.1%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	496	0	0	698	0	0
Future Volume (Veh/h)	496	0	0	698	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	539	0	0	759	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	380	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	380	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	9	100	100			
cM capacity (veh/h)	595	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	539	380	380
Volume Left	539	0	0
Volume Right	0	0	0
cSH	595	1700	1700
Volume to Capacity	0.91	0.22	0.22
Queue Length 95th (m)	89.0	0.0	0.0
Control Delay (s/veh)	43.8	0.0	0.0
Lane LOS	E		
Approach Delay (s/veh)	43.8	0.0	
Approach LOS	E		

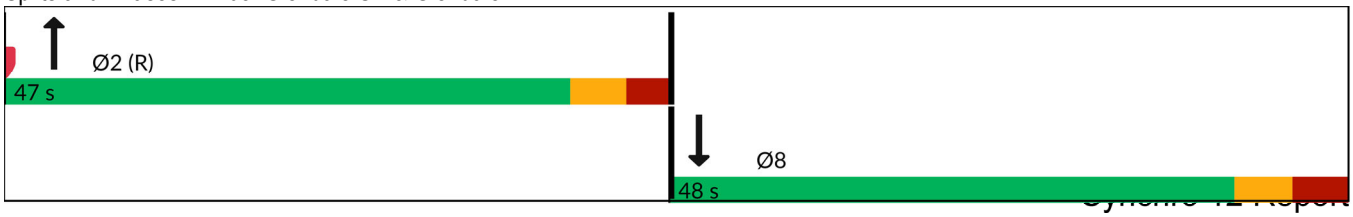
Intersection Summary			
Average Delay	18.2		
Intersection Capacity Utilization	89.1%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	698	0	0	473	0	0	0	0	0	0	0
Future Volume (vph)	0	698	0	0	473	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	759	0	0	514	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	759	0	0	514	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		59.5			20.5							
Actuated g/C Ratio		0.63			0.22							
v/c Ratio		0.36			0.72							
Control Delay (s/veh)		9.8			40.1							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		9.8			40.1							
LOS		A			D							
Approach Delay (s/veh)		9.8			40.1							
Approach LOS		A			D							
Stops (vph)		324			421							
Fuel Used(l)		16			26							
CO Emissions (g/hr)		293			490							
NOx Emissions (g/hr)		57			95							
VOC Emissions (g/hr)		68			113							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay (s/veh): 22.0		Intersection LOS: C	
Intersection Capacity Utilization 26.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	759	514
v/c Ratio	0.36	0.72
Control Delay (s/veh)	9.8	40.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	9.8	40.1
Queue Length 50th (m)	33.7	48.7
Queue Length 95th (m)	53.7	61.4
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	2082	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.36	0.37

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	698	0	0	473	0	0	0	0	0	0	0
Future Volume (vph)	0	698	0	0	473	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	759	0	0	514	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	759	0	0	514	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		59.5			20.5							
Effective Green, g (s)		59.5			20.5							
Actuated g/C Ratio		0.63			0.22							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		2082			717							
v/s Ratio Prot		c0.23			c0.15							
v/s Ratio Perm												
v/c Ratio		0.36			0.72							
Uniform Delay, d1		8.6			34.6							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.5			3.4							
Delay (s)		9.1			38.0							
Level of Service		A			D							
Approach Delay (s/veh)		9.1			38.0			0.0			0.0	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	26.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale-2.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:51:50 PM

Summary of intersection performance

	AM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - BG (2044)						
Leg North	0.16	~1	10.43	0.12	B	12.72	B
Leg West	0.22	~1	4.47	0.17	A		
Leg South	2.01	3.35	9.03	0.65	A		
Leg East	5.72	21.62	27.22	0.86	D		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - TT (2039), AM" model duration: 8:00 AM - 9:00 AM
"D2 - TT (2039), PM" model duration: 4:00 PM - 5:00 PM
"D3 - TT (2039), Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2044), AM " model duration: 8:00 AM - 9:00 AM
"D5 - BG (2044), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2044), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2044), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - TT REM (2044), AM" model duration: 8:00 AM - 9:00 AM
"D11 - TT REM (2044), PM" model duration: 4:00 PM - 5:00 PM
"D12 - TT REM (2044), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:51:49 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - BG (2044), AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
BG (2044), AM	BG (2044)	AM		PHF	08:00	09:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				12.72	B

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)

North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	53.00	100.000
West	PHF	✓	587.00	100.000
South	PHF	✓	1403.00	100.000
East	PHF	✓	700.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	53.00	0.92	SecondQuarter
West	587.00	0.92	SecondQuarter
South	1403.00	0.92	SecondQuarter
East	700.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	**West**	**South**	**East**
From	**North**	0.000	19.000	30.000	4.000
	West	3.000	0.000	426.000	158.000
	South	21.000	727.000	0.000	655.000
	East	0.000	183.000	516.000	1.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	**West**	**South**	**East**
From	**North**	0.00	0.36	0.57	0.08
	West	0.01	0.00	0.73	0.27
	South	0.01	0.52	0.00	0.47
	East	0.00	0.26	0.74	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.154	1.200	1.333
	West	1.000	1.000	1.139	1.047
	South	1.071	1.119	1.000	1.095
	East	1.000	1.057	1.170	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	15.4	20.0	33.3
	West	0.0	0.0	13.9	4.7
	South	7.1	11.9	0.0	9.5
	East	0.0	5.7	17.0	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.12	10.43	0.16	~1	B	53.00	53.00	7.97	9.03	0.13	7.97	9.03
West	0.17	4.47	0.22	~1	A	587.00	161.00	11.49	4.28	0.19	11.49	4.28
South	0.65	9.03	2.01	3.35	A	1403.00	748.00	97.97	7.86	1.63	98.02	7.86
East	0.86	27.22	5.72	21.62	D	700.00	700.00	224.98	19.28	3.75	225.22	19.30

Main Results for each time segment

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	49.93	49.93	12.48	0.00	0.00	49.49	22.44	1329.12	0.00	588.20	383.95	0.085	0.00	0.11	7.959	A
West	552.97	151.67	37.92	401.30	0.00	150.97	867.08	511.54	0.00	1061.39	848.56	0.143	0.00	0.17	4.134	A
South	1321.67	704.64	176.16	617.03	401.30	699.14	506.87	155.64	0.00	1267.37	848.85	0.556	0.00	1.38	7.014	A
East	659.42	659.42	164.86	0.00	617.03	649.62	152.82	701.95	0.00	951.18	857.01	0.693	0.00	2.45	13.192	B

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	57.61	57.61	14.40	0.00	0.00	57.39	26.01	1535.55	0.00	468.73	383.95	0.123	0.11	0.16	10.426	B
West	638.04	175.00	43.75	463.04	0.00	174.83	1003.82	589.12	0.00	1016.49	848.56	0.172	0.17	0.22	4.473	A
South	1525.00	813.04	203.26	711.96	463.04	810.50	583.72	180.23	0.00	1253.14	848.85	0.649	1.38	2.01	9.031	A
East	760.87	760.87	190.22	0.00	711.96	747.80	176.97	813.76	0.00	886.47	857.01	0.858	2.45	5.72	27.219	D

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	54.54	54.54	13.63	0.00	0.00	54.61	24.72	1473.32	0.00	504.75	383.95	0.108	0.16	0.15	9.534	A
West	604.01	165.67	41.42	438.35	0.00	165.72	957.87	570.06	0.00	1027.52	848.56	0.161	0.22	0.20	4.369	A

South	1443.67	769.68	192.42	673.99	438.35	770.54	564.90	170.88	0.00	1258.55	848.85	0.612	2.01	1.80	8.261	A
East	720.29	720.29	180.07	0.00	673.99	724.41	167.79	773.63	0.00	909.70	857.01	0.792	5.72	4.69	22.703	C

Main results: (08:45-09:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	49.93	49.93	12.48	0.00	0.00	50.05	22.65	1353.54	0.00	574.07	383.95	0.087	0.15	0.11	8.192	A
West	552.97	151.67	37.92	401.30	0.00	151.77	878.68	524.92	0.00	1053.64	848.56	0.144	0.20	0.18	4.175	A
South	1321.67	704.64	176.16	617.03	401.30	706.12	520.19	156.50	0.00	1266.87	848.85	0.556	1.80	1.42	7.194	A
East	659.42	659.42	164.86	0.00	617.03	667.25	153.67	708.95	0.00	947.13	857.01	0.696	4.69	2.73	15.023	C

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-08:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.58	0.11	7.959	A	A
West	2.54	0.17	4.134	A	A
South	19.57	1.30	7.014	A	A
East	33.25	2.22	13.192	B	B

Queueing Delay results: (08:15-08:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	2.40	0.16	10.426	B	B
West	3.19	0.21	4.473	A	A
South	28.73	1.92	9.031	A	A
East	72.60	4.84	27.219	D	C

Queueing Delay results: (08:30-08:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	2.23	0.15	9.534	A	A
West	3.06	0.20	4.369	A	A
South	27.60	1.84	8.261	A	A
East	74.72	4.98	22.703	C	C

Queueing Delay results: (08:45-09:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.76	0.12	8.192	A	A
West	2.69	0.18	4.175	A	A
South	22.06	1.47	7.194	A	A
East	44.41	2.96	15.023	C	B

Queue Variation Results for each time segment

Queue Variation results: (08:00-08:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.11	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.17	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.38	0.00	0.00	2.24	2.24			N/A	N/A
East	2.45	0.00	0.00	4.55	7.97			N/A	N/A

Queue Variation results: (08:15-08:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.16	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.22	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	2.01	?	?	?	?	Percentiles could not be calculated. This may be		N/A	N/A

						because the mean queue is very small or very big.			
East	5.72	0.00	0.00	11.38	21.62			N/A	N/A

Queue Variation results: (08:30-08:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.15	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.20	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.80	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	4.69	0.00	0.00	1.14	11.38			N/A	N/A

Queue Variation results: (08:45-09:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.11	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.18	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.42	0.00	0.00	2.24	3.35			N/A	N/A
East	2.73	0.00	0.00	4.55	9.10			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	25	25	0	18	23
Future Volume (vph)	0	25	25	0	18	23
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.865				0.925	
Flt Protected				0.950	0.978	
Satd. Flow (prot)	1514	0	0	1662	1583	0
Flt Permitted				0.950	0.978	
Satd. Flow (perm)	1514	0	0	1662	1583	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	27	27	0	20	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	0	0	27	45	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	25	25	0	18	23
Future Volume (Veh/h)	0	25	25	0	18	23
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	27	27	0	20	25
Pedestrians					1	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	65	1	81	53	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	65	1	81	53	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	97	100	99	
cM capacity (veh/h)	819	1089	881	832	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	27	27	45
Volume Left	0	27	20
Volume Right	27	0	25
cSH	1089	881	1636
Volume to Capacity	0.02	0.03	0.01
Queue Length 95th (m)	0.6	0.8	0.3
Control Delay (s/veh)	8.4	9.2	3.3
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.2	3.3
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.3		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

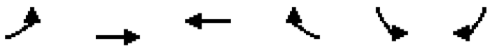
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1	6	0	0	10	37
Future Volume (vph)	1	6	0	0	10	37
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.882				0.894	
Flt Protected					0.989	
Satd. Flow (prot)	1544	0	0	1750	1535	0
Flt Permitted					0.989	
Satd. Flow (perm)	1544	0	0	1750	1535	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	1	7	0	0	11	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	0	51	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1	6	0	0	10	37
Future Volume (Veh/h)	1	6	0	0	10	37
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	7	0	0	11	40
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	62	0	50	42	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	62	0	50	42	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	100	100	99	
cM capacity (veh/h)	827	1091	944	848	1636	

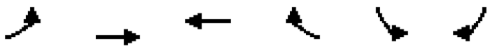
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	8	0	51
Volume Left	0	0	11
Volume Right	7	0	40
cSH	1049	1700	1636
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.2	0.0	0.2
Control Delay (s/veh)	8.5	0.0	1.6
Lane LOS	A	A	A
Approach Delay (s/veh)	8.5	0.0	1.6
Approach LOS	A	A	

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	83	709	892	18	12	56
Future Volume (vph)	83	709	892	18	12	56
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.997		0.889	
Flt Protected	0.950				0.991	
Satd. Flow (prot)	1662	3325	3315	0	1542	0
Flt Permitted	0.950				0.991	
Satd. Flow (perm)	1662	3325	3315	0	1542	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Confl. Peds. (#/hr)	1			1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	90	771	970	20	13	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	90	771	990	0	74	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

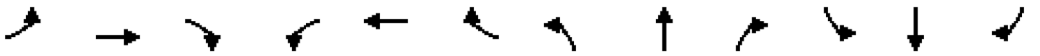
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	83	709	892	18	12	56
Future Volume (Veh/h)	83	709	892	18	12	56
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	90	771	970	20	13	61
Pedestrians		1			1	
Lane Width (m)		3.6			3.6	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	991				1547	497
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	991				1547	497
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	87				86	88
cM capacity (veh/h)	705				93	523

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	90	386	386	647	343	74
Volume Left	90	0	0	0	0	13
Volume Right	0	0	0	0	20	61
cSH	705	1700	1700	1700	1700	289
Volume to Capacity	0.13	0.23	0.23	0.38	0.20	0.26
Queue Length 95th (m)	3.5	0.0	0.0	0.0	0.0	8.0
Control Delay (s/veh)	10.9	0.0	0.0	0.0	0.0	21.7
Lane LOS	B					C
Approach Delay (s/veh)	1.1			0.0		21.7
Approach LOS						C

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	572	0	0	673	15	4	0	0	15	0	257
Future Volume (vph)	125	572	0	0	673	15	4	0	0	15	0	257
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.997						0.872	
Flt Protected		0.991						0.950			0.997	
Satd. Flow (prot)	0	1734	0	0	1745	0	0	1662	0	0	1521	0
Flt Permitted		0.991						0.950			0.997	
Satd. Flow (perm)	0	1734	0	0	1745	0	0	1662	0	0	1521	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	136	622	0	0	732	16	4	0	0	16	0	279
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	758	0	0	748	0	0	4	0	0	295	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	107.4%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	572	0	0	673	15	4	0	0	15	0	257
Future Volume (Veh/h)	125	572	0	0	673	15	4	0	0	15	0	257
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	136	622	0	0	732	16	4	0	0	16	0	279
Pedestrians		1									1	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	749			622			1914	1643	622	1635	1635	742
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	749			622			1914	1643	622	1635	1635	742
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 %	84			100			74	100	100	78	100	33
cM capacity (veh/h)	868			969			15	85	490	72	86	418

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	758	748	4	295
Volume Left	136	0	4	16
Volume Right	0	16	0	279
cSH	868	969	15	331
Volume to Capacity	0.16	0.00	0.26	0.89
Queue Length 95th (m)	4.4	0.0	5.7	67.9
Control Delay (s/veh)	3.8	0.0	311.5	61.6
Lane LOS	A		F	F
Approach Delay (s/veh)	3.8	0.0	311.5	61.6
Approach LOS			F	F

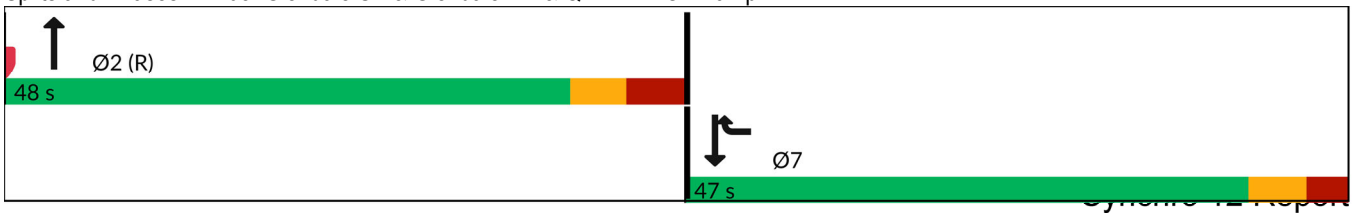
Intersection Summary				
Average Delay	12.3			
Intersection Capacity Utilization	107.4%	ICU Level of Service	G	
Analysis Period (min)	15			

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	327	545	1321
Future Volume (vph)	327	545	1321
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	355	592	1436
Shared Lane Traffic (%)			
Lane Group Flow (vph)	355	592	1436
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	56.7	27.3	56.7
Actuated g/C Ratio	0.60	0.29	0.60
v/c Ratio	0.40	0.68	0.79
Control Delay (s/veh)	12.6	34.0	19.7
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	12.6	34.0	19.7
LOS	B	C	B
Approach Delay (s/veh)		34.0	19.7
Approach LOS		C	B
Stops (vph)	172	463	951
Fuel Used(l)	9	28	46
CO Emissions (g/hr)	173	515	852
NOx Emissions (g/hr)	33	99	164
VOC Emissions (g/hr)	40	119	196
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay (s/veh): 22.2		Intersection LOS: C	
Intersection Capacity Utilization 47.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	355	592	1436
v/c Ratio	0.40	0.68	0.79
Control Delay (s/veh)	12.6	34.0	19.7
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	12.6	34.0	19.7
Queue Length 50th (m)	32.2	54.1	98.8
Queue Length 95th (m)	62.0	65.8	#157.6
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	885	1336	1821
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.40	0.44	0.79

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	327	545	1321
Future Volume (vph)	327	545	1321
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	355	592	1436
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	355	592	1436
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	54.7	25.3	54.7
Effective Green, g (s)	56.7	27.3	56.7
Actuated g/C Ratio	0.60	0.29	0.60
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	885	868	1820
v/s Ratio Prot	0.24	c0.20	c0.47
v/s Ratio Perm			
v/c Ratio	0.40	0.68	0.79
Uniform Delay, d1	10.2	30.0	14.6
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.3	4.3	2.4
Delay (s)	10.5	34.3	16.9
Level of Service	B	C	B
Approach Delay (s/veh)		34.3	16.9
Approach LOS		C	B

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

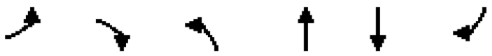
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	474	0	0	0	0	1321
Future Volume (vph)	474	0	0	0	0	1321
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	515	0	0	0	0	1436
Shared Lane Traffic (%)						
Lane Group Flow (vph)	515	0	0	0	0	1436
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 74.8%		ICU Level of Service D	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	474	0	0	0	0	1321
Future Volume (Veh/h)	474	0	0	0	0	1321
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	515	0	0	0	0	1436
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	718	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	718	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			100	
cM capacity (veh/h)	364	1084			1622	

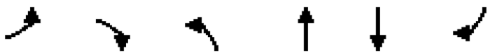
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	515	718	718
Volume Left	515	0	0
Volume Right	0	0	0
cSH	364	1700	1700
Volume to Capacity	1.42	0.42	0.42
Queue Length 95th (m)	210.0	0.0	0.0
Control Delay (s/veh)	231.1	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	231.1	0.0	
Approach LOS	F		

Intersection Summary			
Average Delay	61.0		
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	389	0	0	1450	0	0
Future Volume (vph)	389	0	0	1450	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	423	0	0	1576	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	423	0	0	1576	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 99.1%		ICU Level of Service F	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	389	0	0	1450	0	0
Future Volume (Veh/h)	389	0	0	1450	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	423	0	0	1576	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	788	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	788	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	100	100			
cM capacity (veh/h)	328	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	423	788	788
Volume Left	423	0	0
Volume Right	0	0	0
cSH	328	1700	1700
Volume to Capacity	1.29	0.46	0.46
Queue Length 95th (m)	158.7	0.0	0.0
Control Delay (s/veh)	183.8	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	183.8	0.0	
Approach LOS	F		

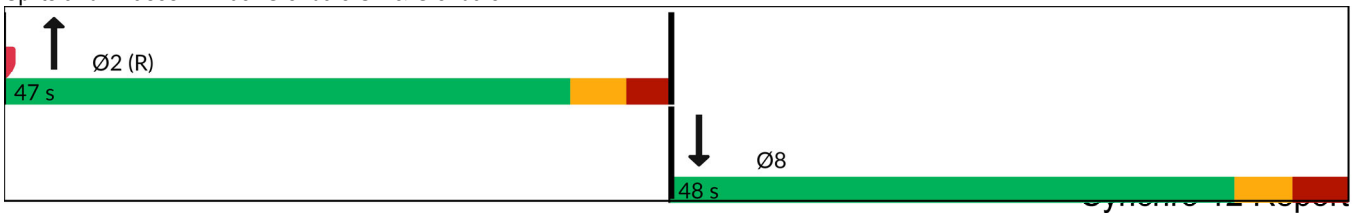
Intersection Summary			
Average Delay	38.9		
Intersection Capacity Utilization	99.1%	ICU Level of Service	F
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1450	0	0	701	0	0	0	0	0	0	0
Future Volume (vph)	0	1450	0	0	701	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1576	0	0	762	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1576	0	0	762	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		51.7			28.3							
Actuated g/C Ratio		0.54			0.30							
v/c Ratio		0.87			0.77							
Control Delay (s/veh)		26.9			35.6							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		26.9			35.6							
LOS		C			D							
Approach Delay (s/veh)		26.9			35.6							
Approach LOS		C			D							
Stops (vph)		1125			610							
Fuel Used(l)		62			36							
CO Emissions (g/hr)		1152			675							
NOx Emissions (g/hr)		222			130							
VOC Emissions (g/hr)		266			156							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay (s/veh): 29.7		Intersection LOS: C	
Intersection Capacity Utilization 49.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	1576	762
v/c Ratio	0.87	0.77
Control Delay (s/veh)	26.9	35.6
Queue Delay	0.0	0.0
Total Delay (s/veh)	26.9	35.6
Queue Length 50th (m)	131.5	69.9
Queue Length 95th (m)	#211.3	82.5
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1808	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.87	0.54

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1450	0	0	701	0	0	0	0	0	0	0
Future Volume (vph)	0	1450	0	0	701	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1576	0	0	762	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1576	0	0	762	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		51.7			28.3							
Effective Green, g (s)		51.7			28.3							
Actuated g/C Ratio		0.54			0.30							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1809			990							
v/s Ratio Prot		c0.47			c0.23							
v/s Ratio Perm												
v/c Ratio		0.87			0.77							
Uniform Delay, d1		18.8			30.4							
Progression Factor		1.00			1.00							
Incremental Delay, d2		6.1			3.7							
Delay (s)		24.9			34.0							
Level of Service		C			C							
Approach Delay (s/veh)		24.9			34.0			0.0			0.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	27.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale-2.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:52:27 PM

Summary of intersection performance

	PM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - BG (2044)						
Leg North	0.17	~1	8.98	0.15	A	32.66	D
Leg West	0.15	~1	4.80	0.12	A		
Leg South	1.06	?	6.10	0.49	A		
Leg East	24.03	83.34	91.52	1.04	F		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - TT (2039), AM" model duration: 8:00 AM - 9:00 AM
"D2 - TT (2039), PM" model duration: 4:00 PM - 5:00 PM
"D3 - TT (2039), Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2044), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2044), PM " model duration: 4:00 PM - 5:00 PM
"D6 - BG (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2044), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2044), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - TT REM (2044), AM" model duration: 8:00 AM - 9:00 AM
"D11 - TT REM (2044), PM" model duration: 4:00 PM - 5:00 PM
"D12 - TT REM (2044), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:52:26 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - BG (2044), PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
BG (2044), PM	BG (2044)	PM		PHF	16:00	17:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				32.66	D

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)

North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	63.00	100.000
West	PHF	✓	793.00	100.000
South	PHF	✓	1217.00	100.000
East	PHF	✓	950.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	63.00	0.92	SecondQuarter
West	793.00	0.92	SecondQuarter
South	1217.00	0.92	SecondQuarter
East	950.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	**West**	**South**	**East**
From	**North**	0.000	12.000	48.000	3.000
	West	4.000	0.000	691.000	98.000
	South	45.000	535.000	0.000	637.000
	East	6.000	226.000	718.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	**West**	**South**	**East**
From	**North**	0.00	0.19	0.76	0.05
	West	0.01	0.00	0.87	0.12
	South	0.04	0.44	0.00	0.52
	East	0.01	0.24	0.76	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.097	1.061
	South	1.033	1.133	1.000	1.196
	East	1.000	1.079	1.048	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	9.7	6.1
	South	3.3	13.3	0.0	19.6
	East	0.0	7.9	4.8	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.15	8.98	0.17	~1	A	63.00	63.00	8.58	8.17	0.14	8.58	8.17
West	0.12	4.80	0.15	~1	A	793.00	102.00	7.94	4.67	0.13	7.94	4.67
South	0.49	6.10	1.06	?	A	1217.00	580.00	54.53	5.64	0.91	54.55	5.64
East	1.04	91.52	24.03	83.34	F	950.00	950.00	854.43	53.96	14.24	856.32	54.08

Main Results for each time segment

Main results: (16:00-16:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	59.35	59.35	14.84	0.00	0.00	58.88	51.40	1368.49	0.00	565.42	410.05	0.105	0.00	0.12	7.101	A
West	747.03	96.09	24.02	650.94	0.00	95.61	719.91	707.47	0.00	947.99	802.71	0.101	0.00	0.12	4.469	A
South	1146.45	546.38	136.59	600.07	650.94	543.15	704.66	98.42	0.00	1300.49	881.57	0.420	0.00	0.81	5.323	A
East	894.93	894.93	223.73	0.00	600.07	872.99	94.67	546.90	0.00	1040.92	829.01	0.860	0.00	5.48	20.524	C

Main results: (16:15-16:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	68.48	68.48	17.12	0.00	0.00	68.27	59.25	1535.26	0.00	468.90	410.05	0.146	0.12	0.17	8.981	A
West	861.96	110.87	27.72	751.09	0.00	110.76	822.15	781.38	0.00	905.21	802.71	0.122	0.12	0.15	4.796	A
South	1322.83	630.43	157.61	692.39	751.09	629.42	778.13	114.01	0.00	1291.46	881.57	0.488	0.81	1.06	6.096	A
East	1032.61	1032.61	258.15	0.00	692.39	960.74	109.66	633.77	0.00	990.65	829.01	1.042	5.48	23.45	68.053	F

Main results: (16:30-16:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	64.83	64.83	16.21	0.00	0.00	64.87	56.61	1519.88	0.00	477.80	410.05	0.136	0.17	0.16	8.718	A
West	815.99	104.96	26.24	711.03	0.00	104.98	795.18	789.56	0.00	900.48	802.71	0.117	0.15	0.14	4.791	A

South	1252.28	596.81	149.20	655.46	711.03	597.16	786.47	108.07	0.00	1294.90	881.57	0.461	1.06	0.97	5.804	A
East	977.54	977.54	244.38	0.00	655.46	975.21	103.95	601.28	0.00	1009.45	829.01	0.968	23.45	24.03	91.522	F

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	59.35	59.35	14.84	0.00	0.00	59.45	52.26	1457.20	0.00	514.08	410.05	0.115	0.16	0.13	7.921	A
West	747.03	96.09	24.02	650.94	0.00	96.15	743.93	772.72	0.00	910.22	802.71	0.106	0.14	0.13	4.680	A
South	1146.45	546.38	136.59	600.07	650.94	546.97	769.89	98.98	0.00	1300.16	881.57	0.420	0.97	0.82	5.381	A
East	894.93	894.93	223.73	0.00	600.07	958.72	95.21	550.74	0.00	1038.70	829.01	0.862	24.03	8.08	54.728	F

Queueing Delay Results for each time segment

Queueing Delay results: (16:00-16:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.69	0.11	7.101	A	A
West	1.74	0.12	4.469	A	A
South	11.67	0.78	5.323	A	A
East	67.73	4.52	20.524	C	C

Queueing Delay results: (16:15-16:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	2.47	0.16	8.981	A	A
West	2.17	0.14	4.796	A	A
South	15.45	1.03	6.096	A	A
East	231.38	15.43	68.053	F	E

Queueing Delay results: (16:30-16:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	2.41	0.16	8.718	A	A
West	2.12	0.14	4.791	A	A
South	14.81	0.99	5.804	A	A
East	356.24	23.75	91.522	F	F

Queueing Delay results: (16:45-17:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	2.02	0.13	7.921	A	A
West	1.91	0.13	4.680	A	A
South	12.60	0.84	5.381	A	A
East	199.08	13.27	54.728	F	D

Queue Variation Results for each time segment

Queue Variation results: (16:00-16:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.12	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.12	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.81	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	5.48	0.00	1.05	13.71	18.99			N/A	N/A

Queue Variation results: (16:15-16:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.17	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.15	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	1.06	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	23.45	1.05	16.88	48.52	61.18			N/A	N/A

Queue Variation results: (16:30-16:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.16	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.14	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.97	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	24.03	0.00	11.60	61.18	83.34			N/A	N/A

Queue Variation results: (16:45-17:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.13	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.13	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.82	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	8.08	0.00	0.00	11.60	29.54			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	18	10	0	16	16
Future Volume (vph)	0	18	10	0	16	16
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.932	
Flt Protected				0.950	0.976	
Satd. Flow (prot)	1514	0	0	1662	1592	0
Flt Permitted				0.950	0.976	
Satd. Flow (perm)	1514	0	0	1662	1592	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	20	11	0	17	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	0	0	11	34	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	18	10	0	16	16
Future Volume (Veh/h)	0	18	10	0	16	16
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	20	11	0	17	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	51	0	63	43	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	51	0	63	43	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	99	100	99	
cM capacity (veh/h)	836	1091	913	844	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	20	11	34
Volume Left	0	11	17
Volume Right	20	0	17
cSH	1091	913	1636
Volume to Capacity	0.02	0.01	0.01
Queue Length 95th (m)	0.4	0.3	0.3
Control Delay (s/veh)	8.4	9.0	3.6
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.0	3.6
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	17.3%	ICU Level of Service	A
Analysis Period (min)	15		

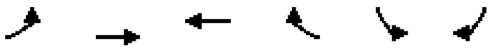
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	4	0	0	3	3
Future Volume (vph)	0	4	0	0	3	3
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.932	
Flt Protected					0.976	
Satd. Flow (prot)	1514	0	0	1750	1592	0
Flt Permitted					0.976	
Satd. Flow (perm)	1514	0	0	1750	1592	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	4	0	0	3	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	0	0	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	4	0	0	3	3
Future Volume (Veh/h)	0	4	0	0	3	3
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	4	0	0	3	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	9	0	12	8	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	9	0	12	8	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	100	100	100	
cM capacity (veh/h)	888	1091	1006	890	1636	

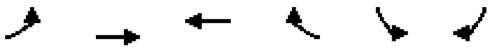
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	4	0	6
Volume Left	0	0	3
Volume Right	4	0	3
cSH	1091	1700	1636
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s/veh)	8.3	0.0	3.6
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	0.0	3.6
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	39	649	530	6	4	37
Future Volume (vph)	39	649	530	6	4	37
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.998		0.877	
Flt Protected	0.950				0.995	
Satd. Flow (prot)	1662	3325	3318	0	1527	0
Flt Permitted	0.950				0.995	
Satd. Flow (perm)	1662	3325	3318	0	1527	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	42	705	576	7	4	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	705	583	0	44	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.8%		ICU Level of Service A	
Analysis Period (min) 15			



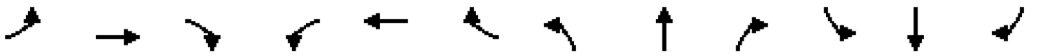
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	39	649	530	6	4	37
Future Volume (Veh/h)	39	649	530	6	4	37
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	42	705	576	7	4	40
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	583				1016	292
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	583				1016	292
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				98	94
cM capacity (veh/h)	1001				228	711

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	42	353	353	384	199	44
Volume Left	42	0	0	0	0	4
Volume Right	0	0	0	0	7	40
cSH	1001	1700	1700	1700	1700	596
Volume to Capacity	0.04	0.21	0.21	0.23	0.12	0.07
Queue Length 95th (m)	1.0	0.0	0.0	0.0	0.0	1.9
Control Delay (s/veh)	8.8	0.0	0.0	0.0	0.0	11.5
Lane LOS	A					B
Approach Delay (s/veh)	0.5			0.0		11.5
Approach LOS						B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	32.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	609	0	1	470	6	4	0	0	3	0	64
Future Volume (vph)	51	609	0	1	470	6	4	0	0	3	0	64
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.998						0.871	
Flt Protected		0.996						0.950			0.998	
Satd. Flow (prot)	0	1743	0	0	1746	0	0	1662	0	0	1521	0
Flt Permitted		0.996						0.950			0.998	
Satd. Flow (perm)	0	1743	0	0	1746	0	0	1662	0	0	1521	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	55	662	0	1	511	7	4	0	0	3	0	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	717	0	0	519	0	0	4	0	0	73	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 79.6%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	609	0	1	470	6	4	0	0	3	0	64
Future Volume (Veh/h)	51	609	0	1	470	6	4	0	0	3	0	64
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	55	662	0	1	511	7	4	0	0	3	0	70
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	518			662			1359	1292	662	1289	1289	515
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	518			662			1359	1292	662	1289	1289	515
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 %	95			100			96	100	100	98	100	88
cM capacity (veh/h)	1058			936			107	156	465	136	157	564

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	717	519	4	73
Volume Left	55	1	4	3
Volume Right	0	7	0	70
cSH	1058	936	107	500
Volume to Capacity	0.05	0.00	0.04	0.15
Queue Length 95th (m)	1.3	0.0	0.9	4.1
Control Delay (s/veh)	1.3	0.0	40.0	13.4
Lane LOS	A	A	E	B
Approach Delay (s/veh)	1.3	0.0	40.0	13.4
Approach LOS			E	B

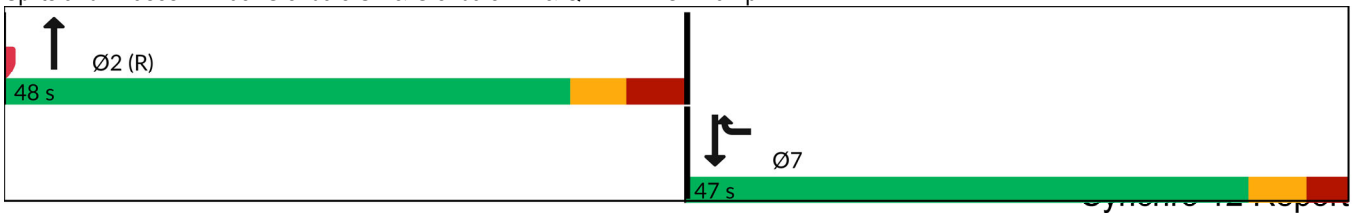
Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	244	759	706
Future Volume (vph)	244	759	706
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	265	825	767
Shared Lane Traffic (%)			
Lane Group Flow (vph)	265	825	767
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	33.1	50.9	33.1
Actuated g/C Ratio	0.35	0.54	0.35
v/c Ratio	0.51	0.51	0.72
Control Delay (s/veh)	27.4	16.5	30.7
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	27.4	16.5	30.7
LOS	C	B	C
Approach Delay (s/veh)		16.5	30.7
Approach LOS		B	C
Stops (vph)	182	477	584
Fuel Used(l)	11	25	32
CO Emissions (g/hr)	203	457	598
NOx Emissions (g/hr)	39	88	116
VOC Emissions (g/hr)	47	105	138
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay (s/veh): 23.9		Intersection LOS: C	
Intersection Capacity Utilization 48.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	265	825	767
v/c Ratio	0.51	0.51	0.72
Control Delay (s/veh)	27.4	16.5	30.7
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	27.4	16.5	30.7
Queue Length 50th (m)	40.0	50.6	66.8
Queue Length 95th (m)	56.6	79.8	77.5
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	656	1620	1348
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.40	0.51	0.57

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	244	759	706
Future Volume (vph)	244	759	706
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	265	825	767
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	265	825	767
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	31.1	48.9	31.1
Effective Green, g (s)	33.1	50.9	33.1
Actuated g/C Ratio	0.35	0.54	0.35
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	517	1619	1062
v/s Ratio Prot	0.18	c0.27	c0.25
v/s Ratio Perm			
v/c Ratio	0.51	0.51	0.72
Uniform Delay, d1	24.6	14.1	26.9
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.9	1.1	2.5
Delay (s)	25.4	15.2	29.4
Level of Service	C	B	C
Approach Delay (s/veh)		15.2	29.4
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

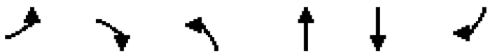
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	725	0	0	0	0	706
Future Volume (vph)	725	0	0	0	0	706
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	788	0	0	0	0	767
Shared Lane Traffic (%)						
Lane Group Flow (vph)	788	0	0	0	0	767
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 71.5%		ICU Level of Service C	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	725	0	0	0	0	706
Future Volume (Veh/h)	725	0	0	0	0	706
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	788	0	0	0	0	767
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	384	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	384	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			100	
cM capacity (veh/h)	592	1084			1622	

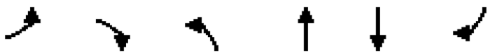
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	788	384	384
Volume Left	788	0	0
Volume Right	0	0	0
cSH	592	1700	1700
Volume to Capacity	1.33	0.23	0.23
Queue Length 95th (m)	267.0	0.0	0.0
Control Delay (s/veh)	181.6	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	181.6	0.0	
Approach LOS	F		

Intersection Summary			
Average Delay	92.0		
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	563	0	0	1718	0	0
Future Volume (vph)	563	0	0	1718	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	612	0	0	1867	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	612	0	0	1867	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	148.6%	ICU Level of Service	H
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	563	0	0	1718	0	0
Future Volume (Veh/h)	563	0	0	1718	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	612	0	0	1867	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	934	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	934	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	100	100			
cM capacity (veh/h)	265	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	612	934	934
Volume Left	612	0	0
Volume Right	0	0	0
cSH	265	1700	1700
Volume to Capacity	2.31	0.55	0.55
Queue Length 95th (m)	385.4	0.0	0.0
Control Delay (s/veh)	632.2	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	632.2	0.0	
Approach LOS	F		

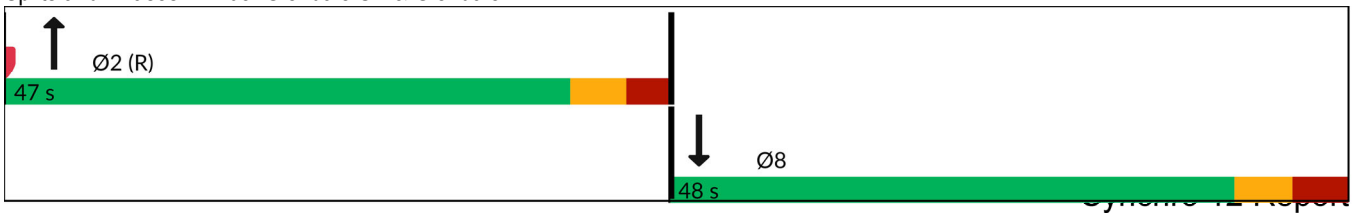
Intersection Summary			
Average Delay	156.1		
Intersection Capacity Utilization	148.6%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1718	0	0	837	0	0	0	0	0	0	0
Future Volume (vph)	0	1718	0	0	837	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1867	0	0	910	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1867	0	0	910	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		47.3			32.7							
Actuated g/C Ratio		0.50			0.34							
v/c Ratio		1.13			0.80							
Control Delay (s/veh)		91.1			33.5							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		91.1			33.5							
LOS		F			C							
Approach Delay (s/veh)		91.1			33.5							
Approach LOS		F			C							
Stops (vph)		1358			721							
Fuel Used(l)		159			42							
CO Emissions (g/hr)		2956			778							
NOx Emissions (g/hr)		570			150							
VOC Emissions (g/hr)		682			179							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.13			
Intersection Signal Delay (s/veh): 72.2		Intersection LOS: E	
Intersection Capacity Utilization 57.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	1867	910
v/c Ratio	1.13	0.80
Control Delay (s/veh)	91.1	33.5
Queue Delay	0.0	0.0
Total Delay (s/veh)	91.1	33.5
Queue Length 50th (m)	~221.0	82.7
Queue Length 95th (m)	#290.6	94.6
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1656	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.13	0.65

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	1718	0	0	837	0	0	0	0	0	0	0
Future Volume (vph)	0	1718	0	0	837	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1867	0	0	910	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1867	0	0	910	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		47.3			32.7							
Effective Green, g (s)		47.3			32.7							
Actuated g/C Ratio		0.50			0.34							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1655			1144							
v/s Ratio Prot		c0.56			c0.27							
v/s Ratio Perm												
v/c Ratio		1.13			0.80							
Uniform Delay, d1		23.9			28.1							
Progression Factor		1.00			1.00							
Incremental Delay, d2		66.0			3.9							
Delay (s)		89.9			32.0							
Level of Service		F			C							
Approach Delay (s/veh)		89.9			32.0			0.0			0.0	
Approach LOS		F			C			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	70.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale-2.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:53:34 PM

Summary of intersection performance

	Sat						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - BG (2044)						
Leg North	0.10	~1	7.07	0.09	A	7.88	A
Leg West	0.15	~1	3.68	0.13	A		
Leg South	1.69	2.04	7.73	0.63	A		
Leg East	2.17	4.06	12.93	0.69	B		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - TT (2039), AM" model duration: 8:00 AM - 9:00 AM
"D2 - TT (2039), PM" model duration: 4:00 PM - 5:00 PM
"D3 - TT (2039), Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2044), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2044), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2044), Sat " model duration: 12:00 PM - 1:00 PM
"D7 - TT (2044), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2044), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - TT REM (2044), AM" model duration: 8:00 AM - 9:00 AM
"D11 - TT REM (2044), PM" model duration: 4:00 PM - 5:00 PM
"D12 - TT REM (2044), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:53:33 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - BG (2044), Sat

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
BG (2044), Sat	BG (2044)	Sat		PHF	12:00	13:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				7.88	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)

North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	45.00	100.000
West	PHF	✓	628.00	100.000
South	PHF	✓	1297.00	100.000
East	PHF	✓	566.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	45.00	0.92	SecondQuarter
West	628.00	0.92	SecondQuarter
South	1297.00	0.92	SecondQuarter
East	566.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	**West**	**South**	**East**
From	**North**	0.000	15.000	24.000	6.000
	West	10.000	0.000	493.000	125.000
	South	18.000	716.000	0.000	563.000
	East	6.000	218.000	342.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	**West**	**South**	**East**
From	**North**	0.00	0.33	0.53	0.13
	West	0.02	0.00	0.79	0.20
	South	0.01	0.55	0.00	0.43
	East	0.01	0.39	0.60	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.036	1.000
	South	1.000	1.021	1.000	1.029
	East	1.000	1.007	1.022	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	3.6	0.0
	South	0.0	2.1	0.0	2.9
	East	0.0	0.7	2.2	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.09	7.07	0.10	~1	A	45.00	45.00	4.73	6.30	0.08	4.73	6.30
West	0.13	3.68	0.15	~1	A	628.00	135.00	8.03	3.57	0.13	8.03	3.57
South	0.63	7.73	1.69	2.04	A	1297.00	734.00	83.18	6.80	1.39	83.21	6.80
East	0.69	12.93	2.17	4.06	B	566.00	566.00	97.40	10.33	1.62	97.46	10.33

Main Results for each time segment

Main results: (12:00-12:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	42.39	42.39	10.60	0.00	0.00	42.12	31.82	1192.45	0.00	667.30	414.52	0.064	0.00	0.07	5.755	A
West	591.59	127.17	31.79	464.42	0.00	126.68	887.35	347.21	0.00	1156.49	899.21	0.110	0.00	0.12	3.493	A
South	1221.81	691.45	172.86	530.36	464.42	686.73	341.60	132.30	0.00	1280.88	805.03	0.540	0.00	1.18	6.137	A
East	533.19	533.19	133.30	0.00	530.36	528.15	122.91	696.12	0.00	954.56	852.98	0.559	0.00	1.26	8.480	A

Main results: (12:15-12:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	48.91	48.91	12.23	0.00	0.00	48.80	36.86	1381.34	0.00	557.98	414.52	0.088	0.07	0.10	7.068	A
West	682.61	146.74	36.68	535.87	0.00	146.63	1028.08	402.06	0.00	1124.75	899.21	0.130	0.12	0.15	3.680	A
South	1409.78	797.83	199.46	611.96	535.87	795.78	395.56	153.14	0.00	1268.81	805.03	0.629	1.18	1.69	7.731	A
East	615.22	615.22	153.80	0.00	611.96	611.56	142.28	806.64	0.00	890.59	852.98	0.691	1.26	2.17	12.932	B

Main results: (12:30-12:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	46.30	46.30	11.58	0.00	0.00	46.35	35.02	1315.01	0.00	596.37	414.52	0.078	0.10	0.08	6.544	A
West	646.20	138.91	34.73	507.29	0.00	138.95	977.74	383.62	0.00	1135.42	899.21	0.122	0.15	0.14	3.614	A

South	1334.59	755.28	188.82	579.32	507.29	755.99	377.44	145.13	0.00	1273.45	805.03	0.593	1.69	1.51	7.113	A
East	582.41	582.41	145.60	0.00	579.32	583.75	134.84	766.28	0.00	913.95	852.98	0.637	2.17	1.84	11.130	B

Main results: (12:45-13:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	42.39	42.39	10.60	0.00	0.00	42.45	32.08	1205.22	0.00	659.91	414.52	0.064	0.08	0.07	5.830	A
West	591.59	127.17	31.79	464.42	0.00	127.24	895.96	351.72	0.00	1153.89	899.21	0.110	0.14	0.12	3.505	A
South	1221.81	691.45	172.86	530.36	464.42	692.64	346.06	132.90	0.00	1280.53	805.03	0.540	1.51	1.21	6.264	A
East	533.19	533.19	133.30	0.00	530.36	535.24	123.47	702.07	0.00	951.12	852.98	0.561	1.84	1.32	8.838	A

Queueing Delay Results for each time segment

Queueing Delay results: (12:00-12:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.98	0.07	5.755	A	A
West	1.81	0.12	3.493	A	A
South	16.89	1.13	6.137	A	A
East	17.78	1.19	8.480	A	A

Queueing Delay results: (12:15-12:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.40	0.09	7.068	A	A
West	2.21	0.15	3.680	A	A
South	24.32	1.62	7.731	A	A
East	30.34	2.02	12.932	B	B

Queueing Delay results: (12:30-12:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.29	0.09	6.544	A	A
West	2.12	0.14	3.614	A	A
South	23.21	1.55	7.113	A	A
East	28.57	1.90	11.130	B	B

Queueing Delay results: (12:45-13:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.06	0.07	5.830	A	A
West	1.89	0.13	3.505	A	A
South	18.75	1.25	6.264	A	A
East	20.71	1.38	8.838	A	A

Queue Variation Results for each time segment

Queue Variation results: (12:00-12:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.12	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.18	0.00	0.00	1.02	2.04			N/A	N/A
East	1.26	0.00	0.00	2.03	2.03			N/A	N/A

Queue Variation results: (12:15-12:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.10	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.15	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.69	?	?	?	?	Percentiles could not be calculated. This may be		N/A	N/A

						because the mean queue is very small or very big.			
East	2.17	0.00	0.00	0.00	4.06			N/A	N/A

Queue Variation results: (12:30-12:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.14	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.51	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.84	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:45-13:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.12	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.21	0.00	0.00	1.02	2.04			N/A	N/A
East	1.32	0.00	0.00	2.03	3.05			N/A	N/A

Appendix G

Total Traffic Operations

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	14	25	1	8	13
Future Volume (vph)	0	14	25	1	8	13
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.918	
Flt Protected				0.954	0.981	
Satd. Flow (prot)	1514	0	0	1669	1576	0
Flt Permitted				0.954	0.981	
Satd. Flow (perm)	1514	0	0	1669	1576	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	0	15	27	1	9	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	15	0	0	28	23	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	14	25	1	8	13
Future Volume (Veh/h)	0	14	25	1	8	13
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	15	27	1	9	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	32	0	40	25	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	32	0	40	25	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	97	100	99	
cM capacity (veh/h)	860	1091	952	866	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	15	28	23
Volume Left	0	27	9
Volume Right	15	0	14
cSH	1091	948	1636
Volume to Capacity	0.01	0.03	0.01
Queue Length 95th (m)	0.3	0.7	0.1
Control Delay (s/veh)	8.3	8.9	2.8
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	8.9	2.8
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

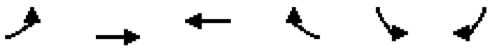
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	38	11	3	1
Future Volume (vph)	0	0	38	11	3	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.966	
Flt Protected				0.963	0.964	
Satd. Flow (prot)	1750	0	0	1669	1626	0
Flt Permitted				0.963	0.964	
Satd. Flow (perm)	1750	0	0	1669	1626	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	1%	0%	1%
Adj. Flow (vph)	0	0	41	12	3	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	53	4	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	38	11	3	1
Future Volume (Veh/h)	0	0	38	11	3	1
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	41	12	3	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	7	0	7	7	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	7	0	7	7	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	96	99	100	
cM capacity (veh/h)	891	1091	1015	889	1636	

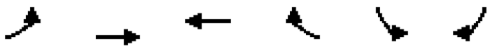
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	0	53	4
Volume Left	0	41	3
Volume Right	0	0	1
cSH	1700	983	1636
Volume to Capacity	0.00	0.05	0.00
Queue Length 95th (m)	0.0	1.4	0.0
Control Delay (s/veh)	0.0	8.9	5.4
Lane LOS	A	A	A
Approach Delay (s/veh)	0.0	8.9	5.4
Approach LOS	A	A	

Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	64	540	456	8	4	62
Future Volume (vph)	64	540	456	8	4	62
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.997		0.873	
Flt Protected	0.950				0.997	
Satd. Flow (prot)	1662	3325	3315	0	1523	0
Flt Permitted	0.950				0.997	
Satd. Flow (perm)	1662	3325	3315	0	1523	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	70	587	496	9	4	67
Shared Lane Traffic (%)						
Lane Group Flow (vph)	70	587	505	0	71	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

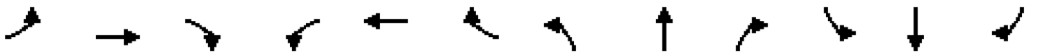
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	64	540	456	8	4	62
Future Volume (Veh/h)	64	540	456	8	4	62
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	587	496	9	4	67
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	505				934	253
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	505				934	253
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				98	91
cM capacity (veh/h)	1070				251	753

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	70	294	294	331	174	71
Volume Left	70	0	0	0	0	4
Volume Right	0	0	0	0	9	67
cSH	1070	1700	1700	1700	1700	677
Volume to Capacity	0.07	0.17	0.17	0.19	0.10	0.10
Queue Length 95th (m)	1.7	0.0	0.0	0.0	0.0	2.8
Control Delay (s/veh)	8.6	0.0	0.0	0.0	0.0	10.9
Lane LOS	A					B
Approach Delay (s/veh)	0.9			0.0		10.9
Approach LOS						B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	32.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	411	5	1	404	12	7	0	2	3	0	58
Future Volume (vph)	133	411	5	1	404	12	7	0	2	3	0	58
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.996			0.973			0.871	
Flt Protected		0.988						0.962			0.998	
Satd. Flow (prot)	0	1727	0	0	1743	0	0	1638	0	0	1521	0
Flt Permitted		0.988						0.962			0.998	
Satd. Flow (perm)	0	1727	0	0	1743	0	0	1638	0	0	1521	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	145	447	5	1	439	13	8	0	2	3	0	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	597	0	0	453	0	0	10	0	0	66	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 69.7%		ICU Level of Service C	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	411	5	1	404	12	7	0	2	3	0	58
Future Volume (Veh/h)	133	411	5	1	404	12	7	0	2	3	0	58
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	145	447	5	1	439	13	8	0	2	3	0	63
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	452			452			1250	1194	450	1189	1190	446
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	452			452			1250	1194	450	1189	1190	446
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 %	87			100			93	100	100	98	100	90
cM capacity (veh/h)	1119			1119			122	164	614	149	165	617

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	597	453	10	66
Volume Left	145	1	8	3
Volume Right	5	13	2	63
cSH	1119	1119	145	540
Volume to Capacity	0.13	0.00	0.07	0.12
Queue Length 95th (m)	3.6	0.0	1.8	3.3
Control Delay (s/veh)	3.3	0.0	31.6	12.6
Lane LOS	A	A	D	B
Approach Delay (s/veh)	3.3	0.0	31.6	12.6
Approach LOS			D	B

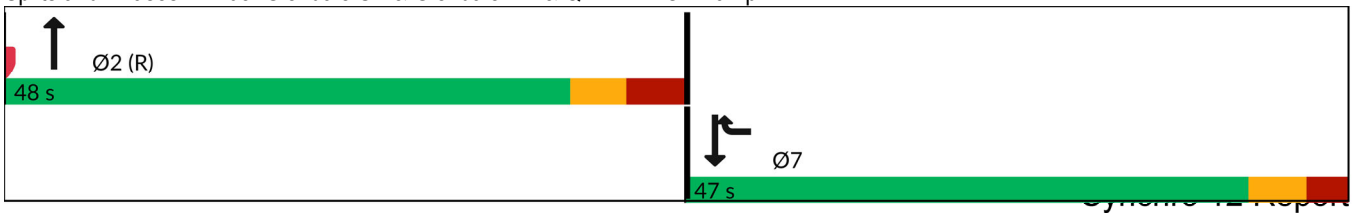
Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	298	487	514
Future Volume (vph)	298	487	514
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	324	529	559
Shared Lane Traffic (%)			
Lane Group Flow (vph)	324	529	559
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	29.4	54.6	29.4
Actuated g/C Ratio	0.31	0.57	0.31
v/c Ratio	0.71	0.30	0.59
Control Delay (s/veh)	36.7	12.3	29.5
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	36.7	12.3	29.5
LOS	D	B	C
Approach Delay (s/veh)		12.3	29.5
Approach LOS		B	C
Stops (vph)	250	249	409
Fuel Used(l)	16	13	23
CO Emissions (g/hr)	299	240	420
NOx Emissions (g/hr)	58	46	81
VOC Emissions (g/hr)	69	55	97
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay (s/veh): 24.7		Intersection LOS: C	
Intersection Capacity Utilization 43.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	324	529	559
v/c Ratio	0.71	0.30	0.59
Control Delay (s/veh)	36.7	12.3	29.5
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	36.7	12.3	29.5
Queue Length 50th (m)	55.0	25.8	47.7
Queue Length 95th (m)	72.6	45.9	54.7
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	656	1736	1348
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.49	0.30	0.41

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	298	487	514
Future Volume (vph)	298	487	514
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	324	529	559
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	324	529	559
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	27.4	52.6	27.4
Effective Green, g (s)	29.4	54.6	29.4
Actuated g/C Ratio	0.31	0.57	0.31
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	459	1737	943
v/s Ratio Prot	c0.22	c0.18	0.18
v/s Ratio Perm			
v/c Ratio	0.71	0.30	0.59
Uniform Delay, d1	29.0	10.4	27.7
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	4.9	0.5	1.0
Delay (s)	33.9	10.9	28.7
Level of Service	C	B	C
Approach Delay (s/veh)		10.9	28.7
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

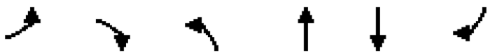
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	240	0	0	0	0	514
Future Volume (vph)	240	0	0	0	0	514
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	261	0	0	0	0	559
Shared Lane Traffic (%)						
Lane Group Flow (vph)	261	0	0	0	0	559
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	240	0	0	0	0	514
Future Volume (Veh/h)	240	0	0	0	0	514
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	261	0	0	0	0	559
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	280	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	280	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	62	100			100	
cM capacity (veh/h)	687	1084			1622	

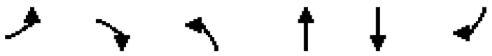
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	261	280	280
Volume Left	261	0	0
Volume Right	0	0	0
cSH	687	1700	1700
Volume to Capacity	0.38	0.16	0.16
Queue Length 95th (m)	14.2	0.0	0.0
Control Delay (s/veh)	13.4	0.0	0.0
Lane LOS	B		
Approach Delay (s/veh)	13.4	0.0	
Approach LOS	B		

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	354	0	0	532	0	0
Future Volume (vph)	354	0	0	532	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	385	0	0	578	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	385	0	0	578	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.0%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	354	0	0	532	0	0
Future Volume (Veh/h)	354	0	0	532	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	385	0	0	578	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	289	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	289	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	43	100	100			
cM capacity (veh/h)	678	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	385	289	289
Volume Left	385	0	0
Volume Right	0	0	0
cSH	678	1700	1700
Volume to Capacity	0.57	0.17	0.17
Queue Length 95th (m)	28.7	0.0	0.0
Control Delay (s/veh)	17.1	0.0	0.0
Lane LOS	C		
Approach Delay (s/veh)	17.1	0.0	
Approach LOS	C		

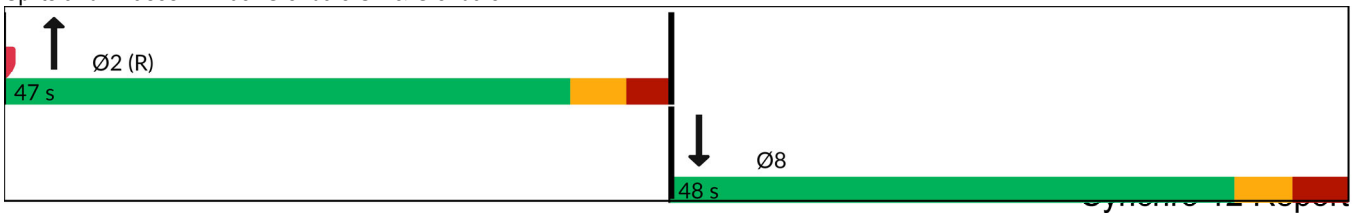
Intersection Summary			
Average Delay	6.8		
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	532	0	0	342	0	0	0	0	0	0	0
Future Volume (vph)	0	532	0	0	342	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	578	0	0	372	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	578	0	0	372	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		63.9			16.1							
Actuated g/C Ratio		0.67			0.17							
v/c Ratio		0.26			0.66							
Control Delay (s/veh)		6.9			42.3							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		6.9			42.3							
LOS		A			D							
Approach Delay (s/veh)		6.9			42.3							
Approach LOS		A			D							
Stops (vph)		201			308							
Fuel Used(l)		10			20							
CO Emissions (g/hr)		183			366							
NOx Emissions (g/hr)		35			71							
VOC Emissions (g/hr)		42			85							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay (s/veh): 20.8		Intersection LOS: C	
Intersection Capacity Utilization 21.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	578	372
v/c Ratio	0.26	0.66
Control Delay (s/veh)	6.9	42.3
Queue Delay	0.0	0.0
Total Delay (s/veh)	6.9	42.3
Queue Length 50th (m)	20.5	35.7
Queue Length 95th (m)	33.0	48.1
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	2235	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.26	0.27

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	532	0	0	342	0	0	0	0	0	0	0
Future Volume (vph)	0	532	0	0	342	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	578	0	0	372	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	578	0	0	372	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		63.9			16.1							
Effective Green, g (s)		63.9			16.1							
Actuated g/C Ratio		0.67			0.17							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		2236			563							
v/s Ratio Prot		c0.17			c0.11							
v/s Ratio Perm												
v/c Ratio		0.26			0.66							
Uniform Delay, d1		6.2			36.9							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.3			2.9							
Delay (s)		6.4			39.8							
Level of Service		A			D							
Approach Delay (s/veh)		6.4			39.8			0.0			0.0	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	21.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:36:59 PM

Summary of intersection performance

	AM						
	Queue (PCE)	**95% Queue (PCE)**	**Delay (s)**	**V/C Ratio**	**LOS**	**Intersection Delay (s)**	**Intersection LOS**
	A1 - TT (2027)						
Leg North	0.07	~1	6.37	0.06	A	6.07	A
Leg West	0.13	~1	3.82	0.11	A		
Leg South	0.93	~1	5.75	0.46	A		
Leg East	1.28	1.14	8.59	0.53	A		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM " model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:36:59 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - TT (2027), AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
TT (2027), AM	TT (2027)	AM		PHF	08:00	09:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				6.07	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	38.00	100.000
West	PHF	✓	420.00	100.000
South	PHF	✓	1010.00	100.000
East	PHF	✓	501.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	38.00	0.92	SecondQuarter
West	420.00	0.92	SecondQuarter
South	1010.00	0.92	SecondQuarter
East	501.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	14.000	21.000	3.000
	West	2.000	0.000	306.000	112.000
	South	15.000	523.000	0.000	472.000

	East	0.000	131.000	369.000	1.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.37	0.55	0.08
	West	0.00	0.00	0.73	0.27
	South	0.01	0.52	0.00	0.47
	East	0.00	0.26	0.74	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.154	1.200	1.333
	West	1.000	1.000	1.139	1.047
	South	1.071	1.119	1.000	1.095
	East	1.000	1.057	1.170	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	15.4	20.0	33.3
	West	0.0	0.0	13.9	4.7
	South	7.1	11.9	0.0	9.5
	East	0.0	5.7	17.0	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.06	6.37	0.07	~1	A	38.00	38.00	3.74	5.90	0.06	3.74	5.90
West	0.11	3.82	0.13	~1	A	420.00	114.00	7.03	3.70	0.12	7.03	3.70
South	0.46	5.75	0.93	~1	A	1010.00	538.00	47.96	5.35	0.80	47.97	5.35
East	0.53	8.59	1.28	1.14	A	501.00	501.00	63.08	7.55	1.05	63.10	7.56

Main Results for each time segment

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	35.80	35.80	8.95	0.00	0.00	35.58	15.93	958.29	0.00	802.83	384.00	0.045	0.00	0.06	5.591	A
West	395.65	107.39	26.85	288.26	0.00	106.96	625.48	368.38	0.00	1144.24	850.07	0.094	0.00	0.11	3.628	A
South	951.45	506.81	126.70	444.64	288.26	503.96	364.64	110.70	0.00	1293.37	846.92	0.392	0.00	0.71	5.078	A
East	471.96	471.96	117.99	0.00	444.64	468.38	108.83	505.83	0.00	1064.69	858.65	0.443	0.00	0.89	6.828	A

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	41.30	41.30	10.33	0.00	0.00	41.24	18.45	1110.66	0.00	714.64	384.00	0.058	0.06	0.07	6.371	A

West	456.52	123.91	30.98	332.61	0.00	123.82	724.83	427.07	0.00	1110.28	850.07	0.112	0.11	0.13	3.817	A
South	1097.83	584.78	146.20	513.04	332.61	583.94	422.73	128.16	0.00	1283.27	846.92	0.456	0.71	0.93	5.745	A
East	544.57	544.57	136.14	0.00	513.04	543.01	125.99	586.11	0.00	1018.23	858.65	0.535	0.89	1.28	8.589	A

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	39.10	39.10	9.78	0.00	0.00	39.13	17.50	1054.52	0.00	747.13	384.00	0.052	0.07	0.07	6.062	A
West	432.17	117.30	29.33	314.87	0.00	117.34	687.80	405.84	0.00	1122.56	850.07	0.105	0.13	0.12	3.748	A
South	1039.28	553.59	138.40	485.68	314.87	553.89	401.72	121.46	0.00	1287.15	846.92	0.430	0.93	0.85	5.491	A
East	515.52	515.52	128.88	0.00	485.68	516.07	119.40	555.95	0.00	1035.69	858.65	0.498	1.28	1.15	7.892	A

Main results: (08:45-09:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	35.80	35.80	8.95	0.00	0.00	35.84	16.03	966.02	0.00	798.35	384.00	0.045	0.07	0.06	5.626	A
West	395.65	107.39	26.85	288.26	0.00	107.45	630.01	371.85	0.00	1142.24	850.07	0.094	0.12	0.11	3.641	A
South	951.45	506.81	126.70	444.64	288.26	507.31	368.07	111.22	0.00	1293.08	846.92	0.392	0.85	0.73	5.123	A
East	471.96	471.96	117.99	0.00	444.64	472.85	109.33	509.20	0.00	1062.74	858.65	0.444	1.15	0.92	6.956	A

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-08:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.81	0.05	5.591	A	A
West	1.59	0.11	3.628	A	A
South	10.35	0.69	5.078	A	A
East	12.82	0.85	6.828	A	A

Queueing Delay results: (08:15-08:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.07	0.07	6.371	A	A
West	1.94	0.13	3.817	A	A
South	13.53	0.90	5.745	A	A
East	18.50	1.23	8.589	A	A

Queueing Delay results: (08:30-08:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.01	0.07	6.062	A	A
West	1.85	0.12	3.748	A	A
South	12.96	0.86	5.491	A	A
East	17.56	1.17	7.892	A	A

Queueing Delay results: (08:45-09:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.86	0.06	5.626	A	A
West	1.65	0.11	3.641	A	A
South	11.11	0.74	5.123	A	A
East	14.20	0.95	6.956	A	A

Queue Variation Results for each time segment

Queue Variation results: (08:00-08:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.11	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.71	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.89	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:15-08:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.13	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.93	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.28	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:30-08:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.12	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.85	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.15	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:45-09:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.11	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.73	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.92	0.00	0.00	0.00	1.14			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	18	25	0	13	23
Future Volume (vph)	0	18	25	0	13	23
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.865				0.913	
Flt Protected				0.950	0.982	
Satd. Flow (prot)	1514	0	0	1662	1569	0
Flt Permitted				0.950	0.982	
Satd. Flow (perm)	1514	0	0	1662	1569	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	20	27	0	14	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	0	0	27	39	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	18	25	0	13	23
Future Volume (Veh/h)	0	18	25	0	13	23
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	20	27	0	14	25
Pedestrians					1	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	53	1	62	41	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	53	1	62	41	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	97	100	99	
cM capacity (veh/h)	835	1089	915	848	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	20	27	39
Volume Left	0	27	14
Volume Right	20	0	25
cSH	1089	915	1636
Volume to Capacity	0.02	0.03	0.01
Queue Length 95th (m)	0.4	0.7	0.2
Control Delay (s/veh)	8.4	9.1	2.6
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.1	2.6
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

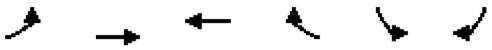
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1	6	0	0	10	27
Future Volume (vph)	1	6	0	0	10	27
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.882				0.902	
Flt Protected					0.986	
Satd. Flow (prot)	1544	0	0	1750	1545	0
Flt Permitted					0.986	
Satd. Flow (perm)	1544	0	0	1750	1545	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	1	7	0	0	11	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	0	40	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1	6	0	0	10	27
Future Volume (Veh/h)	1	6	0	0	10	27
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	7	0	0	11	29
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	51	0	44	37	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	51	0	44	37	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	100	100	99	
cM capacity (veh/h)	839	1091	951	854	1636	

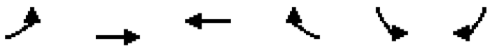
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	8	0	40
Volume Left	0	0	11
Volume Right	7	0	29
cSH	1051	1700	1636
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.2	0.0	0.2
Control Delay (s/veh)	8.5	0.0	2.0
Lane LOS	A	A	A
Approach Delay (s/veh)	8.5	0.0	2.0
Approach LOS	A	A	

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	59	509	640	13	8	40
Future Volume (vph)	59	509	640	13	8	40
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.997		0.888	
Flt Protected	0.950				0.991	
Satd. Flow (prot)	1662	3325	3315	0	1540	0
Flt Permitted	0.950				0.991	
Satd. Flow (perm)	1662	3325	3315	0	1540	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Confl. Peds. (#/hr)	1			1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	64	553	696	14	9	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	553	710	0	52	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

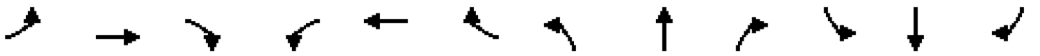
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	59	509	640	13	8	40
Future Volume (Veh/h)	59	509	640	13	8	40
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	64	553	696	14	9	43
Pedestrians		1			1	
Lane Width (m)		3.6			3.6	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	711				1109	357
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	711				1109	357
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				95	93
cM capacity (veh/h)	897				192	644

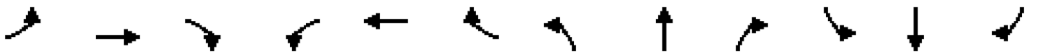
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	64	277	277	464	246	52
Volume Left	64	0	0	0	0	9
Volume Right	0	0	0	0	14	43
cSH	897	1700	1700	1700	1700	458
Volume to Capacity	0.07	0.16	0.16	0.27	0.14	0.11
Queue Length 95th (m)	1.8	0.0	0.0	0.0	0.0	3.1
Control Delay (s/veh)	9.3	0.0	0.0	0.0	0.0	13.9
Lane LOS	A					B
Approach Delay (s/veh)	1.0			0.0		13.9
Approach LOS						B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	411	0	0	483	11	3	0	0	11	0	185
Future Volume (vph)	90	411	0	0	483	11	3	0	0	11	0	185
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.997						0.873	
Flt Protected		0.991						0.950			0.997	
Satd. Flow (prot)	0	1734	0	0	1745	0	0	1662	0	0	1523	0
Flt Permitted		0.991						0.950			0.997	
Satd. Flow (perm)	0	1734	0	0	1745	0	0	1662	0	0	1523	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	98	447	0	0	525	12	3	0	0	12	0	201
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	545	0	0	537	0	0	3	0	0	213	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 80.1%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	411	0	0	483	11	3	0	0	11	0	185
Future Volume (Veh/h)	90	411	0	0	483	11	3	0	0	11	0	185
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	447	0	0	525	12	3	0	0	12	0	201
Pedestrians		1									1	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	538			447			1376	1181	447	1175	1175	533
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	538			447			1376	1181	447	1175	1175	533
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 %	91			100			96	100	100	92	100	63
cM capacity (veh/h)	1040			1124			73	173	616	158	175	550

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	545	537	3	213
Volume Left	98	0	3	12
Volume Right	0	12	0	201
cSH	1040	1124	73	482
Volume to Capacity	0.09	0.00	0.04	0.44
Queue Length 95th (m)	2.5	0.0	1.0	17.8
Control Delay (s/veh)	2.5	0.0	56.7	18.2
Lane LOS	A		F	C
Approach Delay (s/veh)	2.5	0.0	56.7	18.2
Approach LOS			F	C

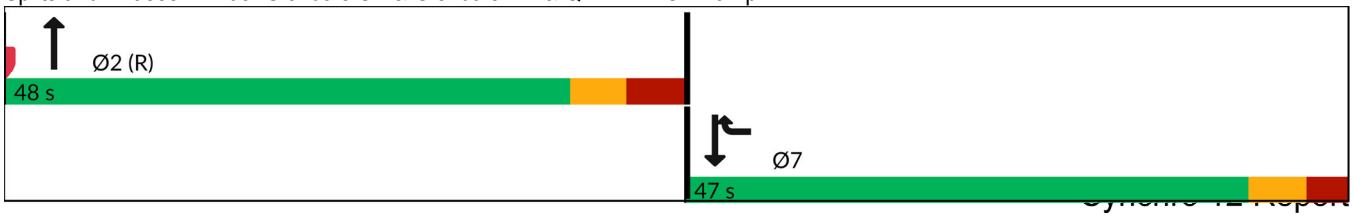
Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	233	394	948
Future Volume (vph)	233	394	948
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	253	428	1030
Shared Lane Traffic (%)			
Lane Group Flow (vph)	253	428	1030
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	40.1	43.9	40.1
Actuated g/C Ratio	0.42	0.46	0.42
v/c Ratio	0.40	0.31	0.80
Control Delay (s/veh)	20.5	17.7	28.9
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	20.5	17.7	28.9
LOS	C	B	C
Approach Delay (s/veh)		17.7	28.9
Approach LOS		B	C
Stops (vph)	153	242	786
Fuel Used(l)	9	13	42
CO Emissions (g/hr)	162	242	780
NOx Emissions (g/hr)	31	47	151
VOC Emissions (g/hr)	37	56	180
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay (s/veh): 24.9		Intersection LOS: C	
Intersection Capacity Utilization 36.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	253	428	1030
v/c Ratio	0.40	0.31	0.80
Control Delay (s/veh)	20.5	17.7	28.9
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	20.5	17.7	28.9
Queue Length 50th (m)	32.7	26.7	87.5
Queue Length 95th (m)	48.0	41.8	103.3
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	671	1428	1380
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.38	0.30	0.75

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	233	394	948
Future Volume (vph)	233	394	948
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	253	428	1030
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	253	428	1030
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	38.1	41.9	38.1
Effective Green, g (s)	40.1	43.9	40.1
Actuated g/C Ratio	0.42	0.46	0.42
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	626	1396	1287
v/s Ratio Prot	0.17	c0.14	c0.34
v/s Ratio Perm			
v/c Ratio	0.40	0.31	0.80
Uniform Delay, d1	19.1	16.0	24.0
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.6	3.7
Delay (s)	19.6	16.6	27.6
Level of Service	B	B	C
Approach Delay (s/veh)		16.6	27.6
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	36.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

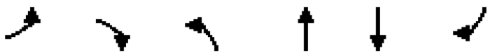
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	348	0	0	0	0	948
Future Volume (vph)	348	0	0	0	0	948
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	378	0	0	0	0	1030
Shared Lane Traffic (%)						
Lane Group Flow (vph)	378	0	0	0	0	1030
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.1%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	348	0	0	0	0	948
Future Volume (Veh/h)	348	0	0	0	0	948
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	378	0	0	0	0	1030
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	515	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	515	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	23	100			100	
cM capacity (veh/h)	489	1084			1622	

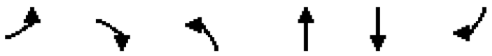
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	378	515	515
Volume Left	378	0	0
Volume Right	0	0	0
cSH	489	1700	1700
Volume to Capacity	0.77	0.30	0.30
Queue Length 95th (m)	54.7	0.0	0.0
Control Delay (s/veh)	33.1	0.0	0.0
Lane LOS	D		
Approach Delay (s/veh)	33.1	0.0	
Approach LOS	D		

Intersection Summary			
Average Delay	8.9		
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	278	0	0	1056	0	0
Future Volume (vph)	278	0	0	1056	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	302	0	0	1148	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	302	0	0	1148	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 75.2%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	278	0	0	1056	0	0
Future Volume (Veh/h)	278	0	0	1056	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	302	0	0	1148	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	574	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	574	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	33	100	100			
cM capacity (veh/h)	449	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	302	574	574
Volume Left	302	0	0
Volume Right	0	0	0
cSH	449	1700	1700
Volume to Capacity	0.67	0.34	0.34
Queue Length 95th (m)	39.0	0.0	0.0
Control Delay (s/veh)	28.0	0.0	0.0
Lane LOS	D		
Approach Delay (s/veh)	28.0	0.0	
Approach LOS	D		

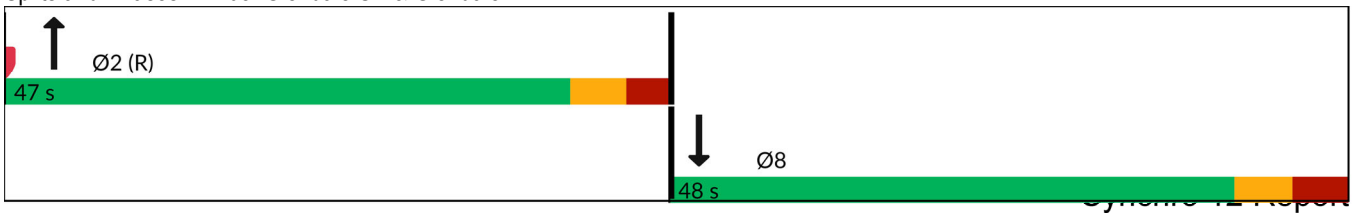
Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1056	0	0	515	0	0	0	0	0	0	0
Future Volume (vph)	0	1056	0	0	515	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1148	0	0	560	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1148	0	0	560	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		58.1			21.9							
Actuated g/C Ratio		0.61			0.23							
v/c Ratio		0.56			0.73							
Control Delay (s/veh)		13.0			39.4							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		13.0			39.4							
LOS		B			D							
Approach Delay (s/veh)		13.0			39.4							
Approach LOS		B			D							
Stops (vph)		606			459							
Fuel Used(l)		29			28							
CO Emissions (g/hr)		541			529							
NOx Emissions (g/hr)		104			102							
VOC Emissions (g/hr)		125			122							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay (s/veh): 21.7		Intersection LOS: C	
Intersection Capacity Utilization 37.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	1148	560
v/c Ratio	0.56	0.73
Control Delay (s/veh)	13.0	39.4
Queue Delay	0.0	0.0
Total Delay (s/veh)	13.0	39.4
Queue Length 50th (m)	63.0	53.0
Queue Length 95th (m)	97.5	65.6
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	2034	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.56	0.40

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1056	0	0	515	0	0	0	0	0	0	0
Future Volume (vph)	0	1056	0	0	515	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1148	0	0	560	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1148	0	0	560	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		58.1			21.9							
Effective Green, g (s)		58.1			21.9							
Actuated g/C Ratio		0.61			0.23							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		2033			766							
v/s Ratio Prot		c0.35			c0.17							
v/s Ratio Perm												
v/c Ratio		0.56			0.73							
Uniform Delay, d1		10.9			33.8							
Progression Factor		1.00			1.00							
Incremental Delay, d2		1.1			3.6							
Delay (s)		12.1			37.4							
Level of Service		B			D							
Approach Delay (s/veh)		12.1			37.4			0.0			0.0	
Approach LOS		B			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:37:24 PM

Summary of intersection performance

	PM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - TT (2027)						
Leg North	0.07	~1	5.59	0.07	A	6.40	A
Leg West	0.09	~1	4.09	0.08	A		
Leg South	0.59	1.12	4.71	0.35	A		
Leg East	2.13	3.16	10.54	0.68	B		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM " model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:37:23 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - TT (2027), PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
TT (2027), PM	TT (2027)	PM		PHF	16:00	17:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				6.40	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	44.00	100.000
West	PHF	✓	568.00	100.000
South	PHF	✓	874.00	100.000
East	PHF	✓	681.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	44.00	0.92	SecondQuarter
West	568.00	0.92	SecondQuarter
South	874.00	0.92	SecondQuarter
East	681.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	8.000	34.000	2.000
	West	3.000	0.000	495.000	70.000
	South	32.000	384.000	0.000	458.000

	East	4.000	161.000	516.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.18	0.77	0.05
	West	0.01	0.00	0.87	0.12
	South	0.04	0.44	0.00	0.52
	East	0.01	0.24	0.76	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.097	1.061
	South	1.033	1.133	1.000	1.196
	East	1.000	1.079	1.048	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	9.7	6.1
	South	3.3	13.3	0.0	19.6
	East	0.0	7.9	4.8	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.07	5.59	0.07	~1	A	44.00	44.00	3.78	5.15	0.06	3.78	5.15
West	0.08	4.09	0.09	~1	A	568.00	73.00	4.79	3.94	0.08	4.79	3.94
South	0.35	4.71	0.59	1.12	A	874.00	416.00	31.18	4.50	0.52	31.19	4.50
East	0.68	10.54	2.13	3.16	B	681.00	681.00	100.20	8.83	1.67	100.25	8.83

Main Results for each time segment

Main results: (16:00-16:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	41.45	41.45	10.36	0.00	0.00	41.23	36.55	992.34	0.00	783.12	409.63	0.053	0.00	0.06	4.851	A
West	535.07	68.77	17.19	466.30	0.00	68.48	517.87	515.70	0.00	1058.98	800.71	0.065	0.00	0.07	3.845	A
South	823.33	391.88	97.97	431.45	466.30	389.99	513.83	70.35	0.00	1316.73	883.25	0.298	0.00	0.47	4.360	A
East	641.52	641.52	160.38	0.00	431.45	636.09	67.54	392.81	0.00	1130.11	827.21	0.568	0.00	1.36	7.606	A

Main results: (16:15-16:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	47.83	47.83	11.96	0.00	0.00	47.75	42.34	1149.76	0.00	692.01	409.63	0.069	0.06	0.07	5.587	A

West	617.39	79.35	19.84	538.04	0.00	79.28	599.92	597.59	0.00	1011.58	800.71	0.078	0.07	0.09	4.086	A
South	950.00	452.17	113.04	497.83	538.04	451.71	595.42	81.45	0.00	1310.30	883.25	0.345	0.47	0.59	4.713	A
East	740.22	740.22	185.05	0.00	497.83	737.12	78.19	454.97	0.00	1094.13	827.21	0.677	1.36	2.13	10.543	B

Main results: (16:30-16:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	45.28	45.28	11.32	0.00	0.00	45.30	40.15	1092.99	0.00	724.87	409.63	0.062	0.07	0.07	5.297	A
West	584.46	75.12	18.78	509.35	0.00	75.14	569.44	568.85	0.00	1028.22	800.71	0.073	0.09	0.08	3.997	A
South	899.33	428.06	107.01	471.28	509.35	428.22	566.79	77.20	0.00	1312.77	883.25	0.326	0.59	0.55	4.579	A
East	700.74	700.74	175.18	0.00	471.28	701.83	74.11	431.31	0.00	1107.82	827.21	0.633	2.13	1.86	9.383	A

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	41.45	41.45	10.36	0.00	0.00	41.49	36.77	1001.51	0.00	777.81	409.63	0.053	0.07	0.06	4.889	A
West	535.07	68.77	17.19	466.30	0.00	68.81	521.62	521.38	0.00	1055.69	800.71	0.065	0.08	0.07	3.862	A
South	823.33	391.88	97.97	431.45	466.30	392.16	519.50	70.69	0.00	1316.53	883.25	0.298	0.55	0.48	4.380	A
East	641.52	641.52	160.38	0.00	431.45	643.30	67.87	394.98	0.00	1128.84	827.21	0.568	1.86	1.41	7.852	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:00-16:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.81	0.05	4.851	A	A
West	1.08	0.07	3.845	A	A
South	6.91	0.46	4.360	A	A
East	19.26	1.28	7.606	A	A

Queueing Delay results: (16:15-16:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.09	0.07	5.587	A	A
West	1.33	0.09	4.086	A	A
South	8.66	0.58	4.713	A	A
East	30.17	2.01	10.543	B	B

Queueing Delay results: (16:30-16:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.02	0.07	5.297	A	A
West	1.27	0.08	3.997	A	A
South	8.31	0.55	4.579	A	A
East	28.75	1.92	9.383	A	A

Queueing Delay results: (16:45-17:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.86	0.06	4.889	A	A
West	1.12	0.07	3.862	A	A
South	7.30	0.49	4.380	A	A
East	22.02	1.47	7.852	A	A

Queue Variation Results for each time segment

Queue Variation results: (16:00-16:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.47	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.36	0.00	0.00	2.11	3.16			N/A	N/A

Queue Variation results: (16:15-16:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.09	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.59	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	2.13	0.00	0.00	0.00	3.16			N/A	N/A

Queue Variation results: (16:30-16:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.55	0.00	0.00	0.00	1.12			N/A	N/A
East	1.86	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (16:45-17:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.48	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.41	0.00	0.00	2.11	3.16			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	13	10	0	16	16
Future Volume (vph)	0	13	10	0	16	16
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.932	
Flt Protected				0.950	0.976	
Satd. Flow (prot)	1514	0	0	1662	1592	0
Flt Permitted				0.950	0.976	
Satd. Flow (perm)	1514	0	0	1662	1592	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	14	11	0	17	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	0	11	34	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	13	10	0	16	16
Future Volume (Veh/h)	0	13	10	0	16	16
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	14	11	0	17	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	51	0	57	43	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	51	0	57	43	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	99	100	99	
cM capacity (veh/h)	836	1091	926	844	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	14	11	34
Volume Left	0	11	17
Volume Right	14	0	17
cSH	1091	926	1636
Volume to Capacity	0.01	0.01	0.01
Queue Length 95th (m)	0.3	0.3	0.3
Control Delay (s/veh)	8.3	8.9	3.6
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	8.9	3.6
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	17.3%	ICU Level of Service	A
Analysis Period (min)	15		

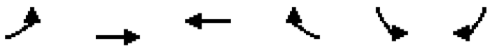
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	4	0	0	3	2
Future Volume (vph)	0	4	0	0	3	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.946	
Flt Protected					0.971	
Satd. Flow (prot)	1514	0	0	1750	1607	0
Flt Permitted					0.971	
Satd. Flow (perm)	1514	0	0	1750	1607	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	4	0	0	3	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	0	0	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	4	0	0	3	2
Future Volume (Veh/h)	0	4	0	0	3	2
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	4	0	0	3	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	8	0	11	7	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	8	0	11	7	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	100	100	100	
cM capacity (veh/h)	889	1091	1007	891	1636	

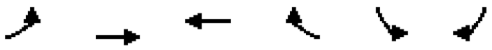
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	4	0	5
Volume Left	0	0	3
Volume Right	4	0	2
cSH	1091	1700	1636
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s/veh)	8.3	0.0	4.3
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	0.0	4.3
Approach LOS	A	A	

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	28	467	381	4	3	27
Future Volume (vph)	28	467	381	4	3	27
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.999		0.878	
Flt Protected	0.950				0.995	
Satd. Flow (prot)	1662	3325	3322	0	1529	0
Flt Permitted	0.950				0.995	
Satd. Flow (perm)	1662	3325	3322	0	1529	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	30	508	414	4	3	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	30	508	418	0	32	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.2%		ICU Level of Service A	
Analysis Period (min) 15			



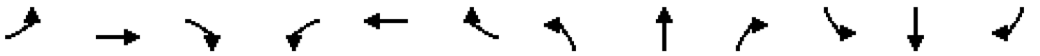
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	28	467	381	4	3	27
Future Volume (Veh/h)	28	467	381	4	3	27
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	508	414	4	3	29
Pedestrians						
Lane Width (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	418				730	209
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	418				730	209
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				99	96
cM capacity (veh/h)	1152				352	803

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	30	254	254	276	142	32
Volume Left	30	0	0	0	0	3
Volume Right	0	0	0	0	4	29
cSH	1152	1700	1700	1700	1700	717
Volume to Capacity	0.03	0.15	0.15	0.16	0.08	0.04
Queue Length 95th (m)	0.6	0.0	0.0	0.0	0.0	1.1
Control Delay (s/veh)	8.2	0.0	0.0	0.0	0.0	10.3
Lane LOS	A					B
Approach Delay (s/veh)	0.5			0.0		10.3
Approach LOS						B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	28.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	438	0	1	337	4	3	0	0	2	0	46
Future Volume (vph)	36	438	0	1	337	4	3	0	0	2	0	46
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.999						0.870	
Flt Protected		0.996						0.950			0.998	
Satd. Flow (prot)	0	1743	0	0	1748	0	0	1662	0	0	1519	0
Flt Permitted		0.996						0.950			0.998	
Satd. Flow (perm)	0	1743	0	0	1748	0	0	1662	0	0	1519	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			390.1	
Travel Time (s)		12.2			11.3			5.3			28.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	39	476	0	1	366	4	3	0	0	2	0	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	515	0	0	371	0	0	3	0	0	52	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 60.1%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	438	0	1	337	4	3	0	0	2	0	46
Future Volume (Veh/h)	36	438	0	1	337	4	3	0	0	2	0	46
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	476	0	1	366	4	3	0	0	2	0	50
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	370			476			974	926	476	924	924	368
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	370			476			974	926	476	924	924	368
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 %	97			100			99	100	100	99	100	93
cM capacity (veh/h)	1200			1097			210	262	593	246	262	682

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	515	371	3	52
Volume Left	39	1	3	2
Volume Right	0	4	0	50
cSH	1200	1097	210	638
Volume to Capacity	0.03	0.00	0.01	0.08
Queue Length 95th (m)	0.8	0.0	0.3	2.1
Control Delay (s/veh)	1.0	0.0	22.4	11.1
Lane LOS	A	A	C	B
Approach Delay (s/veh)	1.0	0.0	22.4	11.1
Approach LOS			C	B

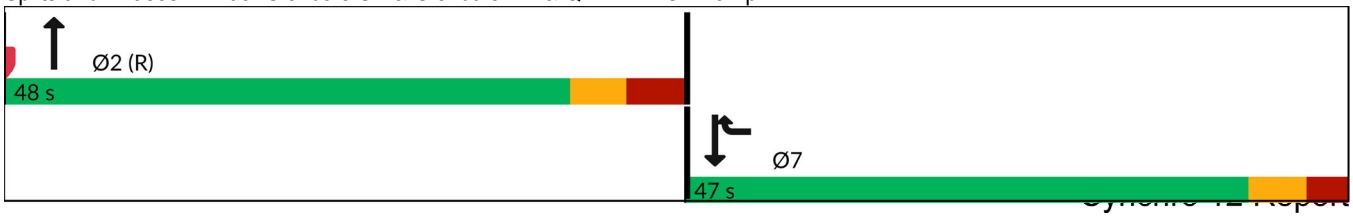
Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	60.1%	ICU Level of Service	B	
Analysis Period (min)	15			

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	174	548	510
Future Volume (vph)	174	548	510
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	189	596	554
Shared Lane Traffic (%)			
Lane Group Flow (vph)	189	596	554
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	25.6	58.4	25.6
Actuated g/C Ratio	0.27	0.61	0.27
v/c Ratio	0.47	0.32	0.67
Control Delay (s/veh)	32.1	10.1	34.8
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	32.1	10.1	34.8
LOS	C	B	C
Approach Delay (s/veh)		10.1	34.8
Approach LOS		B	C
Stops (vph)	139	255	435
Fuel Used(l)	9	13	25
CO Emissions (g/hr)	160	243	467
NOx Emissions (g/hr)	31	47	90
VOC Emissions (g/hr)	37	56	108
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay (s/veh): 23.4		Intersection LOS: C	
Intersection Capacity Utilization 37.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	189	596	554
v/c Ratio	0.47	0.32	0.67
Control Delay (s/veh)	32.1	10.1	34.8
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	32.1	10.1	34.8
Queue Length 50th (m)	30.4	26.7	50.0
Queue Length 95th (m)	46.3	44.3	61.5
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	656	1857	1348
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.29	0.32	0.41

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	174	548	510
Future Volume (vph)	174	548	510
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	189	596	554
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	189	596	554
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	23.6	56.4	23.6
Effective Green, g (s)	25.6	58.4	25.6
Actuated g/C Ratio	0.27	0.61	0.27
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	399	1858	821
v/s Ratio Prot	0.13	c0.20	c0.18
v/s Ratio Perm			
v/c Ratio	0.47	0.32	0.67
Uniform Delay, d1	29.1	8.8	31.0
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.5	2.2
Delay (s)	29.9	9.2	33.2
Level of Service	C	A	C
Approach Delay (s/veh)		9.2	33.2
Approach LOS		A	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

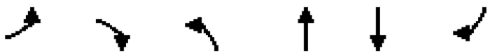
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	528	0	0	0	0	510
Future Volume (vph)	528	0	0	0	0	510
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	574	0	0	0	0	554
Shared Lane Traffic (%)						
Lane Group Flow (vph)	574	0	0	0	0	554
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	528	0	0	0	0	510
Future Volume (Veh/h)	528	0	0	0	0	510
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	574	0	0	0	0	554
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	277	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	277	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	17	100			100	
cM capacity (veh/h)	690	1084			1622	

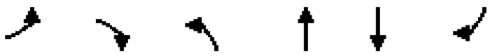
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	574	277	277
Volume Left	574	0	0
Volume Right	0	0	0
cSH	690	1700	1700
Volume to Capacity	0.83	0.16	0.16
Queue Length 95th (m)	73.0	0.0	0.0
Control Delay (s/veh)	30.6	0.0	0.0
Lane LOS	D		
Approach Delay (s/veh)	30.6	0.0	
Approach LOS	D		

Intersection Summary			
Average Delay	15.6		
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	402	0	0	1252	0	0
Future Volume (vph)	402	0	0	1252	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	437	0	0	1361	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	437	0	0	1361	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	111.6%	ICU Level of Service	H
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	402	0	0	1252	0	0
Future Volume (Veh/h)	402	0	0	1252	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	437	0	0	1361	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	681	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	681	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	100	100			
cM capacity (veh/h)	384	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	437	681	681
Volume Left	437	0	0
Volume Right	0	0	0
cSH	384	1700	1700
Volume to Capacity	1.14	0.40	0.40
Queue Length 95th (m)	132.1	0.0	0.0
Control Delay (s/veh)	121.0	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	121.0	0.0	
Approach LOS	F		

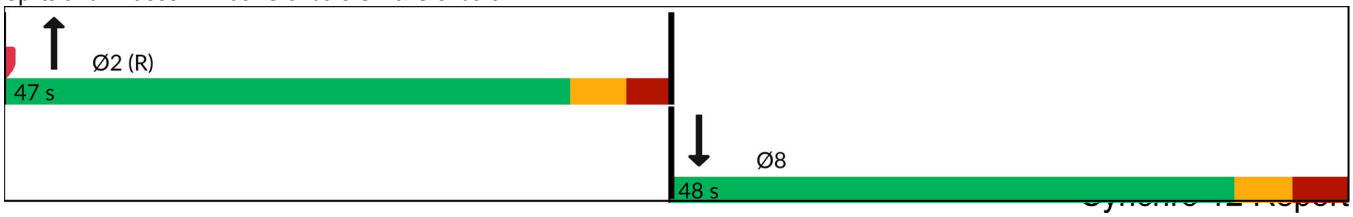
Intersection Summary			
Average Delay	29.4		
Intersection Capacity Utilization	111.6%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1252	0	0	613	0	0	0	0	0	0	0
Future Volume (vph)	0	1252	0	0	613	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1361	0	0	666	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1361	0	0	666	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		54.9			25.1							
Actuated g/C Ratio		0.58			0.26							
v/c Ratio		0.71			0.76							
Control Delay (s/veh)		17.9			37.7							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		17.9			37.7							
LOS		B			D							
Approach Delay (s/veh)		17.9			37.7							
Approach LOS		B			D							
Stops (vph)		878			540							
Fuel Used(l)		43			33							
CO Emissions (g/hr)		796			611							
NOx Emissions (g/hr)		154			118							
VOC Emissions (g/hr)		184			141							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay (s/veh): 24.4		Intersection LOS: C	
Intersection Capacity Utilization 43.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	1361	666
v/c Ratio	0.71	0.76
Control Delay (s/veh)	17.9	37.7
Queue Delay	0.0	0.0
Total Delay (s/veh)	17.9	37.7
Queue Length 50th (m)	91.4	62.4
Queue Length 95th (m)	139.6	74.8
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1920	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.71	0.48

Intersection Summary

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1252	0	0	613	0	0	0	0	0	0	0
Future Volume (vph)	0	1252	0	0	613	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1361	0	0	666	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1361	0	0	666	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		54.9			25.1							
Effective Green, g (s)		54.9			25.1							
Actuated g/C Ratio		0.58			0.26							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1921			878							
v/s Ratio Prot		c0.41			c0.20							
v/s Ratio Perm												
v/c Ratio		0.71			0.76							
Uniform Delay, d1		14.3			32.2							
Progression Factor		1.00			1.00							
Incremental Delay, d2		2.2			3.8							
Delay (s)		16.6			36.0							
Level of Service		B			D							
Approach Delay (s/veh)		16.6			36.0			0.0			0.0	
Approach LOS		B			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:37:58 PM

Summary of intersection performance

	Sat						
	Queue (PCE)	**95% Queue (PCE)**	**Delay (s)**	**V/C Ratio**	**LOS**	**Intersection Delay (s)**	**Intersection LOS**
	A1 - TT (2027)						
Leg North	0.05	~1	4.84	0.04	A	4.94	A
Leg West	0.10	~1	3.32	0.09	A		
Leg South	0.82	~1	5.13	0.45	A		
Leg East	0.77	~1	6.33	0.43	A		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat " model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:37:57 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - TT (2027), Sat

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
TT (2027), Sat	TT (2027)	Sat		PHF	12:00	13:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				4.94	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	32.00	100.000
West	PHF	✓	452.00	100.000
South	PHF	✓	939.00	100.000
East	PHF	✓	406.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	32.00	0.92	SecondQuarter
West	452.00	0.92	SecondQuarter
South	939.00	0.92	SecondQuarter
East	406.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	11.000	17.000	4.000
	West	7.000	0.000	356.000	89.000
	South	13.000	521.000	0.000	405.000

	East	4.000	156.000	246.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.34	0.53	0.13
	West	0.02	0.00	0.79	0.20
	South	0.01	0.55	0.00	0.43
	East	0.01	0.38	0.61	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.036	1.000
	South	1.000	1.021	1.000	1.029
	East	1.000	1.007	1.022	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	3.6	0.0
	South	0.0	2.1	0.0	2.9
	East	0.0	0.7	2.2	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.04	4.84	0.05	~1	A	32.00	32.00	2.43	4.55	0.04	2.43	4.55
West	0.09	3.32	0.10	~1	A	452.00	96.00	5.19	3.25	0.09	5.19	3.25
South	0.45	5.13	0.82	~1	A	939.00	534.00	42.66	4.79	0.71	42.67	4.79
East	0.43	6.33	0.77	~1	A	406.00	406.00	38.83	5.74	0.65	38.84	5.74

Main Results for each time segment

Main results: (12:00-12:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	30.14	30.14	7.54	0.00	0.00	30.00	22.50	864.77	0.00	856.95	413.56	0.035	0.00	0.04	4.353	A
West	425.80	90.43	22.61	335.36	0.00	90.11	644.71	250.06	0.00	1212.72	901.25	0.075	0.00	0.08	3.206	A
South	884.57	503.04	125.76	381.52	335.36	500.50	246.31	93.86	0.00	1303.12	805.92	0.386	0.00	0.64	4.562	A
East	382.46	382.46	95.62	0.00	381.52	380.20	87.29	507.07	0.00	1063.97	852.98	0.359	0.00	0.56	5.332	A

Main results: (12:15-12:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	34.78	34.78	8.70	0.00	0.00	34.74	26.06	1001.73	0.00	777.68	413.56	0.045	0.04	0.05	4.845	A

West	491.30	104.35	26.09	386.96	0.00	104.29	746.78	289.70	0.00	1189.78	901.25	0.088	0.08	0.10	3.315	A
South	1020.65	580.43	145.11	440.22	386.96	579.70	285.35	108.63	0.00	1294.58	805.92	0.448	0.64	0.82	5.133	A
East	441.30	441.30	110.33	0.00	440.22	440.49	101.02	587.30	0.00	1017.54	852.98	0.434	0.56	0.77	6.329	A

Main results: (12:30-12:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	32.93	32.93	8.23	0.00	0.00	32.94	24.71	950.30	0.00	807.45	413.56	0.041	0.05	0.04	4.649	A
West	465.10	98.78	24.70	366.32	0.00	98.80	708.32	274.93	0.00	1198.33	901.25	0.082	0.10	0.09	3.273	A
South	966.22	549.48	137.37	416.74	366.32	549.74	270.81	102.92	0.00	1297.88	805.92	0.423	0.82	0.76	4.913	A
East	417.77	417.77	104.44	0.00	416.74	418.07	95.72	556.94	0.00	1035.11	852.98	0.404	0.77	0.69	5.930	A

Main results: (12:45-13:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	30.14	30.14	7.54	0.00	0.00	30.17	22.63	870.38	0.00	853.70	413.56	0.035	0.04	0.04	4.371	A
West	425.80	90.43	22.61	335.36	0.00	90.47	648.73	251.82	0.00	1211.70	901.25	0.075	0.09	0.08	3.212	A
South	884.57	503.04	125.76	381.52	335.36	503.48	248.05	94.24	0.00	1302.90	805.92	0.386	0.76	0.65	4.597	A
East	382.46	382.46	95.62	0.00	381.52	382.93	87.65	510.08	0.00	1062.23	852.98	0.360	0.69	0.58	5.389	A

Queueing Delay Results for each time segment

Queueing Delay results: (12:00-12:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.53	0.04	4.353	A	A
West	1.18	0.08	3.206	A	A
South	9.26	0.62	4.562	A	A
East	8.19	0.55	5.332	A	A

Queueing Delay results: (12:15-12:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.69	0.05	4.845	A	A
West	1.42	0.09	3.315	A	A
South	12.04	0.80	5.133	A	A
East	11.22	0.75	6.329	A	A

Queueing Delay results: (12:30-12:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.65	0.04	4.649	A	A
West	1.36	0.09	3.273	A	A
South	11.49	0.77	4.913	A	A
East	10.59	0.71	5.930	A	A

Queueing Delay results: (12:45-13:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.56	0.04	4.371	A	A
West	1.23	0.08	3.212	A	A
South	9.88	0.66	4.597	A	A
East	8.83	0.59	5.389	A	A

Queue Variation Results for each time segment

Queue Variation results: (12:00-12:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.04	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.64	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.56	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:15-12:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.10	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.82	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.77	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:30-12:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.04	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.09	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.76	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.69	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:45-13:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.04	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.65	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.58	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	15	90	1	9	82
Future Volume (vph)	0	15	90	1	9	82
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.879	
Flt Protected				0.953	0.995	
Satd. Flow (prot)	1514	0	0	1668	1531	0
Flt Permitted				0.953	0.995	
Satd. Flow (perm)	1514	0	0	1668	1531	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	0	16	98	1	10	89
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	99	99	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	15	90	1	9	82
Future Volume (Veh/h)	0	15	90	1	9	82
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	16	98	1	10	89
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	109	0	81	65	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	109	0	81	65	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	89	100	99	
cM capacity (veh/h)	780	1091	895	823	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	16	99	99
Volume Left	0	98	10
Volume Right	16	0	89
cSH	1091	894	1636
Volume to Capacity	0.01	0.11	0.01
Queue Length 95th (m)	0.4	3.0	0.1
Control Delay (s/veh)	8.3	9.5	0.8
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	9.5	0.8
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	24.8%	ICU Level of Service	A
Analysis Period (min)	15		

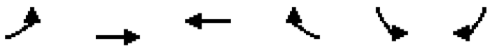
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	3	41	11	19	1
Future Volume (vph)	0	3	41	11	19	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.994	
Flt Protected				0.962	0.954	
Satd. Flow (prot)	1514	0	0	1667	1659	0
Flt Permitted				0.962	0.954	
Satd. Flow (perm)	1514	0	0	1667	1659	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	1%	0%	1%
Adj. Flow (vph)	0	3	45	12	21	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	0	0	57	22	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	3	41	11	19	1
Future Volume (Veh/h)	0	3	41	11	19	1
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	3	45	12	21	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	43	0	46	43	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	43	0	46	43	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	95	99	99	
cM capacity (veh/h)	842	1091	947	840	1636	

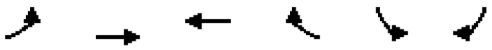
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	3	57	22
Volume Left	0	45	21
Volume Right	3	0	1
cSH	1091	922	1636
Volume to Capacity	0.00	0.06	0.01
Queue Length 95th (m)	0.1	1.6	0.3
Control Delay (s/veh)	8.3	9.2	6.9
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	9.2	6.9
Approach LOS	A	A	

Intersection Summary			
Average Delay	8.5		
Intersection Capacity Utilization	19.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	82	633	567	11	5	68
Future Volume (vph)	82	633	567	11	5	68
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.997		0.874	
Flt Protected	0.950				0.997	
Satd. Flow (prot)	1662	3325	3315	0	1525	0
Flt Permitted	0.950				0.997	
Satd. Flow (perm)	1662	3325	3315	0	1525	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	89	688	616	12	5	74
Shared Lane Traffic (%)						
Lane Group Flow (vph)	89	688	628	0	79	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	82	633	567	11	5	68
Future Volume (Veh/h)	82	633	567	11	5	68
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	89	688	616	12	5	74
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	628				1144	314
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	628				1144	314
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				97	89
cM capacity (veh/h)	964				178	688

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	89	344	344	411	217	79
Volume Left	89	0	0	0	0	5
Volume Right	0	0	0	0	12	74
cSH	964	1700	1700	1700	1700	582
Volume to Capacity	0.09	0.20	0.20	0.24	0.13	0.14
Queue Length 95th (m)	2.4	0.0	0.0	0.0	0.0	3.7
Control Delay (s/veh)	9.1	0.0	0.0	0.0	0.0	12.1
Lane LOS	A					B
Approach Delay (s/veh)	1.0			0.0		12.1
Approach LOS						B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	37.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	198	438	6	1	435	25	8	0	2	19	0	141
Future Volume (vph)	198	438	6	1	435	25	8	0	2	19	0	141
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.993			0.975			0.881	
Flt Protected		0.985						0.961			0.994	
Satd. Flow (prot)	0	1722	0	0	1738	0	0	1640	0	0	1532	0
Flt Permitted		0.985						0.961			0.994	
Satd. Flow (perm)	0	1722	0	0	1738	0	0	1640	0	0	1532	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			136.2	
Travel Time (s)		12.2			11.3			5.3			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	215	476	7	1	473	27	9	0	2	21	0	153
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	698	0	0	501	0	0	11	0	0	174	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 84.1%		ICU Level of Service E	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	198	438	6	1	435	25	8	0	2	19	0	141
Future Volume (Veh/h)	198	438	6	1	435	25	8	0	2	19	0	141
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	215	476	7	1	473	27	9	0	2	21	0	153
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	500			483			1551	1412	480	1400	1402	487
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	500			483			1551	1412	480	1400	1402	487
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 %	80			100			85	100	100	79	100	74
cM capacity (veh/h)	1075			1090			58	111	590	100	113	585

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	698	501	11	174
Volume Left	215	1	9	21
Volume Right	7	27	2	153
cSH	1075	1090	70	369
Volume to Capacity	0.20	0.00	0.16	0.47
Queue Length 95th (m)	6.0	0.0	4.2	19.4
Control Delay (s/veh)	4.6	0.0	66.0	23.1
Lane LOS	A	A	F	C
Approach Delay (s/veh)	4.6	0.0	66.0	23.1
Approach LOS			F	C

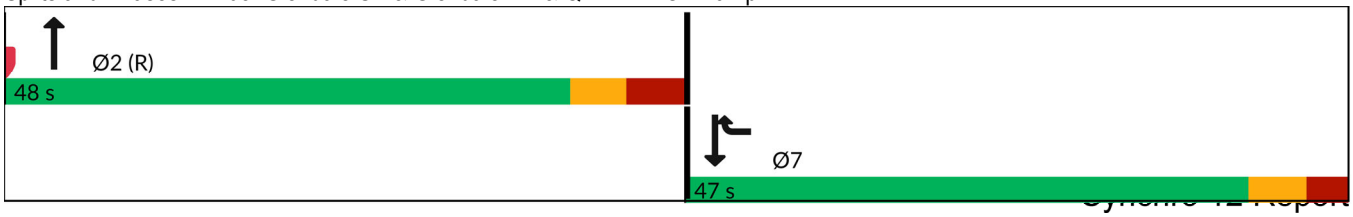
Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	351	594	615
Future Volume (vph)	351	594	615
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	382	646	668
Shared Lane Traffic (%)			
Lane Group Flow (vph)	382	646	668
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	33.3	50.7	33.3
Actuated g/C Ratio	0.35	0.53	0.35
v/c Ratio	0.73	0.40	0.62
Control Delay (s/veh)	34.9	15.5	27.6
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	34.9	15.5	27.6
LOS	C	B	C
Approach Delay (s/veh)		15.5	27.6
Approach LOS		B	C
Stops (vph)	291	348	482
Fuel Used(l)	18	18	26
CO Emissions (g/hr)	342	339	483
NOx Emissions (g/hr)	66	65	93
VOC Emissions (g/hr)	79	78	111
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay (s/veh): 24.6		Intersection LOS: C	
Intersection Capacity Utilization 50.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	382	646	668
v/c Ratio	0.73	0.40	0.62
Control Delay (s/veh)	34.9	15.5	27.6
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	34.9	15.5	27.6
Queue Length 50th (m)	63.2	37.2	55.3
Queue Length 95th (m)	82.8	62.1	62.4
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	658	1616	1353
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.58	0.40	0.49

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	351	594	615
Future Volume (vph)	351	594	615
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	382	646	668
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	382	646	668
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	31.3	48.7	31.3
Effective Green, g (s)	33.3	50.7	33.3
Actuated g/C Ratio	0.35	0.53	0.35
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	520	1613	1069
v/s Ratio Prot	c0.26	c0.21	0.22
v/s Ratio Perm			
v/c Ratio	0.73	0.40	0.62
Uniform Delay, d1	27.0	13.1	25.7
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	5.3	0.7	1.1
Delay (s)	32.3	13.9	26.8
Level of Service	C	B	C
Approach Delay (s/veh)		13.9	26.8
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

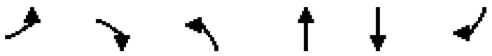
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	257	0	0	0	0	615
Future Volume (vph)	257	0	0	0	0	615
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	279	0	0	0	0	668
Shared Lane Traffic (%)						
Lane Group Flow (vph)	279	0	0	0	0	668
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 40.6%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	257	0	0	0	0	615
Future Volume (Veh/h)	257	0	0	0	0	615
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	279	0	0	0	0	668
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	334	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	334	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	56	100			100	
cM capacity (veh/h)	636	1084			1622	

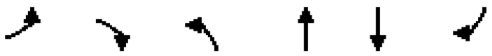
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	279	334	334
Volume Left	279	0	0
Volume Right	0	0	0
cSH	636	1700	1700
Volume to Capacity	0.44	0.20	0.20
Queue Length 95th (m)	17.9	0.0	0.0
Control Delay (s/veh)	15.0	0.0	0.0
Lane LOS	C		
Approach Delay (s/veh)	15.0	0.0	
Approach LOS	C		

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	404	0	0	618	0	0
Future Volume (vph)	404	0	0	618	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	439	0	0	672	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	439	0	0	672	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 75.9%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	404	0	0	618	0	0
Future Volume (Veh/h)	404	0	0	618	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	439	0	0	672	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	336	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	336	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	31	100	100			
cM capacity (veh/h)	634	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	439	336	336
Volume Left	439	0	0
Volume Right	0	0	0
cSH	634	1700	1700
Volume to Capacity	0.69	0.20	0.20
Queue Length 95th (m)	44.1	0.0	0.0
Control Delay (s/veh)	22.5	0.0	0.0
Lane LOS	C		
Approach Delay (s/veh)	22.5	0.0	
Approach LOS	C		

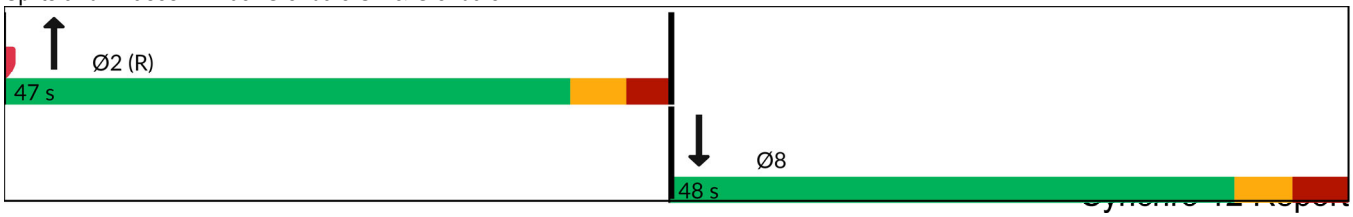
Intersection Summary			
Average Delay	8.9		
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	618	0	0	406	0	0	0	0	0	0	0
Future Volume (vph)	0	618	0	0	406	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	672	0	0	441	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	672	0	0	441	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		61.8			18.2							
Actuated g/C Ratio		0.65			0.19							
v/c Ratio		0.31			0.69							
Control Delay (s/veh)		8.2			41.4							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		8.2			41.4							
LOS		A			D							
Approach Delay (s/veh)		8.2			41.4							
Approach LOS		A			D							
Stops (vph)		258			365							
Fuel Used(l)		13			23							
CO Emissions (g/hr)		234			430							
NOx Emissions (g/hr)		45			83							
VOC Emissions (g/hr)		54			99							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay (s/veh): 21.4		Intersection LOS: C	
Intersection Capacity Utilization 24.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB

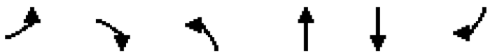


Lane Group	NBT	SBT
Lane Group Flow (vph)	672	441
v/c Ratio	0.31	0.69
Control Delay (s/veh)	8.2	41.4
Queue Delay	0.0	0.0
Total Delay (s/veh)	8.2	41.4
Queue Length 50th (m)	26.8	42.1
Queue Length 95th (m)	42.4	55.1
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	2163	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.31	0.32

Intersection Summary

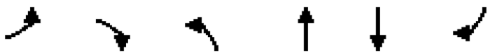
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	618	0	0	406	0	0	0	0	0	0	0
Future Volume (vph)	0	618	0	0	406	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	672	0	0	441	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	672	0	0	441	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		61.8			18.2							
Effective Green, g (s)		61.8			18.2							
Actuated g/C Ratio		0.65			0.19							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		2163			637							
v/s Ratio Prot		c0.20			c0.13							
v/s Ratio Perm												
v/c Ratio		0.31			0.69							
Uniform Delay, d1		7.3			35.8							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.4			3.3							
Delay (s)		7.6			39.0							
Level of Service		A			D							
Approach Delay (s/veh)		7.6			39.0			0.0			0.0	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	24.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	47	34	156	67	1
Future Volume (vph)	3	47	34	156	67	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.872				0.998	
Flt Protected	0.997			0.991		
Satd. Flow (prot)	1492	0	0	1700	1712	0
Flt Permitted	0.997			0.991		
Satd. Flow (perm)	1492	0	0	1700	1712	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	96.3			112.4	188.4	
Travel Time (s)	6.9			8.1	13.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	51	37	170	73	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	0	0	207	74	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

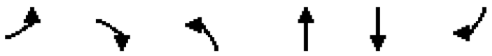
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 27.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	47	34	156	67	1
Future Volume (Veh/h)	3	47	34	156	67	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	51	37	170	73	1
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	318	74	74			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	318	74	74			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	95	98			
cM capacity (veh/h)	659	988	1526			

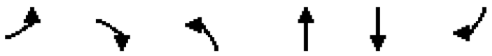
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	54	207	74
Volume Left	3	37	0
Volume Right	51	0	1
cSH	962	1526	1700
Volume to Capacity	0.06	0.02	0.04
Queue Length 95th (m)	1.4	0.6	0.0
Control Delay (s/veh)	9.0	1.5	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	9.0	1.5	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	27.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	47	35	188	113	1
Future Volume (vph)	2	47	35	188	113	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.870				0.999	
Flt Protected	0.998			0.992		
Satd. Flow (prot)	1490	0	0	1702	1714	0
Flt Permitted	0.998			0.992		
Satd. Flow (perm)	1490	0	0	1702	1714	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	81.9			136.2	112.4	
Travel Time (s)	5.9			9.8	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	51	38	204	123	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	53	0	0	242	124	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	47	35	188	113	1
Future Volume (Veh/h)	2	47	35	188	113	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	51	38	204	123	1
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	404	124	124			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	404	124	124			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	95	97			
cM capacity (veh/h)	587	927	1463			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	53	242	124
Volume Left	2	38	0
Volume Right	51	0	1
cSH	908	1463	1700
Volume to Capacity	0.06	0.03	0.07
Queue Length 95th (m)	1.5	0.6	0.0
Control Delay (s/veh)	9.2	1.4	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	9.2	1.4	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	29.5%	ICU Level of Service	A
Analysis Period (min)	15		

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:39:31 PM

Summary of intersection performance

	AM						
	Queue (PCE)	**95% Queue (PCE)**	**Delay (s)**	**V/C Ratio**	**LOS**	**Intersection Delay (s)**	**Intersection LOS**
	A1 - TT (2030)						
Leg North	0.26	~1	8.37	0.18	A	8.30	A
Leg West	0.19	~1	4.31	0.15	A		
Leg South	1.30	1.11	6.92	0.54	A		
Leg East	2.56	5.69	13.98	0.70	B		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM " model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:39:30 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - TT (2030), AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
TT (2030), AM	TT (2030)	AM		PHF	08:00	09:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				8.30	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	102.50	100.000
West	PHF	✓	470.00	100.000
South	PHF	✓	1185.00	100.000
East	PHF	✓	618.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	102.50	0.92	SecondQuarter
West	470.00	0.92	SecondQuarter
South	1185.00	0.92	SecondQuarter
East	618.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	38.000	59.000	5.500
	West	10.000	0.000	325.000	135.000
	South	73.000	556.000	0.000	556.000

	East	0.000	156.000	457.000	5.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.37	0.58	0.05
	West	0.02	0.00	0.69	0.29
	South	0.06	0.47	0.00	0.47
	East	0.00	0.25	0.74	0.01

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.154	1.200	1.333
	West	1.000	1.000	1.139	1.047
	South	1.071	1.119	1.000	1.095
	East	1.000	1.057	1.170	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	15.4	20.0	33.3
	West	0.0	0.0	13.9	4.7
	South	7.1	11.9	0.0	9.5
	East	0.0	5.7	17.0	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.18	8.37	0.26	~1	A	102.50	102.50	12.75	7.46	0.21	12.75	7.46
West	0.15	4.31	0.19	~1	A	470.00	145.00	9.98	4.13	0.17	9.98	4.13
South	0.54	6.92	1.30	1.11	A	1185.00	629.00	65.79	6.28	1.10	65.82	6.28
East	0.70	13.98	2.56	5.69	B	618.00	618.00	115.82	11.24	1.93	115.89	11.25

Main Results for each time segment

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	96.56	96.56	24.14	0.00	0.00	95.83	77.70	1096.53	0.00	722.82	440.21	0.134	0.00	0.18	6.819	A
West	442.75	136.59	34.15	306.16	0.00	135.99	701.35	491.02	0.00	1073.26	838.31	0.127	0.00	0.15	4.006	A
South	1116.30	592.54	148.13	523.77	306.16	588.71	481.21	145.79	0.00	1273.07	854.71	0.465	0.00	0.96	5.823	A
East	582.17	582.17	145.54	0.00	523.77	576.15	136.41	598.08	0.00	1011.30	829.31	0.576	0.00	1.51	9.290	A

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	111.41	111.41	27.85	0.00	0.00	111.11	90.05	1270.66	0.00	622.04	440.21	0.179	0.18	0.26	8.370	A

West	510.87	157.61	39.40	353.26	0.00	157.46	812.83	568.95	0.00	1028.16	838.31	0.153	0.15	0.19	4.315	A
South	1288.04	683.70	170.92	604.35	353.26	682.33	557.58	168.83	0.00	1259.74	854.71	0.543	0.96	1.30	6.923	A
East	671.74	671.74	167.93	0.00	604.35	667.53	157.97	693.18	0.00	956.26	829.31	0.702	1.51	2.56	13.975	B

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	105.47	105.47	26.37	0.00	0.00	105.58	85.46	1209.92	0.00	657.19	440.21	0.160	0.26	0.23	7.761	A
West	483.62	149.20	37.30	334.42	0.00	149.25	772.57	542.93	0.00	1043.22	838.31	0.143	0.19	0.18	4.204	A
South	1219.35	647.23	161.81	572.12	334.42	647.71	532.11	160.08	0.00	1264.80	854.71	0.512	1.30	1.18	6.499	A
East	635.91	635.91	158.98	0.00	572.12	637.38	149.78	658.00	0.00	976.62	829.31	0.651	2.56	2.19	12.138	B

Main results: (08:45-09:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	96.56	96.56	24.14	0.00	0.00	96.73	78.29	1109.06	0.00	715.57	440.21	0.135	0.23	0.19	6.919	A
West	442.75	136.59	34.15	306.16	0.00	136.68	707.90	497.88	0.00	1069.29	838.31	0.128	0.18	0.15	4.028	A
South	1116.30	592.54	148.13	523.77	306.16	593.34	487.96	146.60	0.00	1272.60	854.71	0.466	1.18	0.98	5.908	A
East	582.17	582.17	145.54	0.00	523.77	584.58	137.17	602.77	0.00	1008.59	829.31	0.577	2.19	1.59	9.717	A

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-08:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	2.64	0.18	6.819	A	A
West	2.22	0.15	4.006	A	A
South	13.79	0.92	5.823	A	A
East	21.16	1.41	9.290	A	A

Queueing Delay results: (08:15-08:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	3.74	0.25	8.370	A	A
West	2.78	0.19	4.315	A	A
South	18.87	1.26	6.923	A	A
East	35.61	2.37	13.975	B	B

Queueing Delay results: (08:30-08:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	3.50	0.23	7.761	A	A
West	2.65	0.18	4.204	A	A
South	18.06	1.20	6.499	A	A
East	34.10	2.27	12.138	B	B

Queueing Delay results: (08:45-09:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	2.86	0.19	6.919	A	A
West	2.33	0.16	4.028	A	A
South	15.07	1.00	5.908	A	A
East	24.95	1.66	9.717	A	A

Queue Variation Results for each time segment

Queue Variation results: (08:00-08:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.18	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.15	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.96	0.00	0.00	0.00	1.11			N/A	N/A
East	1.51	0.00	0.00	2.28	3.41			N/A	N/A

Queue Variation results: (08:15-08:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.26	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.19	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.30	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	2.56	0.00	0.00	0.00	5.69			N/A	N/A

Queue Variation results: (08:30-08:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.23	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.18	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.18	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	2.19	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:45-09:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.19	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.15	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.98	0.00	0.00	0.00	1.11			N/A	N/A
East	1.59	0.00	0.00	3.41	4.55			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	19	91	0	14	91
Future Volume (vph)	0	19	91	0	14	91
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.865				0.883	
Flt Protected				0.950	0.993	
Satd. Flow (prot)	1514	0	0	1662	1534	0
Flt Permitted				0.950	0.993	
Satd. Flow (perm)	1514	0	0	1662	1534	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	21	99	0	15	99
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	0	0	99	114	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	19	91	0	14	91
Future Volume (Veh/h)	0	19	91	0	14	91
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	21	99	0	15	99
Pedestrians					1	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	129	1	102	80	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	129	1	102	80	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	88	100	99	
cM capacity (veh/h)	758	1089	860	807	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	21	99	114
Volume Left	0	99	15
Volume Right	21	0	99
cSH	1089	860	1636
Volume to Capacity	0.02	0.12	0.01
Queue Length 95th (m)	0.5	3.1	0.2
Control Delay (s/veh)	8.4	9.7	1.0
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.7	1.0
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	25.7%	ICU Level of Service	A
Analysis Period (min)	15		

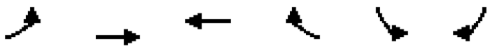
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1	22	0	0	39	28
Future Volume (vph)	1	22	0	0	39	28
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.870				0.944	
Flt Protected					0.972	
Satd. Flow (prot)	1522	0	0	1750	1599	0
Flt Permitted					0.972	
Satd. Flow (perm)	1522	0	0	1750	1599	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	1	24	0	0	42	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	0	0	0	72	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1	22	0	0	39	28
Future Volume (Veh/h)	1	22	0	0	39	28
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	24	0	0	42	30
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	114	0	124	99	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	114	0	124	99	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	100	100	97	
cM capacity (veh/h)	760	1091	820	774	1636	

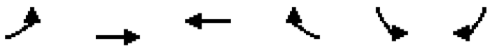
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	25	0	72
Volume Left	0	0	42
Volume Right	24	0	30
cSH	1072	1700	1636
Volume to Capacity	0.02	0.00	0.03
Queue Length 95th (m)	0.6	0.0	0.6
Control Delay (s/veh)	8.4	0.0	4.3
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	0.0	4.3
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	14.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	87	660	797	19	12	56
Future Volume (vph)	87	660	797	19	12	56
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.996		0.889	
Flt Protected	0.950				0.991	
Satd. Flow (prot)	1662	3325	3312	0	1542	0
Flt Permitted	0.950				0.991	
Satd. Flow (perm)	1662	3325	3312	0	1542	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Confl. Peds. (#/hr)	1			1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	95	717	866	21	13	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	95	717	887	0	74	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

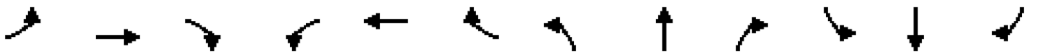
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	87	660	797	19	12	56
Future Volume (Veh/h)	87	660	797	19	12	56
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	95	717	866	21	13	61
Pedestrians		1			1	
Lane Width (m)		3.6			3.6	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	888				1426	446
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	888				1426	446
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	88				88	89
cM capacity (veh/h)	771				113	565

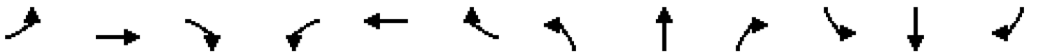
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	95	359	359	577	310	74
Volume Left	95	0	0	0	0	13
Volume Right	0	0	0	0	21	61
cSH	771	1700	1700	1700	1700	331
Volume to Capacity	0.12	0.21	0.21	0.34	0.18	0.22
Queue Length 95th (m)	3.4	0.0	0.0	0.0	0.0	6.7
Control Delay (s/veh)	10.3	0.0	0.0	0.0	0.0	19.0
Lane LOS	B					C
Approach Delay (s/veh)	1.2			0.0		19.0
Approach LOS						C

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	443	0	0	522	33	3	0	0	25	0	309
Future Volume (vph)	212	443	0	0	522	33	3	0	0	25	0	309
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.992						0.875	
Flt Protected		0.984						0.950			0.996	
Satd. Flow (prot)	0	1722	0	0	1736	0	0	1662	0	0	1525	0
Flt Permitted		0.984						0.950			0.996	
Satd. Flow (perm)	0	1722	0	0	1736	0	0	1662	0	0	1525	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			136.2	
Travel Time (s)		12.2			11.3			5.3			9.8	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	230	482	0	0	567	36	3	0	0	27	0	336
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	712	0	0	603	0	0	3	0	0	363	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	101.6%	ICU Level of Service	G
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	212	443	0	0	522	33	3	0	0	25	0	309
Future Volume (Veh/h)	212	443	0	0	522	33	3	0	0	25	0	309
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	230	482	0	0	567	36	3	0	0	27	0	336
Pedestrians		1									1	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	604			482			1864	1546	482	1528	1528	587
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	604			482			1864	1546	482	1528	1528	587
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 %	77			100			81	100	100	66	100	34
cM capacity (veh/h)	983			1091			16	88	588	79	91	512

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	712	603	3	363
Volume Left	230	0	3	27
Volume Right	0	36	0	336
cSH	983	1091	16	365
Volume to Capacity	0.23	0.00	0.19	1.00
Queue Length 95th (m)	7.3	0.0	4.2	92.6
Control Delay (s/veh)	5.3	0.0	278.2	80.5
Lane LOS	A		F	F
Approach Delay (s/veh)	5.3	0.0	278.2	80.5
Approach LOS			F	F

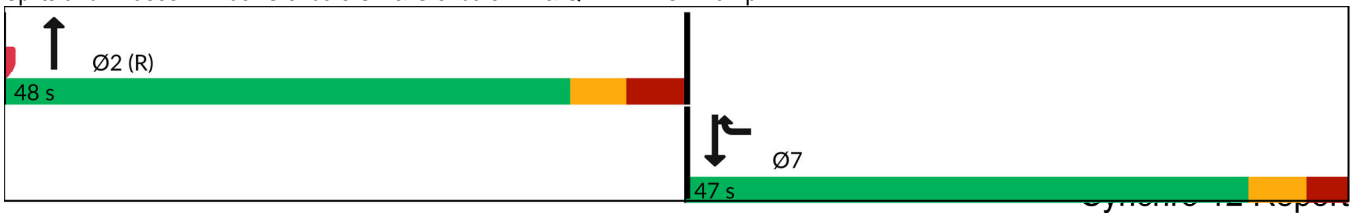
Intersection Summary			
Average Delay	20.1		
Intersection Capacity Utilization	101.6%	ICU Level of Service	G
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	286	550	1109
Future Volume (vph)	286	550	1109
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	311	598	1205
Shared Lane Traffic (%)			
Lane Group Flow (vph)	311	598	1205
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	44.9	39.1	44.9
Actuated g/C Ratio	0.47	0.41	0.47
v/c Ratio	0.44	0.48	0.84
Control Delay (s/veh)	18.4	23.0	27.6
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	18.4	23.0	27.6
LOS	B	C	C
Approach Delay (s/veh)		23.0	27.6
Approach LOS		C	C
Stops (vph)	179	395	918
Fuel Used(l)	10	22	48
CO Emissions (g/hr)	186	403	891
NOx Emissions (g/hr)	36	78	172
VOC Emissions (g/hr)	43	93	205
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay (s/veh): 24.9		Intersection LOS: C	
Intersection Capacity Utilization 44.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	311	598	1205
v/c Ratio	0.44	0.48	0.84
Control Delay (s/veh)	18.4	23.0	27.6
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	18.4	23.0	27.6
Queue Length 50th (m)	38.1	43.9	101.5
Queue Length 95th (m)	53.3	66.3	115.9
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	711	1356	1462
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.44	0.44	0.82

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	286	550	1109
Future Volume (vph)	286	550	1109
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	311	598	1205
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	311	598	1205
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	42.9	37.1	42.9
Effective Green, g (s)	44.9	39.1	44.9
Actuated g/C Ratio	0.47	0.41	0.47
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	701	1244	1441
v/s Ratio Prot	0.21	c0.20	c0.40
v/s Ratio Perm			
v/c Ratio	0.44	0.48	0.84
Uniform Delay, d1	16.7	20.5	21.8
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.4	1.3	4.4
Delay (s)	17.2	21.8	26.2
Level of Service	B	C	C
Approach Delay (s/veh)		21.8	26.2
Approach LOS		C	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

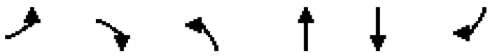
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	372	0	0	0	0	1109
Future Volume (vph)	372	0	0	0	0	1109
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	404	0	0	0	0	1205
Shared Lane Traffic (%)						
Lane Group Flow (vph)	404	0	0	0	0	1205
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 62.3%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	372	0	0	0	0	1109
Future Volume (Veh/h)	372	0	0	0	0	1109
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	404	0	0	0	0	1205
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	603	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	603	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	6	100			100	
cM capacity (veh/h)	431	1084			1622	

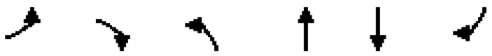
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	404	603	603
Volume Left	404	0	0
Volume Right	0	0	0
cSH	431	1700	1700
Volume to Capacity	0.94	0.35	0.35
Queue Length 95th (m)	86.0	0.0	0.0
Control Delay (s/veh)	60.4	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	60.4	0.0	
Approach LOS	F		

Intersection Summary			
Average Delay	15.2		
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	317	0	0	1244	0	0
Future Volume (vph)	317	0	0	1244	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	345	0	0	1352	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	345	0	0	1352	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 85.0%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	317	0	0	1244	0	0
Future Volume (Veh/h)	317	0	0	1244	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	345	0	0	1352	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	676	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	676	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	11	100	100			
cM capacity (veh/h)	387	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	345	676	676
Volume Left	345	0	0
Volume Right	0	0	0
cSH	387	1700	1700
Volume to Capacity	0.89	0.40	0.40
Queue Length 95th (m)	72.4	0.0	0.0
Control Delay (s/veh)	55.7	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	55.7	0.0	
Approach LOS	F		

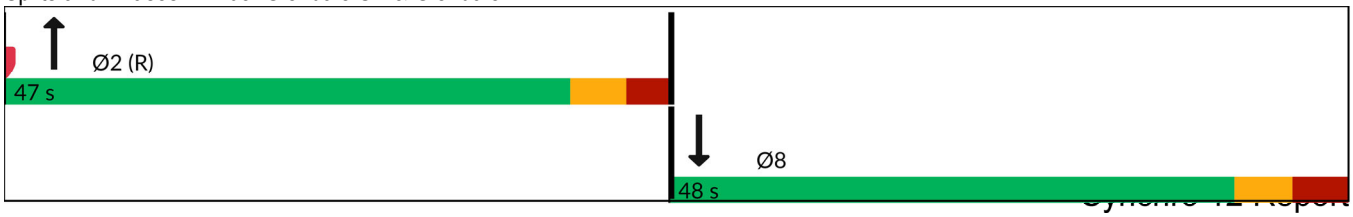
Intersection Summary			
Average Delay	11.3		
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1244	0	0	600	0	0	0	0	0	0	0
Future Volume (vph)	0	1244	0	0	600	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1352	0	0	652	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1352	0	0	652	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		55.3			24.7							
Actuated g/C Ratio		0.58			0.26							
v/c Ratio		0.70			0.75							
Control Delay (s/veh)		17.4			37.9							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		17.4			37.9							
LOS		B			D							
Approach Delay (s/veh)		17.4			37.9							
Approach LOS		B			D							
Stops (vph)		858			528							
Fuel Used(l)		42			32							
CO Emissions (g/hr)		775			600							
NOx Emissions (g/hr)		150			116							
VOC Emissions (g/hr)		179			138							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay (s/veh): 24.1		Intersection LOS: C	
Intersection Capacity Utilization 43.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB

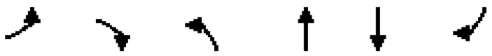


Lane Group	NBT	SBT
Lane Group Flow (vph)	1352	652
v/c Ratio	0.70	0.75
Control Delay (s/veh)	17.4	37.9
Queue Delay	0.0	0.0
Total Delay (s/veh)	17.4	37.9
Queue Length 50th (m)	89.2	61.2
Queue Length 95th (m)	136.5	73.7
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1935	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.70	0.47

Intersection Summary

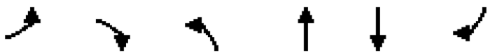
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1244	0	0	600	0	0	0	0	0	0	0
Future Volume (vph)	0	1244	0	0	600	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1352	0	0	652	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1352	0	0	652	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		55.3			24.7							
Effective Green, g (s)		55.3			24.7							
Actuated g/C Ratio		0.58			0.26							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1935			864							
v/s Ratio Prot		c0.41			c0.20							
v/s Ratio Perm												
v/c Ratio		0.70			0.75							
Uniform Delay, d1		14.0			32.4							
Progression Factor		1.00			1.00							
Incremental Delay, d2		2.1			3.8							
Delay (s)		16.1			36.1							
Level of Service		B			D							
Approach Delay (s/veh)		16.1			36.1			0.0			0.0	
Approach LOS		B			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	62	69	109	214	4
Future Volume (vph)	2	62	69	109	214	4
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.869				0.998	
Flt Protected	0.999			0.981		
Satd. Flow (prot)	1489	0	0	1683	1712	0
Flt Permitted	0.999			0.981		
Satd. Flow (perm)	1489	0	0	1683	1712	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	96.3			112.4	188.4	
Travel Time (s)	6.9			8.1	13.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	67	75	118	233	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	69	0	0	193	237	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

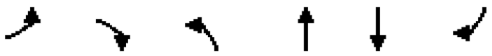
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.1%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	62	69	109	214	4
Future Volume (Veh/h)	2	62	69	109	214	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	67	75	118	233	4
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	503	235	237			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	503	235	237			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	92	94			
cM capacity (veh/h)	498	804	1330			

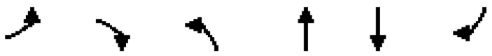
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	69	193	237
Volume Left	2	75	0
Volume Right	67	0	4
cSH	790	1330	1700
Volume to Capacity	0.09	0.06	0.14
Queue Length 95th (m)	2.3	1.4	0.0
Control Delay (s/veh)	10.0	3.3	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	10.0	3.3	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	37.1%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	62	69	177	272	4
Future Volume (vph)	1	62	69	177	272	4
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.867				0.998	
Flt Protected	0.999			0.986		
Satd. Flow (prot)	1486	0	0	1692	1712	0
Flt Permitted	0.999			0.986		
Satd. Flow (perm)	1486	0	0	1692	1712	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	81.9			136.2	112.4	
Travel Time (s)	5.9			9.8	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	67	75	192	296	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	68	0	0	267	300	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	62	69	177	272	4
Future Volume (Veh/h)	1	62	69	177	272	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	67	75	192	296	4
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	640	298	300			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	640	298	300			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	91	94			
cM capacity (veh/h)	413	741	1261			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	68	267	300
Volume Left	1	75	0
Volume Right	67	0	4
cSH	733	1261	1700
Volume to Capacity	0.09	0.06	0.18
Queue Length 95th (m)	2.4	1.5	0.0
Control Delay (s/veh)	10.4	2.6	0.0
Lane LOS	B	A	
Approach Delay (s/veh)	10.4	2.6	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:40:03 PM

Summary of intersection performance

	PM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - TT (2030)						
Leg North	0.27	~1	7.86	0.21	A	12.16	B
Leg West	0.16	~1	4.88	0.13	A		
Leg South	0.80	~1	5.38	0.42	A		
Leg East	6.96	27.41	26.88	0.89	D		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM " model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:40:02 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - TT (2030), PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
TT (2030), PM	TT (2030)	PM		PHF	16:00	17:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				12.16	B

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	113.00	100.000
West	PHF	✓	639.00	100.000
South	PHF	✓	1097.00	100.000
East	PHF	✓	854.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	113.00	0.92	SecondQuarter
West	639.00	0.92	SecondQuarter
South	1097.00	0.92	SecondQuarter
East	854.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	22.000	86.000	5.000
	West	9.000	0.000	528.000	102.000
	South	89.000	409.000	0.000	599.000

	East	12.000	194.000	648.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.19	0.76	0.04
	West	0.01	0.00	0.83	0.16
	South	0.08	0.37	0.00	0.55
	East	0.01	0.23	0.76	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.097	1.061
	South	1.033	1.133	1.000	1.196
	East	1.000	1.079	1.048	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	9.7	6.1
	South	3.3	13.3	0.0	19.6
	East	0.0	7.9	4.8	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.21	7.86	0.27	~1	A	113.00	113.00	13.09	6.95	0.22	13.09	6.95
West	0.13	4.88	0.16	~1	A	639.00	111.00	8.57	4.63	0.14	8.57	4.63
South	0.42	5.38	0.80	~1	A	1097.00	498.00	41.93	5.05	0.70	41.94	5.05
East	0.89	26.88	6.96	27.41	D	854.00	854.00	270.28	18.99	4.50	270.57	19.01

Main Results for each time segment

Main results: (16:00-16:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	106.45	106.45	26.61	0.00	0.00	105.72	102.97	1165.03	0.00	683.17	474.40	0.156	0.00	0.18	6.226	A
West	601.96	104.57	26.14	497.39	0.00	104.05	583.94	686.81	0.00	959.95	783.08	0.109	0.00	0.13	4.437	A
South	1033.41	469.13	117.28	564.28	497.39	466.62	682.13	108.73	0.00	1294.52	892.08	0.362	0.00	0.63	4.828	A
East	804.49	804.49	201.12	0.00	564.28	792.95	100.29	475.06	0.00	1082.50	804.40	0.743	0.00	2.89	12.650	B

Main results: (16:15-16:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	122.83	122.83	30.71	0.00	0.00	122.50	119.20	1343.15	0.00	580.08	474.40	0.212	0.18	0.27	7.861	A

West	694.57	120.65	30.16	573.91	0.00	120.52	675.01	790.64	0.00	899.86	783.08	0.134	0.13	0.16	4.877	A
South	1192.39	541.30	135.33	651.09	573.91	540.60	785.22	125.94	0.00	1284.56	892.08	0.421	0.63	0.80	5.385	A
East	928.26	928.26	232.07	0.00	651.09	911.97	116.16	550.37	0.00	1038.91	804.40	0.893	2.89	6.96	26.881	D

Main results: (16:30-16:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	116.28	116.28	29.07	0.00	0.00	116.39	113.30	1292.20	0.00	609.57	474.40	0.191	0.27	0.24	7.300	A
West	657.52	114.22	28.55	543.30	0.00	114.26	644.43	764.16	0.00	915.18	783.08	0.125	0.16	0.15	4.745	A
South	1128.80	512.43	128.11	616.36	543.30	512.68	759.01	119.41	0.00	1288.33	892.08	0.398	0.80	0.74	5.170	A
East	878.75	878.75	219.69	0.00	616.36	883.56	110.15	521.94	0.00	1055.36	804.40	0.833	6.96	5.76	22.849	C

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	106.45	106.45	26.61	0.00	0.00	106.64	103.85	1188.76	0.00	669.44	474.40	0.159	0.24	0.19	6.398	A
West	601.96	104.57	26.14	497.39	0.00	104.65	591.44	703.96	0.00	950.02	783.08	0.110	0.15	0.13	4.496	A
South	1033.41	469.13	117.28	564.28	497.39	469.54	699.24	109.36	0.00	1294.15	892.08	0.363	0.74	0.64	4.866	A
East	804.49	804.49	201.12	0.00	564.28	814.58	100.88	478.03	0.00	1080.78	804.40	0.744	5.76	3.24	14.752	B

Queueing Delay Results for each time segment

Queueing Delay results: (16:00-16:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	2.66	0.18	6.226	A	A
West	1.88	0.13	4.437	A	A
South	9.13	0.61	4.828	A	A
East	38.85	2.59	12.650	B	B

Queueing Delay results: (16:15-16:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	3.88	0.26	7.861	A	A
West	2.40	0.16	4.877	A	A
South	11.77	0.78	5.385	A	A
East	86.71	5.78	26.881	D	C

Queueing Delay results: (16:30-16:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	3.63	0.24	7.300	A	A
West	2.29	0.15	4.745	A	A
South	11.28	0.75	5.170	A	A
East	91.80	6.12	22.849	C	C

Queueing Delay results: (16:45-17:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	2.92	0.19	6.398	A	A
West	2.00	0.13	4.496	A	A
South	9.75	0.65	4.866	A	A
East	52.92	3.53	14.752	B	B

Queue Variation Results for each time segment

Queue Variation results: (16:00-16:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.18	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.13	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.63	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	2.89	0.00	0.00	6.33	9.49			N/A	N/A

Queue Variation results: (16:15-16:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.27	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.16	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.80	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	6.96	0.00	0.00	15.81	27.41			N/A	N/A

Queue Variation results: (16:30-16:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.24	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.15	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.74	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	5.76	0.00	0.00	4.22	16.87			N/A	N/A

Queue Variation results: (16:45-17:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.19	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.13	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.64	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	3.24	0.00	0.00	5.27	11.60			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	14	81	0	16	115
Future Volume (vph)	0	14	81	0	16	115
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.881	
Flt Protected				0.950	0.994	
Satd. Flow (prot)	1514	0	0	1662	1532	0
Flt Permitted				0.950	0.994	
Satd. Flow (perm)	1514	0	0	1662	1532	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	15	88	0	17	125
Shared Lane Traffic (%)						
Lane Group Flow (vph)	15	0	0	88	142	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	14	81	0	16	115
Future Volume (Veh/h)	0	14	81	0	16	115
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	15	88	0	17	125
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	159	0	112	97	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	159	0	112	97	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	90	100	99	
cM capacity (veh/h)	729	1091	852	789	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	15	88	142
Volume Left	0	88	17
Volume Right	15	0	125
cSH	1091	852	1636
Volume to Capacity	0.01	0.10	0.01
Queue Length 95th (m)	0.3	2.8	0.3
Control Delay (s/veh)	8.3	9.7	0.9
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	9.7	0.9
Approach LOS	A	A	

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	26.9%	ICU Level of Service	A
Analysis Period (min)	15		

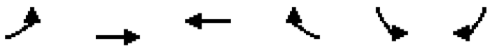
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	32	0	0	21	2
Future Volume (vph)	0	32	0	0	21	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.989	
Flt Protected					0.956	
Satd. Flow (prot)	1514	0	0	1750	1655	0
Flt Permitted					0.956	
Satd. Flow (perm)	1514	0	0	1750	1655	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	35	0	0	23	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	0	0	0	25	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	32	0	0	21	2
Future Volume (Veh/h)	0	32	0	0	21	2
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	35	0	0	23	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	48	0	82	47	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	48	0	82	47	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	97	100	100	99	
cM capacity (veh/h)	836	1091	872	837	1636	

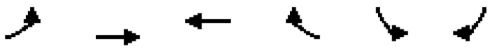
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	35	0	25
Volume Left	0	0	23
Volume Right	35	0	2
cSH	1091	1700	1636
Volume to Capacity	0.03	0.00	0.01
Queue Length 95th (m)	0.8	0.0	0.3
Control Delay (s/veh)	8.4	0.0	6.7
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	0.0	6.7
Approach LOS	A	A	

Intersection Summary			
Average Delay	7.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	45	645	539	7	6	53
Future Volume (vph)	45	645	539	7	6	53
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.998		0.880	
Flt Protected	0.950				0.995	
Satd. Flow (prot)	1662	3325	3318	0	1532	0
Flt Permitted	0.950				0.995	
Satd. Flow (perm)	1662	3325	3318	0	1532	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	49	701	586	8	7	58
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	701	594	0	65	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

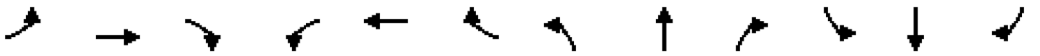
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	645	539	7	6	53
Future Volume (Veh/h)	45	645	539	7	6	53
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	701	586	8	7	58
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	594				1039	297
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	594				1039	297
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				97	92
cM capacity (veh/h)	992				218	705

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	49	351	351	391	203	65
Volume Left	49	0	0	0	0	7
Volume Right	0	0	0	0	8	58
cSH	992	1700	1700	1700	1700	569
Volume to Capacity	0.05	0.21	0.21	0.23	0.12	0.11
Queue Length 95th (m)	1.2	0.0	0.0	0.0	0.0	3.1
Control Delay (s/veh)	8.8	0.0	0.0	0.0	0.0	12.1
Lane LOS	A					B
Approach Delay (s/veh)	0.6			0.0		12.1
Approach LOS						B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	179	477	0	1	377	22	3	0	0	18	0	166
Future Volume (vph)	179	477	0	1	377	22	3	0	0	18	0	166
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.993						0.878	
Flt Protected		0.987						0.950			0.995	
Satd. Flow (prot)	0	1727	0	0	1738	0	0	1662	0	0	1529	0
Flt Permitted		0.987						0.950			0.995	
Satd. Flow (perm)	0	1727	0	0	1738	0	0	1662	0	0	1529	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		203.0			187.5			73.5			136.2	
Travel Time (s)		12.2			11.3			5.3			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	195	518	0	1	410	24	3	0	0	20	0	180
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	713	0	0	435	0	0	3	0	0	200	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 82.7%		ICU Level of Service E	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	179	477	0	1	377	22	3	0	0	18	0	166
Future Volume (Veh/h)	179	477	0	1	377	22	3	0	0	18	0	166
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	195	518	0	1	410	24	3	0	0	20	0	180
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	434			518			1512	1344	518	1332	1332	422
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	434			518			1512	1344	518	1332	1332	422
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 %	83			100			95	100	100	83	100	72
cM capacity (veh/h)	1136			1058			62	127	562	115	129	636

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	713	435	3	200
Volume Left	195	1	3	20
Volume Right	0	24	0	180
cSH	1136	1058	62	438
Volume to Capacity	0.17	0.00	0.05	0.46
Queue Length 95th (m)	4.9	0.0	1.2	18.7
Control Delay (s/veh)	4.0	0.0	66.1	20.0
Lane LOS	A	A	F	C
Approach Delay (s/veh)	4.0	0.0	66.1	20.0
Approach LOS			F	C

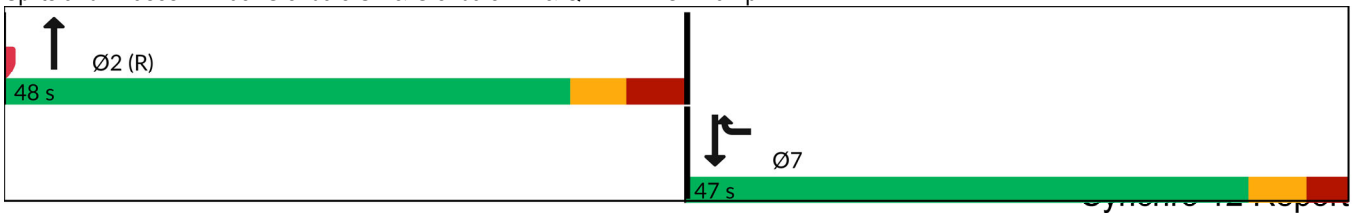
Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	210	742	652
Future Volume (vph)	210	742	652
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	228	807	709
Shared Lane Traffic (%)			
Lane Group Flow (vph)	228	807	709
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	31.0	53.0	31.0
Actuated g/C Ratio	0.33	0.56	0.33
v/c Ratio	0.47	0.48	0.71
Control Delay (s/veh)	27.9	14.8	31.9
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	27.9	14.8	31.9
LOS	C	B	C
Approach Delay (s/veh)		14.8	31.9
Approach LOS		B	C
Stops (vph)	158	439	543
Fuel Used(l)	9	22	30
CO Emissions (g/hr)	177	418	565
NOx Emissions (g/hr)	34	81	109
VOC Emissions (g/hr)	41	96	130
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay (s/veh): 23.5		Intersection LOS: C	
Intersection Capacity Utilization 45.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	228	807	709
v/c Ratio	0.47	0.48	0.71
Control Delay (s/veh)	27.9	14.8	31.9
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	27.9	14.8	31.9
Queue Length 50th (m)	34.5	46.9	62.2
Queue Length 95th (m)	50.4	74.0	73.6
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	656	1686	1348
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.35	0.48	0.53

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	210	742	652
Future Volume (vph)	210	742	652
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	228	807	709
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	228	807	709
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	29.0	51.0	29.0
Effective Green, g (s)	31.0	53.0	31.0
Actuated g/C Ratio	0.33	0.56	0.33
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	484	1686	995
v/s Ratio Prot	0.15	c0.27	c0.23
v/s Ratio Perm			
v/c Ratio	0.47	0.48	0.71
Uniform Delay, d1	25.5	12.7	28.1
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.7	1.0	2.4
Delay (s)	26.2	13.6	30.5
Level of Service	C	B	C
Approach Delay (s/veh)		13.6	30.5
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	45.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

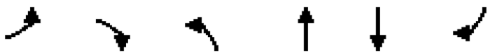
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	565	0	0	0	0	652
Future Volume (vph)	565	0	0	0	0	652
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	614	0	0	0	0	709
Shared Lane Traffic (%)						
Lane Group Flow (vph)	614	0	0	0	0	709
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 60.2%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	565	0	0	0	0	652
Future Volume (Veh/h)	565	0	0	0	0	652
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	614	0	0	0	0	709
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	355	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	355	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			100	
cM capacity (veh/h)	617	1084			1622	

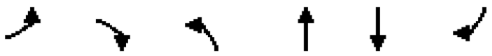
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	614	355	355
Volume Left	614	0	0
Volume Right	0	0	0
cSH	617	1700	1700
Volume to Capacity	1.00	0.21	0.21
Queue Length 95th (m)	119.9	0.0	0.0
Control Delay (s/veh)	60.8	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	60.8	0.0	
Approach LOS	F		

Intersection Summary			
Average Delay	28.2		
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	459	0	0	1470	0	0
Future Volume (vph)	459	0	0	1470	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	499	0	0	1598	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	499	0	0	1598	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	124.8%	ICU Level of Service	H
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	459	0	0	1470	0	0
Future Volume (Veh/h)	459	0	0	1470	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	499	0	0	1598	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	799	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	799	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	100	100			
cM capacity (veh/h)	323	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	499	799	799
Volume Left	499	0	0
Volume Right	0	0	0
cSH	323	1700	1700
Volume to Capacity	1.55	0.47	0.47
Queue Length 95th (m)	228.5	0.0	0.0
Control Delay (s/veh)	289.8	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	289.8	0.0	
Approach LOS	F		

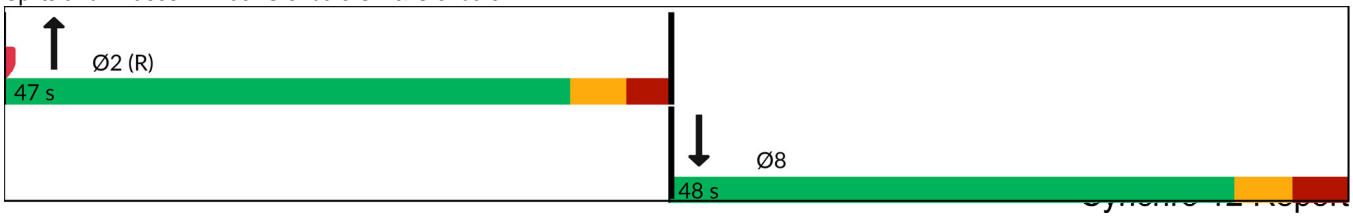
Intersection Summary			
Average Delay	69.0		
Intersection Capacity Utilization	124.8%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1470	0	0	724	0	0	0	0	0	0	0
Future Volume (vph)	0	1470	0	0	724	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1598	0	0	787	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1598	0	0	787	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		51.0			29.0							
Actuated g/C Ratio		0.54			0.31							
v/c Ratio		0.90			0.78							
Control Delay (s/veh)		29.1			35.4							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		29.1			35.4							
LOS		C			D							
Approach Delay (s/veh)		29.1			35.4							
Approach LOS		C			D							
Stops (vph)		1146			631							
Fuel Used(l)		65			37							
CO Emissions (g/hr)		1217			695							
NOx Emissions (g/hr)		235			134							
VOC Emissions (g/hr)		281			160							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay (s/veh): 31.2		Intersection LOS: C	
Intersection Capacity Utilization 50.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



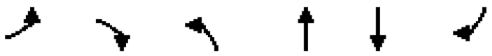
Lane Group	NBT	SBT
Lane Group Flow (vph)	1598	787
v/c Ratio	0.90	0.78
Control Delay (s/veh)	29.1	35.4
Queue Delay	0.0	0.0
Total Delay (s/veh)	29.1	35.4
Queue Length 50th (m)	137.2	72.3
Queue Length 95th (m)	#218.8	84.7
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1785	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.90	0.56

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

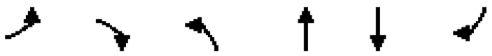
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	1470	0	0	724	0	0	0	0	0	0	0
Future Volume (vph)	0	1470	0	0	724	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1598	0	0	787	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1598	0	0	787	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		51.0			29.0							
Effective Green, g (s)		51.0			29.0							
Actuated g/C Ratio		0.54			0.31							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1785			1015							
v/s Ratio Prot		c0.48			c0.24							
v/s Ratio Perm												
v/c Ratio		0.90			0.78							
Uniform Delay, d1		19.6			30.0							
Progression Factor		1.00			1.00							
Incremental Delay, d2		7.4			3.8							
Delay (s)		27.1			33.8							
Level of Service		C			C							
Approach Delay (s/veh)		27.1			33.8			0.0			0.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	29.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	66	79	39	54	1
Future Volume (vph)	1	66	79	39	54	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.867				0.998	
Flt Protected	0.999			0.967		
Satd. Flow (prot)	1486	0	0	1659	1712	0
Flt Permitted	0.999			0.967		
Satd. Flow (perm)	1486	0	0	1659	1712	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	96.3			112.4	188.4	
Travel Time (s)	6.9			8.1	13.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	72	86	42	59	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	73	0	0	128	60	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

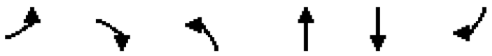
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	66	79	39	54	1
Future Volume (Veh/h)	1	66	79	39	54	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	72	86	42	59	1
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	60	60			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	274	60	60			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	93	94			
cM capacity (veh/h)	676	1006	1544			

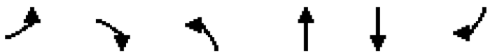
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	73	128	60
Volume Left	1	86	0
Volume Right	72	0	1
cSH	999	1544	1700
Volume to Capacity	0.07	0.06	0.04
Queue Length 95th (m)	1.9	1.4	0.0
Control Delay (s/veh)	8.9	5.2	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	8.9	5.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	24.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	66	79	123	119	1
Future Volume (vph)	0	66	79	123	119	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.999	
Flt Protected				0.981		
Satd. Flow (prot)	1484	0	0	1683	1714	0
Flt Permitted				0.981		
Satd. Flow (perm)	1484	0	0	1683	1714	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	81.9			136.2	112.4	
Travel Time (s)	5.9			9.8	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	72	86	134	129	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	72	0	0	220	130	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	66	79	123	119	1
Future Volume (Veh/h)	0	66	79	123	119	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	72	86	134	129	1
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	436	130	130			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	436	130	130			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	92	94			
cM capacity (veh/h)	544	920	1455			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	72	220	130
Volume Left	0	86	0
Volume Right	72	0	1
cSH	920	1455	1700
Volume to Capacity	0.08	0.06	0.08
Queue Length 95th (m)	2.0	1.5	0.0
Control Delay (s/veh)	9.2	3.3	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	9.2	3.3	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	29.5%	ICU Level of Service	A
Analysis Period (min)	15		

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:40:28 PM

Summary of intersection performance

	Sat						
	Queue (PCE)	**95% Queue (PCE)**	**Delay (s)**	**V/C Ratio**	**LOS**	**Intersection Delay (s)**	**Intersection LOS**
	A1 - TT (2030)						
Leg North	0.21	~1	6.64	0.17	A	7.14	A
Leg West	0.19	~1	3.98	0.16	A		
Leg South	1.16	1.02	6.29	0.54	A		
Leg East	2.07	3.05	11.78	0.68	B		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat " model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:40:27 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - TT (2030), Sat

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
TT (2030), Sat	TT (2030)	Sat		PHF	12:00	13:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				7.14	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	105.00	100.000
West	PHF	✓	538.00	100.000
South	PHF	✓	1176.00	100.000
East	PHF	✓	592.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	105.00	0.92	SecondQuarter
West	538.00	0.92	SecondQuarter
South	1176.00	0.92	SecondQuarter
East	592.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	35.000	56.000	14.000
	West	38.000	0.000	379.000	121.000
	South	66.000	549.000	0.000	561.000

	East	22.000	192.000	378.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.33	0.53	0.13
	West	0.07	0.00	0.70	0.22
	South	0.06	0.47	0.00	0.48
	East	0.04	0.32	0.64	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.036	1.000
	South	1.000	1.021	1.000	1.029
	East	1.000	1.007	1.022	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	3.6	0.0
	South	0.0	2.1	0.0	2.9
	East	0.0	0.7	2.2	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.17	6.64	0.21	~1	A	105.00	105.00	10.45	5.97	0.17	10.45	5.97
West	0.16	3.98	0.19	~1	A	538.00	159.00	10.14	3.83	0.17	10.14	3.83
South	0.54	6.29	1.16	1.02	A	1176.00	615.00	58.56	5.71	0.98	58.57	5.71
East	0.68	11.78	2.07	3.05	B	592.00	592.00	94.54	9.58	1.58	94.59	9.59

Main Results for each time segment

Main results: (12:00-12:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	98.91	98.91	24.73	0.00	0.00	98.31	118.00	1046.28	0.00	751.90	511.22	0.132	0.00	0.15	5.503	A
West	506.81	149.78	37.45	357.03	0.00	149.17	726.15	418.45	0.00	1115.27	876.74	0.134	0.00	0.15	3.724	A
South	1107.83	579.35	144.84	528.48	357.03	575.93	405.34	162.27	0.00	1263.53	810.58	0.459	0.00	0.85	5.307	A
East	557.68	557.68	139.42	0.00	528.48	552.70	126.62	611.58	0.00	1003.48	767.05	0.556	0.00	1.25	8.031	A

Main results: (12:15-12:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	114.13	114.13	28.53	0.00	0.00	113.90	136.67	1212.04	0.00	655.96	511.22	0.174	0.15	0.21	6.638	A

West	584.78	172.83	43.21	411.96	0.00	172.68	841.25	484.69	0.00	1076.92	876.74	0.160	0.15	0.19	3.981	A
South	1278.26	668.48	167.12	609.78	411.96	667.26	469.51	187.87	0.00	1248.71	810.58	0.535	0.85	1.16	6.295	A
East	643.48	643.48	160.87	0.00	609.78	640.18	146.60	708.53	0.00	947.37	767.05	0.679	1.25	2.07	11.779	B

Main results: (12:30-12:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	108.04	108.04	27.01	0.00	0.00	108.13	129.76	1152.98	0.00	690.15	511.22	0.157	0.21	0.19	6.188	A
West	553.59	163.61	40.90	389.99	0.00	163.66	799.30	461.81	0.00	1090.17	876.74	0.150	0.19	0.18	3.887	A
South	1210.09	632.83	158.21	577.26	389.99	633.26	447.40	178.08	0.00	1254.38	810.58	0.504	1.16	1.05	5.910	A
East	609.16	609.16	152.29	0.00	577.26	610.37	138.96	672.37	0.00	968.30	767.05	0.629	2.07	1.77	10.261	B

Main results: (12:45-13:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	98.91	98.91	24.73	0.00	0.00	99.05	118.86	1056.56	0.00	745.95	511.22	0.133	0.19	0.15	5.565	A
West	506.81	149.78	37.45	357.03	0.00	149.87	732.30	423.31	0.00	1112.45	876.74	0.135	0.18	0.16	3.742	A
South	1107.83	579.35	144.84	528.48	357.03	580.06	410.10	163.07	0.00	1263.07	810.58	0.459	1.05	0.87	5.376	A
East	557.68	557.68	139.42	0.00	528.48	559.54	127.26	615.87	0.00	1001.00	767.05	0.557	1.77	1.30	8.323	A

Queueing Delay Results for each time segment

Queueing Delay results: (12:00-12:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	2.19	0.15	5.503	A	A
West	2.27	0.15	3.724	A	A
South	12.33	0.82	5.307	A	A
East	17.64	1.18	8.031	A	A

Queueing Delay results: (12:15-12:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	3.06	0.20	6.638	A	A
West	2.81	0.19	3.981	A	A
South	16.82	1.12	6.295	A	A
East	29.11	1.94	11.779	B	B

Queueing Delay results: (12:30-12:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	2.85	0.19	6.188	A	A
West	2.69	0.18	3.887	A	A
South	16.03	1.07	5.910	A	A
East	27.45	1.83	10.261	B	B

Queueing Delay results: (12:45-13:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	2.35	0.16	5.565	A	A
West	2.37	0.16	3.742	A	A
South	13.38	0.89	5.376	A	A
East	20.34	1.36	8.323	A	A

Queue Variation Results for each time segment

Queue Variation results: (12:00-12:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.15	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.15	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.85	0.00	0.00	0.00	1.02			N/A	N/A
East	1.25	0.00	0.00	2.03	2.03			N/A	N/A

Queue Variation results: (12:15-12:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.21	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.19	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.16	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	2.07	0.00	0.00	0.00	3.05			N/A	N/A

Queue Variation results: (12:30-12:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.19	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.18	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.05	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.77	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:45-13:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.15	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.16	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.87	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.30	0.00	0.00	2.03	3.05			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	15	90	1	9	82
Future Volume (vph)	0	15	90	1	9	82
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.879	
Flt Protected				0.953	0.995	
Satd. Flow (prot)	1514	0	0	1668	1531	0
Flt Permitted				0.953	0.995	
Satd. Flow (perm)	1514	0	0	1668	1531	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	0	16	98	1	10	89
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	99	99	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	15	90	1	9	82
Future Volume (Veh/h)	0	15	90	1	9	82
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	16	98	1	10	89
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	109	0	81	65	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	109	0	81	65	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	89	100	99	
cM capacity (veh/h)	780	1091	895	823	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	16	99	99
Volume Left	0	98	10
Volume Right	16	0	89
cSH	1091	894	1636
Volume to Capacity	0.01	0.11	0.01
Queue Length 95th (m)	0.4	3.0	0.1
Control Delay (s/veh)	8.3	9.5	0.8
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	9.5	0.8
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	24.8%	ICU Level of Service	A
Analysis Period (min)	15		

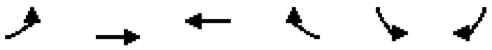
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	3	42	11	19	1
Future Volume (vph)	0	3	42	11	19	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.994	
Flt Protected				0.962	0.954	
Satd. Flow (prot)	1514	0	0	1667	1659	0
Flt Permitted				0.962	0.954	
Satd. Flow (perm)	1514	0	0	1667	1659	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	1%	0%	1%
Adj. Flow (vph)	0	3	46	12	21	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	0	0	58	22	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	3	42	11	19	1
Future Volume (Veh/h)	0	3	42	11	19	1
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	3	46	12	21	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	43	0	46	43	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	43	0	46	43	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	95	99	99	
cM capacity (veh/h)	842	1091	947	840	1636	

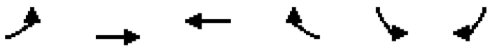
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	3	58	22
Volume Left	0	46	21
Volume Right	3	0	1
cSH	1091	923	1636
Volume to Capacity	0.00	0.06	0.01
Queue Length 95th (m)	0.1	1.6	0.3
Control Delay (s/veh)	8.3	9.2	6.9
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	9.2	6.9
Approach LOS	A	A	

Intersection Summary			
Average Delay	8.5		
Intersection Capacity Utilization	19.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	84	711	705	11	5	71
Future Volume (vph)	84	711	705	11	5	71
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.998		0.873	
Flt Protected	0.950				0.997	
Satd. Flow (prot)	1662	3325	3318	0	1523	0
Flt Permitted	0.950				0.997	
Satd. Flow (perm)	1662	3325	3318	0	1523	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	91	773	766	12	5	77
Shared Lane Traffic (%)						
Lane Group Flow (vph)	91	773	778	0	82	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

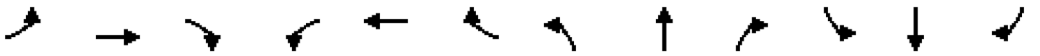
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	84	711	705	11	5	71
Future Volume (Veh/h)	84	711	705	11	5	71
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	91	773	766	12	5	77
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	778				1341	389
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	778				1341	389
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				96	87
cM capacity (veh/h)	848				131	615

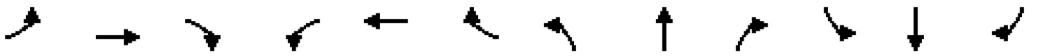
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	91	387	387	511	267	82
Volume Left	91	0	0	0	0	5
Volume Right	0	0	0	0	12	77
cSH	848	1700	1700	1700	1700	502
Volume to Capacity	0.11	0.23	0.23	0.30	0.16	0.16
Queue Length 95th (m)	2.9	0.0	0.0	0.0	0.0	4.6
Control Delay (s/veh)	9.8	0.0	0.0	0.0	0.0	13.6
Lane LOS	A					B
Approach Delay (s/veh)	1.0			0.0		13.6
Approach LOS						B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	242	468	6	1	457	34	8	0	2	32	0	205
Future Volume (vph)	242	468	6	1	457	34	8	0	2	32	0	205
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.991			0.975			0.883	
Flt Protected		0.983						0.961			0.993	
Satd. Flow (prot)	0	1719	0	0	1734	0	0	1640	0	0	1534	0
Flt Permitted		0.983						0.961			0.993	
Satd. Flow (perm)	0	1719	0	0	1734	0	0	1640	0	0	1534	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		168.7			187.5			73.5			136.2	
Travel Time (s)		10.1			11.3			5.3			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	263	509	7	1	497	37	9	0	2	35	0	223
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	779	0	0	535	0	0	11	0	0	258	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 95.2%		ICU Level of Service F	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	242	468	6	1	457	34	8	0	2	32	0	205
Future Volume (Veh/h)	242	468	6	1	457	34	8	0	2	32	0	205
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	263	509	7	1	497	37	9	0	2	35	0	223
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	534			516			1779	1575	513	1558	1560	516
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	534			516			1779	1575	513	1558	1560	516
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 %	75			100			71	100	100	53	100	60
cM capacity (veh/h)	1044			1060			31	83	566	74	85	563

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	779	535	11	258
Volume Left	263	1	9	35
Volume Right	7	37	2	223
cSH	1044	1060	38	297
Volume to Capacity	0.25	0.00	0.29	0.87
Queue Length 95th (m)	8.0	0.0	7.6	61.4
Control Delay (s/veh)	5.5	0.0	134.5	62.3
Lane LOS	A	A	F	F
Approach Delay (s/veh)	5.5	0.0	134.5	62.3
Approach LOS			F	F

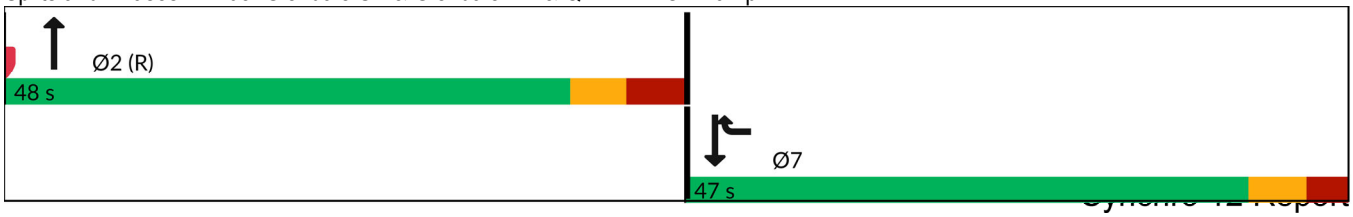
Intersection Summary				
Average Delay	13.8			
Intersection Capacity Utilization	95.2%	ICU Level of Service	F	
Analysis Period (min)	15			

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	373	647	704
Future Volume (vph)	373	647	704
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	405	703	765
Shared Lane Traffic (%)			
Lane Group Flow (vph)	405	703	765
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	35.3	48.7	35.3
Actuated g/C Ratio	0.37	0.51	0.37
v/c Ratio	0.74	0.45	0.67
Control Delay (s/veh)	33.4	17.3	27.5
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	33.4	17.3	27.5
LOS	C	B	C
Approach Delay (s/veh)		17.3	27.5
Approach LOS		B	C
Stops (vph)	308	408	554
Fuel Used(l)	19	21	30
CO Emissions (g/hr)	355	398	553
NOx Emissions (g/hr)	68	77	107
VOC Emissions (g/hr)	82	92	128
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay (s/veh): 25.0		Intersection LOS: C	
Intersection Capacity Utilization 53.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	405	703	765
v/c Ratio	0.74	0.45	0.67
Control Delay (s/veh)	33.4	17.3	27.5
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	33.4	17.3	27.5
Queue Length 50th (m)	65.9	43.6	63.5
Queue Length 95th (m)	86.5	70.7	71.3
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	663	1563	1362
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.61	0.45	0.56

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	373	647	704
Future Volume (vph)	373	647	704
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	405	703	765
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	405	703	765
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	33.3	46.7	33.3
Effective Green, g (s)	35.3	48.7	35.3
Actuated g/C Ratio	0.37	0.51	0.37
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	551	1549	1133
v/s Ratio Prot	c0.27	c0.23	0.25
v/s Ratio Perm			
v/c Ratio	0.74	0.45	0.68
Uniform Delay, d1	25.8	14.7	25.0
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	5.1	1.0	1.6
Delay (s)	30.9	15.7	26.6
Level of Service	C	B	C
Approach Delay (s/veh)		15.7	26.6
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

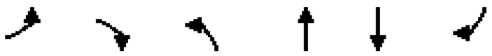
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	267	0	0	0	0	704
Future Volume (vph)	267	0	0	0	0	704
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	290	0	0	0	0	765
Shared Lane Traffic (%)						
Lane Group Flow (vph)	290	0	0	0	0	765
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	267	0	0	0	0	704
Future Volume (Veh/h)	267	0	0	0	0	704
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	290	0	0	0	0	765
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	383	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	383	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	51	100			100	
cM capacity (veh/h)	593	1084			1622	

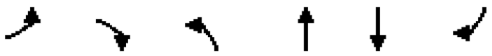
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	290	383	383
Volume Left	290	0	0
Volume Right	0	0	0
cSH	593	1700	1700
Volume to Capacity	0.49	0.23	0.23
Queue Length 95th (m)	21.5	0.0	0.0
Control Delay (s/veh)	16.8	0.0	0.0
Lane LOS	C		
Approach Delay (s/veh)	16.8	0.0	
Approach LOS	C		

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	430	0	0	662	0	0
Future Volume (vph)	430	0	0	662	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	467	0	0	720	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	467	0	0	720	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 80.3%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	430	0	0	662	0	0
Future Volume (Veh/h)	430	0	0	662	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	467	0	0	720	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	360	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	360	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	24	100	100			
cM capacity (veh/h)	612	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	467	360	360
Volume Left	467	0	0
Volume Right	0	0	0
cSH	612	1700	1700
Volume to Capacity	0.76	0.21	0.21
Queue Length 95th (m)	55.8	0.0	0.0
Control Delay (s/veh)	27.3	0.0	0.0
Lane LOS	D		
Approach Delay (s/veh)	27.3	0.0	
Approach LOS	D		

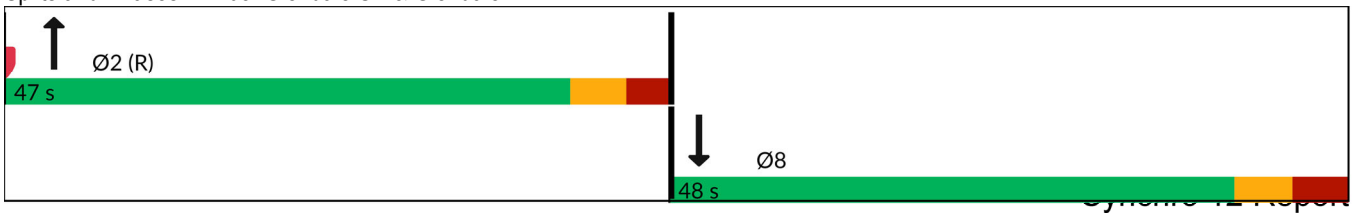
Intersection Summary			
Average Delay	10.7		
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	662	0	0	459	0	0	0	0	0	0	0
Future Volume (vph)	0	662	0	0	459	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	720	0	0	499	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	720	0	0	499	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		59.9			20.1							
Actuated g/C Ratio		0.63			0.21							
v/c Ratio		0.34			0.71							
Control Delay (s/veh)		9.4			40.3							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		9.4			40.3							
LOS		A			D							
Approach Delay (s/veh)		9.4			40.3							
Approach LOS		A			D							
Stops (vph)		300			409							
Fuel Used(l)		15			26							
CO Emissions (g/hr)		271			477							
NOx Emissions (g/hr)		52			92							
VOC Emissions (g/hr)		63			110							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay (s/veh): 22.0		Intersection LOS: C	
Intersection Capacity Utilization 25.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB

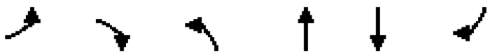


Lane Group	NBT	SBT
Lane Group Flow (vph)	720	499
v/c Ratio	0.34	0.71
Control Delay (s/veh)	9.4	40.3
Queue Delay	0.0	0.0
Total Delay (s/veh)	9.4	40.3
Queue Length 50th (m)	31.1	47.4
Queue Length 95th (m)	49.8	60.0
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	2097	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.34	0.36

Intersection Summary

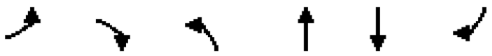
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	662	0	0	459	0	0	0	0	0	0	0
Future Volume (vph)	0	662	0	0	459	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	720	0	0	499	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	720	0	0	499	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		59.9			20.1							
Effective Green, g (s)		59.9			20.1							
Actuated g/C Ratio		0.63			0.21							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		2096			703							
v/s Ratio Prot		c0.22			c0.15							
v/s Ratio Perm												
v/c Ratio		0.34			0.71							
Uniform Delay, d1		8.3			34.7							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.4			3.3							
Delay (s)		8.7			38.0							
Level of Service		A			D							
Approach Delay (s/veh)		8.7			38.0			0.0			0.0	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	25.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	83	56	169	71	2
Future Volume (vph)	5	83	56	169	71	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.872				0.997	
Flt Protected	0.997			0.988		
Satd. Flow (prot)	1492	0	0	1695	1711	0
Flt Permitted	0.997			0.988		
Satd. Flow (perm)	1492	0	0	1695	1711	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	96.3			112.4	188.4	
Travel Time (s)	6.9			8.1	13.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	90	61	184	77	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	95	0	0	245	79	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

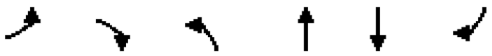
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	83	56	169	71	2
Future Volume (Veh/h)	5	83	56	169	71	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	90	61	184	77	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	384	78	79			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	384	78	79			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	91	96			
cM capacity (veh/h)	594	983	1519			

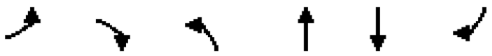
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	95	245	79
Volume Left	5	61	0
Volume Right	90	0	2
cSH	950	1519	1700
Volume to Capacity	0.10	0.04	0.05
Queue Length 95th (m)	2.7	1.0	0.0
Control Delay (s/veh)	9.2	2.1	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	9.2	2.1	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	32.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	84	56	220	153	1
Future Volume (vph)	5	84	56	220	153	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.872				0.999	
Flt Protected	0.997			0.990		
Satd. Flow (prot)	1492	0	0	1699	1714	0
Flt Permitted	0.997			0.990		
Satd. Flow (perm)	1492	0	0	1699	1714	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	81.9			136.2	112.4	
Travel Time (s)	5.9			9.8	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	91	61	239	166	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	96	0	0	300	167	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 40.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	84	56	220	153	1
Future Volume (Veh/h)	5	84	56	220	153	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	91	61	239	166	1
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	528	167	167			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	528	167	167			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	90	96			
cM capacity (veh/h)	489	878	1411			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	96	300	167
Volume Left	5	61	0
Volume Right	91	0	1
cSH	843	1411	1700
Volume to Capacity	0.11	0.04	0.10
Queue Length 95th (m)	3.1	1.1	0.0
Control Delay (s/veh)	9.8	1.9	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	9.8	1.9	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	40.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	691	20	6	592	57	16
Future Volume (vph)	691	20	6	592	57	16
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.996				0.971	
Flt Protected				0.999	0.962	
Satd. Flow (prot)	1709	0	0	1714	1603	0
Flt Permitted				0.999	0.962	
Satd. Flow (perm)	1709	0	0	1714	1603	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	34.5			168.7	76.7	
Travel Time (s)	2.1			10.1	5.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	751	22	7	643	62	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	773	0	0	650	79	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	691	20	6	592	57	16
Future Volume (Veh/h)	691	20	6	592	57	16
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	751	22	7	643	62	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			751		1419	762
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			751		1419	762
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		58	96
cM capacity (veh/h)			858		149	405

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	773	650	79
Volume Left	0	7	62
Volume Right	22	0	17
cSH	1700	858	173
Volume to Capacity	0.45	0.01	0.46
Queue Length 95th (m)	0.0	0.2	17.1
Control Delay (s/veh)	0.0	0.2	42.3
Lane LOS		A	E
Approach Delay (s/veh)	0.0	0.2	42.3
Approach LOS			E

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:42:53 PM

Summary of intersection performance

	AM						
	Queue (PCE)	**95% Queue (PCE)**	**Delay (s)**	**V/C Ratio**	**LOS**	**Intersection Delay (s)**	**Intersection LOS**
	A1 - TT (2032)						
Leg North	0.32	~1	10.32	0.21	B	12.88	B
Leg West	0.23	~1	4.78	0.18	A		
Leg South	1.43	1.11	7.37	0.57	A		
Leg East	6.34	23.92	27.82	0.87	D		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM " model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:42:52 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - TT (2032), AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
TT (2032), AM	TT (2032)	AM		PHF	08:00	09:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				12.88	B

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	103.50	100.000
West	PHF	✓	501.00	100.000
South	PHF	✓	1269.00	100.000
East	PHF	✓	757.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	103.50	0.92	SecondQuarter
West	501.00	0.92	SecondQuarter
South	1269.00	0.92	SecondQuarter
East	757.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	38.000	59.000	6.500
	West	10.000	0.000	338.000	153.000
	South	73.000	578.000	0.000	618.000

	East	0.000	186.000	566.000	5.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.37	0.57	0.06
	West	0.02	0.00	0.67	0.31
	South	0.06	0.46	0.00	0.49
	East	0.00	0.25	0.75	0.01

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.154	1.200	1.333
	West	1.000	1.000	1.139	1.047
	South	1.071	1.119	1.000	1.095
	East	1.000	1.057	1.170	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	15.4	20.0	33.3
	West	0.0	0.0	13.9	4.7
	South	7.1	11.9	0.0	9.5
	East	0.0	5.7	17.0	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.21	10.32	0.32	~1	B	103.50	103.50	15.44	8.95	0.26	15.45	8.95
West	0.18	4.78	0.23	~1	A	501.00	163.00	12.33	4.54	0.21	12.33	4.54
South	0.57	7.37	1.43	1.11	A	1269.00	651.00	71.86	6.62	1.20	71.89	6.63
East	0.87	27.82	6.34	23.92	D	757.00	757.00	248.81	19.72	4.15	249.08	19.74

Main Results for each time segment

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	97.50	97.50	24.38	0.00	0.00	96.65	77.68	1243.16	0.00	637.96	435.90	0.153	0.00	0.21	7.903	A
West	471.96	153.55	38.39	318.41	0.00	152.81	748.87	590.94	0.00	1015.43	834.29	0.151	0.00	0.18	4.353	A
South	1195.43	613.26	153.32	582.17	318.41	609.11	580.23	163.52	0.00	1262.81	855.56	0.486	0.00	1.04	6.095	A
East	713.12	713.12	178.28	0.00	582.17	702.35	154.14	618.49	0.00	999.49	832.66	0.713	0.00	2.69	13.358	B

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	112.50	112.50	28.13	0.00	0.00	112.08	90.03	1435.08	0.00	526.88	435.90	0.214	0.21	0.32	10.318	B

West	544.57	177.17	44.29	367.39	0.00	176.98	866.59	680.57	0.00	963.56	834.29	0.184	0.18	0.23	4.776	A
South	1379.35	707.61	176.90	671.74	367.39	706.03	668.19	189.36	0.00	1247.85	855.56	0.567	1.04	1.43	7.374	A
East	822.83	822.83	205.71	0.00	671.74	808.23	178.50	716.89	0.00	942.54	832.66	0.873	2.69	6.34	27.824	D

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	106.50	106.50	26.63	0.00	0.00	106.64	85.47	1378.58	0.00	559.58	435.90	0.190	0.32	0.28	9.461	A
West	515.52	167.72	41.93	347.80	0.00	167.79	826.86	658.36	0.00	976.41	834.29	0.172	0.23	0.22	4.647	A
South	1305.78	669.87	167.47	635.91	347.80	670.41	646.49	179.66	0.00	1253.47	855.56	0.534	1.43	1.30	6.884	A
East	778.94	778.94	194.74	0.00	635.91	783.35	169.37	680.71	0.00	963.48	832.66	0.808	6.34	5.24	23.441	C

Main results: (08:45-09:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	97.50	97.50	24.38	0.00	0.00	97.74	78.30	1267.34	0.00	623.96	435.90	0.156	0.28	0.22	8.144	A
West	471.96	153.55	38.39	318.41	0.00	153.67	758.61	606.48	0.00	1006.44	834.29	0.153	0.22	0.19	4.407	A
South	1195.43	613.26	153.32	582.17	318.41	614.18	595.57	164.57	0.00	1262.20	855.56	0.486	1.30	1.07	6.196	A
East	713.12	713.12	178.28	0.00	582.17	722.03	155.15	623.61	0.00	996.52	832.66	0.716	5.24	3.01	15.386	C

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-08:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	3.07	0.20	7.903	A	A
West	2.71	0.18	4.353	A	A
South	14.91	0.99	6.095	A	A
East	36.34	2.42	13.358	B	B

Queueing Delay results: (08:15-08:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	4.62	0.31	10.318	B	B
West	3.45	0.23	4.776	A	A
South	20.72	1.38	7.374	A	A
East	79.83	5.32	27.824	D	C

Queueing Delay results: (08:30-08:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	4.33	0.29	9.461	A	A
West	3.30	0.22	4.647	A	A
South	19.84	1.32	6.884	A	A
East	83.49	5.57	23.441	C	C

Queueing Delay results: (08:45-09:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	3.42	0.23	8.144	A	A
West	2.87	0.19	4.407	A	A
South	16.39	1.09	6.196	A	A
East	49.14	3.28	15.386	C	B

Queue Variation Results for each time segment

Queue Variation results: (08:00-08:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.21	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.18	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	1.04	0.00	0.00	1.11	1.11			N/A	N/A
East	2.69	0.00	0.00	5.69	7.97			N/A	N/A

Queue Variation results: (08:15-08:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.32	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.23	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.43	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	6.34	0.00	0.00	13.67	23.92			N/A	N/A

Queue Variation results: (08:30-08:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.28	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.22	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.30	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	5.24	0.00	0.00	2.28	14.80			N/A	N/A

Queue Variation results: (08:45-09:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.22	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.19	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.07	0.00	0.00	1.11	1.11			N/A	N/A
East	3.01	0.00	0.00	4.56	10.25			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	20	91	0	14	91
Future Volume (vph)	0	20	91	0	14	91
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.865				0.883	
Flt Protected				0.950	0.993	
Satd. Flow (prot)	1514	0	0	1662	1534	0
Flt Permitted				0.950	0.993	
Satd. Flow (perm)	1514	0	0	1662	1534	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	22	99	0	15	99
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	0	0	99	114	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	20	91	0	14	91
Future Volume (Veh/h)	0	20	91	0	14	91
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	22	99	0	15	99
Pedestrians					1	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	129	1	103	80	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	129	1	103	80	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	88	100	99	
cM capacity (veh/h)	758	1089	858	807	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	22	99	114
Volume Left	0	99	15
Volume Right	22	0	99
cSH	1089	858	1636
Volume to Capacity	0.02	0.12	0.01
Queue Length 95th (m)	0.5	3.1	0.2
Control Delay (s/veh)	8.4	9.7	1.0
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.7	1.0
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	25.7%	ICU Level of Service	A
Analysis Period (min)	15		

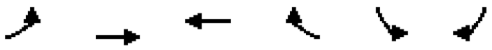
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1	22	0	0	39	29
Future Volume (vph)	1	22	0	0	39	29
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.870				0.942	
Flt Protected					0.972	
Satd. Flow (prot)	1522	0	0	1750	1595	0
Flt Permitted					0.972	
Satd. Flow (perm)	1522	0	0	1750	1595	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	1	24	0	0	42	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	0	0	0	74	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1	22	0	0	39	29
Future Volume (Veh/h)	1	22	0	0	39	29
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	24	0	0	42	32
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	116	0	125	100	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	116	0	125	100	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	100	100	97	
cM capacity (veh/h)	758	1091	818	773	1636	

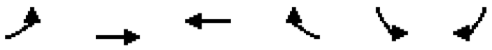
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	25	0	74
Volume Left	0	0	42
Volume Right	24	0	32
cSH	1072	1700	1636
Volume to Capacity	0.02	0.00	0.03
Queue Length 95th (m)	0.6	0.0	0.6
Control Delay (s/veh)	8.4	0.0	4.2
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	0.0	4.2
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	14.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	90	792	914	19	12	58
Future Volume (vph)	90	792	914	19	12	58
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.997		0.888	
Flt Protected	0.950				0.992	
Satd. Flow (prot)	1662	3325	3315	0	1542	0
Flt Permitted	0.950				0.992	
Satd. Flow (perm)	1662	3325	3315	0	1542	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Confl. Peds. (#/hr)	1			1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	98	861	993	21	13	63
Shared Lane Traffic (%)						
Lane Group Flow (vph)	98	861	1014	0	76	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

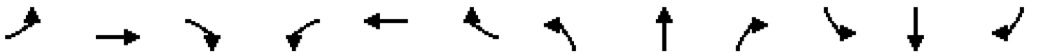
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	90	792	914	19	12	58
Future Volume (Veh/h)	90	792	914	19	12	58
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	861	993	21	13	63
Pedestrians		1			1	
Lane Width (m)		3.6			3.6	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1015				1631	509
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1015				1631	509
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	86				84	88
cM capacity (veh/h)	691				81	514

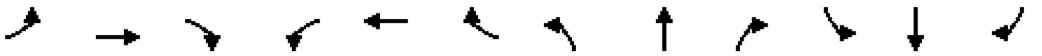
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	98	431	431	662	352	76
Volume Left	98	0	0	0	0	13
Volume Right	0	0	0	0	21	63
cSH	691	1700	1700	1700	1700	268
Volume to Capacity	0.14	0.25	0.25	0.39	0.21	0.28
Queue Length 95th (m)	3.9	0.0	0.0	0.0	0.0	9.1
Control Delay (s/veh)	11.1	0.0	0.0	0.0	0.0	23.7
Lane LOS	B					C
Approach Delay (s/veh)	1.1			0.0		23.7
Approach LOS						C

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	268	465	0	0	554	43	4	0	0	33	0	372
Future Volume (vph)	268	465	0	0	554	43	4	0	0	33	0	372
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.990						0.876	
Flt Protected		0.982						0.950			0.996	
Satd. Flow (prot)	0	1719	0	0	1732	0	0	1662	0	0	1527	0
Flt Permitted		0.982						0.950			0.996	
Satd. Flow (perm)	0	1719	0	0	1732	0	0	1662	0	0	1527	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		168.7			187.5			73.5			136.2	
Travel Time (s)		10.1			11.3			5.3			9.8	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	291	505	0	0	602	47	4	0	0	36	0	404
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	796	0	0	649	0	0	4	0	0	440	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 113.2%		ICU Level of Service H	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	268	465	0	0	554	43	4	0	0	33	0	372
Future Volume (Veh/h)	268	465	0	0	554	43	4	0	0	33	0	372
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	291	505	0	0	602	47	4	0	0	36	0	404
Pedestrians		1									1	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	650			505			2118	1737	505	1714	1714	628
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	650			505			2118	1737	505	1714	1714	628
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 %	69			100			16	100	100	34	100	17
cM capacity (veh/h)	945			1070			5	61	571	55	63	486

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	796	649	4	440
Volume Left	291	0	4	36
Volume Right	0	47	0	404
cSH	945	1070	5	296
Volume to Capacity	0.31	0.00	0.84	1.49
Queue Length 95th (m)	10.5	0.0	9.4	197.9
Control Delay (s/veh)	6.8	0.0	1254.0	269.5
Lane LOS	A		F	F
Approach Delay (s/veh)	6.8	0.0	1254.0	269.5
Approach LOS			F	F

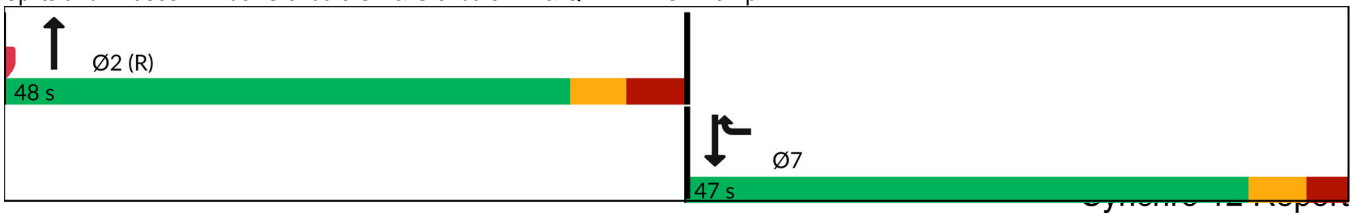
Intersection Summary			
Average Delay	68.3		
Intersection Capacity Utilization	113.2%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	306	643	1198
Future Volume (vph)	306	643	1198
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	333	699	1302
Shared Lane Traffic (%)			
Lane Group Flow (vph)	333	699	1302
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	47.4	36.6	47.4
Actuated g/C Ratio	0.50	0.39	0.50
v/c Ratio	0.45	0.60	0.85
Control Delay (s/veh)	17.5	26.4	27.6
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	17.5	26.4	27.6
LOS	B	C	C
Approach Delay (s/veh)		26.4	27.6
Approach LOS		C	C
Stops (vph)	188	502	982
Fuel Used(l)	10	28	52
CO Emissions (g/hr)	194	519	958
NOx Emissions (g/hr)	37	100	185
VOC Emissions (g/hr)	45	120	221
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay (s/veh): 25.8		Intersection LOS: C	
Intersection Capacity Utilization 49.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	333	699	1302
v/c Ratio	0.45	0.60	0.85
Control Delay (s/veh)	17.5	26.4	27.6
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	17.5	26.4	27.6
Queue Length 50th (m)	38.6	57.0	107.2
Queue Length 95th (m)	63.0	74.7	143.9
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	740	1336	1523
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.45	0.52	0.85

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	306	643	1198
Future Volume (vph)	306	643	1198
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	333	699	1302
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	333	699	1302
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	45.4	34.6	45.4
Effective Green, g (s)	47.4	36.6	47.4
Actuated g/C Ratio	0.50	0.39	0.50
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	740	1164	1521
v/s Ratio Prot	0.22	c0.23	c0.43
v/s Ratio Perm			
v/c Ratio	0.45	0.60	0.86
Uniform Delay, d1	15.4	23.4	20.8
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.4	2.3	5.0
Delay (s)	15.8	25.6	25.8
Level of Service	B	C	C
Approach Delay (s/veh)		25.6	25.8
Approach LOS		C	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

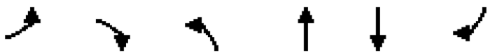
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	387	0	0	0	0	1198
Future Volume (vph)	387	0	0	0	0	1198
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	421	0	0	0	0	1302
Shared Lane Traffic (%)						
Lane Group Flow (vph)	421	0	0	0	0	1302
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.9%		ICU Level of Service C	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	387	0	0	0	0	1198
Future Volume (Veh/h)	387	0	0	0	0	1198
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	421	0	0	0	0	1302
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	651	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	651	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			100	
cM capacity (veh/h)	401	1084			1622	

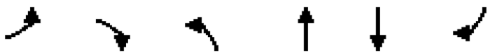
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	421	651	651
Volume Left	421	0	0
Volume Right	0	0	0
cSH	401	1700	1700
Volume to Capacity	1.05	0.38	0.38
Queue Length 95th (m)	110.8	0.0	0.0
Control Delay (s/veh)	91.0	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	91.0	0.0	
Approach LOS	F		

Intersection Summary			
Average Delay	22.2		
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	341	0	0	1353	0	0
Future Volume (vph)	341	0	0	1353	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	371	0	0	1471	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	371	0	0	1471	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 90.6%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	341	0	0	1353	0	0
Future Volume (Veh/h)	341	0	0	1353	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	371	0	0	1471	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	736	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	736	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	100	100			
cM capacity (veh/h)	355	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	371	736	736
Volume Left	371	0	0
Volume Right	0	0	0
cSH	355	1700	1700
Volume to Capacity	1.05	0.43	0.43
Queue Length 95th (m)	102.9	0.0	0.0
Control Delay (s/veh)	95.5	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	95.5	0.0	
Approach LOS	F		

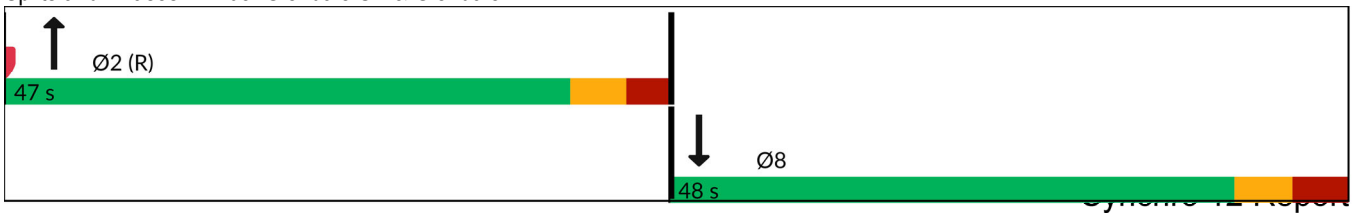
Intersection Summary			
Average Delay	19.2		
Intersection Capacity Utilization	90.6%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1353	0	0	642	0	0	0	0	0	0	0
Future Volume (vph)	0	1353	0	0	642	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1471	0	0	698	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1471	0	0	698	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		53.8			26.2							
Actuated g/C Ratio		0.57			0.28							
v/c Ratio		0.78			0.76							
Control Delay (s/veh)		21.0			37.0							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		21.0			37.0							
LOS		C			D							
Approach Delay (s/veh)		21.0			37.0							
Approach LOS		C			D							
Stops (vph)		996			564							
Fuel Used(l)		50			34							
CO Emissions (g/hr)		939			633							
NOx Emissions (g/hr)		181			122							
VOC Emissions (g/hr)		217			146							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay (s/veh): 26.1		Intersection LOS: C	
Intersection Capacity Utilization 46.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



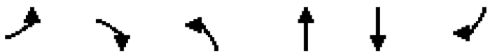
Lane Group	NBT	SBT
Lane Group Flow (vph)	1471	698
v/c Ratio	0.78	0.76
Control Delay (s/veh)	21.0	37.0
Queue Delay	0.0	0.0
Total Delay (s/veh)	21.0	37.0
Queue Length 50th (m)	109.8	64.4
Queue Length 95th (m)	#165.6	77.7
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1883	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.78	0.50

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

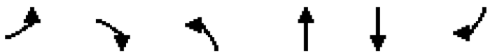
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1353	0	0	642	0	0	0	0	0	0	0
Future Volume (vph)	0	1353	0	0	642	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1471	0	0	698	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1471	0	0	698	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		53.8			26.2							
Effective Green, g (s)		53.8			26.2							
Actuated g/C Ratio		0.57			0.28							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1883			917							
v/s Ratio Prot		c0.44			c0.21							
v/s Ratio Perm												
v/c Ratio		0.78			0.76							
Uniform Delay, d1		16.0			31.5							
Progression Factor		1.00			1.00							
Incremental Delay, d2		3.3			3.8							
Delay (s)		19.3			35.3							
Level of Service		B			D							
Approach Delay (s/veh)		19.3			35.3			0.0			0.0	
Approach LOS		B			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	91	99	115	228	6
Future Volume (vph)	3	91	99	115	228	6
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.869				0.996	
Flt Protected	0.999			0.977		
Satd. Flow (prot)	1489	0	0	1676	1709	0
Flt Permitted	0.999			0.977		
Satd. Flow (perm)	1489	0	0	1676	1709	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	96.3			112.4	188.4	
Travel Time (s)	6.9			8.1	13.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	99	108	125	248	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	102	0	0	233	255	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

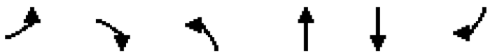
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	91	99	115	228	6
Future Volume (Veh/h)	3	91	99	115	228	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	99	108	125	248	7
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	593	252	255			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	593	252	255			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	87	92			
cM capacity (veh/h)	430	787	1310			

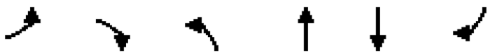
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	102	233	255
Volume Left	3	108	0
Volume Right	99	0	7
cSH	768	1310	1700
Volume to Capacity	0.13	0.08	0.15
Queue Length 95th (m)	3.7	2.2	0.0
Control Delay (s/veh)	10.4	4.1	0.0
Lane LOS	B	A	
Approach Delay (s/veh)	10.4	4.1	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	91	99	212	313	6
Future Volume (vph)	2	91	99	212	313	6
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.868				0.997	
Flt Protected	0.999			0.984		
Satd. Flow (prot)	1488	0	0	1688	1711	0
Flt Permitted	0.999			0.984		
Satd. Flow (perm)	1488	0	0	1688	1711	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	81.9			136.2	112.4	
Travel Time (s)	5.9			9.8	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	99	108	230	340	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	101	0	0	338	347	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	91	99	212	313	6
Future Volume (Veh/h)	2	91	99	212	313	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	99	108	230	340	7
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	790	344	347			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	790	344	347			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	86	91			
cM capacity (veh/h)	327	699	1212			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	101	338	347
Volume Left	2	108	0
Volume Right	99	0	7
cSH	684	1212	1700
Volume to Capacity	0.15	0.09	0.20
Queue Length 95th (m)	4.1	2.3	0.0
Control Delay (s/veh)	11.2	3.2	0.0
Lane LOS	B	A	
Approach Delay (s/veh)	11.2	3.2	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	52.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	737	58	15	914	39	6
Future Volume (vph)	737	58	15	914	39	6
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.990				0.981	
Flt Protected				0.999	0.959	
Satd. Flow (prot)	1699	0	0	1714	1614	0
Flt Permitted				0.999	0.959	
Satd. Flow (perm)	1699	0	0	1714	1614	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	34.5			168.7	76.7	
Travel Time (s)	2.1			10.1	5.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	801	63	16	993	42	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	864	0	0	1009	49	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 75.3%		ICU Level of Service D	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	737	58	15	914	39	6
Future Volume (Veh/h)	737	58	15	914	39	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	801	63	16	993	42	7
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			801		1858	833
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			801		1858	833
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		47	98
cM capacity (veh/h)			822		79	369

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	864	1009	49
Volume Left	0	16	42
Volume Right	63	0	7
cSH	1700	822	89
Volume to Capacity	0.51	0.02	0.55
Queue Length 95th (m)	0.0	0.5	19.6
Control Delay (s/veh)	0.0	0.6	86.2
Lane LOS		A	F
Approach Delay (s/veh)	0.0	0.6	86.2
Approach LOS			F

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

Junctions 8

ARCADY 8 - Roundabout Module

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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:43:21 PM

Summary of intersection performance

	PM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - TT (2032)						
Leg North	0.31	~1	9.01	0.24	A	29.91	D
Leg West	0.22	~1	5.36	0.18	A		
Leg South	0.88	~1	5.67	0.44	A		
Leg East	21.80	80.11	80.15	1.03	F		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM " model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:43:20 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - TT (2032), PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
TT (2032), PM	TT (2032)	PM		PHF	16:00	17:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				29.91	D

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	114.00	100.000
West	PHF	✓	688.00	100.000
South	PHF	✓	1221.00	100.000
East	PHF	✓	973.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	114.00	0.92	SecondQuarter
West	688.00	0.92	SecondQuarter
South	1221.00	0.92	SecondQuarter
East	973.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	22.000	87.000	5.000
	West	10.000	0.000	549.000	129.000
	South	90.000	426.000	0.000	705.000

	East	12.000	217.000	744.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.19	0.76	0.04
	West	0.01	0.00	0.80	0.19
	South	0.07	0.35	0.00	0.58
	East	0.01	0.22	0.76	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.097	1.061
	South	1.033	1.133	1.000	1.196
	East	1.000	1.079	1.048	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	9.7	6.1
	South	3.3	13.3	0.0	19.6
	East	0.0	7.9	4.8	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.24	9.01	0.31	~1	A	114.00	114.00	15.47	8.14	0.26	15.47	8.14
West	0.18	5.36	0.22	~1	A	688.00	139.00	11.92	5.14	0.20	11.92	5.15
South	0.44	5.67	0.88	~1	A	1221.00	516.00	45.43	5.28	0.76	45.44	5.28
East	1.03	80.15	21.80	80.11	F	973.00	973.00	783.72	48.33	13.06	785.31	48.43

Main Results for each time segment

Main results: (16:00-16:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	107.39	107.39	26.85	0.00	0.00	106.55	104.72	1283.30	0.00	614.73	468.76	0.175	0.00	0.21	7.072	A
West	648.12	130.94	32.74	517.17	0.00	130.24	619.30	770.55	0.00	911.48	781.02	0.144	0.00	0.18	4.864	A
South	1150.22	486.09	121.52	664.13	517.17	483.38	765.88	134.91	0.00	1279.36	893.52	0.380	0.00	0.68	5.022	A
East	916.59	916.59	229.15	0.00	664.13	895.27	125.54	492.75	0.00	1072.26	807.79	0.855	0.00	5.33	19.573	C

Main results: (16:15-16:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	123.91	123.91	30.98	0.00	0.00	123.52	120.78	1442.47	0.00	522.60	468.75	0.237	0.21	0.31	9.011	A

West	747.83	151.09	37.77	596.74	0.00	150.90	707.53	858.46	0.00	860.60	781.02	0.176	0.18	0.22	5.357	A
South	1327.17	560.87	140.22	766.30	596.74	560.07	853.04	156.32	0.00	1266.98	893.52	0.443	0.68	0.88	5.668	A
East	1057.61	1057.61	264.40	0.00	766.30	992.32	145.46	570.93	0.00	1027.01	807.79	1.030	5.33	21.65	62.365	F

Main results: (16:30-16:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	117.30	117.30	29.33	0.00	0.00	117.39	115.29	1426.86	0.00	531.64	468.75	0.221	0.31	0.29	8.692	A
West	707.94	143.03	35.76	564.91	0.00	143.07	684.39	859.85	0.00	859.80	781.02	0.166	0.22	0.21	5.307	A
South	1256.39	530.96	132.74	725.43	564.91	531.23	854.70	148.22	0.00	1271.66	893.52	0.418	0.88	0.81	5.421	A
East	1001.20	1001.20	250.30	0.00	725.43	1000.62	137.93	541.53	0.00	1044.03	807.79	0.959	21.65	21.80	80.154	F

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	107.39	107.39	26.85	0.00	0.00	107.59	106.30	1363.39	0.00	568.37	468.76	0.189	0.29	0.24	7.817	A
West	648.12	130.94	32.74	517.17	0.00	131.04	639.61	831.37	0.00	876.28	781.02	0.149	0.21	0.19	5.105	A
South	1150.22	486.09	121.52	664.13	517.17	486.56	826.65	135.76	0.00	1278.87	893.52	0.380	0.81	0.69	5.067	A
East	916.59	916.59	229.15	0.00	664.13	973.71	126.33	495.98	0.00	1070.39	807.79	0.856	21.80	7.52	46.508	E

Queueing Delay Results for each time segment

Queueing Delay results: (16:00-16:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	3.04	0.20	7.072	A	A
West	2.57	0.17	4.864	A	A
South	9.82	0.65	5.022	A	A
East	66.35	4.42	19.573	C	B

Queueing Delay results: (16:15-16:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	4.46	0.30	9.011	A	A
West	3.29	0.22	5.357	A	A
South	12.81	0.85	5.668	A	A
East	217.59	14.51	62.365	F	E

Queueing Delay results: (16:30-16:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	4.35	0.29	8.692	A	A
West	3.21	0.21	5.307	A	A
South	12.27	0.82	5.421	A	A
East	325.91	21.73	80.154	F	F

Queueing Delay results: (16:45-17:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	3.61	0.24	7.817	A	A
West	2.84	0.19	5.105	A	A
South	10.53	0.70	5.067	A	A
East	173.87	11.59	46.508	E	D

Queue Variation Results for each time segment

Queue Variation results: (16:00-16:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.21	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.18	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.68	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	5.33	0.00	1.05	12.65	18.97			N/A	N/A

Queue Variation results: (16:15-16:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.31	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.22	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.88	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	21.65	1.05	14.76	46.38	60.09			N/A	N/A

Queue Variation results: (16:30-16:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.29	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.21	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.81	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	21.80	0.00	8.43	56.92	80.11			N/A	N/A

Queue Variation results: (16:45-17:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.24	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.19	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.69	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	7.52	0.00	0.00	10.54	27.41			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	14	81	0	16	115
Future Volume (vph)	0	14	81	0	16	115
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.881	
Flt Protected				0.950	0.994	
Satd. Flow (prot)	1514	0	0	1662	1532	0
Flt Permitted				0.950	0.994	
Satd. Flow (perm)	1514	0	0	1662	1532	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	15	88	0	17	125
Shared Lane Traffic (%)						
Lane Group Flow (vph)	15	0	0	88	142	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	14	81	0	16	115
Future Volume (Veh/h)	0	14	81	0	16	115
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	15	88	0	17	125
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	159	0	112	97	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	159	0	112	97	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	90	100	99	
cM capacity (veh/h)	729	1091	852	789	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	15	88	142
Volume Left	0	88	17
Volume Right	15	0	125
cSH	1091	852	1636
Volume to Capacity	0.01	0.10	0.01
Queue Length 95th (m)	0.3	2.8	0.3
Control Delay (s/veh)	8.3	9.7	0.9
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	9.7	0.9
Approach LOS	A	A	

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	26.9%	ICU Level of Service	A
Analysis Period (min)	15		

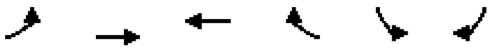
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	32	0	0	21	2
Future Volume (vph)	0	32	0	0	21	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.989	
Flt Protected					0.956	
Satd. Flow (prot)	1514	0	0	1750	1655	0
Flt Permitted					0.956	
Satd. Flow (perm)	1514	0	0	1750	1655	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	35	0	0	23	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	0	0	0	25	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	32	0	0	21	2
Future Volume (Veh/h)	0	32	0	0	21	2
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	35	0	0	23	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	48	0	82	47	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	48	0	82	47	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	97	100	100	99	
cM capacity (veh/h)	836	1091	872	837	1636	

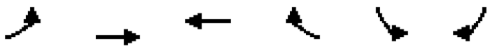
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	35	0	25
Volume Left	0	0	23
Volume Right	35	0	2
cSH	1091	1700	1636
Volume to Capacity	0.03	0.00	0.01
Queue Length 95th (m)	0.8	0.0	0.3
Control Delay (s/veh)	8.4	0.0	6.7
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	0.0	6.7
Approach LOS	A	A	

Intersection Summary			
Average Delay	7.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	46	784	652	7	7	54
Future Volume (vph)	46	784	652	7	7	54
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.998		0.881	
Flt Protected	0.950				0.994	
Satd. Flow (prot)	1662	3325	3318	0	1532	0
Flt Permitted	0.950				0.994	
Satd. Flow (perm)	1662	3325	3318	0	1532	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	50	852	709	8	8	59
Shared Lane Traffic (%)						
Lane Group Flow (vph)	50	852	717	0	67	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.2%		ICU Level of Service A	
Analysis Period (min) 15			



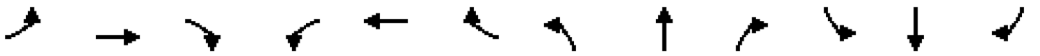
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	46	784	652	7	7	54
Future Volume (Veh/h)	46	784	652	7	7	54
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	50	852	709	8	8	59
Pedestrians						
Lane Width (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	717				1239	359
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	717				1239	359
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				95	91
cM capacity (veh/h)	893				161	644

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	50	426	426	473	244	67
Volume Left	50	0	0	0	0	8
Volume Right	0	0	0	0	8	59
cSH	893	1700	1700	1700	1700	474
Volume to Capacity	0.06	0.25	0.25	0.28	0.14	0.14
Queue Length 95th (m)	1.4	0.0	0.0	0.0	0.0	3.9
Control Delay (s/veh)	9.3	0.0	0.0	0.0	0.0	13.8
Lane LOS	A					B
Approach Delay (s/veh)	0.5			0.0		13.8
Approach LOS						B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	37.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	502	0	1	400	28	4	0	0	24	0	214
Future Volume (vph)	231	502	0	1	400	28	4	0	0	24	0	214
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.991						0.879	
Flt Protected		0.984						0.950			0.995	
Satd. Flow (prot)	0	1722	0	0	1734	0	0	1662	0	0	1531	0
Flt Permitted		0.984						0.950			0.995	
Satd. Flow (perm)	0	1722	0	0	1734	0	0	1662	0	0	1531	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		168.7			187.5			73.5			136.2	
Travel Time (s)		10.1			11.3			5.3			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	251	546	0	1	435	30	4	0	0	26	0	233
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	797	0	0	466	0	0	4	0	0	259	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 92.4%		ICU Level of Service F	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	231	502	0	1	400	28	4	0	0	24	0	214
Future Volume (Veh/h)	231	502	0	1	400	28	4	0	0	24	0	214
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	251	546	0	1	435	30	4	0	0	26	0	233
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	465			546			1733	1515	546	1500	1500	450
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	465			546			1733	1515	546	1500	1500	450
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 %	77			100			89	100	100	69	100	62
cM capacity (veh/h)	1107			1033			36	93	541	84	95	613

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	797	466	4	259
Volume Left	251	1	4	26
Volume Right	0	30	0	233
cSH	1107	1033	36	375
Volume to Capacity	0.23	0.00	0.11	0.69
Queue Length 95th (m)	7.0	0.0	2.8	39.9
Control Delay (s/veh)	5.0	0.0	118.3	33.5
Lane LOS	A	A	F	D
Approach Delay (s/veh)	5.0	0.0	118.3	33.5
Approach LOS			F	D

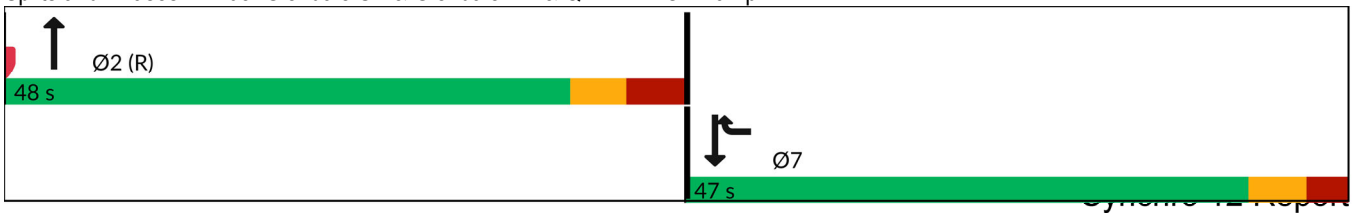
Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	92.4%	ICU Level of Service	F
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	225	858	735
Future Volume (vph)	225	858	735
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	245	933	799
Shared Lane Traffic (%)			
Lane Group Flow (vph)	245	933	799
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	34.0	50.0	34.0
Actuated g/C Ratio	0.36	0.53	0.36
v/c Ratio	0.46	0.59	0.73
Control Delay (s/veh)	25.5	18.4	30.4
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	25.5	18.4	30.4
LOS	C	B	C
Approach Delay (s/veh)		18.4	30.4
Approach LOS		B	C
Stops (vph)	164	578	608
Fuel Used(l)	10	30	33
CO Emissions (g/hr)	179	556	620
NOx Emissions (g/hr)	35	107	120
VOC Emissions (g/hr)	41	128	143
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay (s/veh): 24.1		Intersection LOS: C	
Intersection Capacity Utilization 50.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	245	933	799
v/c Ratio	0.46	0.59	0.73
Control Delay (s/veh)	25.5	18.4	30.4
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	25.5	18.4	30.4
Queue Length 50th (m)	35.7	61.9	69.3
Queue Length 95th (m)	51.3	95.8	80.4
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	656	1590	1348
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.37	0.59	0.59

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	225	858	735
Future Volume (vph)	225	858	735
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	245	933	799
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	245	933	799
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	32.0	48.0	32.0
Effective Green, g (s)	34.0	50.0	34.0
Actuated g/C Ratio	0.36	0.53	0.36
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	531	1591	1091
v/s Ratio Prot	0.17	c0.31	c0.26
v/s Ratio Perm			
v/c Ratio	0.46	0.59	0.73
Uniform Delay, d1	23.5	15.4	26.5
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.6	1.6	2.6
Delay (s)	24.1	17.0	29.1
Level of Service	C	B	C
Approach Delay (s/veh)		17.0	29.1
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

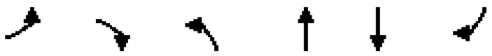
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	587	0	0	0	0	735
Future Volume (vph)	587	0	0	0	0	735
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	638	0	0	0	0	799
Shared Lane Traffic (%)						
Lane Group Flow (vph)	638	0	0	0	0	799
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 64.0%		ICU Level of Service C	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	587	0	0	0	0	735
Future Volume (Veh/h)	587	0	0	0	0	735
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	638	0	0	0	0	799
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	400	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	400	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			100	
cM capacity (veh/h)	578	1084			1622	

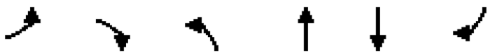
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	638	400	400
Volume Left	638	0	0
Volume Right	0	0	0
cSH	578	1700	1700
Volume to Capacity	1.10	0.24	0.24
Queue Length 95th (m)	157.1	0.0	0.0
Control Delay (s/veh)	94.7	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	94.7	0.0	
Approach LOS	F		

Intersection Summary			
Average Delay	42.0		
Intersection Capacity Utilization	64.0%	ICU Level of Service	C
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	493	0	0	1597	0	0
Future Volume (vph)	493	0	0	1597	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	536	0	0	1736	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	536	0	0	1736	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	132.2%	ICU Level of Service	H
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	493	0	0	1597	0	0
Future Volume (Veh/h)	493	0	0	1597	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	536	0	0	1736	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	868	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	868	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	100	100			
cM capacity (veh/h)	292	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	536	868	868
Volume Left	536	0	0
Volume Right	0	0	0
cSH	292	1700	1700
Volume to Capacity	1.84	0.51	0.51
Queue Length 95th (m)	288.9	0.0	0.0
Control Delay (s/veh)	419.7	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	419.7	0.0	
Approach LOS	F		

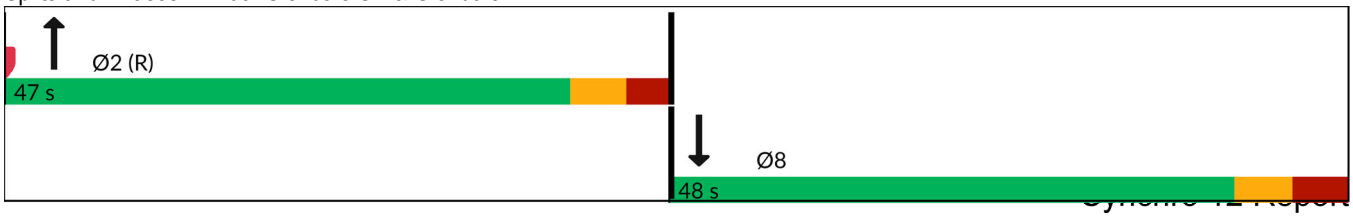
Intersection Summary			
Average Delay	99.0		
Intersection Capacity Utilization	132.2%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1597	0	0	785	0	0	0	0	0	0	0
Future Volume (vph)	0	1597	0	0	785	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1736	0	0	853	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1736	0	0	853	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		49.1			30.9							
Actuated g/C Ratio		0.52			0.33							
v/c Ratio		1.01			0.79							
Control Delay (s/veh)		49.4			34.4							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		49.4			34.4							
LOS		D			C							
Approach Delay (s/veh)		49.4			34.4							
Approach LOS		D			C							
Stops (vph)		1261			677							
Fuel Used(l)		96			40							
CO Emissions (g/hr)		1793			740							
NOx Emissions (g/hr)		346			143							
VOC Emissions (g/hr)		414			171							
Dilemma Vehicles (#)		0			0							

Intersection Summary	
Area Type:	Other
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay (s/veh): 44.5	Intersection LOS: D
Intersection Capacity Utilization 53.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	1736	853
v/c Ratio	1.01	0.79
Control Delay (s/veh)	49.4	34.4
Queue Delay	0.0	0.0
Total Delay (s/veh)	49.4	34.4
Queue Length 50th (m)	~174.3	77.8
Queue Length 95th (m)	#255.2	90.4
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1718	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.01	0.61

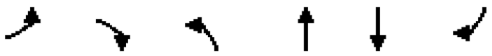
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

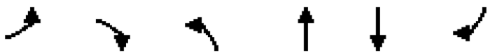
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	1597	0	0	785	0	0	0	0	0	0	0
Future Volume (vph)	0	1597	0	0	785	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1736	0	0	853	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1736	0	0	853	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		49.1			30.9							
Effective Green, g (s)		49.1			30.9							
Actuated g/C Ratio		0.52			0.33							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1718			1081							
v/s Ratio Prot		c0.52			c0.26							
v/s Ratio Perm												
v/c Ratio		1.01			0.79							
Uniform Delay, d1		23.0			29.1							
Progression Factor		1.00			1.00							
Incremental Delay, d2		24.3			3.9							
Delay (s)		47.3			33.0							
Level of Service		D			C							
Approach Delay (s/veh)		47.3			33.0			0.0			0.0	
Approach LOS		D			C			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	42.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	91	106	41	57	2
Future Volume (vph)	1	91	106	41	57	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.866				0.996	
Flt Protected				0.965		
Satd. Flow (prot)	1486	0	0	1656	1709	0
Flt Permitted				0.965		
Satd. Flow (perm)	1486	0	0	1656	1709	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	96.3			112.4	188.4	
Travel Time (s)	6.9			8.1	13.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	99	115	45	62	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	100	0	0	160	64	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

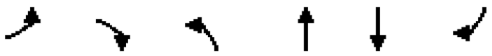
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	91	106	41	57	2
Future Volume (Veh/h)	1	91	106	41	57	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	99	115	45	62	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	338	63	64			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	338	63	64			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	90	93			
cM capacity (veh/h)	608	1002	1538			

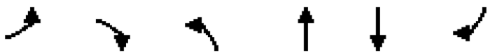
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	100	160	64
Volume Left	1	115	0
Volume Right	99	0	2
cSH	995	1538	1700
Volume to Capacity	0.10	0.07	0.04
Queue Length 95th (m)	2.7	1.9	0.0
Control Delay (s/veh)	9.0	5.6	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	9.0	5.6	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	28.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	92	106	153	147	1
Future Volume (vph)	1	92	106	153	147	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.866				0.999	
Flt Protected				0.980		
Satd. Flow (prot)	1486	0	0	1681	1714	0
Flt Permitted				0.980		
Satd. Flow (perm)	1486	0	0	1681	1714	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	81.9			136.2	112.4	
Travel Time (s)	5.9			9.8	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	100	115	166	160	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	101	0	0	281	161	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	92	106	153	147	1
Future Volume (Veh/h)	1	92	106	153	147	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	100	115	166	160	1
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	557	161	161			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	557	161	161			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	89	92			
cM capacity (veh/h)	452	885	1418			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	101	281	161
Volume Left	1	115	0
Volume Right	100	0	1
cSH	876	1418	1700
Volume to Capacity	0.12	0.08	0.09
Queue Length 95th (m)	3.1	2.1	0.0
Control Delay (s/veh)	9.6	3.6	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	9.6	3.6	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	717	70	10	608	52	8
Future Volume (vph)	717	70	10	608	52	8
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.988				0.982	
Flt Protected				0.999	0.959	
Satd. Flow (prot)	1695	0	0	1714	1616	0
Flt Permitted				0.999	0.959	
Satd. Flow (perm)	1695	0	0	1714	1616	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	34.5			168.7	76.7	
Travel Time (s)	2.1			10.1	5.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	779	76	11	661	57	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	855	0	0	672	66	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.9%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	717	70	10	608	52	8
Future Volume (Veh/h)	717	70	10	608	52	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	779	76	11	661	57	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			779		1500	817
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			779		1500	817
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		57	98
cM capacity (veh/h)			838		133	376

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	855	672	66
Volume Left	0	11	57
Volume Right	76	0	9
cSH	1700	838	145
Volume to Capacity	0.50	0.01	0.45
Queue Length 95th (m)	0.0	0.3	16.5
Control Delay (s/veh)	0.0	0.4	48.8
Lane LOS		A	E
Approach Delay (s/veh)	0.0	0.4	48.8
Approach LOS			E

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:43:43 PM

Summary of intersection performance

	Sat						
	Queue (PCE)	**95% Queue (PCE)**	**Delay (s)**	**V/C Ratio**	**LOS**	**Intersection Delay (s)**	**Intersection LOS**
	A1 - TT (2032)						
Leg North	0.25	~1	7.85	0.20	A	9.69	A
Leg West	0.24	~1	4.37	0.19	A		
Leg South	1.28	1.02	6.72	0.56	A		
Leg East	4.17	15.25	19.84	0.82	C		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat " model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:43:42 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - TT (2032), Sat

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
TT (2032), Sat	TT (2032)	Sat		PHF	12:00	13:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				9.69	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	107.00	100.000
West	PHF	✓	575.00	100.000
South	PHF	✓	1315.00	100.000
East	PHF	✓	705.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	107.00	0.92	SecondQuarter
West	575.00	0.92	SecondQuarter
South	1315.00	0.92	SecondQuarter
East	705.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	36.000	57.000	14.000
	West	38.000	0.000	394.000	143.000
	South	66.000	571.000	0.000	678.000

	East	22.000	211.000	472.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.34	0.53	0.13
	West	0.07	0.00	0.69	0.25
	South	0.05	0.43	0.00	0.52
	East	0.03	0.30	0.67	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.036	1.000
	South	1.000	1.021	1.000	1.029
	East	1.000	1.007	1.022	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	3.6	0.0
	South	0.0	2.1	0.0	2.9
	East	0.0	0.7	2.2	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.20	7.85	0.25	~1	A	107.00	107.00	12.31	6.90	0.21	12.31	6.90
West	0.19	4.37	0.24	~1	A	575.00	181.00	12.57	4.17	0.21	12.57	4.17
South	0.56	6.72	1.28	1.02	A	1315.00	637.00	64.17	6.04	1.07	64.19	6.05
East	0.82	19.84	4.17	15.25	C	705.00	705.00	170.73	14.53	2.85	170.87	14.54

Main Results for each time segment

Main results: (12:00-12:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	100.80	100.80	25.20	0.00	0.00	100.11	117.90	1170.27	0.00	680.14	496.15	0.148	0.00	0.17	6.197	A
West	541.67	170.51	42.63	371.16	0.00	169.75	764.64	505.74	0.00	1064.74	865.34	0.160	0.00	0.19	4.019	A
South	1238.77	600.07	150.02	638.70	371.16	596.36	492.64	182.85	0.00	1251.62	819.05	0.479	0.00	0.93	5.566	A
East	664.13	664.13	166.03	0.00	638.70	656.18	147.21	632.00	0.00	991.67	778.27	0.670	0.00	1.99	10.674	B

Main results: (12:15-12:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	116.30	116.30	29.08	0.00	0.00	115.99	136.50	1353.34	0.00	574.18	496.15	0.203	0.17	0.25	7.851	A

West	625.00	196.74	49.18	428.26	0.00	196.55	885.16	584.18	0.00	1019.35	865.34	0.193	0.19	0.24	4.374	A
South	1429.35	692.39	173.10	736.96	428.26	690.98	569.00	211.72	0.00	1234.91	819.05	0.561	0.93	1.28	6.725	A
East	766.30	766.30	191.58	0.00	736.96	757.59	170.46	732.25	0.00	933.65	778.27	0.821	1.99	4.17	19.843	C

Main results: (12:30-12:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	110.10	110.10	27.53	0.00	0.00	110.22	129.81	1293.77	0.00	608.66	496.15	0.181	0.25	0.22	7.223	A
West	591.67	186.25	46.56	405.42	0.00	186.31	843.11	560.87	0.00	1032.84	865.34	0.180	0.24	0.22	4.252	A
South	1353.12	655.46	163.87	697.65	405.42	655.96	546.45	200.73	0.00	1241.27	819.05	0.528	1.28	1.15	6.274	A
East	725.43	725.43	181.36	0.00	697.65	728.51	161.62	695.08	0.00	955.16	778.27	0.759	4.17	3.40	16.408	C

Main results: (12:45-13:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	100.80	100.80	25.20	0.00	0.00	100.98	118.96	1186.87	0.00	670.53	496.15	0.150	0.22	0.18	6.321	A
West	541.67	170.51	42.63	371.16	0.00	170.62	772.87	514.98	0.00	1059.40	865.34	0.161	0.22	0.19	4.052	A
South	1238.77	600.07	150.02	638.70	371.16	600.89	501.76	183.83	0.00	1251.05	819.05	0.480	1.15	0.95	5.650	A
East	664.13	664.13	166.03	0.00	638.70	669.11	148.01	636.71	0.00	988.94	778.27	0.672	3.40	2.15	11.618	B

Queueing Delay Results for each time segment

Queueing Delay results: (12:00-12:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	2.51	0.17	6.197	A	A
West	2.78	0.19	4.019	A	A
South	13.36	0.89	5.566	A	A
East	27.43	1.83	10.674	B	B

Queueing Delay results: (12:15-12:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	3.67	0.24	7.851	A	A
West	3.51	0.23	4.374	A	A
South	18.55	1.24	6.725	A	A
East	55.02	3.67	19.843	C	B

Queueing Delay results: (12:30-12:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	3.40	0.23	7.223	A	A
West	3.35	0.22	4.252	A	A
South	17.66	1.18	6.274	A	A
East	53.82	3.59	16.408	C	B

Queueing Delay results: (12:45-13:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	2.73	0.18	6.321	A	A
West	2.93	0.20	4.052	A	A
South	14.59	0.97	5.650	A	A
East	34.45	2.30	11.618	B	B

Queue Variation Results for each time segment

Queue Variation results: (12:00-12:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.17	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.19	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	0.93	0.00	0.00	1.02	1.02			N/A	N/A
East	1.99	0.00	0.00	4.07	6.10			N/A	N/A

Queue Variation results: (12:15-12:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.25	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.24	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.28	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	4.17	0.00	0.00	6.10	15.25			N/A	N/A

Queue Variation results: (12:30-12:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.22	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.22	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.15	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	3.40	0.00	0.00	0.00	4.07			N/A	N/A

Queue Variation results: (12:45-13:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.18	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.19	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.95	0.00	0.00	1.02	1.02			N/A	N/A
East	2.15	0.00	0.00	4.07	7.12			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	16	90	1	10	82
Future Volume (vph)	0	16	90	1	10	82
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.880	
Flt Protected				0.953	0.995	
Satd. Flow (prot)	1514	0	0	1668	1532	0
Flt Permitted				0.953	0.995	
Satd. Flow (perm)	1514	0	0	1668	1532	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	0	17	98	1	11	89
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	0	0	99	100	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	16	90	1	10	82
Future Volume (Veh/h)	0	16	90	1	10	82
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	17	98	1	11	89
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	111	0	84	67	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	111	0	84	67	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	89	100	99	
cM capacity (veh/h)	778	1091	890	821	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	17	99	100
Volume Left	0	98	11
Volume Right	17	0	89
cSH	1091	889	1636
Volume to Capacity	0.02	0.11	0.01
Queue Length 95th (m)	0.4	3.0	0.2
Control Delay (s/veh)	8.4	9.6	0.8
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.6	0.8
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	24.9%	ICU Level of Service	A
Analysis Period (min)	15		

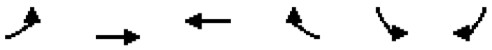
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	3	44	11	19	1
Future Volume (vph)	0	3	44	11	19	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.994	
Flt Protected				0.962	0.954	
Satd. Flow (prot)	1514	0	0	1667	1659	0
Flt Permitted				0.962	0.954	
Satd. Flow (perm)	1514	0	0	1667	1659	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	1%	0%	1%
Adj. Flow (vph)	0	3	48	12	21	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	0	0	60	22	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	3	44	11	19	1
Future Volume (Veh/h)	0	3	44	11	19	1
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	3	48	12	21	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	43	0	46	43	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	43	0	46	43	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	95	99	99	
cM capacity (veh/h)	842	1091	947	840	1636	

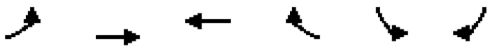
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	3	60	22
Volume Left	0	48	21
Volume Right	3	0	1
cSH	1091	923	1636
Volume to Capacity	0.00	0.06	0.01
Queue Length 95th (m)	0.1	1.7	0.3
Control Delay (s/veh)	8.3	9.2	6.9
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	9.2	6.9
Approach LOS	A	A	

Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	19.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	87	767	795	12	5	74
Future Volume (vph)	87	767	795	12	5	74
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.998		0.873	
Flt Protected	0.950				0.997	
Satd. Flow (prot)	1662	3325	3318	0	1523	0
Flt Permitted	0.950				0.997	
Satd. Flow (perm)	1662	3325	3318	0	1523	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	95	834	864	13	5	80
Shared Lane Traffic (%)						
Lane Group Flow (vph)	95	834	877	0	85	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

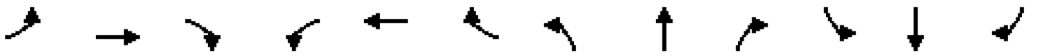
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	87	767	795	12	5	74
Future Volume (Veh/h)	87	767	795	12	5	74
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	95	834	864	13	5	80
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	877				1478	439
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	877				1478	439
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	88				95	86
cM capacity (veh/h)	779				104	572

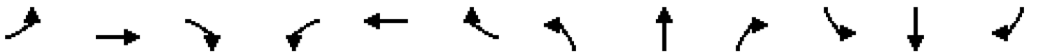
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	95	417	417	576	301	85
Volume Left	95	0	0	0	0	5
Volume Right	0	0	0	0	13	80
cSH	779	1700	1700	1700	1700	453
Volume to Capacity	0.12	0.25	0.25	0.34	0.18	0.19
Queue Length 95th (m)	3.3	0.0	0.0	0.0	0.0	5.5
Control Delay (s/veh)	10.3	0.0	0.0	0.0	0.0	14.8
Lane LOS	B					B
Approach Delay (s/veh)	1.0			0.0		14.8
Approach LOS						B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	44.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	271	494	6	1	478	39	9	0	2	39	0	238
Future Volume (vph)	271	494	6	1	478	39	9	0	2	39	0	238
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.990			0.977			0.884	
Flt Protected		0.983						0.960			0.993	
Satd. Flow (prot)	0	1719	0	0	1732	0	0	1641	0	0	1536	0
Flt Permitted		0.983						0.960			0.993	
Satd. Flow (perm)	0	1719	0	0	1732	0	0	1641	0	0	1536	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		168.7			187.5			73.5			136.2	
Travel Time (s)		10.1			11.3			5.3			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	295	537	7	1	520	42	10	0	2	42	0	259
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	839	0	0	563	0	0	12	0	0	301	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 102.4%		ICU Level of Service G	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	271	494	6	1	478	39	9	0	2	39	0	238
Future Volume (Veh/h)	271	494	6	1	478	39	9	0	2	39	0	238
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	295	537	7	1	520	42	10	0	2	42	0	259
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	562			544			1933	1695	541	1676	1677	541
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	562			544			1933	1695	541	1676	1677	541
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 %	71			100			51	100	100	29	100	52
cM capacity (veh/h)	1019			1035			21	67	545	59	68	545

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	839	563	12	301
Volume Left	295	1	10	42
Volume Right	7	42	2	259
cSH	1019	1035	24	254
Volume to Capacity	0.29	0.00	0.49	1.19
Queue Length 95th (m)	9.6	0.0	11.8	111.7
Control Delay (s/veh)	6.3	0.0	251.2	157.3
Lane LOS	A	A	F	F
Approach Delay (s/veh)	6.3	0.0	251.2	157.3
Approach LOS			F	F

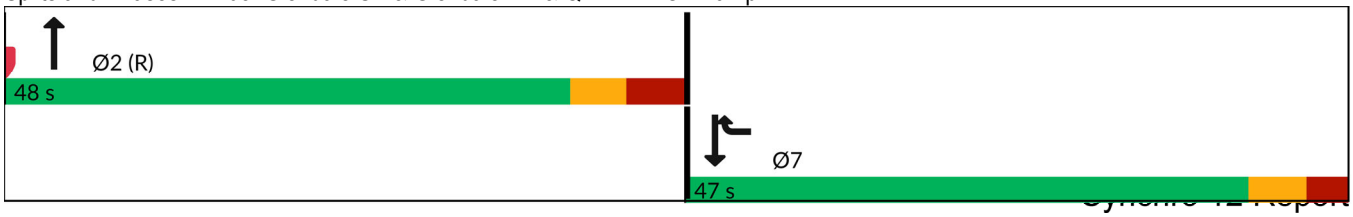
Intersection Summary			
Average Delay	32.4		
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	392	688	767
Future Volume (vph)	392	688	767
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	426	748	834
Shared Lane Traffic (%)			
Lane Group Flow (vph)	426	748	834
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	36.7	47.3	36.7
Actuated g/C Ratio	0.39	0.50	0.39
v/c Ratio	0.74	0.50	0.71
Control Delay (s/veh)	32.7	18.8	27.5
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	32.7	18.8	27.5
LOS	C	B	C
Approach Delay (s/veh)		18.8	27.5
Approach LOS		B	C
Stops (vph)	319	453	609
Fuel Used(l)	20	24	33
CO Emissions (g/hr)	367	445	605
NOx Emissions (g/hr)	71	86	117
VOC Emissions (g/hr)	85	103	139
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay (s/veh): 25.4		Intersection LOS: C	
Intersection Capacity Utilization 56.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	426	748	834
v/c Ratio	0.74	0.50	0.71
Control Delay (s/veh)	32.7	18.8	27.5
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	32.7	18.8	27.5
Queue Length 50th (m)	69.1	48.8	69.8
Queue Length 95th (m)	89.4	78.9	76.7
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	668	1527	1372
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.64	0.49	0.61

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	392	688	767
Future Volume (vph)	392	688	767
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	426	748	834
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	426	748	834
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	34.7	45.3	34.7
Effective Green, g (s)	36.7	47.3	36.7
Actuated g/C Ratio	0.39	0.50	0.39
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	573	1505	1178
v/s Ratio Prot	c0.29	c0.25	0.27
v/s Ratio Perm			
v/c Ratio	0.74	0.50	0.71
Uniform Delay, d1	25.1	15.9	24.6
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	5.2	1.2	2.0
Delay (s)	30.3	17.1	26.6
Level of Service	C	B	C
Approach Delay (s/veh)		17.1	26.6
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

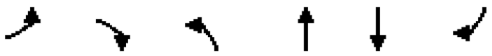
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	278	0	0	0	0	767
Future Volume (vph)	278	0	0	0	0	767
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	302	0	0	0	0	834
Shared Lane Traffic (%)						
Lane Group Flow (vph)	302	0	0	0	0	834
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	278	0	0	0	0	767
Future Volume (Veh/h)	278	0	0	0	0	767
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	302	0	0	0	0	834
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	417	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	417	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	46	100			100	
cM capacity (veh/h)	564	1084			1622	

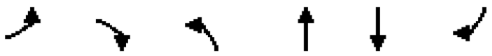
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	302	417	417
Volume Left	302	0	0
Volume Right	0	0	0
cSH	564	1700	1700
Volume to Capacity	0.54	0.25	0.25
Queue Length 95th (m)	25.2	0.0	0.0
Control Delay (s/veh)	18.5	0.0	0.0
Lane LOS	C		
Approach Delay (s/veh)	18.5	0.0	
Approach LOS	C		

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	452	0	0	697	0	0
Future Volume (vph)	452	0	0	697	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	491	0	0	758	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	491	0	0	758	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 83.9%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	452	0	0	697	0	0
Future Volume (Veh/h)	452	0	0	697	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	491	0	0	758	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	379	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	379	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	18	100	100			
cM capacity (veh/h)	596	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	491	379	379
Volume Left	491	0	0
Volume Right	0	0	0
cSH	596	1700	1700
Volume to Capacity	0.82	0.22	0.22
Queue Length 95th (m)	68.2	0.0	0.0
Control Delay (s/veh)	33.2	0.0	0.0
Lane LOS	D		
Approach Delay (s/veh)	33.2	0.0	
Approach LOS	D		

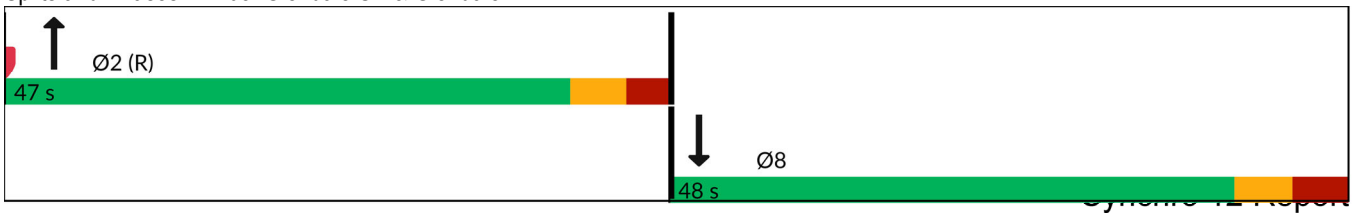
Intersection Summary			
Average Delay	13.0		
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	697	0	0	496	0	0	0	0	0	0	0
Future Volume (vph)	0	697	0	0	496	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	758	0	0	539	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	758	0	0	539	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		58.7			21.3							
Actuated g/C Ratio		0.62			0.22							
v/c Ratio		0.37			0.72							
Control Delay (s/veh)		10.2			39.7							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		10.2			39.7							
LOS		B			D							
Approach Delay (s/veh)		10.2			39.7							
Approach LOS		B			D							
Stops (vph)		332			442							
Fuel Used(l)		16			27							
CO Emissions (g/hr)		300			511							
NOx Emissions (g/hr)		58			99							
VOC Emissions (g/hr)		69			118							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay (s/veh): 22.5		Intersection LOS: C	
Intersection Capacity Utilization 26.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB

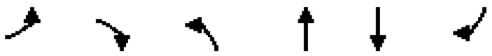


Lane Group	NBT	SBT
Lane Group Flow (vph)	758	539
v/c Ratio	0.37	0.72
Control Delay (s/veh)	10.2	39.7
Queue Delay	0.0	0.0
Total Delay (s/veh)	10.2	39.7
Queue Length 50th (m)	34.6	51.1
Queue Length 95th (m)	55.0	63.6
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	2055	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.37	0.39

Intersection Summary

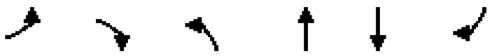
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	697	0	0	496	0	0	0	0	0	0	0
Future Volume (vph)	0	697	0	0	496	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	758	0	0	539	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	758	0	0	539	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		58.7			21.3							
Effective Green, g (s)		58.7			21.3							
Actuated g/C Ratio		0.62			0.22							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		2054			745							
v/s Ratio Prot		c0.23			c0.16							
v/s Ratio Perm												
v/c Ratio		0.37			0.72							
Uniform Delay, d1		9.0			34.1							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.5			3.5							
Delay (s)		9.5			37.6							
Level of Service		A			D							
Approach Delay (s/veh)		9.5			37.6			0.0			0.0	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	26.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	102	68	180	75	2
Future Volume (vph)	6	102	68	180	75	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.873				0.997	
Flt Protected	0.997			0.986		
Satd. Flow (prot)	1493	0	0	1692	1711	0
Flt Permitted	0.997			0.986		
Satd. Flow (perm)	1493	0	0	1692	1711	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	96.3			112.4	188.4	
Travel Time (s)	6.9			8.1	13.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	111	74	196	82	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	118	0	0	270	84	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

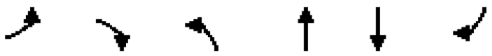
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	102	68	180	75	2
Future Volume (Veh/h)	6	102	68	180	75	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	111	74	196	82	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	427	83	84			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	427	83	84			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	89	95			
cM capacity (veh/h)	556	976	1513			

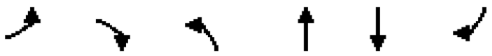
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	118	270	84
Volume Left	7	74	0
Volume Right	111	0	2
cSH	935	1513	1700
Volume to Capacity	0.13	0.05	0.05
Queue Length 95th (m)	3.5	1.2	0.0
Control Delay (s/veh)	9.4	2.4	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	9.4	2.4	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	102	69	242	175	2
Future Volume (vph)	6	102	69	242	175	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.873				0.999	
Flt Protected	0.997			0.989		
Satd. Flow (prot)	1493	0	0	1697	1714	0
Flt Permitted	0.997			0.989		
Satd. Flow (perm)	1493	0	0	1697	1714	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	81.9			136.2	112.4	
Travel Time (s)	5.9			9.8	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	111	75	263	190	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	118	0	0	338	192	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	102	69	242	175	2
Future Volume (Veh/h)	6	102	69	242	175	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	111	75	263	190	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	604	191	192			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	604	191	192			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	87	95			
cM capacity (veh/h)	436	851	1381			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	118	338	192
Volume Left	7	75	0
Volume Right	111	0	2
cSH	805	1381	1700
Volume to Capacity	0.15	0.05	0.11
Queue Length 95th (m)	4.1	1.4	0.0
Control Delay (s/veh)	10.2	2.1	0.0
Lane LOS	B	A	
Approach Delay (s/veh)	10.2	2.1	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	735	32	9	640	97	27
Future Volume (vph)	735	32	9	640	97	27
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994				0.971	
Flt Protected				0.999	0.962	
Satd. Flow (prot)	1705	0	0	1714	1603	0
Flt Permitted				0.999	0.962	
Satd. Flow (perm)	1705	0	0	1714	1603	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	34.5			168.7	76.7	
Travel Time (s)	2.1			10.1	5.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	799	35	10	696	105	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	834	0	0	706	134	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.7%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	735	32	9	640	97	27
Future Volume (Veh/h)	735	32	9	640	97	27
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	799	35	10	696	105	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			799		1533	817
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			799		1533	817
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		17	92
cM capacity (veh/h)			824		127	377

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	834	706	134
Volume Left	0	10	105
Volume Right	35	0	29
cSH	1700	824	148
Volume to Capacity	0.49	0.01	0.91
Queue Length 95th (m)	0.0	0.3	50.1
Control Delay (s/veh)	0.0	0.3	109.7
Lane LOS		A	F
Approach Delay (s/veh)	0.0	0.3	109.7
Approach LOS			F

Intersection Summary			
Average Delay	8.9		
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:45:18 PM

Summary of intersection performance

	AM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - TT (2034)						
Leg North	0.37	~1	11.93	0.24	B	23.34	C
Leg West	0.27	~1	5.08	0.21	A		
Leg South	1.58	?	7.86	0.59	A		
Leg East	15.78	61.52	60.49	0.99	F		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM " model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:45:16 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - TT (2034), AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
TT (2034), AM	TT (2034)	AM		PHF	08:00	09:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				23.34	C

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	105.50	100.000
West	PHF	✓	528.00	100.000
South	PHF	✓	1338.00	100.000
East	PHF	✓	849.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	105.50	0.92	SecondQuarter
West	528.00	0.92	SecondQuarter
South	1338.00	0.92	SecondQuarter
East	849.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	39.000	60.000	6.500
	West	10.000	0.000	352.000	166.000
	South	74.000	601.000	0.000	663.000

	East	0.000	206.000	638.000	5.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.37	0.57	0.06
	West	0.02	0.00	0.67	0.31
	South	0.06	0.45	0.00	0.50
	East	0.00	0.24	0.75	0.01

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.154	1.200	1.333
	West	1.000	1.000	1.139	1.047
	South	1.071	1.119	1.000	1.095
	East	1.000	1.057	1.170	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	15.4	20.0	33.3
	West	0.0	0.0	13.9	4.7
	South	7.1	11.9	0.0	9.5
	East	0.0	5.7	17.0	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.24	11.93	0.37	~1	B	105.50	105.50	18.28	10.40	0.30	18.29	10.40
West	0.21	5.08	0.27	~1	A	528.00	176.00	14.24	4.85	0.24	14.24	4.85
South	0.59	7.86	1.58	?	A	1338.00	675.00	78.67	6.99	1.31	78.70	7.00
East	0.99	60.49	15.78	61.52	F	849.00	849.00	567.22	40.09	9.45	568.18	40.15

Main Results for each time segment

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	99.38	99.38	24.85	0.00	0.00	98.41	78.59	1344.48	0.00	579.31	433.19	0.172	0.00	0.24	8.889	A
West	497.39	165.80	41.45	331.59	0.00	164.95	788.35	654.54	0.00	978.62	833.74	0.169	0.00	0.21	4.615	A
South	1260.43	635.87	158.97	624.57	331.59	631.37	643.87	175.62	0.00	1255.80	856.62	0.506	0.00	1.13	6.374	A
East	799.78	799.78	199.95	0.00	624.57	782.33	166.25	640.74	0.00	986.61	834.25	0.811	0.00	4.36	18.745	C

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	114.67	114.67	28.67	0.00	0.00	114.15	91.09	1528.82	0.00	472.63	433.19	0.243	0.24	0.37	11.930	B

West	573.91	191.30	47.83	382.61	0.00	191.08	906.67	736.29	0.00	931.31	833.74	0.205	0.21	0.27	5.077	A
South	1454.35	733.70	183.42	720.65	382.61	731.87	724.09	203.28	0.00	1239.80	856.62	0.592	1.13	1.58	7.863	A
East	922.83	922.83	230.71	0.00	720.65	877.18	192.42	742.73	0.00	927.58	834.25	0.995	4.36	15.78	55.081	F

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	108.56	108.56	27.14	0.00	0.00	108.69	86.51	1494.78	0.00	492.33	433.19	0.221	0.37	0.34	11.168	B
West	543.30	181.10	45.28	362.20	0.00	181.16	871.66	731.81	0.00	933.90	833.74	0.194	0.27	0.25	4.995	A
South	1376.78	694.57	173.64	682.22	362.20	695.19	719.96	193.02	0.00	1245.73	856.62	0.558	1.58	1.43	7.293	A
East	873.61	873.61	218.40	0.00	682.22	875.80	182.72	705.48	0.00	949.14	834.25	0.920	15.78	15.23	60.492	F

Main results: (08:45-09:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	99.38	99.38	24.85	0.00	0.00	99.67	79.25	1405.41	0.00	544.05	433.19	0.183	0.34	0.27	9.644	A
West	497.39	165.80	41.45	331.59	0.00	165.92	807.36	697.73	0.00	953.63	833.74	0.174	0.25	0.22	4.774	A
South	1260.43	635.87	158.97	624.57	331.59	636.93	686.65	177.00	0.00	1255.00	856.62	0.507	1.43	1.16	6.496	A
East	799.78	799.78	199.95	0.00	624.57	838.30	167.57	646.36	0.00	983.36	834.25	0.813	15.23	5.60	32.922	D

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-08:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	3.50	0.23	8.889	A	A
West	3.10	0.21	4.615	A	A
South	16.14	1.08	6.374	A	A
East	55.73	3.72	18.745	C	B

Queueing Delay results: (08:15-08:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	5.41	0.36	11.930	B	B
West	3.95	0.26	5.077	A	A
South	22.81	1.52	7.863	A	A
East	167.39	11.16	55.081	F	E

Queueing Delay results: (08:30-08:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	5.22	0.35	11.168	B	B
West	3.83	0.26	4.995	A	A
South	21.85	1.46	7.293	A	A
East	232.18	15.48	60.492	F	E

Queueing Delay results: (08:45-09:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	4.15	0.28	9.644	A	A
West	3.36	0.22	4.774	A	A
South	17.87	1.19	6.496	A	A
East	111.92	7.46	32.922	D	C

Queue Variation Results for each time segment

Queue Variation results: (08:00-08:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.24	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.21	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	1.13	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	4.36	0.00	0.00	10.25	14.81			N/A	N/A

Queue Variation results: (08:15-08:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.37	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.27	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.58	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	15.78	0.00	7.98	37.60	51.27			N/A	N/A

Queue Variation results: (08:30-08:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.34	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.25	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.43	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	15.23	0.00	1.14	39.88	61.52			N/A	N/A

Queue Variation results: (08:45-09:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.27	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.22	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.16	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	5.60	0.00	0.00	6.84	19.37			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	21	91	0	15	91
Future Volume (vph)	0	21	91	0	15	91
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.865				0.884	
Flt Protected				0.950	0.993	
Satd. Flow (prot)	1514	0	0	1662	1536	0
Flt Permitted				0.950	0.993	
Satd. Flow (perm)	1514	0	0	1662	1536	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	23	99	0	16	99
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	0	0	99	115	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	21	91	0	15	91
Future Volume (Veh/h)	0	21	91	0	15	91
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	23	99	0	16	99
Pedestrians					1	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	131	1	106	82	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	131	1	106	82	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	88	100	99	
cM capacity (veh/h)	756	1089	853	805	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	23	99	115
Volume Left	0	99	16
Volume Right	23	0	99
cSH	1089	853	1636
Volume to Capacity	0.02	0.12	0.01
Queue Length 95th (m)	0.5	3.1	0.2
Control Delay (s/veh)	8.4	9.8	1.1
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.8	1.1
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	25.8%	ICU Level of Service	A
Analysis Period (min)	15		

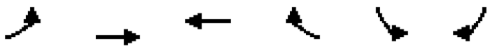
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1	22	0	0	39	30
Future Volume (vph)	1	22	0	0	39	30
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.870				0.941	
Flt Protected					0.973	
Satd. Flow (prot)	1522	0	0	1750	1595	0
Flt Permitted					0.973	
Satd. Flow (perm)	1522	0	0	1750	1595	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	1	24	0	0	42	33
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	0	0	0	75	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1	22	0	0	39	30
Future Volume (Veh/h)	1	22	0	0	39	30
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	24	0	0	42	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	117	0	125	101	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	117	0	125	101	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	100	100	97	
cM capacity (veh/h)	757	1091	818	773	1636	

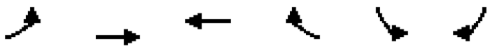
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	25	0	75
Volume Left	0	0	42
Volume Right	24	0	33
cSH	1072	1700	1636
Volume to Capacity	0.02	0.00	0.03
Queue Length 95th (m)	0.6	0.0	0.6
Control Delay (s/veh)	8.4	0.0	4.1
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	0.0	4.1
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	14.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	92	897	1011	20	13	59
Future Volume (vph)	92	897	1011	20	13	59
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.997		0.889	
Flt Protected	0.950				0.991	
Satd. Flow (prot)	1662	3325	3315	0	1542	0
Flt Permitted	0.950				0.991	
Satd. Flow (perm)	1662	3325	3315	0	1542	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Confl. Peds. (#/hr)	1			1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	100	975	1099	22	14	64
Shared Lane Traffic (%)						
Lane Group Flow (vph)	100	975	1121	0	78	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

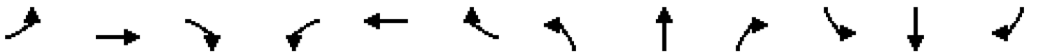
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	92	897	1011	20	13	59
Future Volume (Veh/h)	92	897	1011	20	13	59
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	100	975	1099	22	14	64
Pedestrians		1			1	
Lane Width (m)		3.6			3.6	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1122				1799	563
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1122				1799	563
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	84				77	87
cM capacity (veh/h)	629				61	474

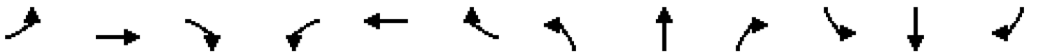
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	100	488	488	733	388	78
Volume Left	100	0	0	0	0	14
Volume Right	0	0	0	0	22	64
cSH	629	1700	1700	1700	1700	215
Volume to Capacity	0.16	0.29	0.29	0.43	0.23	0.36
Queue Length 95th (m)	4.5	0.0	0.0	0.0	0.0	12.6
Control Delay (s/veh)	11.8	0.0	0.0	0.0	0.0	31.1
Lane LOS	B					D
Approach Delay (s/veh)	1.1			0.0		31.1
Approach LOS						D

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	323	486	0	0	581	53	4	0	0	39	0	429
Future Volume (vph)	323	486	0	0	581	53	4	0	0	39	0	429
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.989						0.876	
Flt Protected		0.980						0.950			0.996	
Satd. Flow (prot)	0	1715	0	0	1731	0	0	1662	0	0	1527	0
Flt Permitted		0.980						0.950			0.996	
Satd. Flow (perm)	0	1715	0	0	1731	0	0	1662	0	0	1527	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		168.7			187.5			73.5			136.2	
Travel Time (s)		10.1			11.3			5.3			9.8	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	351	528	0	0	632	58	4	0	0	42	0	466
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	879	0	0	690	0	0	4	0	0	508	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	123.9%	ICU Level of Service	H
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	323	486	0	0	581	53	4	0	0	39	0	429
Future Volume (Veh/h)	323	486	0	0	581	53	4	0	0	39	0	429
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	351	528	0	0	632	58	4	0	0	42	0	466
Pedestrians		1									1	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	691			528			2358	1921	528	1892	1892	663
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	691			528			2358	1921	528	1892	1892	663
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 %	62			100			0	100	100	0	100	0
cM capacity (veh/h)	912			1049			0	42	554	38	44	464

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	879	690	4	508
Volume Left	351	0	4	42
Volume Right	0	58	0	466
cSH	912	1049	0	240
Volume to Capacity	0.38	0.00	Err	2.12
Queue Length 95th (m)	14.6	0.0	Err	307.8
Control Delay (s/veh)	8.4	0.0	Err	550.4
Lane LOS	A		F	F
Approach Delay (s/veh)	8.4	0.0	Err	550.4
Approach LOS			F	F

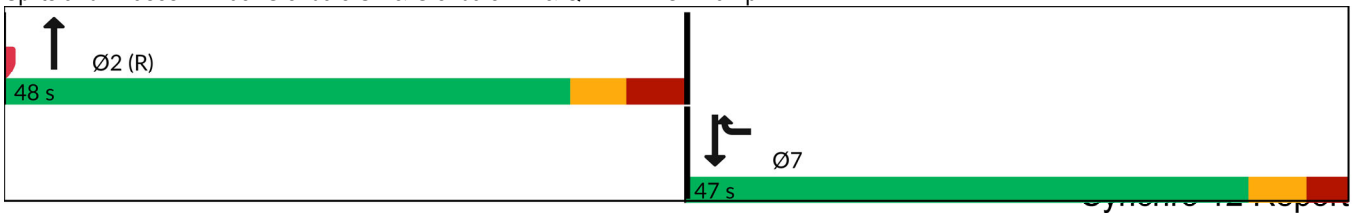
Intersection Summary				
Average Delay			Err	
Intersection Capacity Utilization			123.9%	ICU Level of Service
Analysis Period (min)			15	

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	324	717	1276
Future Volume (vph)	324	717	1276
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	352	779	1387
Shared Lane Traffic (%)			
Lane Group Flow (vph)	352	779	1387
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	50.3	33.7	50.3
Actuated g/C Ratio	0.53	0.35	0.53
v/c Ratio	0.45	0.73	0.86
Control Delay (s/veh)	16.9	30.8	27.2
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	16.9	30.8	27.2
LOS	B	C	C
Approach Delay (s/veh)		30.8	27.2
Approach LOS		C	C
Stops (vph)	200	597	995
Fuel Used(l)	11	34	53
CO Emissions (g/hr)	203	639	992
NOx Emissions (g/hr)	39	123	191
VOC Emissions (g/hr)	47	147	229
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay (s/veh): 26.8		Intersection LOS: C	
Intersection Capacity Utilization 52.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	352	779	1387
v/c Ratio	0.45	0.73	0.86
Control Delay (s/veh)	16.9	30.8	27.2
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	16.9	30.8	27.2
Queue Length 50th (m)	38.8	69.0	112.6
Queue Length 95th (m)	71.3	81.6	#184.6
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	784	1336	1613
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.45	0.58	0.86

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	324	717	1276
Future Volume (vph)	324	717	1276
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	352	779	1387
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	352	779	1387
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	48.3	31.7	48.3
Effective Green, g (s)	50.3	33.7	50.3
Actuated g/C Ratio	0.53	0.35	0.53
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	785	1072	1614
v/s Ratio Prot	0.24	c0.26	c0.45
v/s Ratio Perm			
v/c Ratio	0.45	0.73	0.86
Uniform Delay, d1	13.8	26.6	19.3
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.4	4.3	4.8
Delay (s)	14.2	31.0	24.1
Level of Service	B	C	C
Approach Delay (s/veh)		31.0	24.1
Approach LOS		C	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

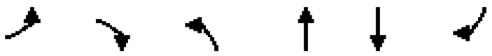
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	402	0	0	0	0	1276
Future Volume (vph)	402	0	0	0	0	1276
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	437	0	0	0	0	1387
Shared Lane Traffic (%)						
Lane Group Flow (vph)	437	0	0	0	0	1387
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 69.1%		ICU Level of Service C	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	402	0	0	0	0	1276
Future Volume (Veh/h)	402	0	0	0	0	1276
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	437	0	0	0	0	1387
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	694	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	694	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			100	
cM capacity (veh/h)	377	1084			1622	

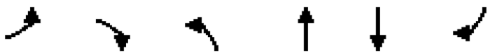
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	437	694	694
Volume Left	437	0	0
Volume Right	0	0	0
cSH	377	1700	1700
Volume to Capacity	1.16	0.41	0.41
Queue Length 95th (m)	136.6	0.0	0.0
Control Delay (s/veh)	129.4	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	129.4	0.0	
Approach LOS	F		

Intersection Summary			
Average Delay	31.0		
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	362	0	0	1447	0	0
Future Volume (vph)	362	0	0	1447	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	393	0	0	1573	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	393	0	0	1573	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 95.9%		ICU Level of Service F	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	362	0	0	1447	0	0
Future Volume (Veh/h)	362	0	0	1447	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	393	0	0	1573	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	787	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	787	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	100	100			
cM capacity (veh/h)	329	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	393	787	787
Volume Left	393	0	0
Volume Right	0	0	0
cSH	329	1700	1700
Volume to Capacity	1.19	0.46	0.46
Queue Length 95th (m)	134.3	0.0	0.0
Control Delay (s/veh)	148.1	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	148.1	0.0	
Approach LOS	F		

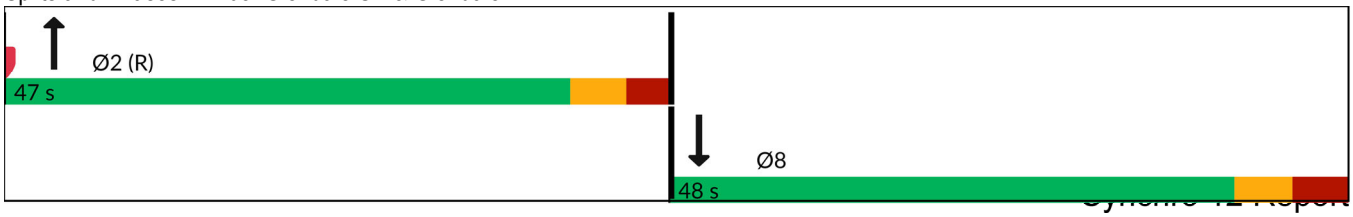
Intersection Summary			
Average Delay	29.6		
Intersection Capacity Utilization	95.9%	ICU Level of Service	F
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1447	0	0	679	0	0	0	0	0	0	0
Future Volume (vph)	0	1447	0	0	679	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1573	0	0	738	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1573	0	0	738	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		52.5			27.5							
Actuated g/C Ratio		0.55			0.29							
v/c Ratio		0.86			0.77							
Control Delay (s/veh)		25.3			36.2							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		25.3			36.2							
LOS		C			D							
Approach Delay (s/veh)		25.3			36.2							
Approach LOS		C			D							
Stops (vph)		1105			592							
Fuel Used(l)		60			35							
CO Emissions (g/hr)		1110			660							
NOx Emissions (g/hr)		214			127							
VOC Emissions (g/hr)		256			152							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay (s/veh): 28.8		Intersection LOS: C	
Intersection Capacity Utilization 49.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



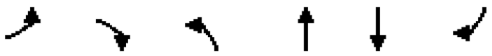
Lane Group	NBT	SBT
Lane Group Flow (vph)	1573	738
v/c Ratio	0.86	0.77
Control Delay (s/veh)	25.3	36.2
Queue Delay	0.0	0.0
Total Delay (s/veh)	25.3	36.2
Queue Length 50th (m)	128.1	68.0
Queue Length 95th (m)	#208.3	80.4
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1839	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.86	0.53

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

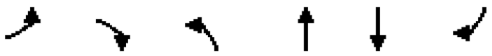
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1447	0	0	679	0	0	0	0	0	0	0
Future Volume (vph)	0	1447	0	0	679	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1573	0	0	738	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1573	0	0	738	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		52.5			27.5							
Effective Green, g (s)		52.5			27.5							
Actuated g/C Ratio		0.55			0.29							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1837			962							
v/s Ratio Prot		c0.47			c0.22							
v/s Ratio Perm												
v/c Ratio		0.86			0.77							
Uniform Delay, d1		18.0			30.8							
Progression Factor		1.00			1.00							
Incremental Delay, d2		5.4			3.7							
Delay (s)		23.4			34.5							
Level of Service		C			C							
Approach Delay (s/veh)		23.4			34.5			0.0			0.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	117	129	122	242	8
Future Volume (vph)	4	117	129	122	242	8
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.869				0.996	
Flt Protected	0.998			0.975		
Satd. Flow (prot)	1488	0	0	1673	1709	0
Flt Permitted	0.998			0.975		
Satd. Flow (perm)	1488	0	0	1673	1709	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	96.3			112.4	188.4	
Travel Time (s)	6.9			8.1	13.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	127	140	133	263	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	131	0	0	273	272	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

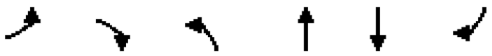
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	117	129	122	242	8
Future Volume (Veh/h)	4	117	129	122	242	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	127	140	133	263	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	681	268	272			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	681	268	272			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	84	89			
cM capacity (veh/h)	371	771	1291			

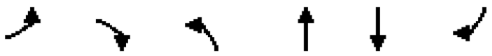
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	131	273	272
Volume Left	4	140	0
Volume Right	127	0	9
cSH	747	1291	1700
Volume to Capacity	0.18	0.11	0.16
Queue Length 95th (m)	5.1	2.9	0.0
Control Delay (s/veh)	10.8	4.6	0.0
Lane LOS	B	A	
Approach Delay (s/veh)	10.8	4.6	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	117	129	248	351	8
Future Volume (vph)	3	117	129	248	351	8
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.868				0.997	
Flt Protected	0.999			0.983		
Satd. Flow (prot)	1488	0	0	1687	1711	0
Flt Permitted	0.999			0.983		
Satd. Flow (perm)	1488	0	0	1687	1711	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	81.9			136.2	112.4	
Travel Time (s)	5.9			9.8	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	127	140	270	382	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	130	0	0	410	391	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 60.5%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	117	129	248	351	8
Future Volume (Veh/h)	3	117	129	248	351	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	127	140	270	382	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	937	387	391			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	937	387	391			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	81	88			
cM capacity (veh/h)	259	661	1168			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	130	410	391
Volume Left	3	140	0
Volume Right	127	0	9
cSH	638	1168	1700
Volume to Capacity	0.20	0.12	0.23
Queue Length 95th (m)	6.1	3.3	0.0
Control Delay (s/veh)	12.1	3.7	0.0
Lane LOS	B	A	
Approach Delay (s/veh)	12.1	3.7	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	809	91	24	990	62	10
Future Volume (vph)	809	91	24	990	62	10
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.986				0.981	
Flt Protected				0.999	0.959	
Satd. Flow (prot)	1692	0	0	1714	1614	0
Flt Permitted				0.999	0.959	
Satd. Flow (perm)	1692	0	0	1714	1614	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	34.5			168.7	76.7	
Travel Time (s)	2.1			10.1	5.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	879	99	26	1076	67	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	978	0	0	1102	78	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 88.6%		ICU Level of Service E	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	809	91	24	990	62	10
Future Volume (Veh/h)	809	91	24	990	62	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	879	99	26	1076	67	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			879		2057	929
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			879		2057	929
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		0	97
cM capacity (veh/h)			769		59	325

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	978	1102	78
Volume Left	0	26	67
Volume Right	99	0	11
cSH	1700	769	66
Volume to Capacity	0.58	0.03	1.18
Queue Length 95th (m)	0.0	0.8	49.5
Control Delay (s/veh)	0.0	1.1	273.4
Lane LOS		A	F
Approach Delay (s/veh)	0.0	1.1	273.4
Approach LOS			F

Intersection Summary			
Average Delay	10.5		
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:45:50 PM

Summary of intersection performance

	PM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - TT (2034)						
Leg North	0.33	~1	9.56	0.25	A	77.72	F
Leg West	0.27	~1	5.62	0.20	A		
Leg South	0.95	~1	5.95	0.46	A		
Leg East	68.76	164.44	223.03	1.15	F		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM " model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:45:49 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - TT (2034), PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
TT (2034), PM	TT (2034)	PM		PHF	16:00	17:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				77.72	F

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only

North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	117.00	100.000
West	PHF	✓	731.00	100.000
South	PHF	✓	1325.00	100.000
East	PHF	✓	1072.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	117.00	0.92	SecondQuarter
West	731.00	0.92	SecondQuarter
South	1325.00	0.92	SecondQuarter
East	1072.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	**West**	**South**	**East**
From	**North**	0.000	23.000	89.000	5.000
	West	10.000	0.000	571.000	150.000
	South	92.000	443.000	0.000	790.000
	East	12.000	236.000	824.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.20	0.76	0.04
	West	0.01	0.00	0.78	0.21
	South	0.07	0.33	0.00	0.60
	East	0.01	0.22	0.77	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.097	1.061
	South	1.033	1.133	1.000	1.196
	East	1.000	1.079	1.048	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	9.7	6.1
	South	3.3	13.3	0.0	19.6
	East	0.0	7.9	4.8	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.25	9.56	0.33	~1	A	117.00	117.00	17.33	8.88	0.29	17.33	8.89
West	0.20	5.62	0.27	~1	A	731.00	160.00	14.59	5.47	0.24	14.59	5.47
South	0.46	5.95	0.95	~1	A	1325.00	535.00	49.15	5.51	0.82	49.16	5.51
East	1.15	223.03	68.76	164.44	F	1072.00	1072.00	2441.12	136.63	40.69	2543.76	142.37

Main Results for each time segment

Main results: (16:00-16:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	110.22	110.22	27.55	0.00	0.00	109.26	106.36	1371.05	0.00	563.94	464.39	0.195	0.00	0.24	7.901	A
West	688.62	150.72	37.68	537.90	0.00	149.85	649.26	831.04	0.00	876.47	780.44	0.172	0.00	0.22	5.230	A
South	1248.19	503.99	126.00	744.20	537.90	501.07	826.37	154.52	0.00	1268.01	894.27	0.397	0.00	0.73	5.211	A
East	1009.86	1009.86	252.46	0.00	744.20	966.96	145.16	510.44	0.00	1062.02	811.65	0.951	0.00	10.72	31.889	D

Main results: (16:15-16:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	127.17	127.17	31.79	0.00	0.00	126.80	121.97	1476.27	0.00	503.04	464.39	0.253	0.24	0.33	9.558	A
West	794.57	173.91	43.48	620.65	0.00	173.71	727.34	875.73	0.00	850.61	780.44	0.204	0.22	0.27	5.620	A
South	1440.22	581.52	145.38	858.70	620.65	580.62	870.31	179.13	0.00	1253.77	894.27	0.464	0.73	0.95	5.953	A
East	1165.22	1165.22	291.30	0.00	858.70	1006.77	168.27	591.48	0.00	1015.12	811.65	1.148	10.72	50.34	121.785	F

Main results: (16:30-16:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	120.39	120.39	30.10	0.00	0.00	120.46	116.54	1473.97	0.00	504.37	464.39	0.239	0.33	0.32	9.378	A
West	752.19	164.64	41.16	587.55	0.00	164.68	706.40	888.03	0.00	843.49	780.44	0.195	0.27	0.26	5.605	A
South	1363.41	550.51	137.63	812.90	587.55	550.82	882.88	169.83	0.00	1259.15	894.27	0.437	0.95	0.87	5.666	A
East	1103.07	1103.07	275.77	0.00	812.90	1029.39	159.54	561.11	0.00	1032.70	811.65	1.068	50.34	68.76	216.586	F

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	110.22	110.22	27.55	0.00	0.00	110.39	107.87	1450.06	0.00	518.21	464.39	0.213	0.32	0.27	8.833	A
West	688.62	150.72	37.68	537.90	0.00	150.83	669.29	891.16	0.00	841.68	780.44	0.179	0.26	0.23	5.508	A
South	1248.19	503.99	126.00	744.20	537.90	504.51	886.44	155.55	0.00	1267.42	894.27	0.398	0.87	0.74	5.264	A
East	1009.86	1009.86	252.46	0.00	744.20	1043.99	146.12	513.94	0.00	1060.00	811.65	0.953	68.76	60.22	223.027	F

Queueing Delay Results for each time segment

Queueing Delay results: (16:00-16:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	3.47	0.23	7.901	A	A
West	3.18	0.21	5.230	A	A
South	10.55	0.70	5.211	A	A
East	116.17	7.74	31.889	D	C

Queueing Delay results: (16:15-16:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	4.85	0.32	9.558	A	A
West	3.97	0.26	5.620	A	A
South	13.92	0.93	5.953	A	A
East	463.91	30.93	121.785	F	F

Queueing Delay results: (16:30-16:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	4.82	0.32	9.378	A	A
West	3.91	0.26	5.605	A	A
South	13.32	0.89	5.666	A	A
East	893.71	59.58	216.586	F	F

Queueing Delay results: (16:45-17:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	4.19	0.28	8.833	A	A
West	3.53	0.24	5.508	A	A
South	11.36	0.76	5.264	A	A
East	967.33	64.49	223.027	F	F

Queue Variation Results for each time segment

Queue Variation results: (16:00-16:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.24	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.22	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.73	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	10.72	0.00	0.00	20.03	42.16			N/A	N/A

Queue Variation results: (16:15-16:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.33	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.27	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.95	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	50.34	5.27	39.00	103.30	129.65			N/A	N/A

Queue Variation results: (16:30-16:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.32	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.26	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.87	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	68.76	11.60	56.92	130.71	159.17			N/A	N/A

Queue Variation results: (16:45-17:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.27	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.23	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.74	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	60.22	4.22	44.27	129.65	164.44			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	15	81	0	16	115
Future Volume (vph)	0	15	81	0	16	115
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.881	
Flt Protected				0.950	0.994	
Satd. Flow (prot)	1514	0	0	1662	1532	0
Flt Permitted				0.950	0.994	
Satd. Flow (perm)	1514	0	0	1662	1532	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	16	88	0	17	125
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	88	142	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	15	81	0	16	115
Future Volume (Veh/h)	0	15	81	0	16	115
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	16	88	0	17	125
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	159	0	113	97	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	159	0	113	97	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	99	90	100	99	
cM capacity (veh/h)	729	1091	850	789	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	16	88	142
Volume Left	0	88	17
Volume Right	16	0	125
cSH	1091	850	1636
Volume to Capacity	0.01	0.10	0.01
Queue Length 95th (m)	0.4	2.8	0.3
Control Delay (s/veh)	8.3	9.7	0.9
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	9.7	0.9
Approach LOS	A	A	

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	26.9%	ICU Level of Service	A
Analysis Period (min)	15		

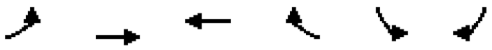
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	32	0	0	21	2
Future Volume (vph)	0	32	0	0	21	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.989	
Flt Protected					0.956	
Satd. Flow (prot)	1514	0	0	1750	1655	0
Flt Permitted					0.956	
Satd. Flow (perm)	1514	0	0	1750	1655	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	35	0	0	23	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	0	0	0	25	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	32	0	0	21	2
Future Volume (Veh/h)	0	32	0	0	21	2
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	35	0	0	23	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	48	0	82	47	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	48	0	82	47	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	97	100	100	99	
cM capacity (veh/h)	836	1091	872	837	1636	

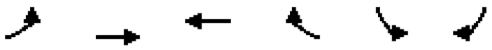
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	35	0	25
Volume Left	0	0	23
Volume Right	35	0	2
cSH	1091	1700	1636
Volume to Capacity	0.03	0.00	0.01
Queue Length 95th (m)	0.8	0.0	0.3
Control Delay (s/veh)	8.4	0.0	6.7
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	0.0	6.7
Approach LOS	A	A	

Intersection Summary			
Average Delay	7.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	48	883	745	7	7	55
Future Volume (vph)	48	883	745	7	7	55
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.999		0.881	
Flt Protected	0.950				0.994	
Satd. Flow (prot)	1662	3325	3322	0	1532	0
Flt Permitted	0.950				0.994	
Satd. Flow (perm)	1662	3325	3322	0	1532	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	52	960	810	8	8	60
Shared Lane Traffic (%)						
Lane Group Flow (vph)	52	960	818	0	68	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 40.0%		ICU Level of Service A	
Analysis Period (min) 15			



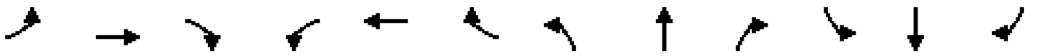
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	48	883	745	7	7	55
Future Volume (Veh/h)	48	883	745	7	7	55
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	52	960	810	8	8	60
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	818				1398	409
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	818				1398	409
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				94	90
cM capacity (veh/h)	819				126	597

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	52	480	480	540	278	68
Volume Left	52	0	0	0	0	8
Volume Right	0	0	0	0	8	60
cSH	819	1700	1700	1700	1700	414
Volume to Capacity	0.06	0.28	0.28	0.32	0.16	0.16
Queue Length 95th (m)	1.6	0.0	0.0	0.0	0.0	4.6
Control Delay (s/veh)	9.7	0.0	0.0	0.0	0.0	15.4
Lane LOS	A					C
Approach Delay (s/veh)	0.5			0.0		15.4
Approach LOS						C

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	40.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	279	526	0	1	419	34	4	0	0	30	0	262
Future Volume (vph)	279	526	0	1	419	34	4	0	0	30	0	262
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.990						0.879	
Flt Protected		0.983						0.950			0.995	
Satd. Flow (prot)	0	1720	0	0	1732	0	0	1662	0	0	1531	0
Flt Permitted		0.983						0.950			0.995	
Satd. Flow (perm)	0	1720	0	0	1732	0	0	1662	0	0	1531	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		168.7			187.5			73.5			136.2	
Travel Time (s)		10.1			11.3			5.3			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	303	572	0	1	455	37	4	0	0	33	0	285
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	875	0	0	493	0	0	4	0	0	318	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 101.6%		ICU Level of Service G	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	279	526	0	1	419	34	4	0	0	30	0	262
Future Volume (Veh/h)	279	526	0	1	419	34	4	0	0	30	0	262
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	303	572	0	1	455	37	4	0	0	33	0	285
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	492			572			1939	1672	572	1654	1654	474
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	492			572			1939	1672	572	1654	1654	474
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 %	72			100			80	100	100	47	100	52
cM capacity (veh/h)	1082			1011			20	70	523	62	71	595

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	875	493	4	318
Volume Left	303	1	4	33
Volume Right	0	37	0	285
cSH	1082	1011	20	315
Volume to Capacity	0.28	0.00	0.20	1.01
Queue Length 95th (m)	9.2	0.0	4.6	89.0
Control Delay (s/veh)	6.0	0.0	220.6	91.0
Lane LOS	A	A	F	F
Approach Delay (s/veh)	6.0	0.0	220.6	91.0
Approach LOS			F	F

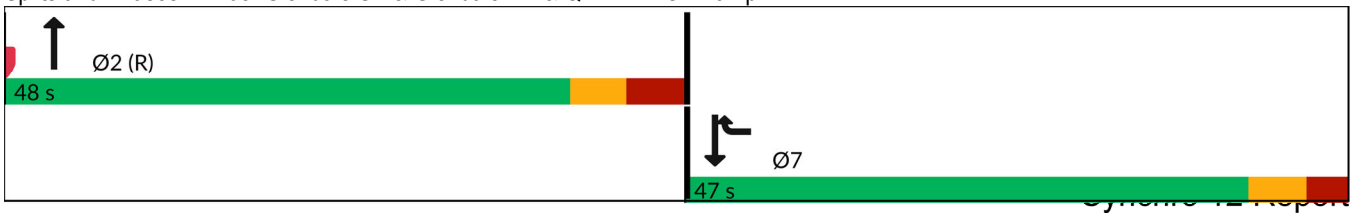
Intersection Summary			
Average Delay	20.7		
Intersection Capacity Utilization	101.6%	ICU Level of Service	G
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	237	944	806
Future Volume (vph)	237	944	806
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	258	1026	876
Shared Lane Traffic (%)			
Lane Group Flow (vph)	258	1026	876
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	36.0	48.0	36.0
Actuated g/C Ratio	0.38	0.51	0.38
v/c Ratio	0.46	0.67	0.76
Control Delay (s/veh)	24.2	21.4	30.0
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	24.2	21.4	30.0
LOS	C	C	C
Approach Delay (s/veh)		21.4	30.0
Approach LOS		C	C
Stops (vph)	168	696	668
Fuel Used(l)	10	36	36
CO Emissions (g/hr)	182	678	675
NOx Emissions (g/hr)	35	131	130
VOC Emissions (g/hr)	42	156	156
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay (s/veh): 25.2		Intersection LOS: C	
Intersection Capacity Utilization 53.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	258	1026	876
v/c Ratio	0.46	0.67	0.76
Control Delay (s/veh)	24.2	21.4	30.0
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	24.2	21.4	30.0
Queue Length 50th (m)	36.6	75.3	75.6
Queue Length 95th (m)	53.2	111.7	89.1
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	656	1526	1348
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.39	0.67	0.65

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	237	944	806
Future Volume (vph)	237	944	806
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	258	1026	876
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	258	1026	876
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	34.0	46.0	34.0
Effective Green, g (s)	36.0	48.0	36.0
Actuated g/C Ratio	0.38	0.51	0.38
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	562	1527	1155
v/s Ratio Prot	0.17	c0.34	c0.29
v/s Ratio Perm			
v/c Ratio	0.46	0.67	0.76
Uniform Delay, d1	22.2	17.6	25.7
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.6	2.4	2.9
Delay (s)	22.8	20.0	28.6
Level of Service	C	B	C
Approach Delay (s/veh)		20.0	28.6
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

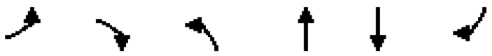
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	610	0	0	0	0	806
Future Volume (vph)	610	0	0	0	0	806
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	663	0	0	0	0	876
Shared Lane Traffic (%)						
Lane Group Flow (vph)	663	0	0	0	0	876
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.5%		ICU Level of Service C	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	610	0	0	0	0	806
Future Volume (Veh/h)	610	0	0	0	0	806
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	663	0	0	0	0	876
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	438	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	438	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			100	
cM capacity (veh/h)	547	1084			1622	

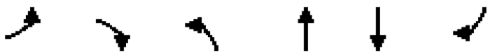
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	663	438	438
Volume Left	663	0	0
Volume Right	0	0	0
cSH	547	1700	1700
Volume to Capacity	1.21	0.26	0.26
Queue Length 95th (m)	196.8	0.0	0.0
Control Delay (s/veh)	135.8	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	135.8	0.0	
Approach LOS	F		

Intersection Summary			
Average Delay	58.5		
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	523	0	0	1702	0	0
Future Volume (vph)	523	0	0	1702	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	568	0	0	1850	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	568	0	0	1850	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	138.9%	ICU Level of Service	H
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	523	0	0	1702	0	0
Future Volume (Veh/h)	523	0	0	1702	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	568	0	0	1850	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	925	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	925	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	100	100			
cM capacity (veh/h)	268	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	568	925	925
Volume Left	568	0	0
Volume Right	0	0	0
cSH	268	1700	1700
Volume to Capacity	2.12	0.54	0.54
Queue Length 95th (m)	340.1	0.0	0.0
Control Delay (s/veh)	546.3	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	546.3	0.0	
Approach LOS	F		

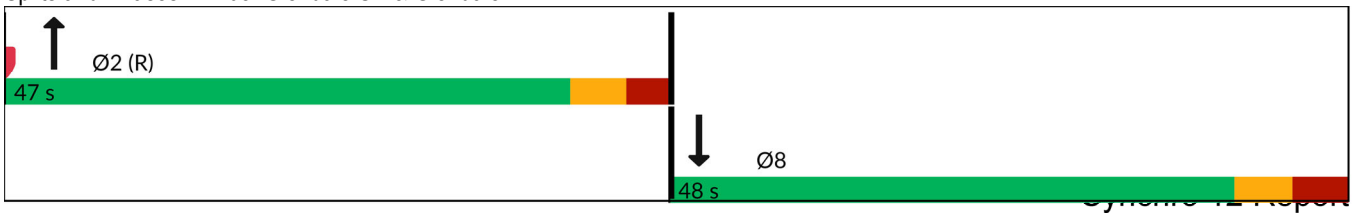
Intersection Summary			
Average Delay	128.3		
Intersection Capacity Utilization	138.9%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1702	0	0	838	0	0	0	0	0	0	0
Future Volume (vph)	0	1702	0	0	838	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1850	0	0	911	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1850	0	0	911	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		47.3			32.7							
Actuated g/C Ratio		0.50			0.34							
v/c Ratio		1.12			0.80							
Control Delay (s/veh)		87.4			33.4							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		87.4			33.4							
LOS		F			C							
Approach Delay (s/veh)		87.4			33.4							
Approach LOS		F			C							
Stops (vph)		1343			722							
Fuel Used(l)		153			42							
CO Emissions (g/hr)		2837			778							
NOx Emissions (g/hr)		548			150							
VOC Emissions (g/hr)		654			179							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.12			
Intersection Signal Delay (s/veh): 69.6		Intersection LOS: E	
Intersection Capacity Utilization 56.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	1850	911
v/c Ratio	1.12	0.80
Control Delay (s/veh)	87.4	33.4
Queue Delay	0.0	0.0
Total Delay (s/veh)	87.4	33.4
Queue Length 50th (m)	~217.3	82.8
Queue Length 95th (m)	#286.7	94.8
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1655	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.12	0.65

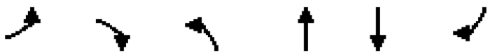
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

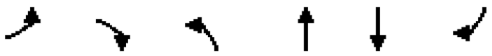
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	1702	0	0	838	0	0	0	0	0	0	0
Future Volume (vph)	0	1702	0	0	838	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1850	0	0	911	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1850	0	0	911	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		47.3			32.7							
Effective Green, g (s)		47.3			32.7							
Actuated g/C Ratio		0.50			0.34							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1655			1144							
v/s Ratio Prot		c0.56			c0.27							
v/s Ratio Perm												
v/c Ratio		1.12			0.80							
Uniform Delay, d1		23.9			28.1							
Progression Factor		1.00			1.00							
Incremental Delay, d2		61.9			3.9							
Delay (s)		85.7			32.1							
Level of Service		F			C							
Approach Delay (s/veh)		85.7			32.1			0.0			0.0	
Approach LOS		F			C			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	68.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	117	132	41	61	2
Future Volume (vph)	2	117	132	41	61	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.867				0.996	
Flt Protected	0.999			0.963		
Satd. Flow (prot)	1486	0	0	1652	1709	0
Flt Permitted	0.999			0.963		
Satd. Flow (perm)	1486	0	0	1652	1709	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	96.3			112.4	188.4	
Travel Time (s)	6.9			8.1	13.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	127	143	45	66	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	129	0	0	188	68	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

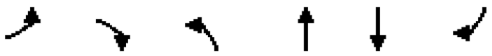
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	117	132	41	61	2
Future Volume (Veh/h)	2	117	132	41	61	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	127	143	45	66	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	398	67	68			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	398	67	68			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	87	91			
cM capacity (veh/h)	551	997	1533			

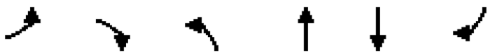
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	129	188	68
Volume Left	2	143	0
Volume Right	127	0	2
cSH	984	1533	1700
Volume to Capacity	0.13	0.09	0.04
Queue Length 95th (m)	3.6	2.5	0.0
Control Delay (s/veh)	9.2	5.9	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	9.2	5.9	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	31.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	117	133	180	176	2
Future Volume (vph)	1	117	133	180	176	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.866				0.999	
Flt Protected				0.979		
Satd. Flow (prot)	1486	0	0	1680	1714	0
Flt Permitted				0.979		
Satd. Flow (perm)	1486	0	0	1680	1714	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	81.9			136.2	112.4	
Travel Time (s)	5.9			9.8	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	127	145	196	191	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	128	0	0	341	193	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	117	133	180	176	2
Future Volume (Veh/h)	1	117	133	180	176	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	127	145	196	191	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	678	192	193			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	678	192	193			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	85	89			
cM capacity (veh/h)	374	850	1380			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	128	341	193
Volume Left	1	145	0
Volume Right	127	0	2
cSH	841	1380	1700
Volume to Capacity	0.15	0.11	0.11
Queue Length 95th (m)	4.3	2.8	0.0
Control Delay (s/veh)	10.0	3.9	0.0
Lane LOS	B	A	
Approach Delay (s/veh)	10.0	3.9	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	785	101	15	670	83	12
Future Volume (vph)	785	101	15	670	83	12
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.985				0.983	
Flt Protected				0.999	0.958	
Satd. Flow (prot)	1690	0	0	1714	1616	0
Flt Permitted				0.999	0.958	
Satd. Flow (perm)	1690	0	0	1714	1616	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	34.5			168.7	76.7	
Travel Time (s)	2.1			10.1	5.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	853	110	16	728	90	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	963	0	0	744	103	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 64.0%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	785	101	15	670	83	12
Future Volume (Veh/h)	785	101	15	670	83	12
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	853	110	16	728	90	13
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			853		1668	908
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			853		1668	908
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		13	96
cM capacity (veh/h)			786		104	334

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	963	744	103
Volume Left	0	16	90
Volume Right	110	0	13
cSH	1700	786	114
Volume to Capacity	0.57	0.02	0.91
Queue Length 95th (m)	0.0	0.5	44.7
Control Delay (s/veh)	0.0	0.5	131.2
Lane LOS		A	F
Approach Delay (s/veh)	0.0	0.5	131.2
Approach LOS			F

Intersection Summary			
Average Delay	7.7		
Intersection Capacity Utilization	64.0%	ICU Level of Service	B
Analysis Period (min)	15		

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:46:19 PM

Summary of intersection performance

	Sat						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - TT (2034)						
Leg North	0.29	~1	9.13	0.23	A	15.30	C
Leg West	0.28	~1	4.72	0.22	A		
Leg South	1.42	1.02	7.21	0.59	A		
Leg East	9.82	37.63	38.59	0.95	E		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Base, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Base, PM" model duration: 4:00 PM - 5:00 PM
"D3 - Base, Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2027), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2027), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2027), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2027), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2027), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - BG (2030), AM" model duration: 8:00 AM - 9:00 AM
"D11 - BG (2030), PM" model duration: 4:00 PM - 5:00 PM
"D12 - BG (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D13 - TT (2030), AM" model duration: 8:00 AM - 9:00 AM
"D14 - TT (2030), PM" model duration: 4:00 PM - 5:00 PM
"D15 - TT (2030), Sat" model duration: 12:00 PM - 1:00 PM
"D16 - BG (2032), AM" model duration: 8:00 AM - 9:00 AM
"D17 - BG (2032), PM" model duration: 4:00 PM - 5:00 PM
"D18 - BG (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D19 - TT (2032), AM" model duration: 8:00 AM - 9:00 AM
"D20 - TT (2032), PM" model duration: 4:00 PM - 5:00 PM
"D21 - TT (2032), Sat" model duration: 12:00 PM - 1:00 PM
"D22 - BG (2034), AM" model duration: 8:00 AM - 9:00 AM
"D23 - BG (2034), PM" model duration: 4:00 PM - 5:00 PM
"D24 - BG (2034), Sat" model duration: 12:00 PM - 1:00 PM
"D25 - TT (2034), AM" model duration: 8:00 AM - 9:00 AM
"D26 - TT (2034), PM" model duration: 4:00 PM - 5:00 PM
"D27 - TT (2034), Sat " model duration: 12:00 PM - 1:00 PM
"D28 - BG (2039), AM" model duration: 8:00 AM - 9:00 AM
"D29 - BG (2039), PM" model duration: 4:00 PM - 5:00 PM
"D30 - BG (2039), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:46:17 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - TT (2034), Sat

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
TT (2034), Sat	TT (2034)	Sat		PHF	12:00	13:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				15.30	C

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	108.00	100.000
West	PHF	✓	608.00	100.000
South	PHF	✓	1423.00	100.000
East	PHF	✓	799.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	108.00	0.92	SecondQuarter
West	608.00	0.92	SecondQuarter
South	1423.00	0.92	SecondQuarter
East	799.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	36.000	58.000	14.000
	West	39.000	0.000	410.000	159.000
	South	67.000	594.000	0.000	762.000

	East	22.000	228.000	549.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.33	0.54	0.13
	West	0.06	0.00	0.67	0.26
	South	0.05	0.42	0.00	0.54
	East	0.03	0.29	0.69	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.036	1.000
	South	1.000	1.021	1.000	1.029
	East	1.000	1.007	1.022	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	3.6	0.0
	South	0.0	2.1	0.0	2.9
	East	0.0	0.7	2.2	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.23	9.13	0.29	~1	A	108.00	108.00	14.30	7.95	0.24	14.30	7.95
West	0.22	4.72	0.28	~1	A	608.00	198.00	14.81	4.49	0.25	14.81	4.49
South	0.59	7.21	1.42	1.02	A	1423.00	661.00	70.58	6.41	1.18	70.60	6.41
East	0.95	38.59	9.82	37.63	E	799.00	799.00	349.18	26.22	5.82	349.60	26.25

Main Results for each time segment

Main results: (12:00-12:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	101.74	101.74	25.43	0.00	0.00	100.96	119.65	1275.60	0.00	619.18	488.27	0.164	0.00	0.19	6.937	A
West	572.75	186.52	46.63	386.23	0.00	185.64	800.76	575.80	0.00	1024.20	857.85	0.182	0.00	0.22	4.288	A
South	1340.51	622.68	155.67	717.83	386.23	618.64	562.71	198.72	0.00	1242.43	824.32	0.501	0.00	1.01	5.843	A
East	752.68	752.68	188.17	0.00	717.83	740.04	162.16	655.20	0.00	978.24	782.57	0.769	0.00	3.16	14.685	B

Main results: (12:15-12:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	117.39	117.39	29.35	0.00	0.00	116.99	138.18	1462.85	0.00	510.81	488.27	0.230	0.19	0.29	9.132	A

West	660.87	215.22	53.80	445.65	0.00	214.98	923.40	656.44	0.00	977.52	857.85	0.220	0.22	0.28	4.720	A
South	1546.74	718.48	179.62	828.26	445.65	716.84	641.27	230.15	0.00	1224.25	824.32	0.587	1.01	1.42	7.205	A
East	868.48	868.48	217.12	0.00	828.26	841.85	187.80	759.18	0.00	918.06	782.57	0.946	3.16	9.82	38.587	E

Main results: (12:30-12:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	111.13	111.13	27.78	0.00	0.00	111.25	131.96	1417.61	0.00	536.99	488.27	0.207	0.29	0.26	8.458	A
West	625.62	203.74	50.93	421.88	0.00	203.81	885.30	643.57	0.00	984.97	857.85	0.207	0.28	0.26	4.610	A
South	1464.25	680.16	170.04	784.09	421.88	680.74	629.15	218.23	0.00	1231.14	824.33	0.552	1.42	1.28	6.671	A
East	822.16	822.16	205.54	0.00	784.09	828.69	178.09	720.88	0.00	940.23	782.57	0.874	9.82	8.18	35.017	E

Main results: (12:45-13:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	101.74	101.74	25.43	0.00	0.00	101.97	121.20	1309.85	0.00	599.36	488.27	0.170	0.26	0.21	7.243	A
West	572.75	186.52	46.63	386.23	0.00	186.66	814.32	597.49	0.00	1011.64	857.85	0.184	0.26	0.23	4.365	A
South	1340.51	622.68	155.67	717.83	386.23	623.64	584.28	199.88	0.00	1241.76	824.32	0.501	1.28	1.04	5.945	A
East	752.68	752.68	188.17	0.00	717.83	770.64	163.11	660.40	0.00	975.23	782.57	0.772	8.18	3.69	19.210	C

Queueing Delay Results for each time segment

Queueing Delay results: (12:00-12:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	2.82	0.19	6.937	A	A
West	3.24	0.22	4.288	A	A
South	14.53	0.97	5.843	A	A
East	41.78	2.79	14.685	B	B

Queueing Delay results: (12:15-12:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	4.28	0.29	9.132	A	A
West	4.14	0.28	4.720	A	A
South	20.53	1.37	7.205	A	A
East	112.62	7.51	38.587	E	D

Queueing Delay results: (12:30-12:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	4.03	0.27	8.458	A	A
West	3.98	0.27	4.610	A	A
South	19.54	1.30	6.671	A	A
East	131.17	8.74	35.017	E	D

Queueing Delay results: (12:45-13:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	3.17	0.21	7.243	A	A
West	3.46	0.23	4.365	A	A
South	15.97	1.06	5.945	A	A
East	63.60	4.24	19.210	C	B

Queue Variation Results for each time segment

Queue Variation results: (12:00-12:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.19	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.22	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	1.01	0.00	0.00	1.02	1.02			N/A	N/A
East	3.16	0.00	0.00	7.12	10.17			N/A	N/A

Queue Variation results: (12:15-12:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.29	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.28	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.42	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	9.82	0.00	2.03	25.43	37.63			N/A	N/A

Queue Variation results: (12:30-12:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.26	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.26	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.28	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	8.18	0.00	0.00	14.24	31.53			N/A	N/A

Queue Variation results: (12:45-13:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.21	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.23	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.04	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	3.69	0.00	0.00	5.09	13.22			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	17	90	1	11	82
Future Volume (vph)	0	17	90	1	11	82
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.881	
Flt Protected				0.953	0.994	
Satd. Flow (prot)	1514	0	0	1668	1532	0
Flt Permitted				0.953	0.994	
Satd. Flow (perm)	1514	0	0	1668	1532	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	0	18	98	1	12	89
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	0	99	101	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	17	90	1	11	82
Future Volume (Veh/h)	0	17	90	1	11	82
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	18	98	1	12	89
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	113	0	87	69	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	113	0	87	69	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	89	100	99	
cM capacity (veh/h)	775	1091	884	818	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	18	99	101
Volume Left	0	98	12
Volume Right	18	0	89
cSH	1091	884	1636
Volume to Capacity	0.02	0.11	0.01
Queue Length 95th (m)	0.4	3.0	0.2
Control Delay (s/veh)	8.4	9.6	0.9
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.6	0.9
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)	15		

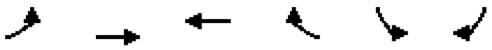
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	3	48	11	19	1
Future Volume (vph)	0	3	48	11	19	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.994	
Flt Protected				0.961	0.954	
Satd. Flow (prot)	1514	0	0	1665	1659	0
Flt Permitted				0.961	0.954	
Satd. Flow (perm)	1514	0	0	1665	1659	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	1%	0%	1%
Adj. Flow (vph)	0	3	52	12	21	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	0	0	64	22	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	3	48	11	19	1
Future Volume (Veh/h)	0	3	48	11	19	1
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	3	52	12	21	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	43	0	46	43	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	43	0	46	43	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	95	99	99	
cM capacity (veh/h)	842	1091	947	840	1636	

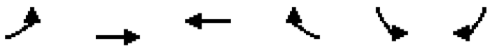
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	3	64	22
Volume Left	0	52	21
Volume Right	3	0	1
cSH	1091	925	1636
Volume to Capacity	0.00	0.07	0.01
Queue Length 95th (m)	0.1	1.8	0.3
Control Delay (s/veh)	8.3	9.2	6.9
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	9.2	6.9
Approach LOS	A	A	

Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	20.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	95	830	849	13	5	81
Future Volume (vph)	95	830	849	13	5	81
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.998		0.872	
Flt Protected	0.950				0.997	
Satd. Flow (prot)	1662	3325	3318	0	1521	0
Flt Permitted	0.950				0.997	
Satd. Flow (perm)	1662	3325	3318	0	1521	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	103	902	923	14	5	88
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	902	937	0	93	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.4%		ICU Level of Service A	
Analysis Period (min) 15			



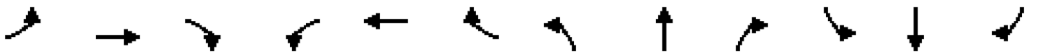
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	95	830	849	13	5	81
Future Volume (Veh/h)	95	830	849	13	5	81
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	103	902	923	14	5	88
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	937				1587	469
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	937				1587	469
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	86				94	84
cM capacity (veh/h)	739				87	547

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	103	451	451	615	322	93
Volume Left	103	0	0	0	0	5
Volume Right	0	0	0	0	14	88
cSH	739	1700	1700	1700	1700	425
Volume to Capacity	0.14	0.27	0.27	0.36	0.19	0.22
Queue Length 95th (m)	3.9	0.0	0.0	0.0	0.0	6.6
Control Delay (s/veh)	10.7	0.0	0.0	0.0	0.0	15.8
Lane LOS	B					C
Approach Delay (s/veh)	1.1			0.0		15.8
Approach LOS						C

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	287	543	7	1	526	41	9	0	3	39	0	245
Future Volume (vph)	287	543	7	1	526	41	9	0	3	39	0	245
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.990			0.969			0.883	
Flt Protected		0.983						0.963			0.993	
Satd. Flow (prot)	0	1719	0	0	1732	0	0	1633	0	0	1534	0
Flt Permitted		0.983						0.963			0.993	
Satd. Flow (perm)	0	1719	0	0	1732	0	0	1633	0	0	1534	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		168.7			187.5			73.5			136.2	
Travel Time (s)		10.1			11.3			5.3			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	312	590	8	1	572	45	10	0	3	42	0	266
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	910	0	0	618	0	0	13	0	0	308	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 109.7%		ICU Level of Service H	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	287	543	7	1	526	41	9	0	3	39	0	245
Future Volume (Veh/h)	287	543	7	1	526	41	9	0	3	39	0	245
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	312	590	8	1	572	45	10	0	3	42	0	266
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	617			598			2081	1837	594	1818	1819	595
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	617			598			2081	1837	594	1818	1819	595
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 %	68			100			29	100	99	7	100	48
cM capacity (veh/h)	973			989			14	52	509	45	53	508

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	910	618	13	308
Volume Left	312	1	10	42
Volume Right	8	45	3	266
cSH	973	989	18	213
Volume to Capacity	0.32	0.00	0.71	1.45
Queue Length 95th (m)	11.1	0.0	15.2	146.0
Control Delay (s/veh)	7.0	0.0	396.4	268.4
Lane LOS	A	A	F	F
Approach Delay (s/veh)	7.0	0.0	396.4	268.4
Approach LOS			F	F

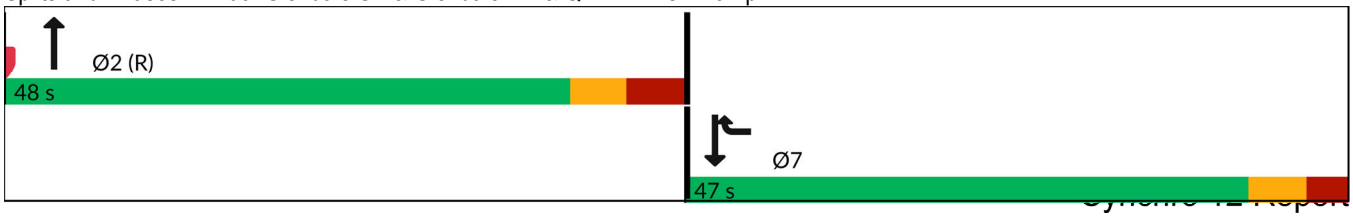
Intersection Summary				
Average Delay	50.9			
Intersection Capacity Utilization	109.7%	ICU Level of Service	H	
Analysis Period (min)	15			

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	427	745	828
Future Volume (vph)	427	745	828
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	464	810	900
Shared Lane Traffic (%)			
Lane Group Flow (vph)	464	810	900
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	38.4	45.6	38.4
Actuated g/C Ratio	0.40	0.48	0.40
v/c Ratio	0.77	0.56	0.73
Control Delay (s/veh)	33.6	20.5	27.3
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	33.6	20.5	27.3
LOS	C	C	C
Approach Delay (s/veh)		20.5	27.3
Approach LOS		C	C
Stops (vph)	356	522	663
Fuel Used(l)	22	28	35
CO Emissions (g/hr)	409	514	653
NOx Emissions (g/hr)	79	99	126
VOC Emissions (g/hr)	94	118	151
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay (s/veh): 26.1		Intersection LOS: C	
Intersection Capacity Utilization 60.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	464	810	900
v/c Ratio	0.77	0.56	0.73
Control Delay (s/veh)	33.6	20.5	27.3
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	33.6	20.5	27.3
Queue Length 50th (m)	74.2	57.7	73.7
Queue Length 95th (m)	104.7	84.2	88.5
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	666	1472	1368
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.70	0.55	0.66

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	427	745	828
Future Volume (vph)	427	745	828
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	464	810	900
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	464	810	900
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	36.4	43.6	36.4
Effective Green, g (s)	38.4	45.6	38.4
Actuated g/C Ratio	0.40	0.48	0.40
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	599	1451	1232
v/s Ratio Prot	c0.31	c0.27	0.30
v/s Ratio Perm			
v/c Ratio	0.77	0.56	0.73
Uniform Delay, d1	24.5	17.5	23.9
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	6.2	1.6	2.3
Delay (s)	30.8	19.1	26.2
Level of Service	C	B	C
Approach Delay (s/veh)		19.1	26.2
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

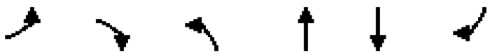
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	306	0	0	0	0	828
Future Volume (vph)	306	0	0	0	0	828
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	333	0	0	0	0	900
Shared Lane Traffic (%)						
Lane Group Flow (vph)	333	0	0	0	0	900
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 49.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	306	0	0	0	0	828
Future Volume (Veh/h)	306	0	0	0	0	828
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	333	0	0	0	0	900
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	450	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	450	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	38	100			100	
cM capacity (veh/h)	538	1084			1622	

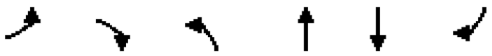
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	333	450	450
Volume Left	333	0	0
Volume Right	0	0	0
cSH	538	1700	1700
Volume to Capacity	0.62	0.26	0.26
Queue Length 95th (m)	33.6	0.0	0.0
Control Delay (s/veh)	22.0	0.0	0.0
Lane LOS	C		
Approach Delay (s/veh)	22.0	0.0	
Approach LOS	C		

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	495	0	0	757	0	0
Future Volume (vph)	495	0	0	757	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	538	0	0	823	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	538	0	0	823	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	90.8%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	495	0	0	757	0	0
Future Volume (Veh/h)	495	0	0	757	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	538	0	0	823	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	412	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	412	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	5	100	100			
cM capacity (veh/h)	568	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	538	412	412
Volume Left	538	0	0
Volume Right	0	0	0
cSH	568	1700	1700
Volume to Capacity	0.95	0.24	0.24
Queue Length 95th (m)	99.4	0.0	0.0
Control Delay (s/veh)	52.6	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	52.6	0.0	
Approach LOS	F		

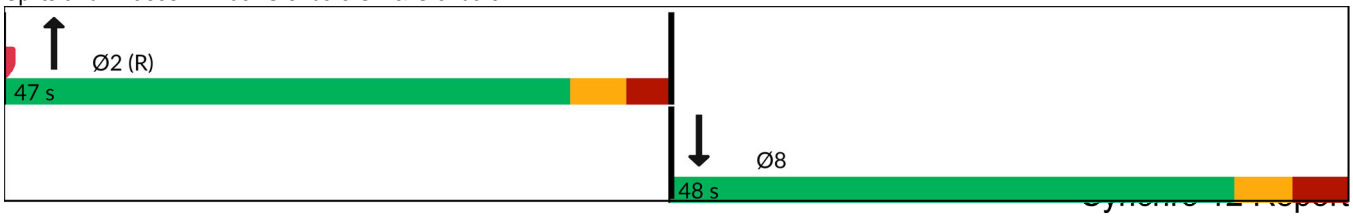
Intersection Summary			
Average Delay	20.8		
Intersection Capacity Utilization	90.8%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	757	0	0	536	0	0	0	0	0	0	0
Future Volume (vph)	0	757	0	0	536	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	823	0	0	583	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	823	0	0	583	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		57.4			22.6							
Actuated g/C Ratio		0.60			0.24							
v/c Ratio		0.41			0.74							
Control Delay (s/veh)		11.3			39.1							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		11.3			39.1							
LOS		B			D							
Approach Delay (s/veh)		11.3			39.1							
Approach LOS		B			D							
Stops (vph)		383			475							
Fuel Used(l)		19			29							
CO Emissions (g/hr)		348			547							
NOx Emissions (g/hr)		67			105							
VOC Emissions (g/hr)		80			126							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay (s/veh): 22.8		Intersection LOS: C	
Intersection Capacity Utilization 28.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB

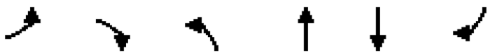


Lane Group	NBT	SBT
Lane Group Flow (vph)	823	583
v/c Ratio	0.41	0.74
Control Delay (s/veh)	11.3	39.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	11.3	39.1
Queue Length 50th (m)	40.2	55.0
Queue Length 95th (m)	63.5	67.6
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	2010	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.41	0.42

Intersection Summary

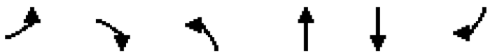
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	757	0	0	536	0	0	0	0	0	0	0
Future Volume (vph)	0	757	0	0	536	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	823	0	0	583	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	823	0	0	583	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		57.4			22.6							
Effective Green, g (s)		57.4			22.6							
Actuated g/C Ratio		0.60			0.24							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		2009			791							
v/s Ratio Prot		c0.25			c0.18							
v/s Ratio Perm												
v/c Ratio		0.41			0.74							
Uniform Delay, d1		9.9			33.5							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.6			3.6							
Delay (s)		10.5			37.1							
Level of Service		B			D							
Approach Delay (s/veh)		10.5			37.1			0.0			0.0	
Approach LOS		B			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	28.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	102	68	197	82	2
Future Volume (vph)	6	102	68	197	82	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.873				0.997	
Flt Protected	0.997			0.987		
Satd. Flow (prot)	1493	0	0	1693	1711	0
Flt Permitted	0.997			0.987		
Satd. Flow (perm)	1493	0	0	1693	1711	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	96.3			112.4	188.4	
Travel Time (s)	6.9			8.1	13.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	111	74	214	89	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	118	0	0	288	91	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

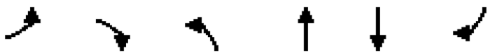
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	102	68	197	82	2
Future Volume (Veh/h)	6	102	68	197	82	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	111	74	214	89	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	452	90	91			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	452	90	91			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	89	95			
cM capacity (veh/h)	538	968	1504			

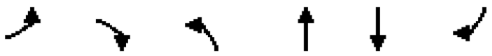
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	118	288	91
Volume Left	7	74	0
Volume Right	111	0	2
cSH	924	1504	1700
Volume to Capacity	0.13	0.05	0.05
Queue Length 95th (m)	3.5	1.2	0.0
Control Delay (s/veh)	9.5	2.2	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	9.5	2.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	35.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	102	69	259	182	2
Future Volume (vph)	6	102	69	259	182	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.873				0.999	
Flt Protected	0.997			0.990		
Satd. Flow (prot)	1493	0	0	1699	1714	0
Flt Permitted	0.997			0.990		
Satd. Flow (perm)	1493	0	0	1699	1714	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	81.9			136.2	112.4	
Travel Time (s)	5.9			9.8	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	111	75	282	198	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	118	0	0	357	200	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	102	69	259	182	2
Future Volume (Veh/h)	6	102	69	259	182	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	111	75	282	198	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	631	199	200			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	631	199	200			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	87	95			
cM capacity (veh/h)	421	842	1372			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	118	357	200
Volume Left	7	75	0
Volume Right	111	0	2
cSH	795	1372	1700
Volume to Capacity	0.15	0.05	0.12
Queue Length 95th (m)	4.2	1.4	0.0
Control Delay (s/veh)	10.3	2.0	0.0
Lane LOS	B	A	
Approach Delay (s/veh)	10.3	2.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	799	32	9	688	97	27
Future Volume (vph)	799	32	9	688	97	27
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.995				0.971	
Flt Protected				0.999	0.962	
Satd. Flow (prot)	1707	0	0	1714	1603	0
Flt Permitted				0.999	0.962	
Satd. Flow (perm)	1707	0	0	1714	1603	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	34.5			168.7	76.7	
Travel Time (s)	2.1			10.1	5.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	868	35	10	748	105	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	903	0	0	758	134	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 62.1%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	799	32	9	688	97	27
Future Volume (Veh/h)	799	32	9	688	97	27
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	868	35	10	748	105	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			868		1654	886
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			868		1654	886
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		2	92
cM capacity (veh/h)			776		107	344

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	903	758	134
Volume Left	0	10	105
Volume Right	35	0	29
cSH	1700	776	125
Volume to Capacity	0.53	0.01	1.07
Queue Length 95th (m)	0.0	0.3	61.1
Control Delay (s/veh)	0.0	0.3	167.4
Lane LOS		A	F
Approach Delay (s/veh)	0.0	0.3	167.4
Approach LOS			F

Intersection Summary			
Average Delay	12.6		
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale-2.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:49:33 PM

Summary of intersection performance

	AM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - TT (2039)						
Leg North	0.44	~1	13.43	0.27	B	56.97	F
Leg West	0.30	~1	5.18	0.22	A		
Leg South	2.04	3.34	9.27	0.65	A		
Leg East	44.78	108.22	171.71	1.11	F		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - TT (2039), AM " model duration: 8:00 AM - 9:00 AM
"D2 - TT (2039), PM" model duration: 4:00 PM - 5:00 PM
"D3 - TT (2039), Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2044), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2044), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2044), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2044), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - TT REM (2044), AM" model duration: 8:00 AM - 9:00 AM
"D11 - TT REM (2044), PM" model duration: 4:00 PM - 5:00 PM
"D12 - TT REM (2044), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:49:32 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - TT (2039), AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
TT (2039), AM	TT (2039)	AM		PHF	08:00	09:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				56.97	F

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		

West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	109.50	100.000
West	PHF	✓	579.00	100.000
South	PHF	✓	1458.00	100.000
East	PHF	✓	909.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	109.50	0.92	SecondQuarter
West	579.00	0.92	SecondQuarter
South	1458.00	0.92	SecondQuarter
East	909.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	40.000	63.000	6.500
	West	11.000	0.000	388.000	180.000
	South	76.000	663.000	0.000	719.000
	East	0.000	222.000	682.000	5.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.37	0.58	0.06
	West	0.02	0.00	0.67	0.31
	South	0.05	0.45	0.00	0.49
	East	0.00	0.24	0.75	0.01

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.154	1.200	1.333
	West	1.000	1.000	1.139	1.047
	South	1.071	1.119	1.000	1.095
	East	1.000	1.057	1.170	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	15.4	20.0	33.3
	West	0.0	0.0	13.9	4.7
	South	7.1	11.9	0.0	9.5
	East	0.0	5.7	17.0	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.27	13.43	0.44	~1	B	109.50	109.50	22.14	12.13	0.37	22.15	12.13
West	0.22	5.18	0.30	~1	A	579.00	191.00	16.10	5.06	0.27	16.10	5.06
South	0.65	9.27	2.04	3.34	A	1458.00	739.00	98.84	8.02	1.65	98.89	8.03
East	1.11	171.71	44.78	108.22	F	909.00	909.00	1579.35	104.25	26.32	1603.85	105.86

Main Results for each time segment

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	103.15	103.15	25.79	0.00	0.00	101.99	81.33	1445.91	0.00	520.61	430.01	0.198	0.00	0.29	10.205	B
West	545.43	179.93	44.98	365.51	0.00	178.97	858.67	689.23	0.00	958.55	834.81	0.188	0.00	0.24	4.816	A
South	1373.48	696.16	174.04	677.32	365.51	690.64	678.63	189.57	0.00	1247.73	856.86	0.558	0.00	1.38	7.129	A
East	856.30	856.30	214.08	0.00	677.32	826.30	179.26	700.94	0.00	951.77	833.70	0.900	0.00	7.50	28.122	D

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	119.02	119.02	29.76	0.00	0.00	118.43	94.28	1590.90	0.00	436.69	430.01	0.273	0.29	0.44	13.431	B
West	629.35	207.61	51.90	421.74	0.00	207.38	974.67	734.66	0.00	932.25	834.81	0.223	0.24	0.30	5.184	A
South	1584.78	803.26	200.82	781.52	421.74	800.64	722.83	219.21	0.00	1230.58	856.86	0.653	1.38	2.04	9.268	A
East	988.04	988.04	247.01	0.00	781.52	872.60	207.27	812.58	0.00	887.16	833.70	1.114	7.50	36.36	105.564	F

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	112.67	112.67	28.17	0.00	0.00	112.76	89.62	1584.69	0.00	440.29	430.01	0.256	0.44	0.42	13.081	B
West	595.78	196.54	49.13	399.25	0.00	196.58	944.42	753.04	0.00	921.62	834.81	0.213	0.30	0.28	5.184	A
South	1500.26	760.42	190.11	739.84	399.25	761.31	741.38	208.24	0.00	1236.93	856.86	0.615	2.04	1.81	8.449	A

East	935.35	935.35	233.84	0.00	739.84	901.68	196.92	772.63	0.00	910.28	833.70	1.028	36.36	44.78	171.708	F

Main results: (08:45-09:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	103.15	103.15	25.79	0.00	0.00	103.42	82.12	1550.08	0.00	460.32	430.01	0.224	0.42	0.35	12.011	B
West	545.43	179.93	44.98	365.51	0.00	180.04	889.41	764.08	0.00	915.22	834.81	0.197	0.28	0.26	5.113	A
South	1373.48	696.16	174.04	677.32	365.51	697.69	752.86	191.26	0.00	1246.75	856.86	0.558	1.81	1.43	7.326	A
East	856.30	856.30	214.08	0.00	677.32	924.14	180.89	708.06	0.00	947.65	833.70	0.904	44.78	27.82	144.535	F

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-08:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	4.15	0.28	10.205	B	B
West	3.50	0.23	4.816	A	A
South	19.64	1.31	7.129	A	A
East	87.13	5.81	28.122	D	C

Queueing Delay results: (08:15-08:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	6.29	0.42	13.431	B	B
West	4.38	0.29	5.184	A	A
South	29.07	1.94	9.268	A	A
East	338.43	22.56	105.564	F	F

Queueing Delay results: (08:30-08:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	6.32	0.42	13.081	B	B
West	4.31	0.29	5.184	A	A
South	27.92	1.86	8.449	A	A
East	609.29	40.62	171.708	F	F

Queueing Delay results: (08:45-09:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	5.38	0.36	12.011	B	B
West	3.91	0.26	5.113	A	A
South	22.21	1.48	7.326	A	A
East	544.50	36.30	144.535	F	F

Queue Variation Results for each time segment

Queue Variation results: (08:00-08:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.29	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.24	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.38	0.00	0.00	2.23	2.23			N/A	N/A
East	7.50	0.00	0.00	18.23	28.48			N/A	N/A

Queue Variation results: (08:15-08:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.44	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.30	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	2.04	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	36.36	6.84	30.76	67.21	80.88			N/A	N/A

Queue Variation results: (08:30-08:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.42	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.28	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.81	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	44.78	5.70	35.31	87.72	108.22			N/A	N/A

Queue Variation results: (08:45-09:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.35	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.26	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.43	0.00	0.00	2.23	3.34			N/A	N/A
East	27.82	0.00	11.39	72.91	102.53			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	23	91	0	16	91
Future Volume (vph)	0	23	91	0	16	91
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.865				0.885	
Flt Protected				0.950	0.993	
Satd. Flow (prot)	1514	0	0	1662	1538	0
Flt Permitted				0.950	0.993	
Satd. Flow (perm)	1514	0	0	1662	1538	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	25	99	0	17	99
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	0	0	99	116	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	23	91	0	16	91
Future Volume (Veh/h)	0	23	91	0	16	91
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	25	99	0	17	99
Pedestrians					1	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	133	1	110	84	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	133	1	110	84	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	88	100	99	
cM capacity (veh/h)	754	1089	846	802	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	25	99	116
Volume Left	0	99	17
Volume Right	25	0	99
cSH	1089	846	1636
Volume to Capacity	0.02	0.12	0.01
Queue Length 95th (m)	0.6	3.2	0.3
Control Delay (s/veh)	8.4	9.8	1.1
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.8	1.1
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		

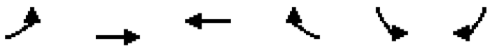
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1	22	0	0	39	34
Future Volume (vph)	1	22	0	0	39	34
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.870				0.937	
Flt Protected					0.974	
Satd. Flow (prot)	1522	0	0	1750	1590	0
Flt Permitted					0.974	
Satd. Flow (perm)	1522	0	0	1750	1590	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	1	24	0	0	42	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	0	0	0	79	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.6%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1	22	0	0	39	34
Future Volume (Veh/h)	1	22	0	0	39	34
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	24	0	0	42	37
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	121	0	127	103	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	121	0	127	103	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	100	100	97	
cM capacity (veh/h)	753	1091	815	771	1636	

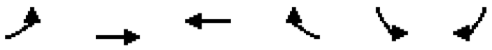
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	25	0	79
Volume Left	0	0	42
Volume Right	24	0	37
cSH	1072	1700	1636
Volume to Capacity	0.02	0.00	0.03
Queue Length 95th (m)	0.6	0.0	0.6
Control Delay (s/veh)	8.4	0.0	3.9
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	0.0	3.9
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	14.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	99	958	1088	21	14	64
Future Volume (vph)	99	958	1088	21	14	64
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.997		0.889	
Flt Protected	0.950				0.991	
Satd. Flow (prot)	1662	3325	3315	0	1542	0
Flt Permitted	0.950				0.991	
Satd. Flow (perm)	1662	3325	3315	0	1542	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Confl. Peds. (#/hr)	1			1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	108	1041	1183	23	15	70
Shared Lane Traffic (%)						
Lane Group Flow (vph)	108	1041	1206	0	85	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

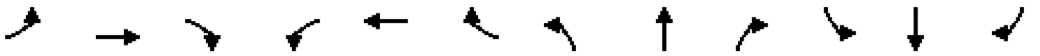
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	99	958	1088	21	14	64
Future Volume (Veh/h)	99	958	1088	21	14	64
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	108	1041	1183	23	15	70
Pedestrians		1			1	
Lane Width (m)		3.6			3.6	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1207				1932	605
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1207				1932	605
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	82				69	84
cM capacity (veh/h)	585				48	445

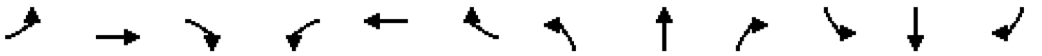
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	108	521	521	789	417	85
Volume Left	108	0	0	0	0	15
Volume Right	0	0	0	0	23	70
cSH	585	1700	1700	1700	1700	182
Volume to Capacity	0.18	0.31	0.31	0.46	0.25	0.47
Queue Length 95th (m)	5.4	0.0	0.0	0.0	0.0	17.8
Control Delay (s/veh)	12.5	0.0	0.0	0.0	0.0	41.1
Lane LOS	B					E
Approach Delay (s/veh)	1.2			0.0		41.1
Approach LOS						E

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	334	535	0	0	639	54	4	0	0	40	0	451
Future Volume (vph)	334	535	0	0	639	54	4	0	0	40	0	451
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.989						0.876	
Flt Protected		0.981						0.950			0.996	
Satd. Flow (prot)	0	1717	0	0	1731	0	0	1662	0	0	1527	0
Flt Permitted		0.981						0.950			0.996	
Satd. Flow (perm)	0	1717	0	0	1731	0	0	1662	0	0	1527	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		168.7			187.5			73.5			136.2	
Travel Time (s)		10.1			11.3			5.3			9.8	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	363	582	0	0	695	59	4	0	0	43	0	490
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	945	0	0	754	0	0	4	0	0	533	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 132.3%		ICU Level of Service H	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	334	535	0	0	639	54	4	0	0	40	0	451
Future Volume (Veh/h)	334	535	0	0	639	54	4	0	0	40	0	451
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	363	582	0	0	695	59	4	0	0	43	0	490
Pedestrians		1									1	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	755			582			2524	2063	582	2034	2034	727
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	755			582			2524	2063	582	2034	2034	727
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 %	58			100			0	100	100	0	100	0
cM capacity (veh/h)	864			1002			0	32	517	29	33	427

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	945	754	4	533
Volume Left	363	0	4	43
Volume Right	0	59	0	490
cSH	864	1002	0	201
Volume to Capacity	0.42	0.00	Err	2.65
Queue Length 95th (m)	16.8	0.0	Err	366.5
Control Delay (s/veh)	9.5	0.0	Err	791.4
Lane LOS	A		F	F
Approach Delay (s/veh)	9.5	0.0	Err	791.4
Approach LOS			F	F

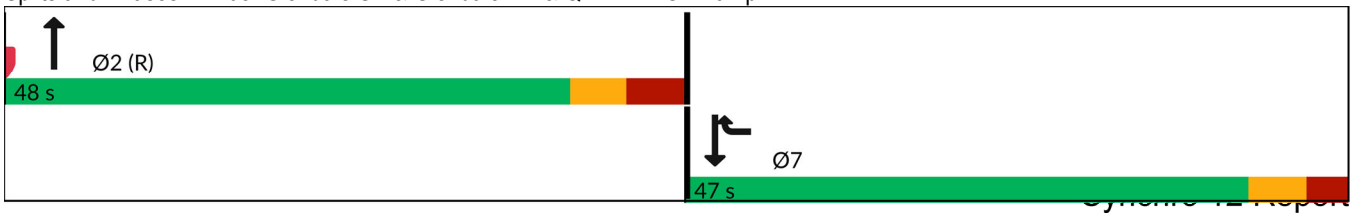
Intersection Summary				
Average Delay			Err	
Intersection Capacity Utilization			132.3%	ICU Level of Service H
Analysis Period (min)			15	

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	352	764	1388
Future Volume (vph)	352	764	1388
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	383	830	1509
Shared Lane Traffic (%)			
Lane Group Flow (vph)	383	830	1509
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	50.2	33.8	50.2
Actuated g/C Ratio	0.53	0.36	0.53
v/c Ratio	0.49	0.77	0.94
Control Delay (s/veh)	18.3	32.0	35.0
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	18.3	32.0	35.0
LOS	B	C	D
Approach Delay (s/veh)		32.0	35.0
Approach LOS		C	D
Stops (vph)	226	646	1079
Fuel Used(l)	12	38	66
CO Emissions (g/hr)	231	699	1234
NOx Emissions (g/hr)	45	135	238
VOC Emissions (g/hr)	53	161	285
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay (s/veh): 31.8		Intersection LOS: C	
Intersection Capacity Utilization 55.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	383	830	1509
v/c Ratio	0.49	0.77	0.94
Control Delay (s/veh)	18.3	32.0	35.0
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	18.3	32.0	35.0
Queue Length 50th (m)	45.2	73.1	137.7
Queue Length 95th (m)	81.8	86.0	#215.8
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	783	1336	1610
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.49	0.62	0.94

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	352	764	1388
Future Volume (vph)	352	764	1388
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	383	830	1509
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	383	830	1509
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	48.2	31.8	48.2
Effective Green, g (s)	50.2	33.8	50.2
Actuated g/C Ratio	0.53	0.36	0.53
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	784	1075	1611
v/s Ratio Prot	0.26	c0.27	c0.49
v/s Ratio Perm			
v/c Ratio	0.49	0.77	0.94
Uniform Delay, d1	14.2	27.2	20.9
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.5	5.4	10.7
Delay (s)	14.7	32.6	31.6
Level of Service	B	C	C
Approach Delay (s/veh)		32.6	31.6
Approach LOS		C	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

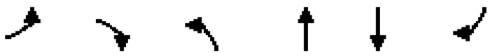
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	442	0	0	0	0	1388
Future Volume (vph)	442	0	0	0	0	1388
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	480	0	0	0	0	1509
Shared Lane Traffic (%)						
Lane Group Flow (vph)	480	0	0	0	0	1509
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 74.9%		ICU Level of Service D	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	442	0	0	0	0	1388
Future Volume (Veh/h)	442	0	0	0	0	1388
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	480	0	0	0	0	1509
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	755	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	755	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			100	
cM capacity (veh/h)	345	1084			1622	

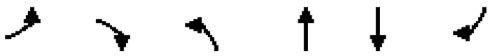
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	480	755	755
Volume Left	480	0	0
Volume Right	0	0	0
cSH	345	1700	1700
Volume to Capacity	1.39	0.44	0.44
Queue Length 95th (m)	194.4	0.0	0.0
Control Delay (s/veh)	223.3	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	223.3	0.0	
Approach LOS	F		

Intersection Summary			
Average Delay	53.9		
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	396	0	0	1571	0	0
Future Volume (vph)	396	0	0	1571	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	430	0	0	1708	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	430	0	0	1708	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	103.6%	ICU Level of Service	G
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	396	0	0	1571	0	0
Future Volume (Veh/h)	396	0	0	1571	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	430	0	0	1708	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	854	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	854	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	100	100			
cM capacity (veh/h)	298	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	430	854	854
Volume Left	430	0	0
Volume Right	0	0	0
cSH	298	1700	1700
Volume to Capacity	1.44	0.50	0.50
Queue Length 95th (m)	187.3	0.0	0.0
Control Delay (s/veh)	250.6	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	250.6	0.0	
Approach LOS	F		

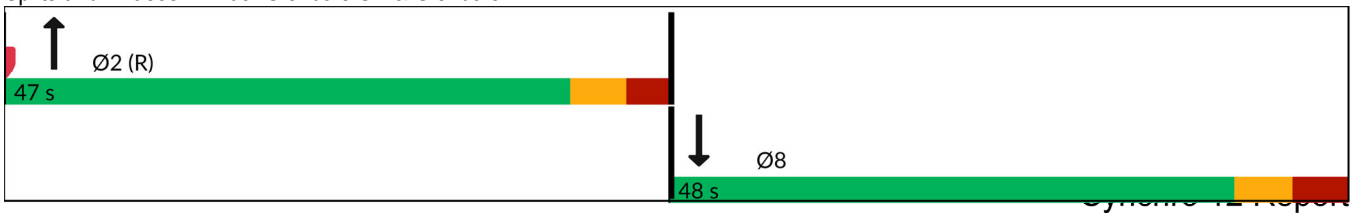
Intersection Summary			
Average Delay	50.4		
Intersection Capacity Utilization	103.6%	ICU Level of Service	G
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1571	0	0	739	0	0	0	0	0	0	0
Future Volume (vph)	0	1571	0	0	739	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1708	0	0	803	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1708	0	0	803	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		50.5			29.5							
Actuated g/C Ratio		0.53			0.31							
v/c Ratio		0.97			0.78							
Control Delay (s/veh)		38.2			35.1							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		38.2			35.1							
LOS		D			D							
Approach Delay (s/veh)		38.2			35.1							
Approach LOS		D			D							
Stops (vph)		1233			641							
Fuel Used(l)		81			38							
CO Emissions (g/hr)		1508			706							
NOx Emissions (g/hr)		291			136							
VOC Emissions (g/hr)		348			163							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay (s/veh): 37.2		Intersection LOS: D	
Intersection Capacity Utilization 53.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



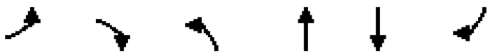
Lane Group	NBT	SBT
Lane Group Flow (vph)	1708	803
v/c Ratio	0.97	0.78
Control Delay (s/veh)	38.2	35.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	38.2	35.1
Queue Length 50th (m)	158.7	73.5
Queue Length 95th (m)	#244.4	86.0
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1769	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.97	0.57

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

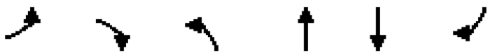
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1571	0	0	739	0	0	0	0	0	0	0
Future Volume (vph)	0	1571	0	0	739	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1708	0	0	803	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1708	0	0	803	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		50.5			29.5							
Effective Green, g (s)		50.5			29.5							
Actuated g/C Ratio		0.53			0.31							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1767			1032							
v/s Ratio Prot		c0.51			c0.24							
v/s Ratio Perm												
v/c Ratio		0.97			0.78							
Uniform Delay, d1		21.4			29.8							
Progression Factor		1.00			1.00							
Incremental Delay, d2		14.8			3.8							
Delay (s)		36.3			33.5							
Level of Service		D			C							
Approach Delay (s/veh)		36.3			33.5			0.0			0.0	
Approach LOS		D			C			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	35.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	117	129	134	265	8
Future Volume (vph)	4	117	129	134	265	8
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.869				0.996	
Flt Protected	0.998			0.976		
Satd. Flow (prot)	1488	0	0	1675	1709	0
Flt Permitted	0.998			0.976		
Satd. Flow (perm)	1488	0	0	1675	1709	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	96.3			112.4	188.4	
Travel Time (s)	6.9			8.1	13.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	127	140	146	288	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	131	0	0	286	297	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

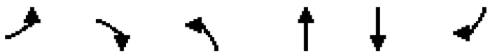
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 49.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	117	129	134	265	8
Future Volume (Veh/h)	4	117	129	134	265	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	127	140	146	288	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	719	293	297			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	719	293	297			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	83	89			
cM capacity (veh/h)	352	747	1264			

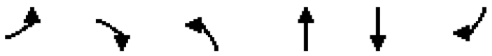
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	131	286	297
Volume Left	4	140	0
Volume Right	127	0	9
cSH	722	1264	1700
Volume to Capacity	0.18	0.11	0.17
Queue Length 95th (m)	5.3	3.0	0.0
Control Delay (s/veh)	11.1	4.5	0.0
Lane LOS	B	A	
Approach Delay (s/veh)	11.1	4.5	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	117	129	260	374	8
Future Volume (vph)	3	117	129	260	374	8
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.868				0.997	
Flt Protected	0.999			0.984		
Satd. Flow (prot)	1488	0	0	1688	1711	0
Flt Permitted	0.999			0.984		
Satd. Flow (perm)	1488	0	0	1688	1711	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	81.9			136.2	112.4	
Travel Time (s)	5.9			9.8	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	127	140	283	407	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	130	0	0	423	416	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 62.5%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	117	129	260	374	8
Future Volume (Veh/h)	3	117	129	260	374	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	127	140	283	407	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	975	412	416			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	975	412	416			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	80	88			
cM capacity (veh/h)	245	640	1143			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	130	423	416
Volume Left	3	140	0
Volume Right	127	0	9
cSH	617	1143	1700
Volume to Capacity	0.21	0.12	0.24
Queue Length 95th (m)	6.3	3.3	0.0
Control Delay (s/veh)	12.4	3.7	0.0
Lane LOS	B	A	
Approach Delay (s/veh)	12.4	3.7	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	870	91	24	1070	62	10
Future Volume (vph)	870	91	24	1070	62	10
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.987				0.981	
Flt Protected				0.999	0.959	
Satd. Flow (prot)	1693	0	0	1714	1614	0
Flt Permitted				0.999	0.959	
Satd. Flow (perm)	1693	0	0	1714	1614	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	34.5			168.7	76.7	
Travel Time (s)	2.1			10.1	5.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	946	99	26	1163	67	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1045	0	0	1189	78	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 93.1%		ICU Level of Service F	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	870	91	24	1070	62	10
Future Volume (Veh/h)	870	91	24	1070	62	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	946	99	26	1163	67	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			946		2211	996
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			946		2211	996
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		0	96
cM capacity (veh/h)			725		47	297

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	1045	1189	78
Volume Left	0	26	67
Volume Right	99	0	11
cSH	1700	725	53
Volume to Capacity	0.61	0.04	1.47
Queue Length 95th (m)	0.0	0.9	57.5
Control Delay (s/veh)	0.0	1.3	415.4
Lane LOS		A	F
Approach Delay (s/veh)	0.0	1.3	415.4
Approach LOS			F

Intersection Summary			
Average Delay	14.7		
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale-2.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:49:55 PM

Summary of intersection performance

	PM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - TT (2039)						
Leg North	0.37	~1	10.15	0.27	B	171.54	F
Leg West	0.29	~1	5.63	0.21	A		
Leg South	1.14	?	6.53	0.51	A		
Leg East	150.67	?	508.10	1.27	F		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - TT (2039), AM" model duration: 8:00 AM - 9:00 AM
"D2 - TT (2039), PM " model duration: 4:00 PM - 5:00 PM
"D3 - TT (2039), Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2044), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2044), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2044), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2044), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - TT REM (2044), AM" model duration: 8:00 AM - 9:00 AM
"D11 - TT REM (2044), PM" model duration: 4:00 PM - 5:00 PM
"D12 - TT REM (2044), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:49:54 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - TT (2039), PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
TT (2039), PM	TT (2039)	PM		PHF	16:00	17:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				171.54	F

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		

West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	123.00	100.000
West	PHF	✓	799.00	100.000
South	PHF	✓	1428.00	100.000
East	PHF	✓	1153.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	123.00	0.92	SecondQuarter
West	799.00	0.92	SecondQuarter
South	1428.00	0.92	SecondQuarter
East	1153.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	24.000	93.000	6.000
	West	10.000	0.000	630.000	159.000
	South	95.000	489.000	0.000	844.000
	East	12.000	256.000	885.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.20	0.76	0.05
	West	0.01	0.00	0.79	0.20
	South	0.07	0.34	0.00	0.59
	East	0.01	0.22	0.77	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.097	1.061
	South	1.033	1.133	1.000	1.196
	East	1.000	1.079	1.048	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	9.7	6.1
	South	3.3	13.3	0.0	19.6
	East	0.0	7.9	4.8	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.27	10.15	0.37	~1	B	123.00	123.00	19.47	9.50	0.32	19.47	9.50
West	0.21	5.63	0.29	~1	A	799.00	169.00	15.55	5.52	0.26	15.55	5.52
South	0.51	6.53	1.14	?	A	1428.00	584.00	58.11	5.97	0.97	58.13	5.97
East	1.27	508.10	150.67	?	F	1153.00	1153.00	4951.57	257.67	82.53	5610.77	291.97

Main Results for each time segment

Main results: (16:00-16:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	115.87	115.87	28.97	0.00	0.00	114.75	108.62	1438.93	0.00	524.65	458.73	0.221	0.00	0.28	8.759	A
West	752.68	159.20	39.80	593.48	0.00	158.25	700.32	853.36	0.00	863.55	781.95	0.184	0.00	0.24	5.390	A
South	1345.22	550.14	137.54	795.07	593.48	546.74	847.76	163.85	0.00	1262.61	891.93	0.436	0.00	0.85	5.592	A
East	1086.16	1086.16	271.54	0.00	795.07	991.45	154.49	556.10	0.00	1035.60	814.45	1.049	0.00	23.68	55.596	F

Main results: (16:15-16:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	133.70	133.70	33.42	0.00	0.00	133.33	124.16	1502.91	0.00	487.62	458.73	0.274	0.28	0.37	10.151	B
West	868.48	183.70	45.92	684.78	0.00	183.50	774.73	861.50	0.00	858.84	781.95	0.214	0.24	0.29	5.634	A
South	1552.17	634.78	158.70	917.39	684.78	633.63	855.00	190.01	0.00	1247.48	891.93	0.509	0.85	1.14	6.530	A
East	1253.26	1253.26	313.32	0.00	917.39	982.57	179.15	644.49	0.00	984.44	814.45	1.273	23.68	91.35	220.188	F

Main results: (16:30-16:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	126.57	126.57	31.64	0.00	0.00	126.65	118.55	1496.02	0.00	491.61	458.73	0.257	0.37	0.35	9.868	A
West	822.16	173.90	43.47	648.26	0.00	173.95	750.91	871.77	0.00	852.90	781.95	0.204	0.29	0.27	5.607	A
South	1469.39	600.93	150.23	868.46	648.26	601.33	865.59	180.13	0.00	1253.19	891.93	0.480	1.14	1.04	6.166	A

East	1186.42	1186.42	296.61	0.00	868.46	1002.95	169.84	611.62	0.00	1003.46	814.45	1.182	91.35	137.22	414.249	F

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	115.87	115.87	28.97	0.00	0.00	116.05	109.77	1482.80	0.00	499.26	458.73	0.232	0.35	0.31	9.400	A
West	752.68	159.20	39.80	593.48	0.00	159.30	713.07	885.78	0.00	844.79	781.95	0.188	0.27	0.25	5.552	A
South	1345.22	550.14	137.54	795.07	593.48	550.82	880.12	164.97	0.00	1261.97	891.93	0.436	1.04	0.87	5.651	A
East	1086.16	1086.16	271.54	0.00	795.07	1032.32	155.54	560.25	0.00	1033.20	814.45	1.051	137.22	150.67	508.099	F

Queueing Delay Results for each time segment

Queueing Delay results: (16:00-16:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	4.02	0.27	8.759	A	A
West	3.46	0.23	5.390	A	A
South	12.30	0.82	5.592	A	A
East	213.94	14.26	55.596	F	E

Queueing Delay results: (16:15-16:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	5.41	0.36	10.151	B	B
West	4.21	0.28	5.634	A	A
South	16.59	1.11	6.530	A	A
East	864.05	57.60	220.188	F	F

Queueing Delay results: (16:30-16:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	5.34	0.36	9.868	A	A
West	4.13	0.28	5.607	A	A
South	15.87	1.06	6.166	A	A
East	1714.36	114.29	414.249	F	F

Queueing Delay results: (16:45-17:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	4.69	0.31	9.400	A	A
West	3.76	0.25	5.552	A	A
South	13.36	0.89	5.651	A	A
East	2159.23	143.95	508.099	F	F

Queue Variation Results for each time segment

Queue Variation results: (16:00-16:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.28	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.24	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.85	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	23.68	?	?	?	?	No excess capacity in final time segment - unable to calculate queue statistics		N/A	N/A

Queue Variation results: (16:15-16:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.37	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.29	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.14	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

East	91.35	?	?	?	?	No excess capacity in final time segment - unable to calculate queue statistics		N/A	N/A

Queue Variation results: (16:30-16:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.35	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.27	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.04	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	137.22	?	?	?	?	No excess capacity in final time segment - unable to calculate queue statistics		N/A	N/A

Queue Variation results: (16:45-17:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.31	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.25	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.87	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	150.67	?	?	?	?	No excess capacity in final time segment - unable to calculate queue statistics		N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	16	81	0	16	115
Future Volume (vph)	0	16	81	0	16	115
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.881	
Flt Protected				0.950	0.994	
Satd. Flow (prot)	1514	0	0	1662	1532	0
Flt Permitted				0.950	0.994	
Satd. Flow (perm)	1514	0	0	1662	1532	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	17	88	0	17	125
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	0	0	88	142	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	16	81	0	16	115
Future Volume (Veh/h)	0	16	81	0	16	115
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	17	88	0	17	125
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	159	0	114	97	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	159	0	114	97	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	90	100	99	
cM capacity (veh/h)	729	1091	848	789	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	17	88	142
Volume Left	0	88	17
Volume Right	17	0	125
cSH	1091	848	1636
Volume to Capacity	0.02	0.10	0.01
Queue Length 95th (m)	0.4	2.8	0.3
Control Delay (s/veh)	8.4	9.7	0.9
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.7	0.9
Approach LOS	A	A	

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	26.9%	ICU Level of Service	A
Analysis Period (min)	15		

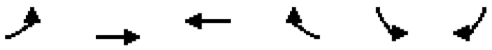
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	32	0	0	21	3
Future Volume (vph)	0	32	0	0	21	3
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.984	
Flt Protected					0.958	
Satd. Flow (prot)	1514	0	0	1750	1650	0
Flt Permitted					0.958	
Satd. Flow (perm)	1514	0	0	1750	1650	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	35	0	0	23	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	0	0	0	26	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	32	0	0	21	3
Future Volume (Veh/h)	0	32	0	0	21	3
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	35	0	0	23	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	49	0	83	48	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	49	0	83	48	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	97	100	100	99	
cM capacity (veh/h)	835	1091	871	836	1636	

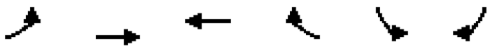
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	35	0	26
Volume Left	0	0	23
Volume Right	35	0	3
cSH	1091	1700	1636
Volume to Capacity	0.03	0.00	0.01
Queue Length 95th (m)	0.8	0.0	0.3
Control Delay (s/veh)	8.4	0.0	6.4
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	0.0	6.4
Approach LOS	A	A	

Intersection Summary			
Average Delay	7.6		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	51	938	790	7	7	59
Future Volume (vph)	51	938	790	7	7	59
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.999		0.880	
Flt Protected	0.950				0.994	
Satd. Flow (prot)	1662	3325	3322	0	1531	0
Flt Permitted	0.950				0.994	
Satd. Flow (perm)	1662	3325	3322	0	1531	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	55	1020	859	8	8	64
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	1020	867	0	72	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.7%		ICU Level of Service A	
Analysis Period (min) 15			



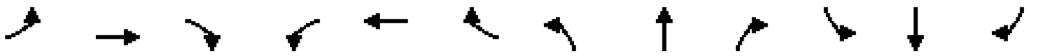
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	51	938	790	7	7	59
Future Volume (Veh/h)	51	938	790	7	7	59
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	55	1020	859	8	8	64
Pedestrians						
Lane 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	867				1483	434
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	867				1483	434
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				93	89
cM capacity (veh/h)	785				110	576

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	55	510	510	573	294	72
Volume Left	55	0	0	0	0	8
Volume Right	0	0	0	0	8	64
cSH	785	1700	1700	1700	1700	391
Volume to Capacity	0.07	0.30	0.30	0.34	0.17	0.18
Queue Length 95th (m)	1.8	0.0	0.0	0.0	0.0	5.3
Control Delay (s/veh)	9.9	0.0	0.0	0.0	0.0	16.3
Lane LOS	A					C
Approach Delay (s/veh)	0.5			0.0		16.3
Approach LOS						C

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	284	578	0	1	459	34	4	0	0	31	0	268
Future Volume (vph)	284	578	0	1	459	34	4	0	0	31	0	268
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.991						0.879	
Flt Protected		0.984						0.950			0.995	
Satd. Flow (prot)	0	1722	0	0	1734	0	0	1662	0	0	1531	0
Flt Permitted		0.984						0.950			0.995	
Satd. Flow (perm)	0	1722	0	0	1734	0	0	1662	0	0	1531	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		168.7			187.5			73.5			136.2	
Travel Time (s)		10.1			11.3			5.3			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	309	628	0	1	499	37	4	0	0	34	0	291
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	937	0	0	537	0	0	4	0	0	325	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 107.5%		ICU Level of Service G	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	284	578	0	1	459	34	4	0	0	31	0	268
Future Volume (Veh/h)	284	578	0	1	459	34	4	0	0	31	0	268
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	309	628	0	1	499	37	4	0	0	34	0	291
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	536			628			2057	1784	628	1766	1766	518
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	536			628			2057	1784	628	1766	1766	518
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 %	70			100			74	100	100	33	100	48
cM capacity (veh/h)	1042			964			15	58	487	51	60	562

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	937	537	4	325
Volume Left	309	1	4	34
Volume Right	0	37	0	291
cSH	1042	964	15	274
Volume to Capacity	0.30	0.00	0.26	1.19
Queue Length 95th (m)	10.0	0.0	5.7	117.3
Control Delay (s/veh)	6.4	0.0	309.4	153.2
Lane LOS	A	A	F	F
Approach Delay (s/veh)	6.4	0.0	309.4	153.2
Approach LOS			F	F

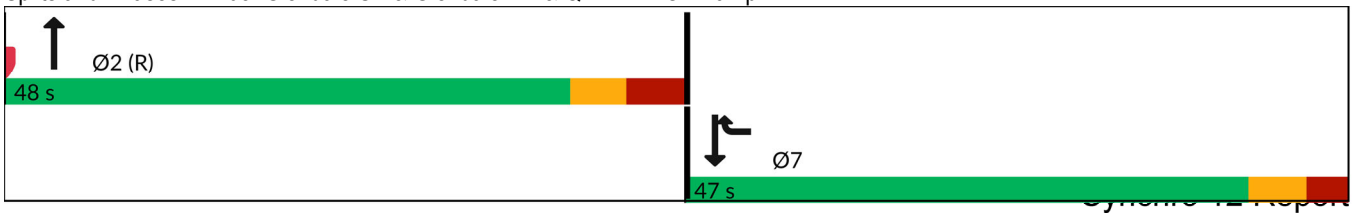
Intersection Summary			
Average Delay	31.6		
Intersection Capacity Utilization	107.5%	ICU Level of Service	G
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	258	1009	866
Future Volume (vph)	258	1009	866
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	280	1097	941
Shared Lane Traffic (%)			
Lane Group Flow (vph)	280	1097	941
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	37.6	46.4	37.6
Actuated g/C Ratio	0.40	0.49	0.40
v/c Ratio	0.48	0.74	0.78
Control Delay (s/veh)	23.6	24.5	29.8
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	23.6	24.5	29.8
LOS	C	C	C
Approach Delay (s/veh)		24.5	29.8
Approach LOS		C	C
Stops (vph)	182	793	722
Fuel Used(l)	11	42	39
CO Emissions (g/hr)	196	789	725
NOx Emissions (g/hr)	38	152	140
VOC Emissions (g/hr)	45	182	167
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay (s/veh): 26.5		Intersection LOS: C	
Intersection Capacity Utilization 56.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	280	1097	941
v/c Ratio	0.48	0.74	0.78
Control Delay (s/veh)	23.6	24.5	29.8
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	23.6	24.5	29.8
Queue Length 50th (m)	38.6	88.1	80.1
Queue Length 95th (m)	58.0	123.5	98.2
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	656	1475	1348
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.43	0.74	0.70

Intersection Summary

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	258	1009	866
Future Volume (vph)	258	1009	866
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	280	1097	941
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	280	1097	941
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	35.6	44.4	35.6
Effective Green, g (s)	37.6	46.4	37.6
Actuated g/C Ratio	0.40	0.49	0.40
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	587	1476	1207
v/s Ratio Prot	0.19	c0.36	c0.31
v/s Ratio Perm			
v/c Ratio	0.48	0.74	0.78
Uniform Delay, d1	21.4	19.5	25.1
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.6	3.4	3.3
Delay (s)	22.0	22.9	28.3
Level of Service	C	C	C
Approach Delay (s/veh)		22.9	28.3
Approach LOS		C	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

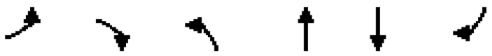
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	672	0	0	0	0	866
Future Volume (vph)	672	0	0	0	0	866
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	730	0	0	0	0	941
Shared Lane Traffic (%)						
Lane Group Flow (vph)	730	0	0	0	0	941
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 73.1%		ICU Level of Service D	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	672	0	0	0	0	866
Future Volume (Veh/h)	672	0	0	0	0	866
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	730	0	0	0	0	941
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	471	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	471	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			100	
cM capacity (veh/h)	522	1084			1622	

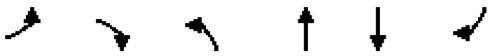
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	730	471	471
Volume Left	730	0	0
Volume Right	0	0	0
cSH	522	1700	1700
Volume to Capacity	1.40	0.28	0.28
Queue Length 95th (m)	272.4	0.0	0.0
Control Delay (s/veh)	212.9	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	212.9	0.0	
Approach LOS	F		

Intersection Summary			
Average Delay	93.0		
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	571	0	0	1849	0	0
Future Volume (vph)	571	0	0	1849	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	621	0	0	2010	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	621	0	0	2010	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	150.7%	ICU Level of Service	H
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	571	0	0	1849	0	0
Future Volume (Veh/h)	571	0	0	1849	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	621	0	0	2010	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	1005	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1005	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	100	100			
cM capacity (veh/h)	238	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	621	1005	1005
Volume Left	621	0	0
Volume Right	0	0	0
cSH	238	1700	1700
Volume to Capacity	2.61	0.59	0.59
Queue Length 95th (m)	418.6	0.0	0.0
Control Delay (s/veh)	768.2	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	768.2	0.0	
Approach LOS	F		

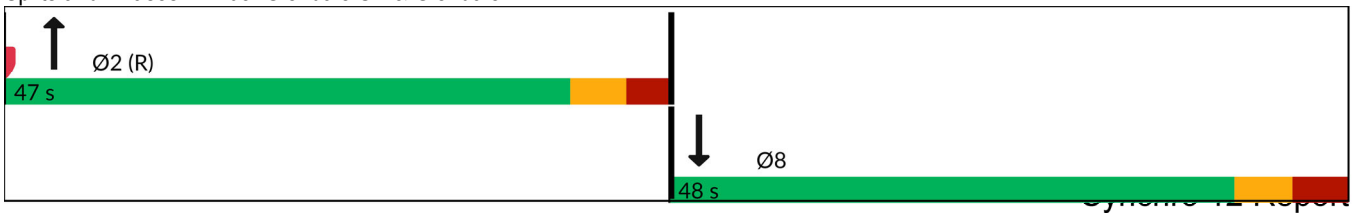
Intersection Summary			
Average Delay	181.3		
Intersection Capacity Utilization	150.7%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1849	0	0	910	0	0	0	0	0	0	0
Future Volume (vph)	0	1849	0	0	910	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	2010	0	0	989	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2010	0	0	989	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		45.4			34.6							
Actuated g/C Ratio		0.48			0.36							
v/c Ratio		1.26			0.82							
Control Delay (s/veh)		149.5			33.2							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		149.5			33.2							
LOS		F			C							
Approach Delay (s/veh)		149.5			33.2							
Approach LOS		F			C							
Stops (vph)		1430			787							
Fuel Used(l)		253			45							
CO Emissions (g/hr)		4713			843							
NOx Emissions (g/hr)		910			163							
VOC Emissions (g/hr)		1087			195							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.26			
Intersection Signal Delay (s/veh): 111.2		Intersection LOS: F	
Intersection Capacity Utilization 61.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	2010	989
v/c Ratio	1.26	0.82
Control Delay (s/veh)	149.5	33.2
Queue Delay	0.0	0.0
Total Delay (s/veh)	149.5	33.2
Queue Length 50th (m)	~261.4	88.4
Queue Length 95th (m)	#323.3	104.3
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1590	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.26	0.71

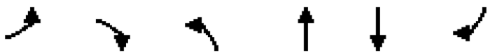
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

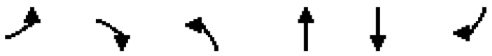
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	1849	0	0	910	0	0	0	0	0	0	0
Future Volume (vph)	0	1849	0	0	910	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2010	0	0	989	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2010	0	0	989	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		45.4			34.6							
Effective Green, g (s)		45.4			34.6							
Actuated g/C Ratio		0.48			0.36							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1589			1211							
v/s Ratio Prot		c0.60			c0.30							
v/s Ratio Perm												
v/c Ratio		1.26			0.82							
Uniform Delay, d1		24.8			27.3							
Progression Factor		1.00			1.00							
Incremental Delay, d2		124.4			4.4							
Delay (s)		149.2			31.7							
Level of Service		F			C							
Approach Delay (s/veh)		149.2			31.7			0.0			0.0	
Approach LOS		F			C			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	110.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	117	132	41	67	2
Future Volume (vph)	2	117	132	41	67	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.867				0.996	
Flt Protected	0.999			0.963		
Satd. Flow (prot)	1486	0	0	1652	1709	0
Flt Permitted	0.999			0.963		
Satd. Flow (perm)	1486	0	0	1652	1709	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	96.3			112.4	188.4	
Travel Time (s)	6.9			8.1	13.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	127	143	45	73	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	129	0	0	188	75	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

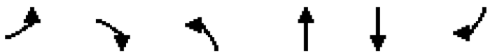
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	117	132	41	67	2
Future Volume (Veh/h)	2	117	132	41	67	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	127	143	45	73	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	405	74	75			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	405	74	75			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	87	91			
cM capacity (veh/h)	545	988	1524			

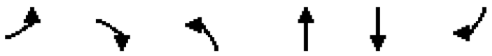
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	129	188	75
Volume Left	2	143	0
Volume Right	127	0	2
cSH	975	1524	1700
Volume to Capacity	0.13	0.09	0.04
Queue Length 95th (m)	3.6	2.5	0.0
Control Delay (s/veh)	9.3	6.0	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	9.3	6.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	31.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	117	133	185	182	2
Future Volume (vph)	1	117	133	185	182	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.866				0.999	
Flt Protected				0.979		
Satd. Flow (prot)	1486	0	0	1680	1714	0
Flt Permitted				0.979		
Satd. Flow (perm)	1486	0	0	1680	1714	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	81.9			136.2	112.4	
Travel Time (s)	5.9			9.8	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	127	145	201	198	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	128	0	0	346	200	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.0%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	117	133	185	182	2
Future Volume (Veh/h)	1	117	133	185	182	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	127	145	201	198	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	690	199	200			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	690	199	200			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	85	89			
cM capacity (veh/h)	368	842	1372			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	128	346	200
Volume Left	1	145	0
Volume Right	127	0	2
cSH	834	1372	1700
Volume to Capacity	0.15	0.11	0.12
Queue Length 95th (m)	4.3	2.8	0.0
Control Delay (s/veh)	10.1	3.9	0.0
Lane LOS	B	A	
Approach Delay (s/veh)	10.1	3.9	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	840	101	15	716	83	12
Future Volume (vph)	840	101	15	716	83	12
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.985				0.983	
Flt Protected				0.999	0.958	
Satd. Flow (prot)	1690	0	0	1714	1616	0
Flt Permitted				0.999	0.958	
Satd. Flow (perm)	1690	0	0	1714	1616	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	34.5			168.7	76.7	
Travel Time (s)	2.1			10.1	5.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	913	110	16	778	90	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1023	0	0	794	103	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.1%		ICU Level of Service C	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	840	101	15	716	83	12
Future Volume (Veh/h)	840	101	15	716	83	12
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	913	110	16	778	90	13
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			913		1778	968
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			913		1778	968
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		0	96
cM capacity (veh/h)			746		89	308

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	1023	794	103
Volume Left	0	16	90
Volume Right	110	0	13
cSH	1700	746	97
Volume to Capacity	0.60	0.02	1.06
Queue Length 95th (m)	0.0	0.5	52.6
Control Delay (s/veh)	0.0	0.6	188.3
Lane LOS		A	F
Approach Delay (s/veh)	0.0	0.6	188.3
Approach LOS			F

Intersection Summary			
Average Delay	10.3		
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale-2.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:51:12 PM

Summary of intersection performance

	Sat						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - TT (2039)						
Leg North	0.34	~1	10.39	0.26	B	31.29	D
Leg West	0.30	~1	4.82	0.23	A		
Leg South	1.81	2.04	8.41	0.65	A		
Leg East	22.59	77.29	96.02	1.05	F		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - TT (2039), AM" model duration: 8:00 AM - 9:00 AM
"D2 - TT (2039), PM" model duration: 4:00 PM - 5:00 PM
"D3 - TT (2039), Sat " model duration: 12:00 PM - 1:00 PM
"D4 - BG (2044), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2044), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2044), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2044), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - TT REM (2044), AM" model duration: 8:00 AM - 9:00 AM
"D11 - TT REM (2044), PM" model duration: 4:00 PM - 5:00 PM
"D12 - TT REM (2044), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:51:12 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - TT (2039), Sat

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
TT (2039), Sat	TT (2039)	Sat		PHF	12:00	13:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				31.29	D

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)

North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	111.00	100.000
West	PHF	✓	661.00	100.000
South	PHF	✓	1533.00	100.000
East	PHF	✓	848.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	111.00	0.92	SecondQuarter
West	661.00	0.92	SecondQuarter
South	1533.00	0.92	SecondQuarter
East	848.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	**West**	**South**	**East**
From	**North**	0.000	37.000	60.000	14.000
	West	39.000	0.000	452.000	170.000
	South	68.000	655.000	0.000	810.000
	East	22.000	247.000	579.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	**West**	**South**	**East**
From	**North**	0.00	0.33	0.54	0.13
	West	0.06	0.00	0.68	0.26
	South	0.04	0.43	0.00	0.53
	East	0.03	0.29	0.68	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.036	1.000
	South	1.000	1.021	1.000	1.029
	East	1.000	1.007	1.022	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	3.6	0.0
	South	0.0	2.1	0.0	2.9
	East	0.0	0.7	2.2	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.26	10.39	0.34	~1	B	111.00	111.00	17.08	9.23	0.28	17.09	9.24
West	0.23	4.82	0.30	~1	A	661.00	209.00	16.18	4.65	0.27	16.18	4.65
South	0.65	8.41	1.81	2.04	A	1533.00	723.00	87.85	7.29	1.46	87.89	7.29
East	1.05	96.02	22.59	77.29	F	848.00	848.00	790.17	55.91	13.17	791.70	56.02

Main Results for each time segment

Main results: (12:00-12:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	104.57	104.57	26.14	0.00	0.00	103.66	120.38	1372.00	0.00	563.39	481.34	0.186	0.00	0.23	7.816	A
West	622.68	196.88	49.22	425.80	0.00	195.92	874.22	601.44	0.00	1009.35	860.55	0.195	0.00	0.24	4.419	A
South	1444.13	681.09	170.27	763.04	425.80	676.17	588.37	209.00	0.00	1236.49	824.26	0.551	0.00	1.23	6.493	A
East	798.84	798.84	199.71	0.00	763.04	779.65	172.44	712.73	0.00	944.95	787.46	0.845	0.00	4.80	20.278	C

Main results: (12:15-12:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	120.65	120.65	30.16	0.00	0.00	120.18	138.15	1539.93	0.00	466.20	481.34	0.259	0.23	0.34	10.389	B
West	718.48	227.17	56.79	491.30	0.00	226.93	998.13	661.98	0.00	974.32	860.55	0.233	0.24	0.30	4.816	A
South	1666.30	785.87	196.47	880.43	491.30	783.55	646.82	242.09	0.00	1217.33	824.26	0.646	1.23	1.81	8.410	A
East	921.74	921.74	230.43	0.00	880.43	852.18	199.74	825.89	0.00	879.45	787.46	1.048	4.80	22.19	71.464	F

Main results: (12:30-12:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	114.22	114.22	28.55	0.00	0.00	114.31	132.78	1523.09	0.00	475.94	481.34	0.240	0.34	0.32	9.957	A
West	680.16	215.06	53.76	465.10	0.00	215.12	966.52	670.89	0.00	969.16	860.55	0.222	0.30	0.29	4.776	A

South	1577.43	743.96	185.99	833.48	465.10	744.77	656.47	229.54	0.00	1224.60	824.26	0.608	1.81	1.61	7.662	A
East	872.58	872.58	218.14	0.00	833.48	870.96	189.39	784.91	0.00	903.17	787.46	0.966	22.19	22.59	96.020	F

Main results: (12:45-13:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	104.57	104.57	26.14	0.00	0.00	104.81	123.30	1457.35	0.00	513.99	481.34	0.203	0.32	0.26	8.803	A
West	622.68	196.88	49.22	425.80	0.00	197.02	904.10	658.06	0.00	976.59	860.55	0.202	0.29	0.25	4.620	A
South	1444.13	681.09	170.27	763.04	425.80	682.43	644.84	210.23	0.00	1235.77	824.26	0.551	1.61	1.27	6.648	A
East	798.84	798.84	199.71	0.00	763.04	861.45	173.47	719.20	0.00	941.20	787.46	0.849	22.59	6.94	54.407	F

Queueing Delay Results for each time segment

Queueing Delay results: (12:00-12:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	3.26	0.22	7.816	A	A
West	3.52	0.23	4.419	A	A
South	17.56	1.17	6.493	A	A
East	59.82	3.99	20.278	C	C

Queueing Delay results: (12:15-12:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	4.98	0.33	10.389	B	B
West	4.45	0.30	4.816	A	A
South	25.92	1.73	8.410	A	A
East	216.21	14.41	71.464	F	E

Queueing Delay results: (12:30-12:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	4.87	0.32	9.957	A	A
West	4.34	0.29	4.776	A	A
South	24.71	1.65	7.662	A	A
East	335.89	22.39	96.020	F	F

Queueing Delay results: (12:45-13:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	3.97	0.26	8.803	A	A
West	3.86	0.26	4.620	A	A
South	19.66	1.31	6.648	A	A
East	178.26	11.88	54.407	F	D

Queue Variation Results for each time segment

Queue Variation results: (12:00-12:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.23	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.24	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.23	0.00	0.00	2.04	2.04			N/A	N/A
East	4.80	0.00	1.02	11.19	17.29			N/A	N/A

Queue Variation results: (12:15-12:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.34	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.30	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.81	?	?	?	?	Percentiles could not be calculated. This may be		N/A	N/A

						because the mean queue is very small or very big.			
East	22.19	2.03	16.27	45.77	56.95			N/A	N/A

Queue Variation results: (12:30-12:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.32	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.29	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.61	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	22.59	0.00	11.19	56.95	77.29			N/A	N/A

Queue Variation results: (12:45-13:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.26	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.25	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.27	0.00	0.00	2.04	2.04			N/A	N/A
East	6.94	0.00	0.00	9.15	25.43			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	19	90	1	12	82
Future Volume (vph)	0	19	90	1	12	82
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.882	
Flt Protected				0.953	0.994	
Satd. Flow (prot)	1514	0	0	1668	1534	0
Flt Permitted				0.953	0.994	
Satd. Flow (perm)	1514	0	0	1668	1534	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	0	21	98	1	13	89
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	0	0	99	102	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	19	90	1	12	82
Future Volume (Veh/h)	0	19	90	1	12	82
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	21	98	1	13	89
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	115	0	92	71	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	115	0	92	71	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	89	100	99	
cM capacity (veh/h)	773	1091	875	815	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	21	99	102
Volume Left	0	98	13
Volume Right	21	0	89
cSH	1091	874	1636
Volume to Capacity	0.02	0.11	0.01
Queue Length 95th (m)	0.5	3.1	0.2
Control Delay (s/veh)	8.4	9.6	1.0
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.6	1.0
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)	15		

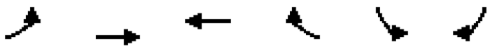
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	3	53	11	19	1
Future Volume (vph)	0	3	53	11	19	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.994	
Flt Protected				0.960	0.954	
Satd. Flow (prot)	1514	0	0	1663	1659	0
Flt Permitted				0.960	0.954	
Satd. Flow (perm)	1514	0	0	1663	1659	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	1%	0%	1%
Adj. Flow (vph)	0	3	58	12	21	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	0	0	70	22	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	3	53	11	19	1
Future Volume (Veh/h)	0	3	53	11	19	1
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	3	58	12	21	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	43	0	46	43	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	43	0	46	43	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	94	99	99	
cM capacity (veh/h)	842	1091	947	840	1636	

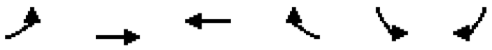
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	3	70	22
Volume Left	0	58	21
Volume Right	3	0	1
cSH	1091	927	1636
Volume to Capacity	0.00	0.08	0.01
Queue Length 95th (m)	0.1	2.0	0.3
Control Delay (s/veh)	8.3	9.2	6.9
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	9.2	6.9
Approach LOS	A	A	

Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	20.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	103	901	909	14	6	89
Future Volume (vph)	103	901	909	14	6	89
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.998		0.874	
Flt Protected	0.950				0.997	
Satd. Flow (prot)	1662	3325	3318	0	1525	0
Flt Permitted	0.950				0.997	
Satd. Flow (perm)	1662	3325	3318	0	1525	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	112	979	988	15	7	97
Shared Lane Traffic (%)						
Lane Group Flow (vph)	112	979	1003	0	104	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

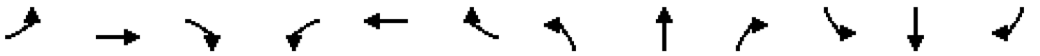
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	103	901	909	14	6	89
Future Volume (Veh/h)	103	901	909	14	6	89
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	112	979	988	15	7	97
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	1003				1709	502
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1003				1709	502
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	84				90	81
cM capacity (veh/h)	698				70	520

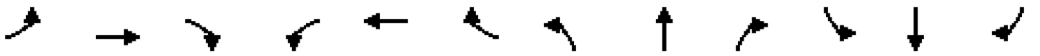
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	112	490	490	659	344	104
Volume Left	112	0	0	0	0	7
Volume Right	0	0	0	0	15	97
cSH	698	1700	1700	1700	1700	363
Volume to Capacity	0.16	0.29	0.29	0.39	0.20	0.29
Queue Length 95th (m)	4.5	0.0	0.0	0.0	0.0	9.3
Control Delay (s/veh)	11.1	0.0	0.0	0.0	0.0	18.8
Lane LOS	B					C
Approach Delay (s/veh)	1.1			0.0		18.8
Approach LOS						C

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	304	597	7	1	580	42	10	0	3	39	0	253
Future Volume (vph)	304	597	7	1	580	42	10	0	3	39	0	253
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.991			0.971			0.883	
Flt Protected		0.984						0.962			0.993	
Satd. Flow (prot)	0	1720	0	0	1734	0	0	1635	0	0	1534	0
Flt Permitted		0.984						0.962			0.993	
Satd. Flow (perm)	0	1720	0	0	1734	0	0	1635	0	0	1534	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		168.7			187.5			73.5			136.2	
Travel Time (s)		10.1			11.3			5.3			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	330	649	8	1	630	46	11	0	3	42	0	275
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	987	0	0	677	0	0	14	0	0	317	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 117.4%		ICU Level of Service H	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	304	597	7	1	580	42	10	0	3	39	0	253
Future Volume (Veh/h)	304	597	7	1	580	42	10	0	3	39	0	253
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	330	649	8	1	630	46	11	0	3	42	0	275
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	676			657			2243	1991	653	1971	1972	653
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	676			657			2243	1991	653	1971	1972	653
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 %	64			100			0	100	99	0	100	42
cM capacity (veh/h)	925			940			9	39	471	34	41	471

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	987	677	14	317
Volume Left	330	1	11	42
Volume Right	8	46	3	275
cSH	925	940	12	174
Volume to Capacity	0.36	0.00	1.21	1.82
Queue Length 95th (m)	13.0	0.0	19.6	184.1
Control Delay (s/veh)	8.0	0.0	781.2	435.6
Lane LOS	A	A	F	F
Approach Delay (s/veh)	8.0	0.0	781.2	435.6
Approach LOS			F	F

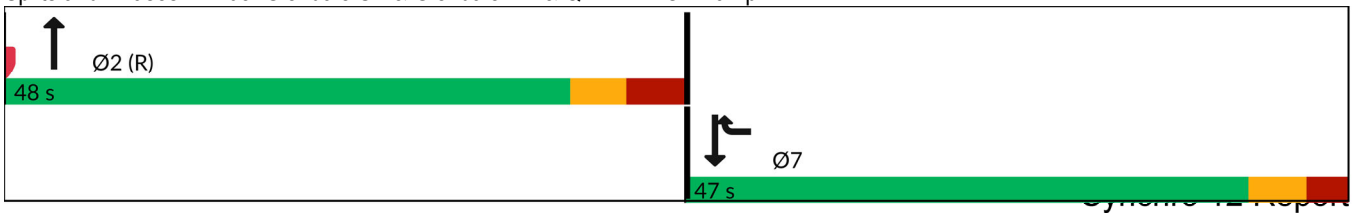
Intersection Summary			
Average Delay	78.6		
Intersection Capacity Utilization	117.4%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	467	808	895
Future Volume (vph)	467	808	895
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	508	878	973
Shared Lane Traffic (%)			
Lane Group Flow (vph)	508	878	973
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	40.0	44.0	40.0
Actuated g/C Ratio	0.42	0.46	0.42
v/c Ratio	0.81	0.63	0.76
Control Delay (s/veh)	35.6	22.6	27.5
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	35.6	22.6	27.5
LOS	D	C	C
Approach Delay (s/veh)		22.6	27.5
Approach LOS		C	C
Stops (vph)	392	599	725
Fuel Used(l)	25	32	38
CO Emissions (g/hr)	461	595	711
NOx Emissions (g/hr)	89	115	137
VOC Emissions (g/hr)	106	137	164
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay (s/veh): 27.4		Intersection LOS: C	
Intersection Capacity Utilization 64.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	508	878	973
v/c Ratio	0.81	0.63	0.76
Control Delay (s/veh)	35.6	22.6	27.5
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	35.6	22.6	27.5
Queue Length 50th (m)	79.9	68.7	77.6
Queue Length 95th (m)	#127.0	89.8	103.0
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	668	1426	1374
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.76	0.62	0.71

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	467	808	895
Future Volume (vph)	467	808	895
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	508	878	973
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	508	878	973
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	38.0	42.0	38.0
Effective Green, g (s)	40.0	44.0	40.0
Actuated g/C Ratio	0.42	0.46	0.42
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	624	1400	1284
v/s Ratio Prot	c0.34	c0.29	0.32
v/s Ratio Perm			
v/c Ratio	0.81	0.63	0.76
Uniform Delay, d1	24.2	19.3	23.4
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	8.0	2.1	2.6
Delay (s)	32.2	21.4	26.0
Level of Service	C	C	C
Approach Delay (s/veh)		21.4	26.0
Approach LOS		C	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	25.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

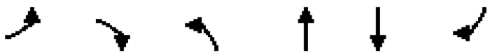
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	337	0	0	0	0	895
Future Volume (vph)	337	0	0	0	0	895
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	366	0	0	0	0	973
Shared Lane Traffic (%)						
Lane Group Flow (vph)	366	0	0	0	0	973
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	337	0	0	0	0	895
Future Volume (Veh/h)	337	0	0	0	0	895
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	366	0	0	0	0	973
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	487	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	487	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	28	100			100	
cM capacity (veh/h)	510	1084			1622	

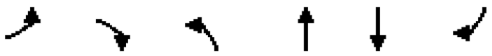
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	366	487	487
Volume Left	366	0	0
Volume Right	0	0	0
cSH	510	1700	1700
Volume to Capacity	0.72	0.29	0.29
Queue Length 95th (m)	46.2	0.0	0.0
Control Delay (s/veh)	28.0	0.0	0.0
Lane LOS	D		
Approach Delay (s/veh)	28.0	0.0	
Approach LOS	D		

Intersection Summary			
Average Delay	7.7		
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	541	0	0	822	0	0
Future Volume (vph)	541	0	0	822	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	588	0	0	893	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	588	0	0	893	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 98.1%		ICU Level of Service F	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	541	0	0	822	0	0
Future Volume (Veh/h)	541	0	0	822	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	588	0	0	893	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	447	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	447	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	100	100			
cM capacity (veh/h)	540	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	588	447	447
Volume Left	588	0	0
Volume Right	0	0	0
cSH	540	1700	1700
Volume to Capacity	1.09	0.26	0.26
Queue Length 95th (m)	145.0	0.0	0.0
Control Delay (s/veh)	92.0	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	92.0	0.0	
Approach LOS	F		

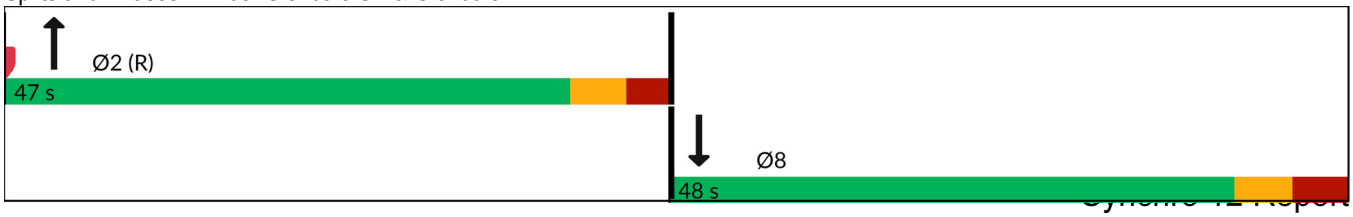
Intersection Summary			
Average Delay	36.5		
Intersection Capacity Utilization	98.1%	ICU Level of Service	F
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	822	0	0	581	0	0	0	0	0	0	0
Future Volume (vph)	0	822	0	0	581	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	893	0	0	632	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	893	0	0	632	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		55.8			24.2							
Actuated g/C Ratio		0.59			0.25							
v/c Ratio		0.46			0.75							
Control Delay (s/veh)		12.7			38.1							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		12.7			38.1							
LOS		B			D							
Approach Delay (s/veh)		12.7			38.1							
Approach LOS		B			D							
Stops (vph)		448			513							
Fuel Used(l)		22			31							
CO Emissions (g/hr)		408			583							
NOx Emissions (g/hr)		79			113							
VOC Emissions (g/hr)		94			135							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay (s/veh): 23.2		Intersection LOS: C	
Intersection Capacity Utilization 30.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB

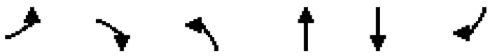


Lane Group	NBT	SBT
Lane Group Flow (vph)	893	632
v/c Ratio	0.46	0.75
Control Delay (s/veh)	12.7	38.1
Queue Delay	0.0	0.0
Total Delay (s/veh)	12.7	38.1
Queue Length 50th (m)	46.9	59.4
Queue Length 95th (m)	73.4	71.8
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1954	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.46	0.45

Intersection Summary

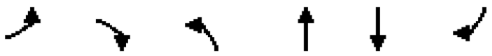
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	822	0	0	581	0	0	0	0	0	0	0
Future Volume (vph)	0	822	0	0	581	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	893	0	0	632	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	893	0	0	632	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		55.8			24.2							
Effective Green, g (s)		55.8			24.2							
Actuated g/C Ratio		0.59			0.25							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1953			847							
v/s Ratio Prot		c0.27			c0.19							
v/s Ratio Perm												
v/c Ratio		0.46			0.75							
Uniform Delay, d1		11.1			32.6							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.8			3.6							
Delay (s)		11.8			36.2							
Level of Service		B			D							
Approach Delay (s/veh)		11.8			36.2			0.0			0.0	
Approach LOS		B			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	30.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	102	68	216	90	2
Future Volume (vph)	6	102	68	216	90	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.873				0.997	
Flt Protected	0.997			0.988		
Satd. Flow (prot)	1493	0	0	1695	1711	0
Flt Permitted	0.997			0.988		
Satd. Flow (perm)	1493	0	0	1695	1711	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	96.3			112.4	188.4	
Travel Time (s)	6.9			8.1	13.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	111	74	235	98	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	118	0	0	309	100	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

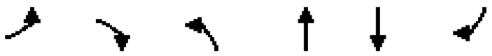
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.0%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	102	68	216	90	2
Future Volume (Veh/h)	6	102	68	216	90	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	111	74	235	98	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	482	99	100			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	482	99	100			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	88	95			
cM capacity (veh/h)	516	957	1493			

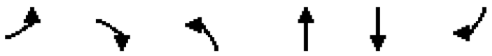
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	118	309	100
Volume Left	7	74	0
Volume Right	111	0	2
cSH	911	1493	1700
Volume to Capacity	0.13	0.05	0.06
Queue Length 95th (m)	3.6	1.3	0.0
Control Delay (s/veh)	9.5	2.1	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	9.5	2.1	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	37.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	102	69	278	190	2
Future Volume (vph)	6	102	69	278	190	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.873				0.999	
Flt Protected	0.997			0.990		
Satd. Flow (prot)	1493	0	0	1699	1714	0
Flt Permitted	0.997			0.990		
Satd. Flow (perm)	1493	0	0	1699	1714	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	81.9			136.2	112.4	
Travel Time (s)	5.9			9.8	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	111	75	302	207	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	118	0	0	377	209	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	102	69	278	190	2
Future Volume (Veh/h)	6	102	69	278	190	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	111	75	302	207	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	660	208	209			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	660	208	209			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	87	94			
cM capacity (veh/h)	404	832	1362			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	118	377	209
Volume Left	7	75	0
Volume Right	111	0	2
cSH	783	1362	1700
Volume to Capacity	0.15	0.06	0.12
Queue Length 95th (m)	4.2	1.4	0.0
Control Delay (s/veh)	10.4	2.0	0.0
Lane LOS	B	A	
Approach Delay (s/veh)	10.4	2.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	869	32	9	742	97	27
Future Volume (vph)	869	32	9	742	97	27
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.995				0.971	
Flt Protected				0.999	0.962	
Satd. Flow (prot)	1707	0	0	1714	1603	0
Flt Permitted				0.999	0.962	
Satd. Flow (perm)	1707	0	0	1714	1603	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	34.5			168.7	76.7	
Travel Time (s)	2.1			10.1	5.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	945	35	10	807	105	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	980	0	0	817	134	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 66.1%		ICU Level of Service C	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	869	32	9	742	97	27
Future Volume (Veh/h)	869	32	9	742	97	27
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	945	35	10	807	105	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			945		1790	963
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			945		1790	963
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		0	91
cM capacity (veh/h)			726		88	310

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	980	817	134
Volume Left	0	10	105
Volume Right	35	0	29
cSH	1700	726	104
Volume to Capacity	0.58	0.01	1.29
Queue Length 95th (m)	0.0	0.3	73.7
Control Delay (s/veh)	0.0	0.4	260.4
Lane LOS		A	F
Approach Delay (s/veh)	0.0	0.4	260.4
Approach LOS			F

Intersection Summary			
Average Delay	18.2		
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale-2.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:55:55 PM

Summary of intersection performance

	AM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - TT (2044)						
Leg North	0.50	~1	14.78	0.30	B	133.89	F
Leg West	0.32	~1	5.21	0.24	A		
Leg South	2.76	5.57	11.48	0.72	B		
Leg East	108.53	?	431.16	1.26	F		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - TT (2039), AM" model duration: 8:00 AM - 9:00 AM
"D2 - TT (2039), PM" model duration: 4:00 PM - 5:00 PM
"D3 - TT (2039), Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2044), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2044), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2044), AM " model duration: 8:00 AM - 9:00 AM
"D8 - TT (2044), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - TT REM (2044), AM" model duration: 8:00 AM - 9:00 AM
"D11 - TT REM (2044), PM" model duration: 4:00 PM - 5:00 PM
"D12 - TT REM (2044), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:55:55 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - TT (2044), AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
TT (2044), AM	TT (2044)	AM		PHF	08:00	09:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				133.89	F

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		

West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	114.50	100.000
West	PHF	✓	634.00	100.000
South	PHF	✓	1590.00	100.000
East	PHF	✓	975.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	114.50	0.92	SecondQuarter
West	634.00	0.92	SecondQuarter
South	1590.00	0.92	SecondQuarter
East	975.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	42.000	66.000	6.500
	West	11.000	0.000	428.000	195.000
	South	78.000	732.000	0.000	780.000
	East	0.000	239.000	731.000	5.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.37	0.58	0.06
	West	0.02	0.00	0.68	0.31
	South	0.05	0.46	0.00	0.49
	East	0.00	0.25	0.75	0.01

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.154	1.200	1.333
	West	1.000	1.000	1.139	1.047
	South	1.071	1.119	1.000	1.095
	East	1.000	1.057	1.170	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	15.4	20.0	33.3
	West	0.0	0.0	13.9	4.7
	South	7.1	11.9	0.0	9.5
	East	0.0	5.7	17.0	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.30	14.78	0.50	~1	B	114.50	114.50	25.60	13.41	0.43	25.61	13.42
West	0.24	5.21	0.32	~1	A	634.00	206.00	17.57	5.12	0.29	17.58	5.12
South	0.72	11.48	2.76	5.57	B	1590.00	810.00	129.27	9.58	2.15	129.35	9.58
East	1.26	431.16	108.53	?	F	975.00	975.00	3740.55	230.19	62.34	4129.50	254.12

Main Results for each time segment

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	107.86	107.86	26.97	0.00	0.00	106.46	83.11	1537.04	0.00	467.87	425.61	0.231	0.00	0.35	11.804	B
West	597.25	194.06	48.51	403.19	0.00	192.99	931.60	711.90	0.00	945.43	836.39	0.205	0.00	0.27	4.989	A
South	1497.83	763.04	190.76	734.78	403.19	756.08	701.48	203.41	0.00	1239.72	856.91	0.616	0.00	1.74	8.180	A
East	918.48	918.48	229.62	0.00	734.78	853.77	193.10	766.38	0.00	913.89	835.65	1.005	0.00	16.18	48.628	E

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	124.46	124.46	31.11	0.00	0.00	123.85	96.34	1632.04	0.00	412.88	425.61	0.301	0.35	0.50	14.784	B
West	689.13	223.91	55.98	465.22	0.00	223.70	1043.33	712.56	0.00	945.04	836.39	0.237	0.27	0.32	5.211	A
South	1728.26	880.43	220.11	847.83	465.22	876.37	701.22	235.04	0.00	1221.42	856.91	0.721	1.74	2.76	11.484	B
East	1059.78	1059.78	264.95	0.00	847.83	840.06	223.09	888.32	0.00	843.32	835.65	1.257	16.18	71.11	199.108	F

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	117.82	117.82	29.45	0.00	0.00	117.93	91.71	1621.24	0.00	419.14	425.61	0.281	0.50	0.47	14.224	B
West	652.38	211.97	52.99	440.41	0.00	212.03	1010.17	729.00	0.00	935.53	836.39	0.227	0.32	0.31	5.198	A
South	1636.09	833.48	208.37	802.61	440.41	834.83	717.86	223.17	0.00	1228.29	856.91	0.679	2.76	2.42	10.237	B

East	1003.26	1003.26	250.82	0.00	802.61	866.80	211.85	846.15	0.00	867.73	835.65	1.156	71.11	105.22	371.396	F

Main results: (08:45-09:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	107.86	107.86	26.97	0.00	0.00	108.15	84.07	1596.97	0.00	433.18	425.61	0.249	0.47	0.40	13.187	B
West	597.25	194.06	48.51	403.19	0.00	194.17	953.28	751.83	0.00	922.31	836.39	0.210	0.31	0.28	5.163	A
South	1497.83	763.04	190.76	734.78	403.19	765.42	741.05	204.95	0.00	1238.83	856.91	0.616	2.42	1.83	8.516	A
East	918.48	918.48	229.62	0.00	734.78	905.26	194.58	775.78	0.00	908.45	835.65	1.011	105.22	108.53	431.164	F

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-08:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	4.98	0.33	11.804	B	B
West	3.91	0.26	4.989	A	A
South	24.51	1.63	8.180	A	A
East	157.64	10.51	48.628	E	D

Queueing Delay results: (08:15-08:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	7.22	0.48	14.784	B	B
West	4.75	0.32	5.211	A	A
South	38.71	2.58	11.484	B	B
East	657.10	43.81	199.108	F	F

Queueing Delay results: (08:30-08:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	7.21	0.48	14.224	B	B
West	4.66	0.31	5.198	A	A
South	37.48	2.50	10.237	B	B
East	1322.67	88.18	371.396	F	F

Queueing Delay results: (08:45-09:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	6.19	0.41	13.187	B	B
West	4.26	0.28	5.163	A	A
South	28.57	1.90	8.516	A	A
East	1603.15	106.88	431.164	F	F

Queue Variation Results for each time segment

Queue Variation results: (08:00-08:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.35	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.27	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.74	0.00	0.00	3.34	4.46			N/A	N/A
East	16.18	?	?	?	?	No excess capacity in final time segment - unable to calculate queue statistics		N/A	N/A

Queue Variation results: (08:15-08:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.50	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.32	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	2.76	0.00	0.00	0.00	5.57			N/A	N/A
East	71.11	?	?	?	?	No excess capacity in final time segment - unable to		N/A	N/A

						calculate queue statistics			

Queue Variation results: (08:30-08:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.47	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.31	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	2.42	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	105.22	?	?	?	?	No excess capacity in final time segment - unable to calculate queue statistics		N/A	N/A

Queue Variation results: (08:45-09:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.40	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.28	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.83	0.00	0.00	3.34	5.57			N/A	N/A
East	108.53	?	?	?	?	No excess capacity in final time segment - unable to calculate queue statistics		N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	25	91	0	18	91
Future Volume (vph)	0	25	91	0	18	91
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.865				0.888	
Flt Protected				0.950	0.992	
Satd. Flow (prot)	1514	0	0	1662	1542	0
Flt Permitted				0.950	0.992	
Satd. Flow (perm)	1514	0	0	1662	1542	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	27	99	0	20	99
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	0	0	99	119	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	25	91	0	18	91
Future Volume (Veh/h)	0	25	91	0	18	91
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	27	99	0	20	99
Pedestrians					1	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	139	1	118	90	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	139	1	118	90	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	88	100	99	
cM capacity (veh/h)	746	1089	833	795	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	27	99	119
Volume Left	0	99	20
Volume Right	27	0	99
cSH	1089	833	1636
Volume to Capacity	0.02	0.12	0.01
Queue Length 95th (m)	0.6	3.2	0.3
Control Delay (s/veh)	8.4	9.9	1.3
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.9	1.3
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	26.0%	ICU Level of Service	A
Analysis Period (min)	15		

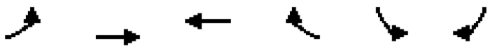
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1	22	0	0	39	37
Future Volume (vph)	1	22	0	0	39	37
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.870				0.934	
Flt Protected					0.975	
Satd. Flow (prot)	1522	0	0	1750	1586	0
Flt Permitted					0.975	
Satd. Flow (perm)	1522	0	0	1750	1586	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	1	24	0	0	42	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	0	0	0	82	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1	22	0	0	39	37
Future Volume (Veh/h)	1	22	0	0	39	37
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	24	0	0	42	40
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	124	0	129	104	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	124	0	129	104	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	100	100	97	
cM capacity (veh/h)	750	1091	813	770	1636	

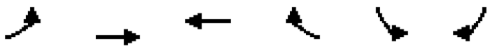
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	25	0	82
Volume Left	0	0	42
Volume Right	24	0	40
cSH	1071	1700	1636
Volume to Capacity	0.02	0.00	0.03
Queue Length 95th (m)	0.6	0.0	0.6
Control Delay (s/veh)	8.4	0.0	3.8
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	0.0	3.8
Approach LOS	A	A	

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	14.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	107	1025	1172	23	15	69
Future Volume (vph)	107	1025	1172	23	15	69
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.997		0.889	
Flt Protected	0.950				0.991	
Satd. Flow (prot)	1662	3325	3315	0	1542	0
Flt Permitted	0.950				0.991	
Satd. Flow (perm)	1662	3325	3315	0	1542	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Confl. Peds. (#/hr)	1			1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	116	1114	1274	25	16	75
Shared Lane Traffic (%)						
Lane Group Flow (vph)	116	1114	1299	0	91	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

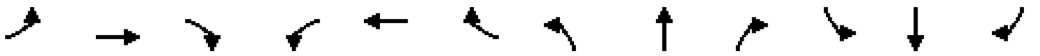
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.3%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	107	1025	1172	23	15	69
Future Volume (Veh/h)	107	1025	1172	23	15	69
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	116	1114	1274	25	16	75
Pedestrians		1			1	
Lane Width (m)		3.6			3.6	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1300				2077	652
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1300				2077	652
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	78				57	82
cM capacity (veh/h)	539				37	415

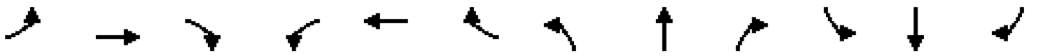
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	116	557	557	849	450	91
Volume Left	116	0	0	0	0	16
Volume Right	0	0	0	0	25	75
cSH	539	1700	1700	1700	1700	149
Volume to Capacity	0.22	0.33	0.33	0.50	0.26	0.61
Queue Length 95th (m)	6.5	0.0	0.0	0.0	0.0	26.0
Control Delay (s/veh)	13.5	0.0	0.0	0.0	0.0	61.3
Lane LOS	B					F
Approach Delay (s/veh)	1.3			0.0		61.3
Approach LOS						F

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	346	589	0	0	702	56	4	0	0	42	0	475
Future Volume (vph)	346	589	0	0	702	56	4	0	0	42	0	475
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.990						0.876	
Flt Protected		0.982						0.950			0.996	
Satd. Flow (prot)	0	1719	0	0	1732	0	0	1662	0	0	1527	0
Flt Permitted		0.982						0.950			0.996	
Satd. Flow (perm)	0	1719	0	0	1732	0	0	1662	0	0	1527	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		168.7			187.5			73.5			136.2	
Travel Time (s)		10.1			11.3			5.3			9.8	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	376	640	0	0	763	61	4	0	0	46	0	516
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1016	0	0	824	0	0	4	0	0	562	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 141.5%		ICU Level of Service H	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	346	589	0	0	702	56	4	0	0	42	0	475
Future Volume (Veh/h)	346	589	0	0	702	56	4	0	0	42	0	475
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	376	640	0	0	763	61	4	0	0	46	0	516
Pedestrians		1									1	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	825			640			2703	2217	640	2187	2187	796
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	825			640			2703	2217	640	2187	2187	796
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 %	54			100			0	100	100	0	100	0
cM capacity (veh/h)	813			954			0	24	479	21	25	390

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1016	824	4	562
Volume Left	376	0	4	46
Volume Right	0	61	0	516
cSH	813	954	0	161
Volume to Capacity	0.46	0.00	Err	3.49
Queue Length 95th (m)	19.7	0.0	Err	Err
Control Delay (s/veh)	11.0	0.0	Err	Err
Lane LOS	B		F	F
Approach Delay (s/veh)	11.0	0.0	Err	Err
Approach LOS			F	F

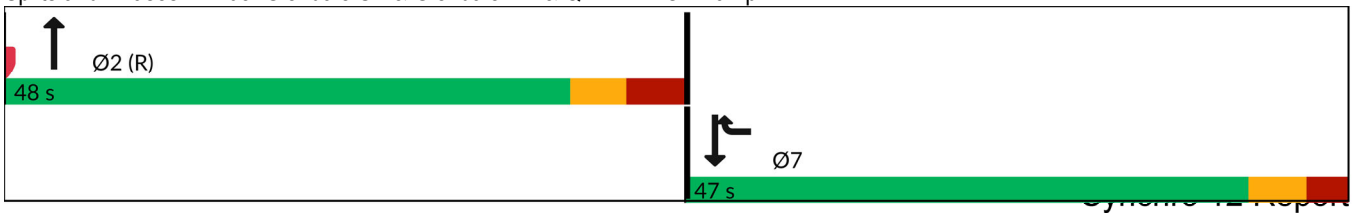
Intersection Summary				
Average Delay		Err		
Intersection Capacity Utilization		141.5%	ICU Level of Service	H
Analysis Period (min)		15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	383	815	1513
Future Volume (vph)	383	815	1513
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	416	886	1645
Shared Lane Traffic (%)			
Lane Group Flow (vph)	416	886	1645
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	48.4	35.6	48.4
Actuated g/C Ratio	0.51	0.37	0.51
v/c Ratio	0.55	0.78	1.06
Control Delay (s/veh)	20.7	31.3	65.2
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	20.7	31.3	65.2
LOS	C	C	E
Approach Delay (s/veh)		31.3	65.2
Approach LOS		C	E
Stops (vph)	265	686	1186
Fuel Used(l)	15	40	108
CO Emissions (g/hr)	273	736	2003
NOx Emissions (g/hr)	53	142	387
VOC Emissions (g/hr)	63	170	462
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.06			
Intersection Signal Delay (s/veh): 48.7		Intersection LOS: D	
Intersection Capacity Utilization 59.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	416	886	1645
v/c Ratio	0.55	0.78	1.06
Control Delay (s/veh)	20.7	31.3	65.2
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	20.7	31.3	65.2
Queue Length 50th (m)	52.7	77.7	~186.2
Queue Length 95th (m)	94.3	90.8	#250.4
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	756	1336	1555
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.55	0.66	1.06

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	383	815	1513
Future Volume (vph)	383	815	1513
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	416	886	1645
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	416	886	1645
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	46.4	33.6	46.4
Effective Green, g (s)	48.4	35.6	48.4
Actuated g/C Ratio	0.51	0.37	0.51
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	756	1132	1553
v/s Ratio Prot	0.28	c0.29	c0.54
v/s Ratio Perm			
v/c Ratio	0.55	0.78	1.06
Uniform Delay, d1	15.9	26.3	23.3
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.9	5.4	40.4
Delay (s)	16.8	31.7	63.7
Level of Service	B	C	E
Approach Delay (s/veh)		31.7	63.7
Approach LOS		C	E

Intersection Summary			
HCM 2000 Control Delay (s/veh)	47.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

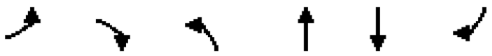
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	487	0	0	0	0	1513
Future Volume (vph)	487	0	0	0	0	1513
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	529	0	0	0	0	1645
Shared Lane Traffic (%)						
Lane Group Flow (vph)	529	0	0	0	0	1645
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 81.4%		ICU Level of Service D	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	487	0	0	0	0	1513
Future Volume (Veh/h)	487	0	0	0	0	1513
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	529	0	0	0	0	1645
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	823	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	823	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			100	
cM capacity (veh/h)	312	1084			1622	

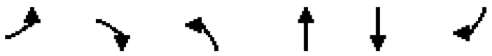
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	529	823	823
Volume Left	529	0	0
Volume Right	0	0	0
cSH	312	1700	1700
Volume to Capacity	1.70	0.48	0.48
Queue Length 95th (m)	265.0	0.0	0.0
Control Delay (s/veh)	355.7	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	355.7	0.0	
Approach LOS	F		

Intersection Summary			
Average Delay	86.5		
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	432	0	0	1707	0	0
Future Volume (vph)	432	0	0	1707	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	470	0	0	1855	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	470	0	0	1855	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	111.9%	ICU Level of Service	H
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	432	0	0	1707	0	0
Future Volume (Veh/h)	432	0	0	1707	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	470	0	0	1855	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	928	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	928	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	100	100			
cM capacity (veh/h)	267	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	470	928	928
Volume Left	470	0	0
Volume Right	0	0	0
cSH	267	1700	1700
Volume to Capacity	1.76	0.55	0.55
Queue Length 95th (m)	248.4	0.0	0.0
Control Delay (s/veh)	389.3	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	389.3	0.0	
Approach LOS	F		

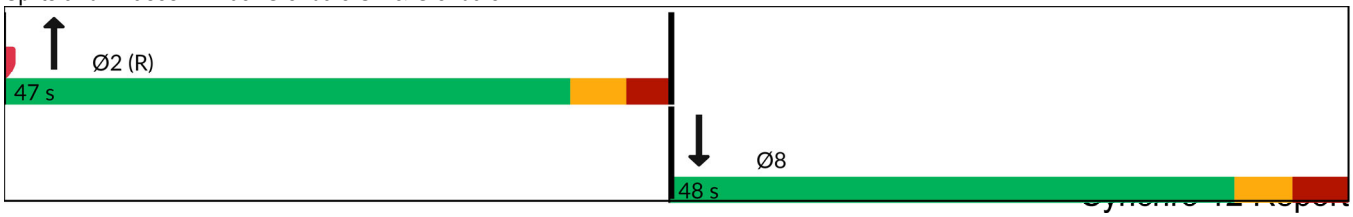
Intersection Summary			
Average Delay	78.7		
Intersection Capacity Utilization	111.9%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1707	0	0	805	0	0	0	0	0	0	0
Future Volume (vph)	0	1707	0	0	805	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1855	0	0	875	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1855	0	0	875	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		48.5			31.5							
Actuated g/C Ratio		0.51			0.33							
v/c Ratio		1.09			0.79							
Control Delay (s/veh)		77.1			34.2							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		77.1			34.2							
LOS		E			C							
Approach Delay (s/veh)		77.1			34.2							
Approach LOS		E			C							
Stops (vph)		1344			696							
Fuel Used(l)		139			41							
CO Emissions (g/hr)		2592			757							
NOx Emissions (g/hr)		500			146							
VOC Emissions (g/hr)		598			175							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.09			
Intersection Signal Delay (s/veh): 63.4		Intersection LOS: E	
Intersection Capacity Utilization 57.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	1855	875
v/c Ratio	1.09	0.79
Control Delay (s/veh)	77.1	34.2
Queue Delay	0.0	0.0
Total Delay (s/veh)	77.1	34.2
Queue Length 50th (m)	~214.6	79.7
Queue Length 95th (m)	#283.0	92.3
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1697	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.09	0.63

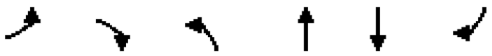
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

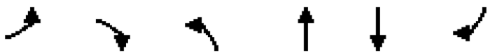
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1707	0	0	805	0	0	0	0	0	0	0
Future Volume (vph)	0	1707	0	0	805	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1855	0	0	875	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1855	0	0	875	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		48.5			31.5							
Effective Green, g (s)		48.5			31.5							
Actuated g/C Ratio		0.51			0.33							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1697			1102							
v/s Ratio Prot		c0.56			c0.26							
v/s Ratio Perm												
v/c Ratio		1.09			0.79							
Uniform Delay, d1		23.3			28.8							
Progression Factor		1.00			1.00							
Incremental Delay, d2		51.9			4.0							
Delay (s)		75.2			32.8							
Level of Service		E			C							
Approach Delay (s/veh)		75.2			32.8			0.0			0.0	
Approach LOS		E			C			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	61.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	117	129	147	291	8
Future Volume (vph)	4	117	129	147	291	8
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.869				0.996	
Flt Protected	0.998			0.977		
Satd. Flow (prot)	1488	0	0	1676	1709	0
Flt Permitted	0.998			0.977		
Satd. Flow (perm)	1488	0	0	1676	1709	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	96.3			112.4	188.4	
Travel Time (s)	6.9			8.1	13.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	127	140	160	316	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	131	0	0	300	325	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

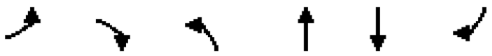
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	117	129	147	291	8
Future Volume (Veh/h)	4	117	129	147	291	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	127	140	160	316	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	761	321	325			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	761	321	325			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	82	89			
cM capacity (veh/h)	331	720	1235			

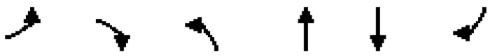
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	131	300	325
Volume Left	4	140	0
Volume Right	127	0	9
cSH	695	1235	1700
Volume to Capacity	0.19	0.11	0.19
Queue Length 95th (m)	5.5	3.1	0.0
Control Delay (s/veh)	11.4	4.4	0.0
Lane LOS	B	A	
Approach Delay (s/veh)	11.4	4.4	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	117	129	273	400	8
Future Volume (vph)	3	117	129	273	400	8
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.868				0.997	
Flt Protected	0.999			0.984		
Satd. Flow (prot)	1488	0	0	1688	1711	0
Flt Permitted	0.999			0.984		
Satd. Flow (perm)	1488	0	0	1688	1711	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	81.9			136.2	112.4	
Travel Time (s)	5.9			9.8	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	127	140	297	435	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	130	0	0	437	444	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 64.8%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	117	129	273	400	8
Future Volume (Veh/h)	3	117	129	273	400	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	127	140	297	435	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1017	440	444			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1017	440	444			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	79	87			
cM capacity (veh/h)	230	617	1116			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	130	437	444
Volume Left	3	140	0
Volume Right	127	0	9
cSH	594	1116	1700
Volume to Capacity	0.22	0.13	0.26
Queue Length 95th (m)	6.6	3.4	0.0
Control Delay (s/veh)	12.7	3.7	0.0
Lane LOS	B	A	
Approach Delay (s/veh)	12.7	3.7	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	937	91	24	1158	62	10
Future Volume (vph)	937	91	24	1158	62	10
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.988				0.981	
Flt Protected				0.999	0.959	
Satd. Flow (prot)	1695	0	0	1714	1614	0
Flt Permitted				0.999	0.959	
Satd. Flow (perm)	1695	0	0	1714	1614	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	34.5			168.7	76.7	
Travel Time (s)	2.1			10.1	5.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1018	99	26	1259	67	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1117	0	0	1285	78	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 98.1%		ICU Level of Service F	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	937	91	24	1158	62	10
Future Volume (Veh/h)	937	91	24	1158	62	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1018	99	26	1259	67	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1018		2379	1068
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1018		2379	1068
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		0	96
cM capacity (veh/h)			682		36	270

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	1117	1285	78
Volume Left	0	26	67
Volume Right	99	0	11
cSH	1700	682	42
Volume to Capacity	0.66	0.04	1.88
Queue Length 95th (m)	0.0	1.0	65.2
Control Delay (s/veh)	0.0	1.7	624.1
Lane LOS		A	F
Approach Delay (s/veh)	0.0	1.7	624.1
Approach LOS			F

Intersection Summary			
Average Delay	20.5		
Intersection Capacity Utilization	98.1%	ICU Level of Service	F
Analysis Period (min)	15		

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale-2.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:58:00 PM

Summary of intersection performance

	PM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - TT (2044)						
Leg North	0.41	~1	10.72	0.30	B	295.35	F
Leg West	0.30	~1	5.62	0.22	A		
Leg South	1.39	1.12	7.30	0.56	A		
Leg East	266.28	?	885.96	1.42	F		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - TT (2039), AM" model duration: 8:00 AM - 9:00 AM
"D2 - TT (2039), PM" model duration: 4:00 PM - 5:00 PM
"D3 - TT (2039), Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2044), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2044), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2044), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2044), PM " model duration: 4:00 PM - 5:00 PM
"D9 - TT (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - TT REM (2044), AM" model duration: 8:00 AM - 9:00 AM
"D11 - TT REM (2044), PM" model duration: 4:00 PM - 5:00 PM
"D12 - TT REM (2044), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:57:59 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - TT (2044), PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
TT (2044), PM	TT (2044)	PM		PHF	16:00	17:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				295.35	F

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		

West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	129.00	100.000
West	PHF	✓	873.00	100.000
South	PHF	✓	1543.00	100.000
East	PHF	✓	1243.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	129.00	0.92	SecondQuarter
West	873.00	0.92	SecondQuarter
South	1543.00	0.92	SecondQuarter
East	1243.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	**West**	**South**	**East**
From	**North**	0.000	25.000	98.000	6.000
	West	10.000	0.000	695.000	168.000
	South	100.000	539.000	0.000	904.000
	East	13.000	277.000	953.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	**West**	**South**	**East**
From	**North**	0.00	0.19	0.76	0.05
	West	0.01	0.00	0.80	0.19
	South	0.06	0.35	0.00	0.59
	East	0.01	0.22	0.77	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.097	1.061
	South	1.033	1.133	1.000	1.196
	East	1.000	1.079	1.048	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	9.7	6.1
	South	3.3	13.3	0.0	19.6
	East	0.0	7.9	4.8	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.30	10.72	0.41	~1	B	129.00	129.00	21.53	10.02	0.36	21.54	10.02
West	0.22	5.62	0.30	~1	A	873.00	178.00	16.37	5.52	0.27	16.38	5.52
South	0.56	7.30	1.39	1.12	A	1543.00	639.00	69.95	6.57	1.17	69.97	6.57
East	1.42	885.96	266.28	?	F	1243.00	1243.00	8298.51	400.57	138.31	10419.17	502.94

Main Results for each time segment

Main results: (16:00-16:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	121.52	121.52	30.38	0.00	0.00	120.26	113.22	1477.86	0.00	502.12	454.82	0.242	0.00	0.31	9.397	A
West	822.39	167.68	41.92	654.71	0.00	166.67	746.89	851.24	0.00	864.78	783.24	0.194	0.00	0.25	5.445	A
South	1453.55	601.96	150.49	851.59	654.71	597.91	845.64	172.26	0.00	1257.75	891.89	0.479	0.00	1.01	6.054	A
East	1170.94	1170.94	292.74	0.00	851.59	983.81	162.90	607.27	0.00	1005.98	815.79	1.164	0.00	46.78	96.166	F

Main results: (16:15-16:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	140.22	140.22	35.05	0.00	0.00	139.83	129.25	1524.24	0.00	475.28	454.82	0.295	0.31	0.41	10.718	B
West	948.91	193.48	48.37	755.43	0.00	193.29	823.30	840.77	0.00	870.84	783.24	0.222	0.25	0.30	5.616	A
South	1677.17	694.57	173.64	982.61	755.43	693.04	834.27	199.79	0.00	1241.81	891.89	0.559	1.01	1.39	7.300	A
East	1351.09	1351.09	337.77	0.00	982.61	949.59	188.93	703.90	0.00	950.06	815.79	1.422	46.78	147.16	373.355	F

Main results: (16:30-16:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	132.74	132.74	33.18	0.00	0.00	132.84	123.42	1515.42	0.00	480.38	454.82	0.276	0.41	0.39	10.361	B
West	898.30	183.16	45.79	715.14	0.00	183.21	797.09	851.18	0.00	864.82	783.24	0.212	0.30	0.29	5.586	A
South	1587.72	657.52	164.38	930.20	715.14	658.05	845.00	189.39	0.00	1247.83	891.89	0.527	1.39	1.26	6.821	A

East	1279.03	1279.03	319.76	0.00	930.20	970.51	179.10	668.34	0.00	970.64	815.79	1.318	147.16	224.29	685.647	F

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	121.52	121.52	30.38	0.00	0.00	121.73	114.26	1500.98	0.00	488.74	454.82	0.249	0.39	0.34	9.814	A
West	822.39	167.68	41.92	654.71	0.00	167.79	755.60	867.10	0.00	855.60	783.24	0.196	0.29	0.26	5.534	A
South	1453.55	601.96	150.49	851.59	654.71	602.85	861.44	173.45	0.00	1257.06	891.89	0.479	1.26	1.04	6.152	A
East	1170.94	1170.94	292.74	0.00	851.59	1002.96	164.02	612.27	0.00	1003.09	815.79	1.167	224.29	266.28	885.962	F

Queueing Delay Results for each time segment

Queueing Delay results: (16:00-16:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	4.51	0.30	9.397	A	A
West	3.68	0.25	5.445	A	A
South	14.54	0.97	6.054	A	A
East	378.44	25.23	96.166	F	F

Queueing Delay results: (16:15-16:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	5.99	0.40	10.718	B	B
West	4.42	0.29	5.616	A	A
South	20.15	1.34	7.300	A	A
East	1454.87	96.99	373.355	F	F

Queueing Delay results: (16:30-16:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	5.89	0.39	10.361	B	B
West	4.33	0.29	5.586	A	A
South	19.28	1.29	6.821	A	A
East	2785.89	185.73	685.647	F	F

Queueing Delay results: (16:45-17:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	5.15	0.34	9.814	A	A
West	3.95	0.26	5.534	A	A
South	15.97	1.06	6.152	A	A
East	3679.30	245.29	885.962	F	F

Queue Variation Results for each time segment

Queue Variation results: (16:00-16:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.31	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.25	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.01	0.00	0.00	1.12	1.12			N/A	N/A
East	46.78	?	?	?	?	No excess capacity in final time segment - unable to calculate queue statistics		N/A	N/A

Queue Variation results: (16:15-16:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.41	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.30	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.39	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

East	147.16	?	?	?	?	No excess capacity in final time segment - unable to calculate queue statistics		N/A	N/A

Queue Variation results: (16:30-16:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.39	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.29	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.26	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	224.29	?	?	?	?	No excess capacity in final time segment - unable to calculate queue statistics		N/A	N/A

Queue Variation results: (16:45-17:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.34	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.26	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.04	0.00	0.00	1.12	1.12			N/A	N/A
East	266.28	?	?	?	?	No excess capacity in final time segment - unable to calculate queue statistics		N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	18	81	0	16	115
Future Volume (vph)	0	18	81	0	16	115
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.881	
Flt Protected				0.950	0.994	
Satd. Flow (prot)	1514	0	0	1662	1532	0
Flt Permitted				0.950	0.994	
Satd. Flow (perm)	1514	0	0	1662	1532	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	20	88	0	17	125
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	0	0	88	142	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	18	81	0	16	115
Future Volume (Veh/h)	0	18	81	0	16	115
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	20	88	0	17	125
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	159	0	117	97	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	159	0	117	97	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	90	100	99	
cM capacity (veh/h)	729	1091	842	789	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	20	88	142
Volume Left	0	88	17
Volume Right	20	0	125
cSH	1091	842	1636
Volume to Capacity	0.02	0.10	0.01
Queue Length 95th (m)	0.4	2.8	0.3
Control Delay (s/veh)	8.4	9.8	0.9
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.8	0.9
Approach LOS	A	A	

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	26.9%	ICU Level of Service	A
Analysis Period (min)	15		

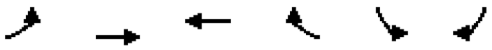
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	32	0	0	21	3
Future Volume (vph)	0	32	0	0	21	3
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.984	
Flt Protected					0.958	
Satd. Flow (prot)	1514	0	0	1750	1650	0
Flt Permitted					0.958	
Satd. Flow (perm)	1514	0	0	1750	1650	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	35	0	0	23	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	0	0	0	26	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	32	0	0	21	3
Future Volume (Veh/h)	0	32	0	0	21	3
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	35	0	0	23	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	49	0	83	48	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	49	0	83	48	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	97	100	100	99	
cM capacity (veh/h)	835	1091	871	836	1636	

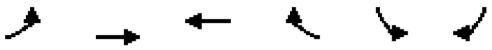
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	35	0	26
Volume Left	0	0	23
Volume Right	35	0	3
cSH	1091	1700	1636
Volume to Capacity	0.03	0.00	0.01
Queue Length 95th (m)	0.8	0.0	0.3
Control Delay (s/veh)	8.4	0.0	6.4
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	0.0	6.4
Approach LOS	A	A	

Intersection Summary			
Average Delay	7.6		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	55	999	840	8	7	62
Future Volume (vph)	55	999	840	8	7	62
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.999		0.879	
Flt Protected	0.950				0.995	
Satd. Flow (prot)	1662	3325	3322	0	1531	0
Flt Permitted	0.950				0.995	
Satd. Flow (perm)	1662	3325	3322	0	1531	0
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	60	1086	913	9	8	67
Shared Lane Traffic (%)						
Lane Group Flow (vph)	60	1086	922	0	75	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

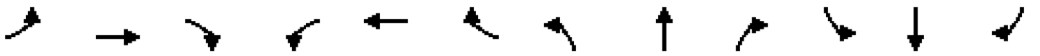
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	55	999	840	8	7	62
Future Volume (Veh/h)	55	999	840	8	7	62
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	60	1086	913	9	8	67
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	922				1581	461
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	922				1581	461
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				91	88
cM capacity (veh/h)	749				94	553

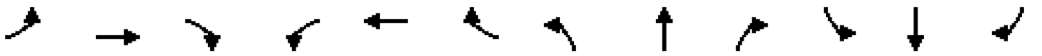
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	60	543	543	609	313	75
Volume Left	60	0	0	0	0	8
Volume Right	0	0	0	0	9	67
cSH	749	1700	1700	1700	1700	363
Volume to Capacity	0.08	0.32	0.32	0.36	0.18	0.21
Queue Length 95th (m)	2.1	0.0	0.0	0.0	0.0	6.1
Control Delay (s/veh)	10.2	0.0	0.0	0.0	0.0	17.5
Lane LOS	B					C
Approach Delay (s/veh)	0.5			0.0		17.5
Approach LOS						C

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	289	635	0	1	504	35	4	0	0	31	0	274
Future Volume (vph)	289	635	0	1	504	35	4	0	0	31	0	274
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.991						0.879	
Flt Protected		0.985						0.950			0.995	
Satd. Flow (prot)	0	1724	0	0	1734	0	0	1662	0	0	1531	0
Flt Permitted		0.985						0.950			0.995	
Satd. Flow (perm)	0	1724	0	0	1734	0	0	1662	0	0	1531	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		168.7			187.5			73.5			136.2	
Travel Time (s)		10.1			11.3			5.3			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	314	690	0	1	548	38	4	0	0	34	0	298
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1004	0	0	587	0	0	4	0	0	332	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 114.1%		ICU Level of Service H	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	289	635	0	1	504	35	4	0	0	31	0	274
Future Volume (Veh/h)	289	635	0	1	504	35	4	0	0	31	0	274
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	314	690	0	1	548	38	4	0	0	34	0	298
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	586			690			2185	1906	690	1887	1887	567
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	586			690			2185	1906	690	1887	1887	567
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 %	69			100			63	100	100	17	100	43
cM capacity (veh/h)	999			914			11	48	449	41	49	527

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1004	587	4	332
Volume Left	314	1	4	34
Volume Right	0	38	0	298
cSH	999	914	11	238
Volume to Capacity	0.31	0.00	0.37	1.39
Queue Length 95th (m)	10.8	0.0	6.9	147.7
Control Delay (s/veh)	6.9	0.0	463.7	240.2
Lane LOS	A	A	F	F
Approach Delay (s/veh)	6.9	0.0	463.7	240.2
Approach LOS			F	F

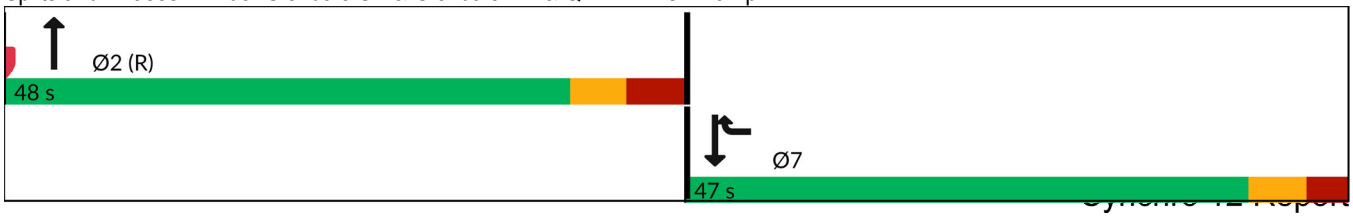
Intersection Summary			
Average Delay	46.0		
Intersection Capacity Utilization	114.1%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	281	1080	933
Future Volume (vph)	281	1080	933
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	305	1174	1014
Shared Lane Traffic (%)			
Lane Group Flow (vph)	305	1174	1014
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	47.0	48.0	47.0
Total Split (%)	49.5%	50.5%	49.5%
Maximum Green (s)	40.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	39.1	44.9	39.1
Actuated g/C Ratio	0.41	0.47	0.41
v/c Ratio	0.50	0.82	0.81
Control Delay (s/veh)	23.4	28.6	30.2
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	23.4	28.6	30.2
LOS	C	C	C
Approach Delay (s/veh)		28.6	30.2
Approach LOS		C	C
Stops (vph)	199	882	788
Fuel Used(l)	11	50	43
CO Emissions (g/hr)	213	921	791
NOx Emissions (g/hr)	41	178	153
VOC Emissions (g/hr)	49	213	182
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay (s/veh): 28.6		Intersection LOS: C	
Intersection Capacity Utilization 60.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	305	1174	1014
v/c Ratio	0.50	0.82	0.81
Control Delay (s/veh)	23.4	28.6	30.2
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	23.4	28.6	30.2
Queue Length 50th (m)	41.4	102.1	86.2
Queue Length 95th (m)	64.1	#149.2	109.0
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	656	1428	1348
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.46	0.82	0.75

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	281	1080	933
Future Volume (vph)	281	1080	933
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	305	1174	1014
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	305	1174	1014
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	37.1	42.9	37.1
Effective Green, g (s)	39.1	44.9	39.1
Actuated g/C Ratio	0.41	0.47	0.41
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	610	1428	1255
v/s Ratio Prot	0.21	c0.39	c0.33
v/s Ratio Perm			
v/c Ratio	0.50	0.82	0.81
Uniform Delay, d1	20.7	21.6	24.6
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.6	5.5	3.9
Delay (s)	21.4	27.1	28.6
Level of Service	C	C	C
Approach Delay (s/veh)		27.1	28.6
Approach LOS		C	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

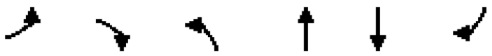
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	740	0	0	0	0	933
Future Volume (vph)	740	0	0	0	0	933
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	804	0	0	0	0	1014
Shared Lane Traffic (%)						
Lane Group Flow (vph)	804	0	0	0	0	1014
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 79.2%		ICU Level of Service D	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	740	0	0	0	0	933
Future Volume (Veh/h)	740	0	0	0	0	933
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	804	0	0	0	0	1014
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	507	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	507	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			100	
cM capacity (veh/h)	495	1084			1622	

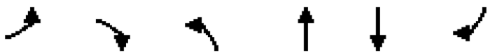
Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	804	507	507
Volume Left	804	0	0
Volume Right	0	0	0
cSH	495	1700	1700
Volume to Capacity	1.62	0.30	0.30
Queue Length 95th (m)	362.3	0.0	0.0
Control Delay (s/veh)	311.0	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	311.0	0.0	
Approach LOS	F		

Intersection Summary			
Average Delay	137.5		
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	624	0	0	2011	0	0
Future Volume (vph)	624	0	0	2011	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	3260	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	678	0	0	2186	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	678	0	0	2186	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	163.8%	ICU Level of Service	H
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	624	0	0	2011	0	0
Future Volume (Veh/h)	624	0	0	2011	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	678	0	0	2186	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				50		
pX, platoon unblocked						
vC, conflicting volume	1093	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1093	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	100	100			
cM capacity (veh/h)	209	1084	1622			

Direction, Lane #	EB 1	NB 1	NB 2
Volume Total	678	1093	1093
Volume Left	678	0	0
Volume Right	0	0	0
cSH	209	1700	1700
Volume to Capacity	3.25	0.64	0.64
Queue Length 95th (m)	Err	0.0	0.0
Control Delay (s/veh)	Err	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	Err	0.0	
Approach LOS	F		

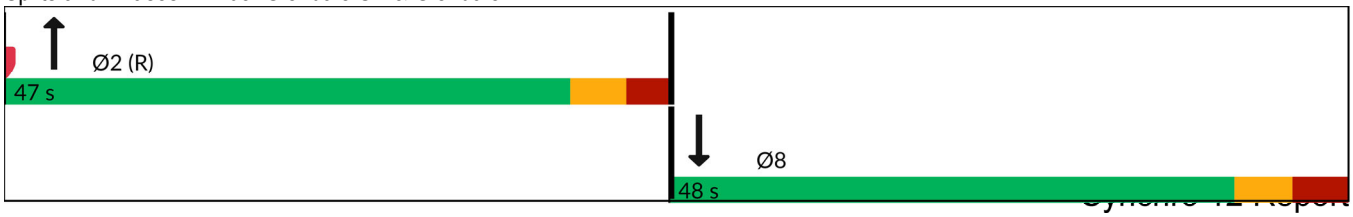
Intersection Summary			
Average Delay	2367.1		
Intersection Capacity Utilization	163.8%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	2011	0	0	989	0	0	0	0	0	0	0
Future Volume (vph)	0	2011	0	0	989	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	2186	0	0	1075	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2186	0	0	1075	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		47.0			48.0							
Total Split (%)		49.5%			50.5%							
Maximum Green (s)		40.0			40.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		43.6			36.4							
Actuated g/C Ratio		0.46			0.38							
v/c Ratio		1.43			0.84							
Control Delay (s/veh)		224.1			33.4							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		224.1			33.4							
LOS		F			C							
Approach Delay (s/veh)		224.1			33.4							
Approach LOS		F			C							
Stops (vph)		1519			863							
Fuel Used(l)		390			50							
CO Emissions (g/hr)		7259			922							
NOx Emissions (g/hr)		1401			178							
VOC Emissions (g/hr)		1674			213							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.43			
Intersection Signal Delay (s/veh): 161.3		Intersection LOS: F	
Intersection Capacity Utilization 66.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	2186	1075
v/c Ratio	1.43	0.84
Control Delay (s/veh)	224.1	33.4
Queue Delay	0.0	0.0
Total Delay (s/veh)	224.1	33.4
Queue Length 50th (m)	~306.7	96.0
Queue Length 95th (m)	#360.5	117.2
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1525	1400
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.43	0.77

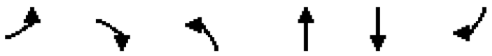
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

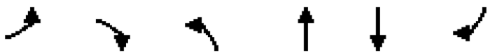
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	2011	0	0	989	0	0	0	0	0	0	0
Future Volume (vph)	0	2011	0	0	989	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2186	0	0	1075	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2186	0	0	1075	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		43.6			36.4							
Effective Green, g (s)		43.6			36.4							
Actuated g/C Ratio		0.46			0.38							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1526			1274							
v/s Ratio Prot		c0.66			c0.32							
v/s Ratio Perm												
v/c Ratio		1.43			0.84							
Uniform Delay, d1		25.7			26.7							
Progression Factor		1.00			1.00							
Incremental Delay, d2		198.5			5.3							
Delay (s)		224.2			32.0							
Level of Service		F			C							
Approach Delay (s/veh)		224.2			32.0			0.0			0.0	
Approach LOS		F			C			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	160.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	117	132	41	73	2
Future Volume (vph)	2	117	132	41	73	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.867				0.997	
Flt Protected	0.999			0.963		
Satd. Flow (prot)	1486	0	0	1652	1711	0
Flt Permitted	0.999			0.963		
Satd. Flow (perm)	1486	0	0	1652	1711	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	96.3			112.4	188.4	
Travel Time (s)	6.9			8.1	13.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	127	143	45	79	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	129	0	0	188	81	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

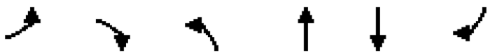
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	117	132	41	73	2
Future Volume (Veh/h)	2	117	132	41	73	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	127	143	45	79	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	411	80	81			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	411	80	81			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	87	91			
cM capacity (veh/h)	541	980	1517			

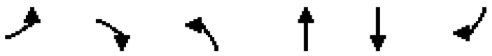
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	129	188	81
Volume Left	2	143	0
Volume Right	127	0	2
cSH	968	1517	1700
Volume to Capacity	0.13	0.09	0.05
Queue Length 95th (m)	3.7	2.5	0.0
Control Delay (s/veh)	9.3	6.0	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	9.3	6.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	31.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	117	133	190	188	2
Future Volume (vph)	1	117	133	190	188	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.866				0.999	
Flt Protected				0.980		
Satd. Flow (prot)	1486	0	0	1681	1714	0
Flt Permitted				0.980		
Satd. Flow (perm)	1486	0	0	1681	1714	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	81.9			136.2	112.4	
Travel Time (s)	5.9			9.8	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	127	145	207	204	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	128	0	0	352	206	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	117	133	190	188	2
Future Volume (Veh/h)	1	117	133	190	188	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	127	145	207	204	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	702	205	206			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	702	205	206			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	85	89			
cM capacity (veh/h)	361	836	1365			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	128	352	206
Volume Left	1	145	0
Volume Right	127	0	2
cSH	827	1365	1700
Volume to Capacity	0.15	0.11	0.12
Queue Length 95th (m)	4.4	2.8	0.0
Control Delay (s/veh)	10.1	3.8	0.0
Lane LOS	B	A	
Approach Delay (s/veh)	10.1	3.8	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	901	101	15	767	83	12
Future Volume (vph)	901	101	15	767	83	12
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.986				0.983	
Flt Protected				0.999	0.958	
Satd. Flow (prot)	1692	0	0	1714	1616	0
Flt Permitted				0.999	0.958	
Satd. Flow (perm)	1692	0	0	1714	1616	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	34.5			168.7	76.7	
Travel Time (s)	2.1			10.1	5.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	979	110	16	834	90	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1089	0	0	850	103	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 70.6%		ICU Level of Service C	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	901	101	15	767	83	12
Future Volume (Veh/h)	901	101	15	767	83	12
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	979	110	16	834	90	13
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			979		1900	1034
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			979		1900	1034
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		0	95
cM capacity (veh/h)			705		74	282

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	1089	850	103
Volume Left	0	16	90
Volume Right	110	0	13
cSH	1700	705	82
Volume to Capacity	0.64	0.02	1.26
Queue Length 95th (m)	0.0	0.6	61.4
Control Delay (s/veh)	0.0	0.6	274.8
Lane LOS		A	F
Approach Delay (s/veh)	0.0	0.6	274.8
Approach LOS			F

Intersection Summary			
Average Delay	14.1		
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale-2.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-16 3:58:24 PM

Summary of intersection performance

	Sat						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - TT (2044)						
Leg North	0.40	~1	11.51	0.29	B	69.95	F
Leg West	0.32	~1	4.84	0.25	A		
Leg South	2.43	4.08	10.34	0.71	B		
Leg East	63.61	140.34	238.99	1.17	F		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - TT (2039), AM" model duration: 8:00 AM - 9:00 AM
"D2 - TT (2039), PM" model duration: 4:00 PM - 5:00 PM
"D3 - TT (2039), Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2044), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2044), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2044), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2044), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2044), Sat " model duration: 12:00 PM - 1:00 PM
"D10 - TT REM (2044), AM" model duration: 8:00 AM - 9:00 AM
"D11 - TT REM (2044), PM" model duration: 4:00 PM - 5:00 PM
"D12 - TT REM (2044), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-16 3:58:24 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - TT (2044), Sat

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
TT (2044), Sat	TT (2044)	Sat		PHF	12:00	13:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				69.95	F

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		

West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	116.00	100.000
West	PHF	✓	720.00	100.000
South	PHF	✓	1655.00	100.000
East	PHF	✓	901.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	116.00	0.92	SecondQuarter
West	720.00	0.92	SecondQuarter
South	1655.00	0.92	SecondQuarter
East	901.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	39.000	62.000	15.000
	West	40.000	0.000	498.000	182.000
	South	70.000	722.000	0.000	863.000
	East	23.000	267.000	611.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.34	0.53	0.13
	West	0.06	0.00	0.69	0.25
	South	0.04	0.44	0.00	0.52
	East	0.03	0.30	0.68	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.036	1.000
	South	1.000	1.021	1.000	1.029
	East	1.000	1.007	1.022	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	3.6	0.0
	South	0.0	2.1	0.0	2.9
	East	0.0	0.7	2.2	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.29	11.51	0.40	~1	B	116.00	116.00	20.17	10.43	0.34	20.17	10.44
West	0.25	4.84	0.32	~1	A	720.00	222.00	17.50	4.73	0.29	17.50	4.73
South	0.71	10.34	2.43	4.08	B	1655.00	792.00	114.04	8.64	1.90	114.10	8.64
East	1.17	238.99	63.61	140.34	F	901.00	901.00	2223.31	148.06	37.06	2319.16	154.44

Main Results for each time segment

Main results: (12:00-12:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	109.28	109.28	27.32	0.00	0.00	108.19	123.66	1467.30	0.00	508.23	477.25	0.215	0.00	0.27	8.975	A
West	678.26	209.13	52.28	469.13	0.00	208.07	951.98	623.51	0.00	996.58	863.39	0.210	0.00	0.26	4.560	A
South	1559.06	746.09	186.52	812.97	469.13	739.92	609.52	222.07	0.00	1228.92	822.03	0.607	0.00	1.54	7.413	A
East	848.77	848.77	212.19	0.00	812.97	813.55	184.57	777.41	0.00	907.51	791.65	0.935	0.00	8.80	31.869	D

Main results: (12:15-12:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	126.09	126.09	31.52	0.00	0.00	125.58	140.36	1589.13	0.00	437.72	477.25	0.288	0.27	0.40	11.515	B
West	782.61	241.30	60.33	541.30	0.00	241.07	1069.35	645.36	0.00	983.94	863.39	0.245	0.26	0.32	4.845	A
South	1798.91	860.87	215.22	938.04	541.30	857.31	629.12	257.31	0.00	1208.53	822.03	0.712	1.54	2.43	10.338	B
East	979.35	979.35	244.84	0.00	938.04	828.74	213.87	900.75	0.00	836.13	791.65	1.171	8.80	46.46	133.446	F

Main results: (12:30-12:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	119.36	119.36	29.84	0.00	0.00	119.46	135.22	1580.62	0.00	442.65	477.25	0.270	0.40	0.37	11.142	B
West	740.87	228.43	57.11	512.43	0.00	228.49	1038.61	661.46	0.00	974.62	863.39	0.234	0.32	0.31	4.826	A
South	1702.97	814.96	203.74	888.01	512.43	816.19	646.01	243.94	0.00	1216.26	822.03	0.670	2.43	2.12	9.206	A

East	927.12	927.12	231.78	0.00	888.01	858.48	202.77	857.36	0.00	861.24	791.65	1.076	46.46	63.61	238.994	F

Main results: (12:45-13:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	109.28	109.28	27.32	0.00	0.00	109.52	126.51	1547.77	0.00	461.66	477.25	0.237	0.37	0.31	10.232	B
West	678.26	209.13	52.28	469.13	0.00	209.25	982.11	675.17	0.00	966.68	863.39	0.216	0.31	0.28	4.753	A
South	1559.06	746.09	186.52	812.97	469.13	748.14	661.01	223.41	0.00	1228.14	822.03	0.607	2.12	1.61	7.676	A
East	848.77	848.77	212.19	0.00	812.97	888.43	185.71	785.85	0.00	902.63	791.65	0.940	63.61	53.70	238.572	F

Queueing Delay Results for each time segment

Queueing Delay results: (12:00-12:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	3.88	0.26	8.975	A	A
West	3.86	0.26	4.560	A	A
South	21.81	1.45	7.413	A	A
East	97.36	6.49	31.869	D	C

Queueing Delay results: (12:15-12:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	5.75	0.38	11.515	B	B
West	4.76	0.32	4.845	A	A
South	34.29	2.29	10.338	B	B
East	420.11	28.01	133.446	F	F

Queueing Delay results: (12:30-12:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	5.70	0.38	11.142	B	B
West	4.66	0.31	4.826	A	A
South	32.85	2.19	9.206	A	A
East	825.98	55.07	238.994	F	F

Queueing Delay results: (12:45-13:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	4.84	0.32	10.232	B	B
West	4.22	0.28	4.753	A	A
South	25.09	1.67	7.676	A	A
East	879.86	58.66	238.572	F	F

Queue Variation Results for each time segment

Queue Variation results: (12:00-12:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.27	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.26	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.54	0.00	0.00	3.06	4.08			N/A	N/A
East	8.80	0.00	0.00	17.29	34.58			N/A	N/A

Queue Variation results: (12:15-12:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.40	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.32	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	2.43	0.00	0.00	0.00	4.08			N/A	N/A
East	46.46	7.12	37.63	88.47	108.81			N/A	N/A

Queue Variation results: (12:30-12:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.37	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.31	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	2.12	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	63.61	14.24	54.91	114.91	137.29			N/A	N/A

Queue Variation results: (12:45-13:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.31	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.28	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.61	0.00	0.00	3.06	4.08			N/A	N/A
East	53.70	5.08	40.68	111.86	140.34			N/A	N/A

Appendix H

Traffic Control Justification

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)

Horizon Year: 2044 Total Traffic
Region/City/Township: Town of Niagara-on-the-Lak

Major Street: York Road North/South: N
Minor Street: Townline Road

Number of Approach Lanes: 1
Tee Intersection? N
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**No**	Justification for existing intersections with forecast traffic

Time Period	Major Street: York Road						Minor Street: Townline Road						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour	103	901	0	0	909	14	0	0	0	6	0	89	0
PM Peak Hour	107	1025	0	0	1172	23	0	0	0	15	0	69	0
Average Hourly Volume	**53**	**481**	**0**	**0**	**520**	**9**	**0**	**0**	**0**	**5**	**0**	**40**	**0**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	1108
1B - Mino	45
2A - Majo	1063
2B - Cros	5

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	All Approaches	480	720	600	900	1108
					% Fulfilled	**154%**

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	45
					% Fulfilled	**26%**

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Major Street Approaches	480	720	600	900	1063
					% Fulfilled	**148%**

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	50	75	5
					% Fulfilled	**7%**

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)

Horizon Year: 2039 Total Traffic
Region/City/Township: Town of Niagara-on-the-Lak

Major Street: York Road North/South: N
Minor Street: Townline Road

Number of Approach Lanes: 1
Tee Intersection? N
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**No**	Justification for existing intersections with forecast traffic

Time Period	Major Street York Road						Minor Street Townline Road						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour	287	543	7	1	526	41	9	0	3	39	0	245	0
PM Peak Hour	334	535	0	0	639	54	4	0	0	40	0	451	0
Average Hourly Volume	**155**	**270**	**2**	**0**	**291**	**24**	**3**	**0**	**1**	**20**	**0**	**174**	**0**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	940
1B - Mino	198
2A - Majo	742
2B - Cros	23

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	All Approaches	480	720	600	900	940
					% Fulfilled	**130%**

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	198
					% Fulfilled	**116%**

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Major Street Approaches	480	720	600	900	742
					% Fulfilled	**103%**

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	50	75	23
					% Fulfilled	**31%**

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)

Horizon Year: 2044 Background Traffic
Region/City/Township: Town of Niagara-on-the-Lak

Major Street: York Road North/South: N
Minor Street: Townline Road

Number of Approach Lanes: 1
Tee Intersection? N
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**No**	Justification for existing intersections with forecast traffic

Time Period	Major Street: York Road						Minor Street: Townline Road						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour	184	571	7	1	565	16	10	0	3	4	0	82	0
PM Peak Hour	125	572	0	0	673	15	4	0	0	15	0	257	0
Average Hourly Volume	**77**	**286**	**2**	**0**	**310**	**8**	**4**	**0**	**1**	**5**	**0**	**85**	**0**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	776
1B - Mino	94
2A - Majo	682
2B - Cros	8

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	All Approaches	480	720	600	900	776
					% Fulfilled	**108%**

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	94
					% Fulfilled	**55%**

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Major Street Approaches	480	720	600	900	682
					% Fulfilled	**95%**

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	50	75	8
					% Fulfilled	**11%**

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)

Horizon Year: 2044 Total Traffic
Region/City/Township: Town of Niagara-on-the-Lak

Major Street: York Road North/South: N
Minor Street: Townline Road

Number of Approach Lanes: 1
Tee Intersection? N
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**Yes**	Justification for existing intersections with forecast traffic

Time Period	Major Street: York Road						Minor Street: Townline Road						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour	304	597	7	1	580	42	10	0	3	39	0	253	0
PM Peak Hour	346	589	0	0	702	56	4	0	0	42	0	475	0
Average Hourly Volume	**163**	**297**	**2**	**0**	**321**	**25**	**4**	**0**	**1**	**20**	**0**	**182**	**0**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	1013
1B - Mino	207
2A - Majo	806
2B - Cros	24

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	All Approaches	480	720	600	900	1013
					% Fulfilled	**141%**

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	207
					% Fulfilled	**121%**

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Major Street Approaches	480	720	600	900	806
					% Fulfilled	**112%**

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	50	75	24
					% Fulfilled	**32%**

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)

Horizon Year: 2044 Total Traffic
Region/City/Township: Town of Niagara-on-the-Lak

Major Street: York Road North/South: N
Minor Street: Site Driveway

Number of Approach Lanes: 1
Tee Intersection? Y
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**No**	Justification for existing intersections with forecast traffic

Time Period	Major Street York Road						Minor Street Site Driveway						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour	0	869	32	9	742	0	97	0	27	0	0	0	0
PM Peak Hour	0	937	91	24	1158	0	62	0	10	0	0	0	0
Average Hourly Volume	**0**	**452**	**31**	**8**	**475**	**0**	**40**	**0**	**9**	**0**	**0**	**0**	**0**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	1015
1B - Mino	49
2A - Majo	966
2B - Cros	40

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	All Approaches	480	720	600	900	1015
					% Fulfilled	**141%**

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	180	255	180	255	49
					% Fulfilled	**19%**

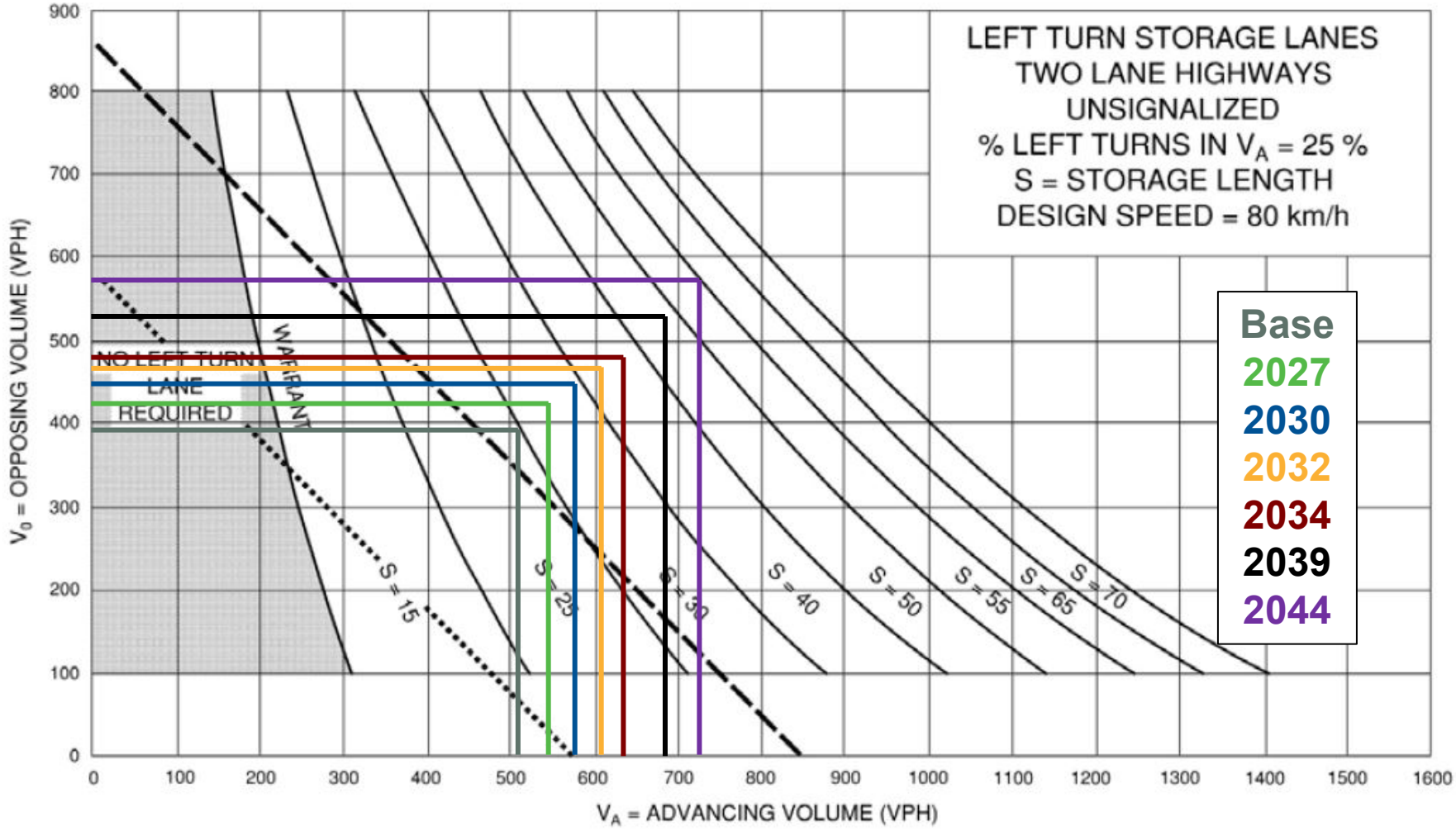
Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Major Street Approaches	480	720	600	900	966
					% Fulfilled	**134%**

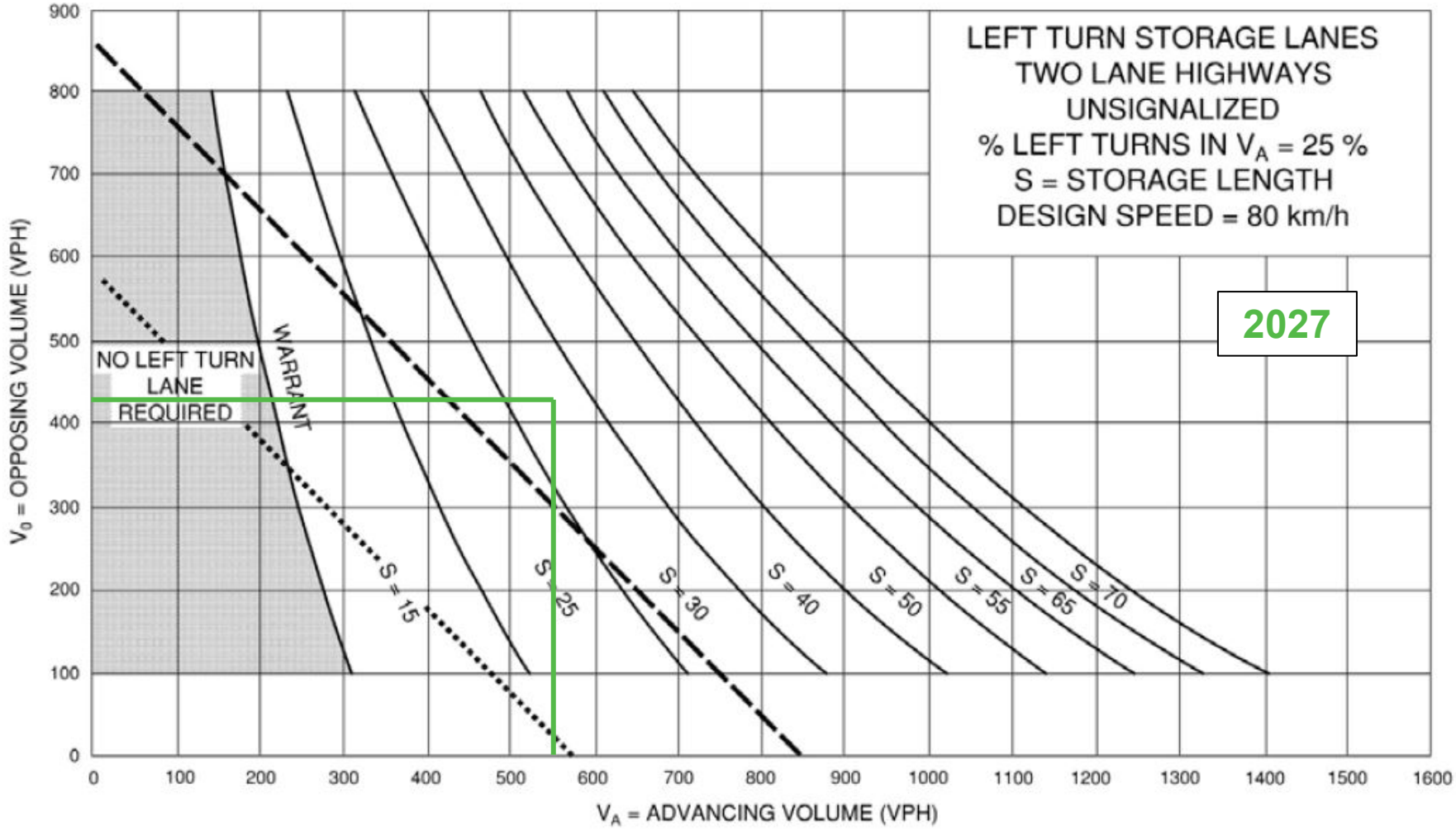
2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	50	75	40
					% Fulfilled	**53%**

Appendix I

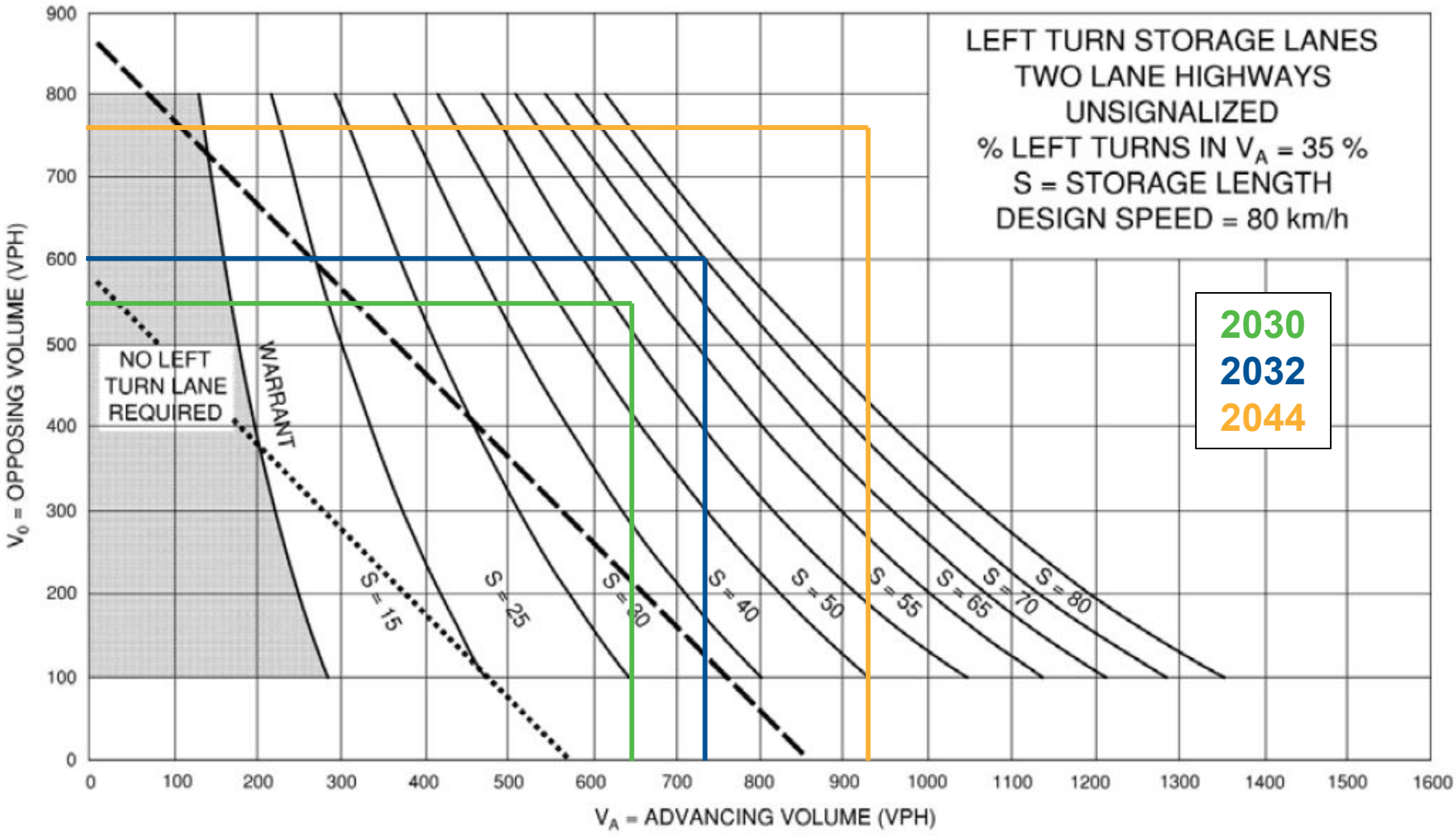
Left-Turn Lane Nomographs



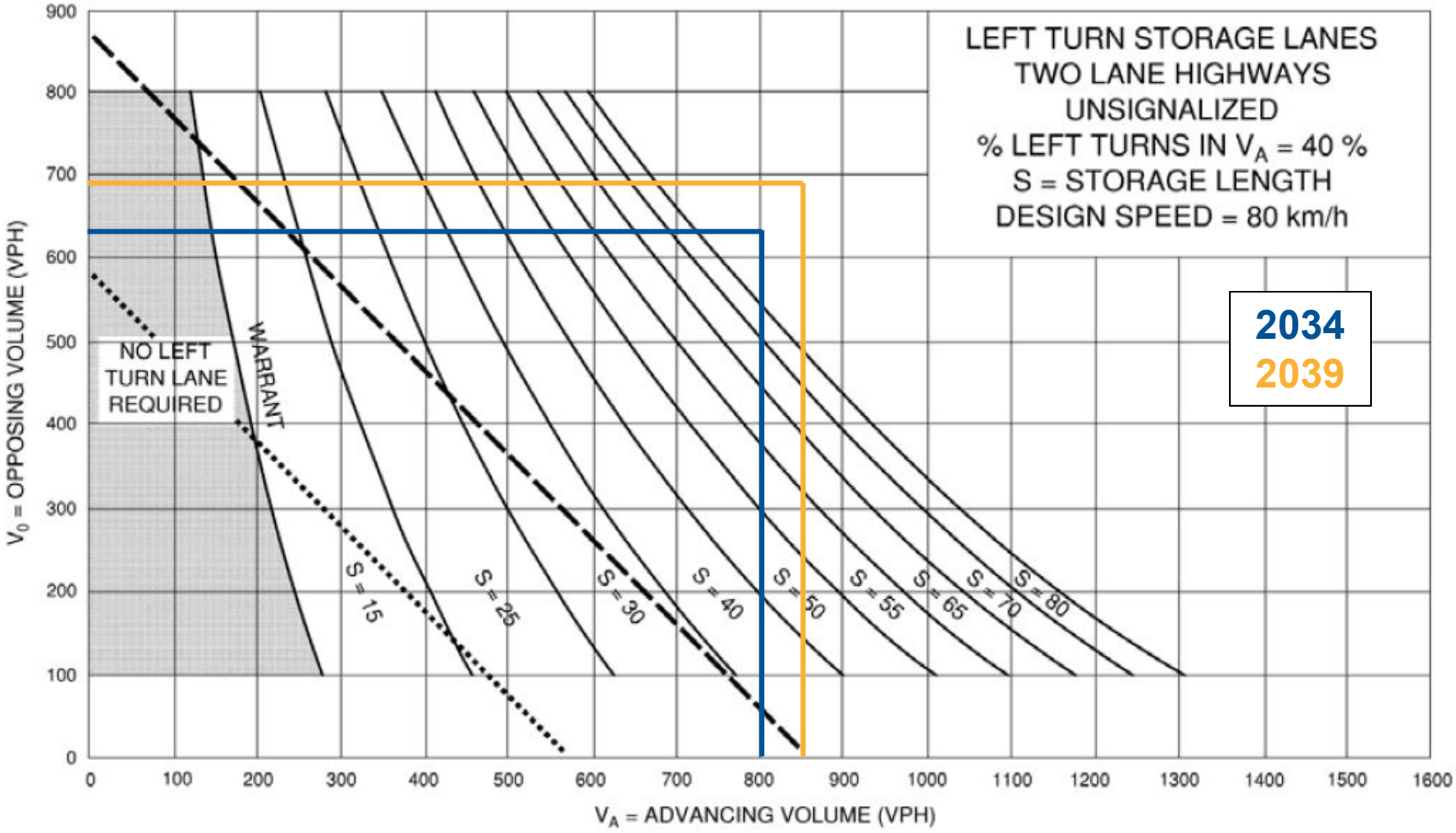
York Road & Townline Road Eastbound
Base Year and Background Traffic – AM Peak Hour



York Road & Townline Road Eastbound Total Traffic – AM Peak Hour



York Road & Townline Road Eastbound Total Traffic – PM Peak Hour



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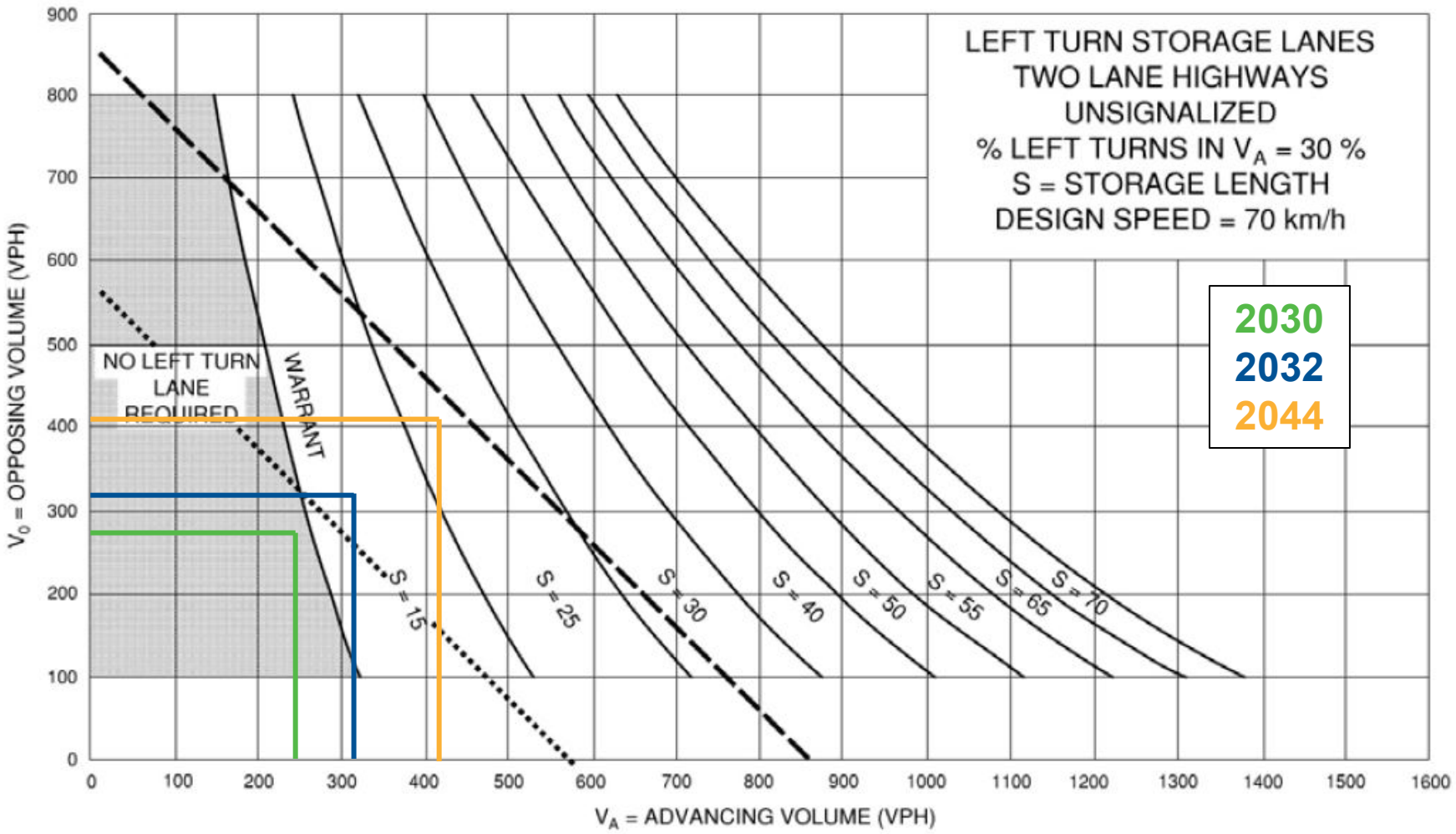
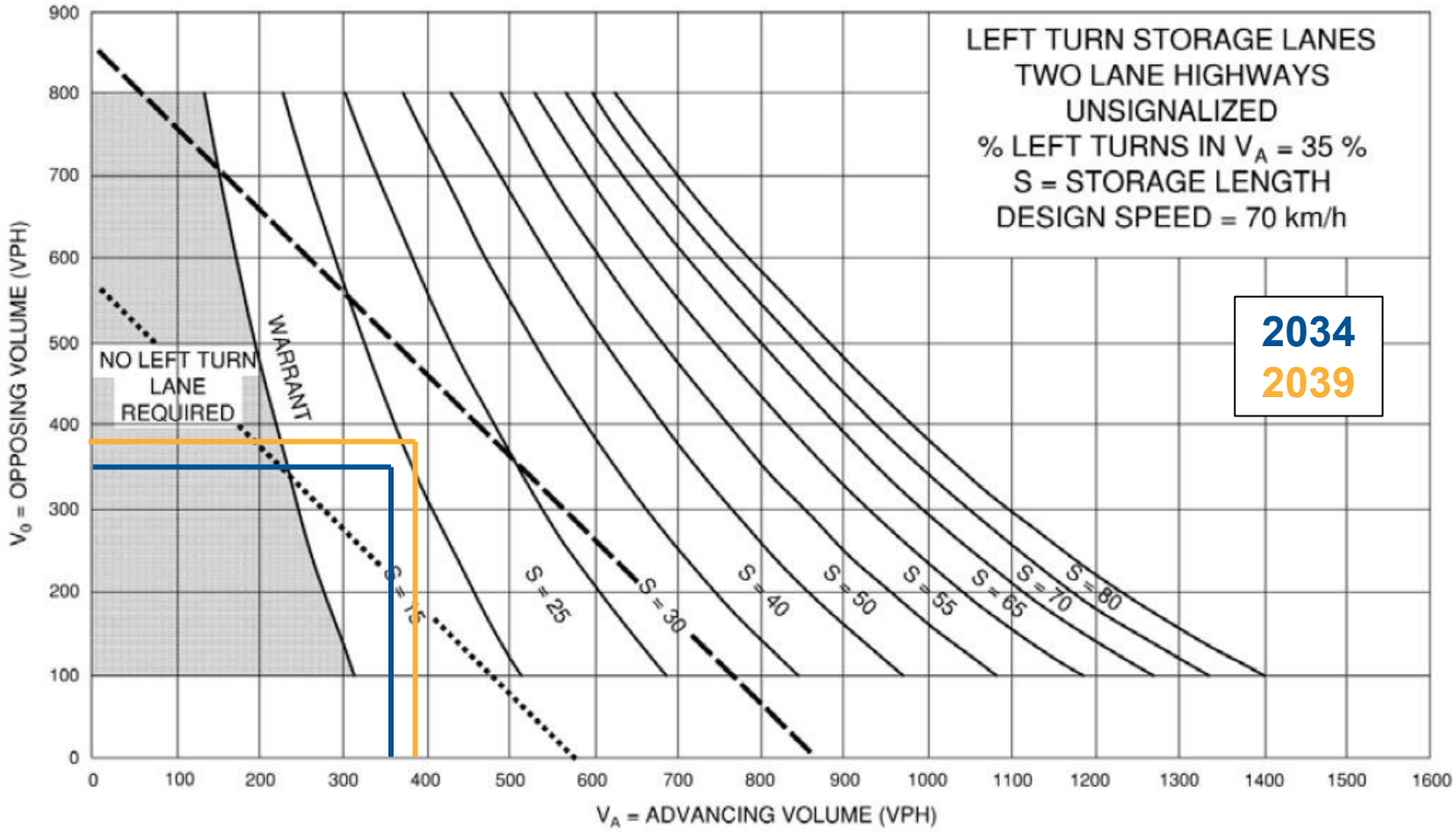
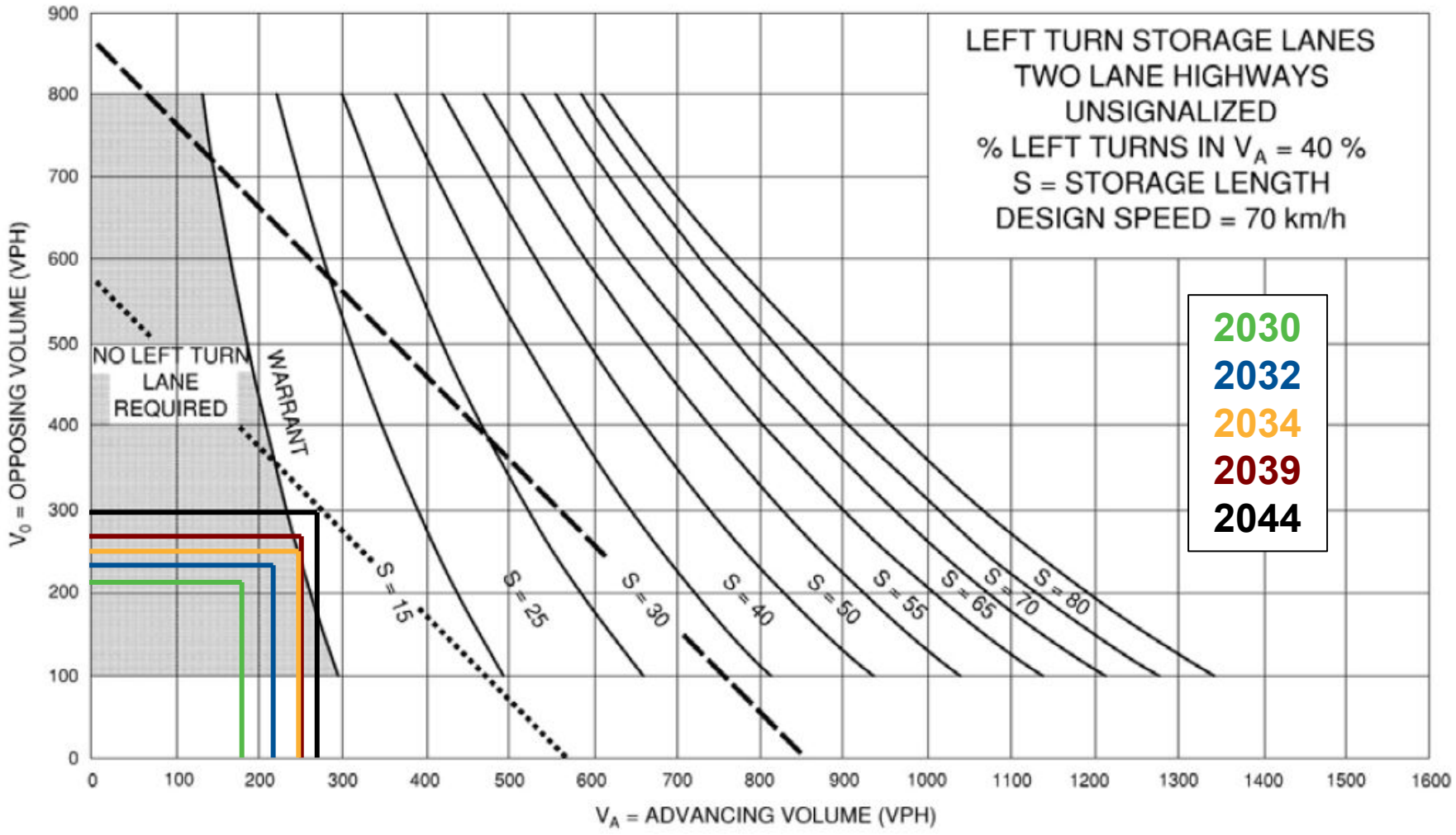
York Road & Townline Road Eastbound Total Traffic – PM Peak Hour



York Road & South Site Driveway Road Northbound Total Traffic – PM Peak Hour



York Road & South Site Driveway Road Northbound Total Traffic – PM Peak Hour



York Road & North Site Driveway Road Northbound Total Traffic – PM Peak Hour

Appendix J

Total Traffic SimTraffic Operations

Intersection: 201: Townline Road & North Site Driveway

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (m)	17.8	9.2
Average Queue (m)	9.7	1.5
95th Queue (m)	14.8	7.0
Link Distance (m)	85.8	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		15.0
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 202: Townline Road & South Site Driveway

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (m)	21.3	12.8
Average Queue (m)	10.3	3.9
95th Queue (m)	17.2	11.7
Link Distance (m)	70.1	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		25.0
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Intersection: 201: Townline Road & North Site Driveway

Movement	EB	NB	NB
Directions Served	LR	L	T
Maximum Queue (m)	21.0	17.0	5.6
Average Queue (m)	10.9	6.9	0.2
95th Queue (m)	18.0	15.6	4.1
Link Distance (m)	85.8		95.6
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)		15.0	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		1	

Intersection: 202: Townline Road & South Site Driveway

Movement	EB	NB	SB
Directions Served	LR	L	TR
Maximum Queue (m)	22.6	19.4	2.7
Average Queue (m)	11.7	8.0	0.0
95th Queue (m)	18.9	15.9	0.0
Link Distance (m)	71.6		95.6
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)		25.0	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Network Summary

Network wide Queuing Penalty: 1

Intersection: 201: Townline Road & North Site Driveway

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (m)	18.4	13.1
Average Queue (m)	9.8	3.1
95th Queue (m)	14.9	10.9
Link Distance (m)	85.8	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		15.0
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 202: Townline Road & South Site Driveway

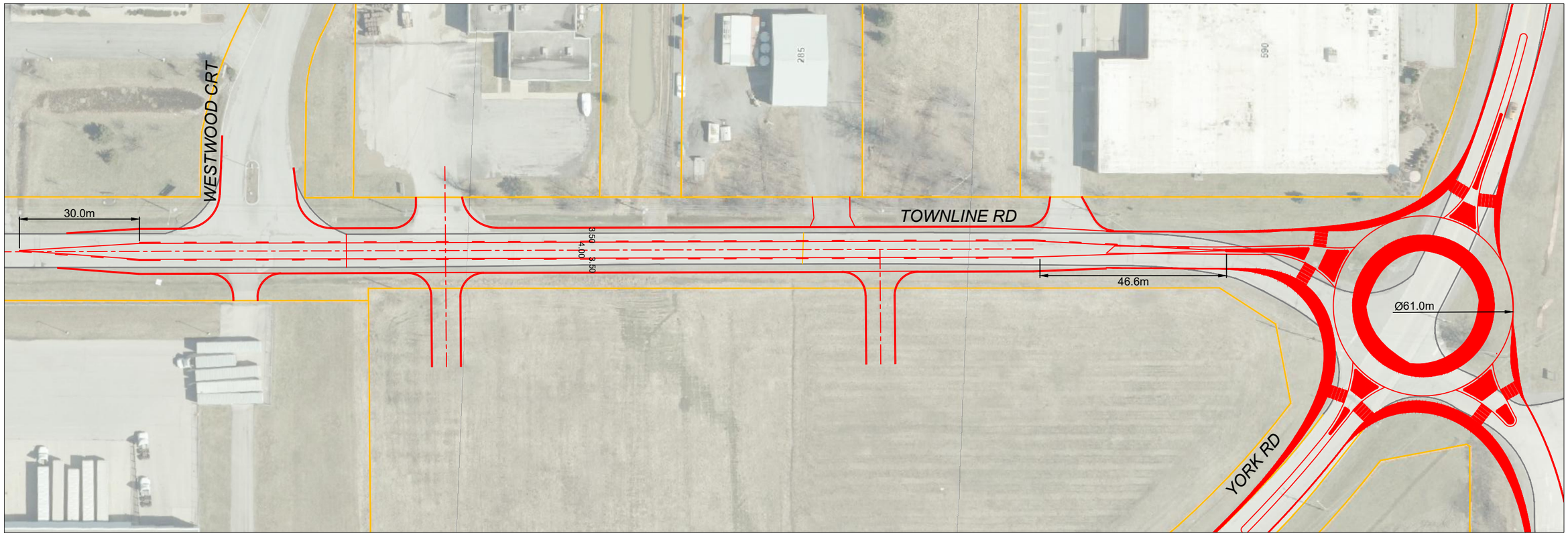
Movement	EB	NB
Directions Served	LR	L
Maximum Queue (m)	21.5	18.1
Average Queue (m)	10.4	6.1
95th Queue (m)	17.4	14.8
Link Distance (m)	70.1	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		25.0
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Network Summary

Network wide Queuing Penalty: 0

Appendix K

Functional Design



FOR DISCUSSION ONLY
NOT FOR CONSTRUCTION
EXISTING GEOMETRY AND ROW BASED ON NIAGARA REGION AIR PHOTOS
IMAGE SOURCE: https://www.niagararegion.ca/exploring/navigator.aspx

NO.	DATE	INITIAL	REVISION DETAIL

FUNCTIONAL DESIGN
524 YORK RD
TOWN OF NIAGARA-ON-THE-LAKE

paradigm TRANSPORTATION SOLUTIONS LIMITED

PROJECT NO.: 240479	DATE: JAN 2025	SCALE: 1:1000	DRAWING NO.:
DESIGN: SC	DRAWN: SC	CHECK: AMa	01

Appendix L

Total Traffic Operations with Remedial Measures

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	19	96	1	12	82
Future Volume (vph)	0	19	96	1	12	82
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.882	
Flt Protected				0.953	0.994	
Satd. Flow (prot)	1514	0	0	1668	1534	0
Flt Permitted				0.953	0.994	
Satd. Flow (perm)	1514	0	0	1668	1534	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	0	21	104	1	13	89
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	0	0	105	102	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	19	96	1	12	82
Future Volume (Veh/h)	0	19	96	1	12	82
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	21	104	1	13	89
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	115	0	92	71	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	115	0	92	71	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	88	100	99	
cM capacity (veh/h)	773	1091	875	815	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	21	105	102
Volume Left	0	104	13
Volume Right	21	0	89
cSH	1091	874	1636
Volume to Capacity	0.02	0.12	0.01
Queue Length 95th (m)	0.5	3.3	0.2
Control Delay (s/veh)	8.4	9.7	1.0
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.7	1.0
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	25.4%	ICU Level of Service	A
Analysis Period (min)	15		

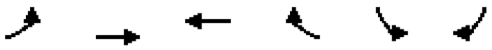
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	3	53	11	25	1
Future Volume (vph)	0	3	53	11	25	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.995	
Flt Protected				0.960	0.954	
Satd. Flow (prot)	1514	0	0	1663	1661	0
Flt Permitted				0.960	0.954	
Satd. Flow (perm)	1514	0	0	1663	1661	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	1%	0%	1%
Adj. Flow (vph)	0	3	58	12	27	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	0	0	70	28	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	3	53	11	25	1
Future Volume (Veh/h)	0	3	53	11	25	1
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	3	58	12	27	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	55	0	58	55	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	55	0	58	55	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	100	94	99	98	
cM capacity (veh/h)	826	1091	927	825	1636	

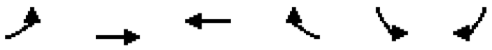
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	3	70	28
Volume Left	0	58	27
Volume Right	3	0	1
cSH	1091	908	1636
Volume to Capacity	0.00	0.08	0.02
Queue Length 95th (m)	0.1	2.0	0.4
Control Delay (s/veh)	8.3	9.3	7.0
Lane LOS	A	A	A
Approach Delay (s/veh)	8.3	9.3	7.0
Approach LOS	A	A	

Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	20.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	103	916	918	14	0	89
Future Volume (vph)	103	916	918	14	0	89
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	0	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.998			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1662	3325	3318	0	0	1514
Flt Permitted	0.950					
Satd. Flow (perm)	1662	3325	3318	0	0	1514
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	112	996	998	15	0	97
Shared Lane Traffic (%)						
Lane Group Flow (vph)	112	996	1013	0	0	97
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 40.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	103	916	918	14	0	89
Future Volume (Veh/h)	103	916	918	14	0	89
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	112	996	998	15	0	97
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	1013				1728	507
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1013				1728	507
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	84				100	81
cM capacity (veh/h)	692				68	517

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	112	498	498	665	348	97
Volume Left	112	0	0	0	0	0
Volume Right	0	0	0	0	15	97
cSH	692	1700	1700	1700	1700	517
Volume to Capacity	0.16	0.29	0.29	0.39	0.20	0.19
Queue Length 95th (m)	4.6	0.0	0.0	0.0	0.0	5.5
Control Delay (s/veh)	11.2	0.0	0.0	0.0	0.0	13.6
Lane LOS	B					B
Approach Delay (s/veh)	1.1			0.0		13.6
Approach LOS						B

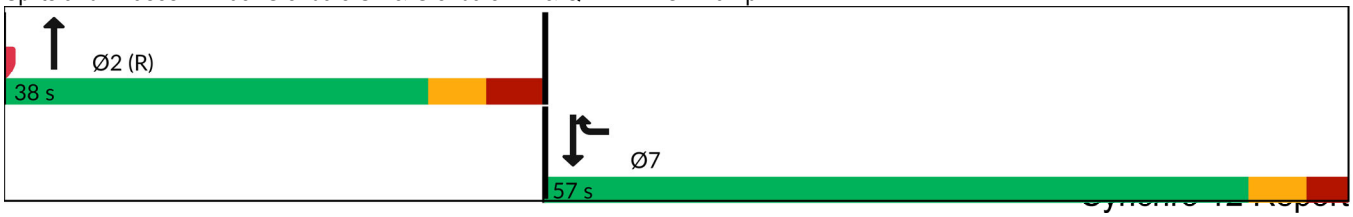
Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	40.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	467	808	895
Future Volume (vph)	467	808	895
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	508	878	973
Shared Lane Traffic (%)			
Lane Group Flow (vph)	508	878	973
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	57.0	38.0	57.0
Total Split (%)	60.0%	40.0%	60.0%
Maximum Green (s)	50.0	30.0	50.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	43.7	40.3	43.7
Actuated g/C Ratio	0.46	0.42	0.46
v/c Ratio	0.74	0.68	0.69
Control Delay (s/veh)	27.7	23.6	22.6
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	27.7	23.6	22.6
LOS	C	C	C
Approach Delay (s/veh)		23.6	22.6
Approach LOS		C	C
Stops (vph)	363	630	661
Fuel Used(l)	21	33	33
CO Emissions (g/hr)	396	619	622
NOx Emissions (g/hr)	76	119	120
VOC Emissions (g/hr)	91	143	144
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay (s/veh): 24.1		Intersection LOS: C	
Intersection Capacity Utilization 64.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	508	878	973
v/c Ratio	0.74	0.68	0.69
Control Delay (s/veh)	27.7	23.6	22.6
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	27.7	23.6	22.6
Queue Length 50th (m)	75.7	81.1	73.6
Queue Length 95th (m)	98.4	#119.1	81.0
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	812	1283	1669
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.63	0.68	0.58

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	467	808	895
Future Volume (vph)	467	808	895
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	508	878	973
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	508	878	973
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	41.7	38.3	41.7
Effective Green, g (s)	43.7	40.3	43.7
Actuated g/C Ratio	0.46	0.42	0.46
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	682	1282	1403
v/s Ratio Prot	c0.34	c0.29	0.32
v/s Ratio Perm			
v/c Ratio	0.74	0.68	0.69
Uniform Delay, d1	21.1	22.2	20.3
Progression Factor	1.00	0.84	1.00
Incremental Delay, d2	4.4	2.7	1.5
Delay (s)	25.5	21.4	21.8
Level of Service	C	C	C
Approach Delay (s/veh)		21.4	21.8
Approach LOS		C	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

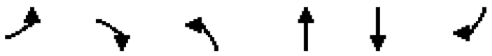
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	337	0	0	0	0	895
Future Volume (vph)	337	0	0	0	0	895
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	366	0	0	0	0	973
Shared Lane Traffic (%)						
Lane Group Flow (vph)	366	0	0	0	0	973
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	337	0	0	0	0	895
Future Volume (Veh/h)	337	0	0	0	0	895
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	366	0	0	0	0	973
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	487	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	487	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	28	100			100	
cM capacity (veh/h)	510	1084			1622	

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	366	487	487
Volume Left	366	0	0
Volume Right	0	0	0
cSH	510	1700	1700
Volume to Capacity	0.72	0.29	0.29
Queue Length 95th (m)	46.2	0.0	0.0
Control Delay (s/veh)	28.0	0.0	0.0
Lane LOS	D		
Approach Delay (s/veh)	28.0	0.0	
Approach LOS	D		

Intersection Summary			
Average Delay	7.7		
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	541	0	0	822	0	0
Future Volume (vph)	541	0	0	822	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	3162	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	3162	0	0	3260	0	0
Right Turn on Red	Yes	Yes				Yes
Satd. Flow (RTOR)	183					
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	588	0	0	893	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	588	0	0	893	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.2			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1			2		
Detector Template	Left			Thru		
Leading Detector (m)	2.0			10.0		
Trailing Detector (m)	0.0			0.0		
Detector 1 Position(m)	0.0			0.0		
Detector 1 Size(m)	2.0			0.6		
Detector 1 Type	Cl+Ex			Cl+Ex		
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0		
Detector 1 Queue (s)	0.0			0.0		
Detector 1 Delay (s)	0.0			0.0		
Detector 2 Position(m)				9.4		
Detector 2 Size(m)				0.6		
Detector 2 Type				Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)				0.0		
Turn Type	Prot			NA		
Protected Phases	4			2		
Permitted Phases						
Detector Phase	4			2		
Switch Phase						
Minimum Initial (s)	10.0			10.0		

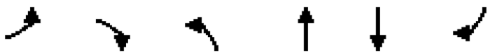
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Split (s)	26.0			23.0		
Total Split (s)	42.0			53.0		
Total Split (%)	44.2%			55.8%		
Maximum Green (s)	34.0			46.0		
Yellow Time (s)	4.0			4.0		
All-Red Time (s)	4.0			3.0		
Lost Time Adjust (s)	0.0			0.0		
Total Lost Time (s)	8.0			7.0		
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.5			2.5		
Recall Mode	None			C-Max		
Act Effct Green (s)	17.9			62.1		
Actuated g/C Ratio	0.19			0.65		
v/c Ratio	0.79			0.42		
Control Delay (s/veh)	32.8			9.2		
Queue Delay	0.0			36.6		
Total Delay (s/veh)	32.8			45.8		
LOS	C			D		
Approach Delay (s/veh)	32.8			45.8		
Approach LOS	C			D		
Stops (vph)	352			376		
Fuel Used(l)	24			18		
CO Emissions (g/hr)	453			339		
NOx Emissions (g/hr)	87			65		
VOC Emissions (g/hr)	104			78		
Dilemma Vehicles (#)	0			0		

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay (s/veh): 40.6		Intersection LOS: D	
Intersection Capacity Utilization 88.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 107: Glendale NB & E-N Ramp

Lane Group	EBL	NBT
Lane Group Flow (vph)	588	893
v/c Ratio	0.79	0.42
Control Delay (s/veh)	32.8	9.2
Queue Delay	0.0	36.6
Total Delay (s/veh)	32.8	45.8
Queue Length 50th (m)	38.9	38.7
Queue Length 95th (m)	53.8	62.2
Internal Link Dist (m)	30.4	26.4
Turn Bay Length (m)		
Base Capacity (vph)	1249	2130
Starvation Cap Reductn	0	1290
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.47	1.06

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	541	0	0	822	0	0
Future Volume (vph)	541	0	0	822	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	8.0			7.0		
Lane Util. Factor	0.97			0.95		
Frt	1.00			1.00		
Flt Protected	0.95			1.00		
Satd. Flow (prot)	3162			3260		
Flt Permitted	0.95			1.00		
Satd. Flow (perm)	3162			3260		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	588	0	0	893	0	0
RTOR Reduction (vph)	149	0	0	0	0	0
Lane Group Flow (vph)	439	0	0	893	0	0
Turn Type	Prot			NA		
Protected Phases	4			2		
Permitted Phases						
Actuated Green, G (s)	17.9			62.1		
Effective Green, g (s)	17.9			62.1		
Actuated g/C Ratio	0.19			0.65		
Clearance Time (s)	8.0			7.0		
Vehicle Extension (s)	2.5			2.5		
Lane Grp Cap (vph)	595			2131		
v/s Ratio Prot	c0.14			c0.27		
v/s Ratio Perm						
v/c Ratio	0.74			0.42		
Uniform Delay, d1	36.3			7.8		
Progression Factor	1.00			1.00		
Incremental Delay, d2	4.5			0.6		
Delay (s)	40.9			8.5		
Level of Service	D			A		
Approach Delay (s/veh)	40.9			8.5	0.0	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		

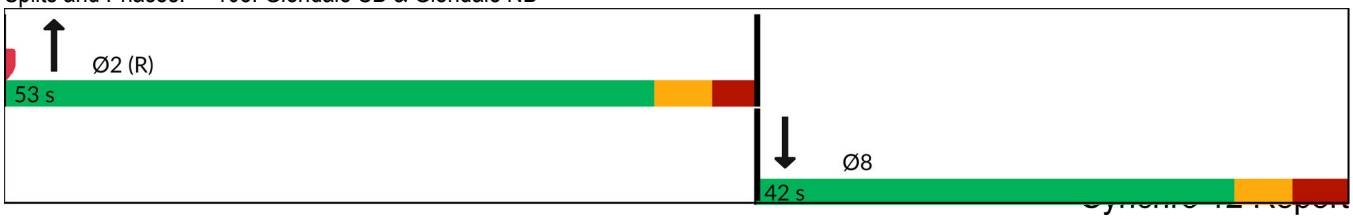
c Critical Lane Group

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	822	0	0	581	0	0	0	0	0	0	0
Future Volume (vph)	0	822	0	0	581	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	893	0	0	632	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	893	0	0	632	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		23.0			26.0							
Total Split (s)		53.0			42.0							
Total Split (%)		55.8%			44.2%							
Maximum Green (s)		46.0			34.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		56.2			23.8							
Actuated g/C Ratio		0.59			0.25							
v/c Ratio		0.45			0.76							
Control Delay (s/veh)		12.4			39.0							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		12.4			39.0							
LOS		B			D							
Approach Delay (s/veh)		12.4			39.0							
Approach LOS		B			D							
Stops (vph)		442			517							
Fuel Used(l)		22			32							
CO Emissions (g/hr)		402			592							
NOx Emissions (g/hr)		78			114							
VOC Emissions (g/hr)		93			137							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay (s/veh): 23.4		Intersection LOS: C	
Intersection Capacity Utilization 30.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB

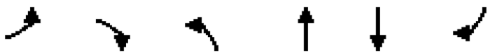


Lane Group	NBT	SBT
Lane Group Flow (vph)	893	632
v/c Ratio	0.45	0.76
Control Delay (s/veh)	12.4	39.0
Queue Delay	0.0	0.0
Total Delay (s/veh)	12.4	39.0
Queue Length 50th (m)	46.4	59.7
Queue Length 95th (m)	72.0	72.8
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1968	1190
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.45	0.53

Intersection Summary

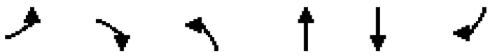
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑			↑↑							
Traffic Volume (vph)	0	822	0	0	581	0	0	0	0	0	0	0
Future Volume (vph)	0	822	0	0	581	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	893	0	0	632	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	893	0	0	632	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		56.2			23.8							
Effective Green, g (s)		56.2			23.8							
Actuated g/C Ratio		0.59			0.25							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1967			833							
v/s Ratio Prot		c0.27			c0.19							
v/s Ratio Perm												
v/c Ratio		0.45			0.76							
Uniform Delay, d1		10.8			32.9							
Progression Factor		1.00			1.00							
Incremental Delay, d2		0.8			4.0							
Delay (s)		11.6			36.9							
Level of Service		B			D							
Approach Delay (s/veh)		11.6			36.9			0.0			0.0	
Approach LOS		B			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	30.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	102	68	216	90	2
Future Volume (vph)	6	102	68	216	90	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	0.0	0.0	15.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.873				0.997	
Flt Protected	0.997		0.950			
Satd. Flow (prot)	1493	0	1630	1716	1711	0
Flt Permitted	0.997		0.950			
Satd. Flow (perm)	1493	0	1630	1716	1711	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	96.3			112.4	188.4	
Travel Time (s)	6.9			8.1	13.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	111	74	235	98	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	118	0	74	235	100	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

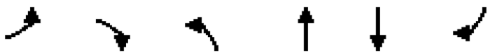
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	102	68	216	90	2
Future Volume (Veh/h)	6	102	68	216	90	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	111	74	235	98	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	482	99	100			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	482	99	100			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	88	95			
cM capacity (veh/h)	516	957	1493			

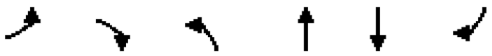
Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	118	74	235	100
Volume Left	7	74	0	0
Volume Right	111	0	0	2
cSH	911	1493	1700	1700
Volume to Capacity	0.13	0.05	0.14	0.06
Queue Length 95th (m)	3.6	1.3	0.0	0.0
Control Delay (s/veh)	9.5	7.5	0.0	0.0
Lane LOS	A	A		
Approach Delay (s/veh)	9.5	1.8		0.0
Approach LOS	A			

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	26.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	102	69	278	190	2
Future Volume (vph)	6	102	69	278	190	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	0.0	0.0	25.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.873				0.999	
Flt Protected	0.997		0.950			
Satd. Flow (prot)	1493	0	1630	1716	1714	0
Flt Permitted	0.997		0.950			
Satd. Flow (perm)	1493	0	1630	1716	1714	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	81.9			136.2	112.4	
Travel Time (s)	5.9			9.8	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	111	75	302	207	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	118	0	75	302	209	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	102	69	278	190	2
Future Volume (Veh/h)	6	102	69	278	190	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	111	75	302	207	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	660	208	209			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	660	208	209			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	87	94			
cM capacity (veh/h)	404	832	1362			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	118	75	302	209
Volume Left	7	75	0	0
Volume Right	111	0	0	2
cSH	783	1362	1700	1700
Volume to Capacity	0.15	0.06	0.18	0.12
Queue Length 95th (m)	4.2	1.4	0.0	0.0
Control Delay (s/veh)	10.4	7.8	0.0	0.0
Lane LOS	B	A		
Approach Delay (s/veh)	10.4	1.6		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	32.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	869	41	0	848	0	124
Future Volume (vph)	869	41	0	848	0	124
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994					0.865
Flt Protected						
Satd. Flow (prot)	1705	0	0	1716	0	1484
Flt Permitted						
Satd. Flow (perm)	1705	0	0	1716	0	1484
Link Speed (k/h)	60			60	50	
Link Distance (m)	34.5			168.7	76.7	
Travel Time (s)	2.1			10.1	5.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	945	45	0	922	0	135
Shared Lane Traffic (%)						
Lane Group Flow (vph)	990	0	0	922	0	135
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.4%		ICU Level of Service C	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	869	41	0	848	0	124
Future Volume (Veh/h)	869	41	0	848	0	124
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	945	45	0	922	0	135
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			945		1890	968
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			945		1890	968
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		100	56
cM capacity (veh/h)			726		77	308

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	990	922	135
Volume Left	0	0	0
Volume Right	45	0	135
cSH	1700	1700	308
Volume to Capacity	0.58	0.54	0.44
Queue Length 95th (m)	0.0	0.0	17.0
Control Delay (s/veh)	0.0	0.0	25.5
Lane LOS			D
Approach Delay (s/veh)	0.0	0.0	25.5
Approach LOS			D

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale-2.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-21 1:01:01 PM

Summary of intersection performance

	AM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	Two Lane - TT REM (2044)						
Leg North	0.95	1.18	26.84	0.46	D	9.54	A
Leg West	0.37	~1	6.05	0.27	A		
Leg South	2.81	5.57	11.70	0.72	B		
Leg East	1.82	2.28	6.19	0.62	A		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - TT (2039), AM" model duration: 8:00 AM - 9:00 AM
"D2 - TT (2039), PM" model duration: 4:00 PM - 5:00 PM
"D3 - TT (2039), Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2044), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2044), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2044), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2044), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - TT REM (2044), AM " model duration: 8:00 AM - 9:00 AM
"D11 - TT REM (2044), PM" model duration: 4:00 PM - 5:00 PM
"D12 - TT REM (2044), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-21 1:01:01 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

Two Lane - TT REM (2044), AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Two Lane	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
TT REM (2044), AM	TT REM (2044)	AM		PHF	08:00	09:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				9.54	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	7.00	8.00	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.794	2436.345

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	120.50	100.000
West	PHF	✓	634.00	100.000
South	PHF	✓	1590.00	100.000
East	PHF	✓	984.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	120.50	0.92	SecondQuarter
West	634.00	0.92	SecondQuarter
South	1590.00	0.92	SecondQuarter
East	984.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	6.000	42.000	66.000	6.500
	West	11.000	0.000	428.000	195.000
	South	78.000	732.000	0.000	780.000
	East	5.000	239.000	731.000	9.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.05	0.35	0.55	0.05
	West	0.02	0.00	0.68	0.31
	South	0.05	0.46	0.00	0.49

	East	0.01	0.24	0.74	0.01

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.154	1.200	1.333
	West	1.000	1.000	1.139	1.047
	South	1.071	1.119	1.000	1.095
	East	1.000	1.057	1.170	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	15.4	20.0	33.3
	West	0.0	0.0	13.9	4.7
	South	7.1	11.9	0.0	9.5
	East	0.0	5.7	17.0	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.46	26.84	0.95	1.18	D	120.50	120.50	36.99	18.42	0.62	37.00	18.42
West	0.27	6.05	0.37	~1	A	634.00	206.00	19.07	5.55	0.32	19.07	5.55
South	0.72	11.70	2.81	5.57	B	1590.00	810.00	131.24	9.72	2.19	131.32	9.73
East	0.62	6.19	1.82	2.28	A	984.00	984.00	85.57	5.22	1.43	85.60	5.22

Main Results for each time segment

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	113.51	113.51	28.38	0.00	0.00	111.86	93.36	1600.81	0.00	430.96	0.00	0.263	0.00	0.41	13.227	B
West	597.25	194.06	48.51	403.19	0.00	192.94	946.20	766.47	0.00	913.84	645.96	0.212	0.00	0.28	5.208	A
South	1497.83	763.04	190.76	734.78	403.19	756.00	746.43	212.98	0.00	1234.18	974.94	0.618	0.00	1.76	8.272	A
East	926.96	926.96	231.74	0.00	734.78	922.30	197.11	771.87	0.00	1823.35	1634.68	0.508	0.00	1.16	4.522	A

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	130.98	130.98	32.74	0.00	0.00	128.82	108.15	1853.38	0.00	284.78	0.00	0.460	0.41	0.95	26.836	D
West	689.13	223.91	55.98	465.22	0.00	223.54	1095.91	886.29	0.00	844.50	645.96	0.265	0.28	0.37	6.050	A
South	1728.26	880.43	220.11	847.83	465.22	876.24	863.17	246.66	0.00	1214.69	974.94	0.725	1.76	2.81	11.699	B
East	1069.57	1069.57	267.39	0.00	847.83	1066.94	228.31	894.59	0.00	1725.89	1634.68	0.620	1.16	1.82	6.191	A

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS

North	123.99	123.99	31.00	0.00	0.00	124.97	103.09	1762.88	0.00	337.16	0.00	0.368	0.95	0.71	20.087	C
West	652.38	211.97	52.99	440.41	0.00	212.11	1044.21	843.64	0.00	869.18	645.96	0.244	0.37	0.34	5.724	A
South	1636.09	833.48	208.37	802.61	440.41	834.86	821.41	234.34	0.00	1221.82	974.94	0.682	2.81	2.46	10.413	B
East	1012.52	1012.52	253.13	0.00	802.61	1013.56	216.79	852.41	0.00	1759.38	1634.68	0.576	1.82	1.56	5.501	A

Main results: (08:45-09:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	113.51	113.51	28.38	0.00	0.00	114.58	94.51	1615.48	0.00	422.47	0.00	0.269	0.71	0.44	13.822	B
West	597.25	194.06	48.51	403.19	0.00	194.28	957.21	772.84	0.00	910.16	645.96	0.213	0.34	0.29	5.253	A
South	1497.83	763.04	190.76	734.78	403.19	765.49	752.46	214.65	0.00	1233.21	974.94	0.619	2.46	1.85	8.622	A
East	926.96	926.96	231.74	0.00	734.78	928.41	198.57	781.57	0.00	1815.64	1634.68	0.511	1.56	1.20	4.625	A

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-08:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	5.84	0.39	13.227	B	B
West	4.07	0.27	5.208	A	A
South	24.77	1.65	8.272	A	A
East	16.86	1.12	4.522	A	A

Queueing Delay results: (08:15-08:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	13.03	0.87	26.836	D	C
West	5.48	0.37	6.050	A	A
South	39.38	2.63	11.699	B	B
East	26.28	1.75	6.191	A	A

Queueing Delay results: (08:30-08:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	11.17	0.74	20.087	C	C
West	5.16	0.34	5.724	A	A
South	38.15	2.54	10.413	B	B
East	24.00	1.60	5.501	A	A

Queueing Delay results: (08:45-09:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	6.95	0.46	13.822	B	B
West	4.35	0.29	5.253	A	A
South	28.95	1.93	8.622	A	A
East	18.44	1.23	4.625	A	A

Queue Variation Results for each time segment

Queue Variation results: (08:00-08:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.41	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.28	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.76	0.00	0.00	3.34	4.46			N/A	N/A
East	1.16	0.00	0.00	1.14	2.28			N/A	N/A

Queue Variation results: (08:15-08:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.95	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
						Percentiles could not be calculated. This may be			

West	0.37	~1	~1	~1	~1	because the mean queue is very small or very big.		N/A	N/A
South	2.81	0.00	0.00	0.00	5.57			N/A	N/A
East	1.82	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:30-08:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.71	0.00	0.00	0.00	1.18			N/A	N/A
West	0.34	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	2.46	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.56	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:45-09:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.44	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.29	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.85	0.00	0.00	3.34	5.57			N/A	N/A
East	1.20	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	25	106	0	18	91
Future Volume (vph)	0	25	106	0	18	91
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.865				0.888	
Flt Protected				0.950	0.992	
Satd. Flow (prot)	1514	0	0	1662	1542	0
Flt Permitted				0.950	0.992	
Satd. Flow (perm)	1514	0	0	1662	1542	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	27	115	0	20	99
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	0	0	115	119	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	25	106	0	18	91
Future Volume (Veh/h)	0	25	106	0	18	91
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	27	115	0	20	99
Pedestrians					1	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	139	1	118	90	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	139	1	118	90	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	86	100	99	
cM capacity (veh/h)	746	1089	833	795	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	27	115	119
Volume Left	0	115	20
Volume Right	27	0	99
cSH	1089	833	1636
Volume to Capacity	0.02	0.14	0.01
Queue Length 95th (m)	0.6	3.8	0.3
Control Delay (s/veh)	8.4	10.0	1.3
Lane LOS	A	B	A
Approach Delay (s/veh)	8.4	10.0	1.3
Approach LOS	A	B	

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	26.9%	ICU Level of Service	A
Analysis Period (min)	15		

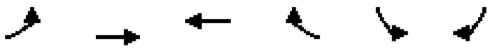
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1	22	0	0	54	37
Future Volume (vph)	1	22	0	0	54	37
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.870				0.945	
Flt Protected					0.971	
Satd. Flow (prot)	1522	0	0	1750	1599	0
Flt Permitted					0.971	
Satd. Flow (perm)	1522	0	0	1750	1599	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	1	24	0	0	59	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	0	0	0	99	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1	22	0	0	54	37
Future Volume (Veh/h)	1	22	0	0	54	37
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	24	0	0	59	40
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	158	0	163	138	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	158	0	163	138	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	100	100	96	
cM capacity (veh/h)	711	1091	767	729	1636	

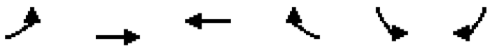
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	25	0	99
Volume Left	0	0	59
Volume Right	24	0	40
cSH	1068	1700	1636
Volume to Capacity	0.02	0.00	0.04
Queue Length 95th (m)	0.6	0.0	0.9
Control Delay (s/veh)	8.5	0.0	4.4
Lane LOS	A	A	A
Approach Delay (s/veh)	8.5	0.0	4.4
Approach LOS	A	A	

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	15.7%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	107	1064	1196	23	0	69
Future Volume (vph)	107	1064	1196	23	0	69
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	0	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.997			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1662	3325	3315	0	0	1514
Flt Permitted	0.950					
Satd. Flow (perm)	1662	3325	3315	0	0	1514
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Confl. Peds. (#/hr)	1			1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	116	1157	1300	25	0	75
Shared Lane Traffic (%)						
Lane Group Flow (vph)	116	1157	1325	0	0	75
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.8%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	107	1064	1196	23	0	69
Future Volume (Veh/h)	107	1064	1196	23	0	69
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	116	1157	1300	25	0	75
Pedestrians		1			1	
Lane Width (m)		3.6			3.6	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1326				2124	665
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1326				2124	665
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	78				100	82
cM capacity (veh/h)	527				34	407

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	116	579	579	867	458	75
Volume Left	116	0	0	0	0	0
Volume Right	0	0	0	0	25	75
cSH	527	1700	1700	1700	1700	407
Volume to Capacity	0.22	0.34	0.34	0.51	0.27	0.18
Queue Length 95th (m)	6.7	0.0	0.0	0.0	0.0	5.3
Control Delay (s/veh)	13.7	0.0	0.0	0.0	0.0	15.8
Lane LOS	B					C
Approach Delay (s/veh)	1.3			0.0		15.8
Approach LOS						C

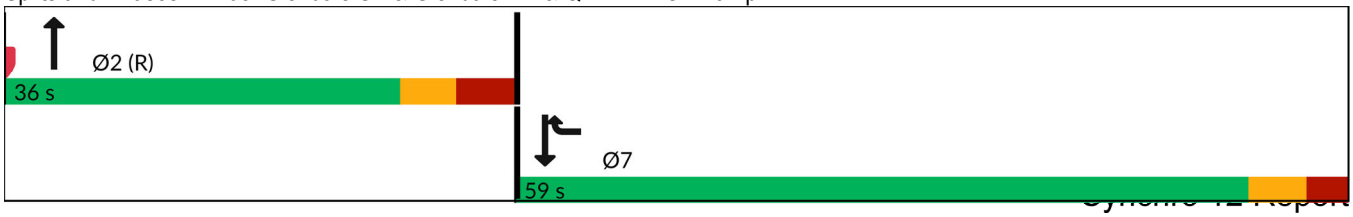
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	383	815	1513
Future Volume (vph)	383	815	1513
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	416	886	1645
Shared Lane Traffic (%)			
Lane Group Flow (vph)	416	886	1645
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	59.0	36.0	59.0
Total Split (%)	62.1%	37.9%	62.1%
Maximum Green (s)	52.0	28.0	52.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	53.9	30.1	53.9
Actuated g/C Ratio	0.57	0.32	0.57
v/c Ratio	0.49	0.93	0.95
Control Delay (s/veh)	14.8	41.7	32.9
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	14.8	41.7	32.9
LOS	B	D	C
Approach Delay (s/veh)		41.7	32.9
Approach LOS		D	C
Stops (vph)	222	672	1260
Fuel Used(l)	12	46	72
CO Emissions (g/hr)	223	852	1335
NOx Emissions (g/hr)	43	164	258
VOC Emissions (g/hr)	51	196	308
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay (s/veh): 33.0		Intersection LOS: C	
Intersection Capacity Utilization 59.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	416	886	1645
v/c Ratio	0.49	0.93	0.95
Control Delay (s/veh)	14.8	41.7	32.9
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	14.8	41.7	32.9
Queue Length 50th (m)	45.0	78.2	146.3
Queue Length 95th (m)	70.3 m	#115.1	#209.4
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	843	956	1733
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.49	0.93	0.95

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	383	815	1513
Future Volume (vph)	383	815	1513
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	416	886	1645
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	416	886	1645
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	51.9	28.1	51.9
Effective Green, g (s)	53.9	30.1	53.9
Actuated g/C Ratio	0.57	0.32	0.57
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	841	957	1730
v/s Ratio Prot	0.28	c0.29	c0.54
v/s Ratio Perm			
v/c Ratio	0.49	0.93	0.95
Uniform Delay, d1	12.4	31.4	19.3
Progression Factor	1.00	0.97	1.00
Incremental Delay, d2	0.5	10.1	12.0
Delay (s)	12.8	40.5	31.3
Level of Service	B	D	C
Approach Delay (s/veh)		40.5	31.3
Approach LOS		D	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

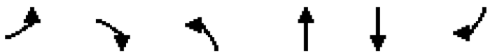
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	487	0	0	0	0	1513
Future Volume (vph)	487	0	0	0	0	1513
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	529	0	0	0	0	1645
Shared Lane Traffic (%)						
Lane Group Flow (vph)	529	0	0	0	0	1645
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 81.4%		ICU Level of Service D	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	487	0	0	0	0	1513
Future Volume (Veh/h)	487	0	0	0	0	1513
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	529	0	0	0	0	1645
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	823	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	823	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			100	
cM capacity (veh/h)	312	1084			1622	

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	529	823	823
Volume Left	529	0	0
Volume Right	0	0	0
cSH	312	1700	1700
Volume to Capacity	1.70	0.48	0.48
Queue Length 95th (m)	265.0	0.0	0.0
Control Delay (s/veh)	355.7	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	355.7	0.0	
Approach LOS	F		

Intersection Summary			
Average Delay	86.5		
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	432	0	0	1707	0	0
Future Volume (vph)	432	0	0	1707	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	3162	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	3162	0	0	3260	0	0
Right Turn on Red	Yes	Yes				Yes
Satd. Flow (RTOR)	24					
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	470	0	0	1855	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	470	0	0	1855	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.2			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1			2		
Detector Template	Left			Thru		
Leading Detector (m)	2.0			10.0		
Trailing Detector (m)	0.0			0.0		
Detector 1 Position(m)	0.0			0.0		
Detector 1 Size(m)	2.0			0.6		
Detector 1 Type	Cl+Ex			Cl+Ex		
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0		
Detector 1 Queue (s)	0.0			0.0		
Detector 1 Delay (s)	0.0			0.0		
Detector 2 Position(m)				9.4		
Detector 2 Size(m)				0.6		
Detector 2 Type				Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)				0.0		
Turn Type	Prot			NA		
Protected Phases	4			2		
Permitted Phases						
Detector Phase	4			2		
Switch Phase						
Minimum Initial (s)	10.0			10.0		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Split (s)	26.0			23.0		
Total Split (s)	34.0			61.0		
Total Split (%)	35.8%			64.2%		
Maximum Green (s)	26.0			54.0		
Yellow Time (s)	4.0			4.0		
All-Red Time (s)	4.0			3.0		
Lost Time Adjust (s)	0.0			0.0		
Total Lost Time (s)	8.0			7.0		
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.5			2.5		
Recall Mode	None			C-Max		
Act Effct Green (s)	18.3			61.7		
Actuated g/C Ratio	0.19			0.65		
v/c Ratio	0.75			0.88		
Control Delay (s/veh)	41.8			20.7		
Queue Delay	0.0			47.2		
Total Delay (s/veh)	41.8			67.9		
LOS	D			E		
Approach Delay (s/veh)	41.8			67.9		
Approach LOS	D			E		
Stops (vph)	375			1250		
Fuel Used(l)	25			63		
CO Emissions (g/hr)	456			1179		
NOx Emissions (g/hr)	88			228		
VOC Emissions (g/hr)	105			272		
Dilemma Vehicles (#)	0			0		

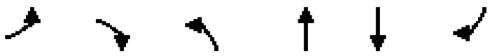
Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay (s/veh): 62.6		Intersection LOS: E	
Intersection Capacity Utilization 105.1%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 107: Glendale NB & E-N Ramp

Lane Group	EBL	NBT
Lane Group Flow (vph)	470	1855
v/c Ratio	0.75	0.88
Control Delay (s/veh)	41.8	20.7
Queue Delay	0.0	47.2
Total Delay (s/veh)	41.8	67.9
Queue Length 50th (m)	42.2	137.6
Queue Length 95th (m)	55.6	#231.9
Internal Link Dist (m)	30.4	26.4
Turn Bay Length (m)		
Base Capacity (vph)	882	2118
Starvation Cap Reductn	0	730
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.53	1.34

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	432	0	0	1707	0	0
Future Volume (vph)	432	0	0	1707	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	8.0			7.0		
Lane Util. Factor	0.97			0.95		
Frt	1.00			1.00		
Flt Protected	0.95			1.00		
Satd. Flow (prot)	3162			3260		
Flt Permitted	0.95			1.00		
Satd. Flow (perm)	3162			3260		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	470	0	0	1855	0	0
RTOR Reduction (vph)	19	0	0	0	0	0
Lane Group Flow (vph)	451	0	0	1855	0	0
Turn Type	Prot			NA		
Protected Phases	4			2		
Permitted Phases						
Actuated Green, G (s)	18.3			61.7		
Effective Green, g (s)	18.3			61.7		
Actuated g/C Ratio	0.19			0.65		
Clearance Time (s)	8.0			7.0		
Vehicle Extension (s)	2.5			2.5		
Lane Grp Cap (vph)	609			2117		
v/s Ratio Prot	c0.14			c0.57		
v/s Ratio Perm						
v/c Ratio	0.74			0.88		
Uniform Delay, d1	36.1			13.5		
Progression Factor	1.00			1.00		
Incremental Delay, d2	4.4			5.5		
Delay (s)	40.5			19.0		
Level of Service	D			B		
Approach Delay (s/veh)	40.5			19.0	0.0	
Approach LOS	D			B	A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	105.1%	ICU Level of Service	G
Analysis Period (min)	15		

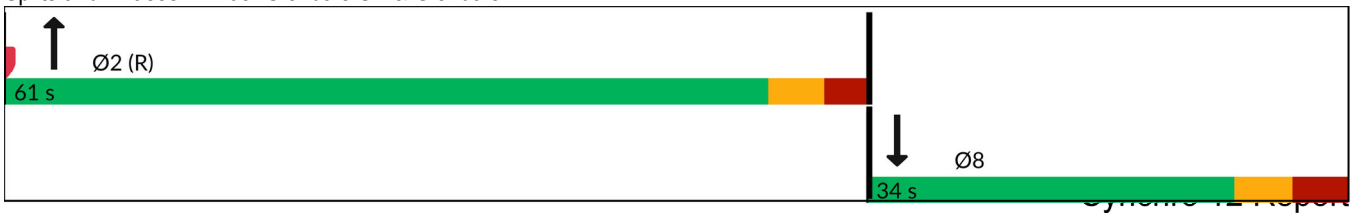
c Critical Lane Group

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1707	0	0	805	0	0	0	0	0	0	0
Future Volume (vph)	0	1707	0	0	805	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1855	0	0	875	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1855	0	0	875	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		23.0			26.0							
Total Split (s)		61.0			34.0							
Total Split (%)		64.2%			35.8%							
Maximum Green (s)		54.0			26.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		54.0			26.0							
Actuated g/C Ratio		0.57			0.27							
v/c Ratio		0.98			0.96							
Control Delay (s/veh)		37.8			56.9							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		37.8			56.9							
LOS		D			E							
Approach Delay (s/veh)		37.8			56.9							
Approach LOS		D			E							
Stops (vph)		1437			715							
Fuel Used(l)		90			55							
CO Emissions (g/hr)		1670			1027							
NOx Emissions (g/hr)		322			198							
VOC Emissions (g/hr)		385			237							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay (s/veh): 43.9		Intersection LOS: D	
Intersection Capacity Utilization 57.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



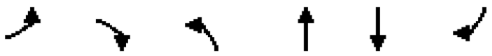
Lane Group	NBT	SBT
Lane Group Flow (vph)	1855	875
v/c Ratio	0.98	0.96
Control Delay (s/veh)	37.8	56.9
Queue Delay	0.0	0.0
Total Delay (s/veh)	37.8	56.9
Queue Length 50th (m)	171.9	87.5
Queue Length 95th (m)	#237.8	#128.4
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1890	910
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.98	0.96

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

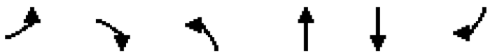
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1707	0	0	805	0	0	0	0	0	0	0
Future Volume (vph)	0	1707	0	0	805	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1855	0	0	875	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1855	0	0	875	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		54.0			26.0							
Effective Green, g (s)		54.0			26.0							
Actuated g/C Ratio		0.57			0.27							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1890			910							
v/s Ratio Prot		c0.56			c0.26							
v/s Ratio Perm												
v/c Ratio		0.98			0.96							
Uniform Delay, d1		20.0			34.0							
Progression Factor		1.00			1.00							
Incremental Delay, d2		16.8			20.9							
Delay (s)		36.8			55.0							
Level of Service		D			D							
Approach Delay (s/veh)		36.8			55.0			0.0			0.0	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	42.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	117	129	147	291	8
Future Volume (vph)	4	117	129	147	291	8
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	0.0	0.0	15.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.869				0.996	
Flt Protected	0.998		0.950			
Satd. Flow (prot)	1488	0	1630	1716	1709	0
Flt Permitted	0.998		0.950			
Satd. Flow (perm)	1488	0	1630	1716	1709	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	96.3			112.4	188.4	
Travel Time (s)	6.9			8.1	13.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	127	140	160	316	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	131	0	140	160	325	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

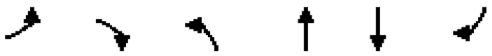
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	117	129	147	291	8
Future Volume (Veh/h)	4	117	129	147	291	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	127	140	160	316	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	761	321	325			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	761	321	325			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	82	89			
cM capacity (veh/h)	331	720	1235			

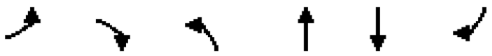
Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	131	140	160	325
Volume Left	4	140	0	0
Volume Right	127	0	0	9
cSH	695	1235	1700	1700
Volume to Capacity	0.19	0.11	0.09	0.19
Queue Length 95th (m)	5.5	3.1	0.0	0.0
Control Delay (s/veh)	11.4	8.3	0.0	0.0
Lane LOS	B	A		
Approach Delay (s/veh)	11.4	3.9		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	117	129	273	400	8
Future Volume (vph)	3	117	129	273	400	8
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	0.0	0.0	25.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.868				0.997	
Flt Protected	0.999		0.950			
Satd. Flow (prot)	1488	0	1630	1716	1711	0
Flt Permitted	0.999		0.950			
Satd. Flow (perm)	1488	0	1630	1716	1711	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	81.9			136.2	112.4	
Travel Time (s)	5.9			9.8	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	127	140	297	435	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	130	0	140	297	444	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 49.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	117	129	273	400	8
Future Volume (Veh/h)	3	117	129	273	400	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	127	140	297	435	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1017	440	444			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1017	440	444			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	79	87			
cM capacity (veh/h)	230	617	1116			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	130	140	297	444
Volume Left	3	140	0	0
Volume Right	127	0	0	9
cSH	594	1116	1700	1700
Volume to Capacity	0.22	0.13	0.17	0.26
Queue Length 95th (m)	6.6	3.4	0.0	0.0
Control Delay (s/veh)	12.7	8.7	0.0	0.0
Lane LOS	B	A		
Approach Delay (s/veh)	12.7	2.8		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	937	115	0	1244	0	72
Future Volume (vph)	937	115	0	1244	0	72
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.985					0.865
Flt Protected						
Satd. Flow (prot)	1690	0	0	1716	0	1484
Flt Permitted						
Satd. Flow (perm)	1690	0	0	1716	0	1484
Link Speed (k/h)	60			60	50	
Link Distance (m)	34.5			168.7	76.7	
Travel Time (s)	2.1			10.1	5.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1018	125	0	1352	0	78
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1143	0	0	1352	0	78
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 74.4%		ICU Level of Service D	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	937	115	0	1244	0	72
Future Volume (Veh/h)	937	115	0	1244	0	72
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1018	125	0	1352	0	78
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			1018		2433	1081
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1018		2433	1081
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		100	71
cM capacity (veh/h)			682		35	265

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	1143	1352	78
Volume Left	0	0	0
Volume Right	125	0	78
cSH	1700	1700	265
Volume to Capacity	0.67	0.80	0.29
Queue Length 95th (m)	0.0	0.0	9.5
Control Delay (s/veh)	0.0	0.0	24.2
Lane LOS			C
Approach Delay (s/veh)	0.0	0.0	24.2
Approach LOS			C

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale-2.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-21 12:57:50 PM

Summary of intersection performance

	PM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	Two Lane - TT REM (2044)						
Leg North	1.79	6.00	41.85	0.67	E	8.98	A
Leg West	0.42	~1	7.93	0.29	A		
Leg South	1.45	1.12	7.63	0.57	A		
Leg East	2.88	5.27	7.62	0.74	A		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - TT (2039), AM" model duration: 8:00 AM - 9:00 AM
"D2 - TT (2039), PM" model duration: 4:00 PM - 5:00 PM
"D3 - TT (2039), Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2044), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2044), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2044), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2044), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - TT REM (2044), AM" model duration: 8:00 AM - 9:00 AM
"D11 - TT REM (2044), PM " model duration: 4:00 PM - 5:00 PM
"D12 - TT REM (2044), Sat" model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-21 12:57:50 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

Two Lane - TT REM (2044), PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Two Lane	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
TT REM (2044), PM	TT REM (2044)	PM		PHF	16:00	17:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				8.98	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	7.00	8.00	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.794	2436.345

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	144.00	100.000
West	PHF	✓	873.00	100.000
South	PHF	✓	1543.00	100.000
East	PHF	✓	1267.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	144.00	0.92	SecondQuarter
West	873.00	0.92	SecondQuarter
South	1543.00	0.92	SecondQuarter
East	1267.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	15.000	25.000	98.000	6.000
	West	10.000	0.000	695.000	168.000
	South	100.000	539.000	0.000	904.000
	East	13.000	277.000	953.000	24.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.10	0.17	0.68	0.04
	West	0.01	0.00	0.80	0.19
	South	0.06	0.35	0.00	0.59

	East	0.01	0.22	0.75	0.02

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.097	1.061
	South	1.033	1.133	1.000	1.196
	East	1.000	1.079	1.048	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	9.7	6.1
	South	3.3	13.3	0.0	19.6
	East	0.0	7.9	4.8	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.67	41.85	1.79	6.00	E	144.00	144.00	57.55	23.98	0.96	57.58	23.99
West	0.29	7.93	0.42	~1	A	873.00	178.00	20.82	7.02	0.35	20.82	7.02
South	0.57	7.63	1.45	1.12	A	1543.00	639.00	72.66	6.82	1.21	72.68	6.82
East	0.74	7.62	2.88	5.27	A	1267.00	1267.00	127.89	6.06	2.13	127.94	6.06

Main Results for each time segment

Main results: (16:00-16:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	135.65	135.65	33.91	0.00	0.00	133.53	128.99	1678.99	0.00	385.71	0.00	0.352	0.00	0.53	14.162	B
West	822.39	167.68	41.92	654.71	0.00	166.50	786.91	1025.61	0.00	763.86	628.49	0.220	0.00	0.29	6.362	A
South	1453.55	601.96	150.49	851.59	654.71	597.78	983.66	208.46	0.00	1236.80	975.79	0.487	0.00	1.04	6.249	A
East	1193.55	1193.55	298.39	0.00	851.59	1186.94	185.20	621.04	0.00	1943.13	1633.36	0.614	0.00	1.65	4.972	A

Main results: (16:15-16:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	156.52	156.52	39.13	0.00	0.00	151.48	149.14	1942.66	0.00	233.11	0.00	0.671	0.53	1.79	41.846	E
West	948.91	193.48	48.37	755.43	0.00	192.97	910.80	1183.34	0.00	672.57	628.49	0.288	0.29	0.42	7.927	A
South	1677.17	694.57	173.64	982.61	755.43	692.93	1135.26	241.05	0.00	1217.93	975.79	0.570	1.04	1.45	7.628	A
East	1377.17	1377.17	344.29	0.00	982.61	1372.25	214.43	719.55	0.00	1864.90	1633.36	0.738	1.65	2.88	7.618	A

Main results: (16:30-16:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS

North	148.17	148.17	37.04	0.00	0.00	150.88	142.40	1847.44	0.00	288.22	0.00	0.514	1.79	1.11	26.702	D
West	898.30	183.16	45.79	715.14	0.00	183.34	866.76	1131.56	0.00	702.54	628.49	0.261	0.42	0.38	7.333	A
South	1587.72	657.52	164.38	930.20	715.14	658.08	1084.82	230.08	0.00	1224.29	975.79	0.537	1.45	1.31	7.106	A
East	1303.72	1303.72	325.93	0.00	930.20	1305.74	204.06	684.10	0.00	1893.06	1633.36	0.689	2.88	2.38	6.478	A

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	135.65	135.65	33.91	0.00	0.00	137.81	130.42	1692.51	0.00	377.89	0.00	0.359	1.11	0.57	15.123	C
West	822.39	167.68	41.92	654.71	0.00	167.98	794.01	1036.31	0.00	757.67	628.49	0.221	0.38	0.30	6.460	A
South	1453.55	601.96	150.49	851.59	654.71	602.92	993.55	210.73	0.00	1235.48	975.79	0.487	1.31	1.07	6.361	A
East	1193.55	1193.55	298.39	0.00	851.59	1196.22	186.94	626.71	0.00	1938.63	1633.36	0.616	2.38	1.71	5.126	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:00-16:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	7.42	0.49	14.162	B	B
West	4.27	0.28	6.362	A	A
South	14.99	1.00	6.249	A	A
East	23.71	1.58	4.972	A	A

Queueing Delay results: (16:15-16:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	22.82	1.52	41.846	E	D
West	6.15	0.41	7.927	A	A
South	21.01	1.40	7.628	A	A
East	40.76	2.72	7.618	A	A

Queueing Delay results: (16:30-16:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	18.15	1.21	26.702	D	C
West	5.75	0.38	7.333	A	A
South	20.12	1.34	7.106	A	A
East	36.88	2.46	6.478	A	A

Queueing Delay results: (16:45-17:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	9.16	0.61	15.123	C	B
West	4.65	0.31	6.460	A	A
South	16.54	1.10	6.361	A	A
East	26.54	1.77	5.126	A	A

Queue Variation Results for each time segment

Queue Variation results: (16:00-16:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.53	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.29	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.04	0.00	0.00	1.12	1.12			N/A	N/A
East	1.65	0.00	0.00	3.16	5.27			N/A	N/A

Queue Variation results: (16:15-16:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	1.79	0.00	0.00	2.00	6.00			N/A	N/A
West	0.42	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

South	1.45	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	2.88	0.00	0.00	0.00	3.16			N/A	N/A

Queue Variation results: (16:30-16:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	1.11	0.00	0.00	0.00	2.00			N/A	N/A
West	0.38	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.31	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	2.38	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (16:45-17:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.57	0.00	0.00	0.00	1.00			N/A	N/A
West	0.30	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.07	0.00	0.00	1.12	1.12			N/A	N/A
East	1.71	0.00	0.00	3.16	4.21			N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	18	88	0	16	115
Future Volume (vph)	0	18	88	0	16	115
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.881	
Flt Protected				0.950	0.994	
Satd. Flow (prot)	1514	0	0	1662	1532	0
Flt Permitted				0.950	0.994	
Satd. Flow (perm)	1514	0	0	1662	1532	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.4			78.9	91.6	
Travel Time (s)	3.0			5.7	6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	20	96	0	17	125
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	0	0	96	142	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	7.5			5.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 27.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	18	88	0	16	115
Future Volume (Veh/h)	0	18	88	0	16	115
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	20	96	0	17	125
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	159	0	117	97	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	159	0	117	97	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	98	89	100	99	
cM capacity (veh/h)	729	1091	842	789	1636	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	20	96	142
Volume Left	0	96	17
Volume Right	20	0	125
cSH	1091	842	1636
Volume to Capacity	0.02	0.11	0.01
Queue Length 95th (m)	0.4	3.1	0.3
Control Delay (s/veh)	8.4	9.8	0.9
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	9.8	0.9
Approach LOS	A	A	

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	27.3%	ICU Level of Service	A
Analysis Period (min)	15		

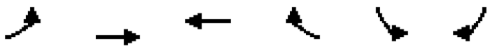
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	32	0	0	28	3
Future Volume (vph)	0	32	0	0	28	3
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.988	
Flt Protected					0.957	
Satd. Flow (prot)	1514	0	0	1750	1655	0
Flt Permitted					0.957	
Satd. Flow (perm)	1514	0	0	1750	1655	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	87.2			77.5	123.3	
Travel Time (s)	6.3			5.6	8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	35	0	0	30	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	0	0	0	33	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			3.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	32	0	0	28	3
Future Volume (Veh/h)	0	32	0	0	28	3
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	35	0	0	30	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	63	0	97	62	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	63	0	97	62	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	100	97	100	100	98	
cM capacity (veh/h)	816	1091	850	818	1636	

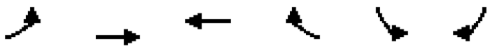
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	35	0	33
Volume Left	0	0	30
Volume Right	35	0	3
cSH	1091	1700	1636
Volume to Capacity	0.03	0.00	0.02
Queue Length 95th (m)	0.8	0.0	0.4
Control Delay (s/veh)	8.4	0.0	6.6
Lane LOS	A	A	A
Approach Delay (s/veh)	8.4	0.0	6.6
Approach LOS	A	A	

Intersection Summary			
Average Delay	7.5		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	55	1021	855	8	0	62
Future Volume (vph)	55	1021	855	8	0	62
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	20.0			0.0	0.0	0.0
Storage Lanes	2			0	0	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.999			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1662	3325	3322	0	0	1514
Flt Permitted	0.950					
Satd. Flow (perm)	1662	3325	3322	0	0	1514
Link Speed (k/h)		50	60		50	
Link Distance (m)		129.8	149.8		123.3	
Travel Time (s)		9.3	9.0		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	60	1110	929	9	0	67
Shared Lane Traffic (%)						
Lane Group Flow (vph)	60	1110	938	0	0	67
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	55	1021	855	8	0	62
Future Volume (Veh/h)	55	1021	855	8	0	62
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	60	1110	929	9	0	67
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	938				1609	469
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	938				1609	469
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				100	88
cM capacity (veh/h)	739				90	546

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	60	555	555	619	319	67
Volume Left	60	0	0	0	0	0
Volume Right	0	0	0	0	9	67
cSH	739	1700	1700	1700	1700	546
Volume to Capacity	0.08	0.33	0.33	0.36	0.19	0.12
Queue Length 95th (m)	2.1	0.0	0.0	0.0	0.0	3.3
Control Delay (s/veh)	10.3	0.0	0.0	0.0	0.0	12.5
Lane LOS	B					B
Approach Delay (s/veh)	0.5			0.0		12.5
Approach LOS						B

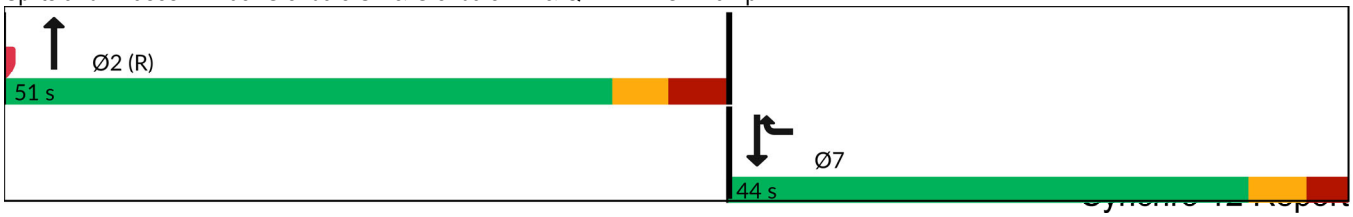
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	281	1080	933
Future Volume (vph)	281	1080	933
Ideal Flow (vphpl)	1750	1750	1750
Lane Util. Factor	1.00	0.95	0.95
Frt	0.865		
Flt Protected			
Satd. Flow (prot)	1484	3023	3050
Flt Permitted			
Satd. Flow (perm)	1484	3023	3050
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)		50	50
Link Distance (m)		58.9	36.0
Travel Time (s)		4.2	2.6
Peak Hour Factor	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	9%
Adj. Flow (vph)	305	1174	1014
Shared Lane Traffic (%)			
Lane Group Flow (vph)	305	1174	1014
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Left
Median Width(m)		0.0	0.0
Link Offset(m)		0.0	0.0
Crosswalk Width(m)		4.8	4.8
Two way Left Turn Lane			
Headway Factor	1.11	1.11	1.11
Turning Speed (k/h)	15		
Number of Detectors	1	2	2
Detector Template	Right	Thru	Thru
Leading Detector (m)	2.0	10.0	10.0
Trailing Detector (m)	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel			
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4
Detector 2 Size(m)		0.6	0.6
Detector 2 Type		Cl+Ex	Cl+Ex
Detector 2 Channel			
Detector 2 Extend (s)		0.0	0.0
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Detector Phase	7	2	7
Switch Phase			

Lane Group	WBR	NBT	SBT
Minimum Initial (s)	10.0	10.0	10.0
Minimum Split (s)	17.0	18.0	17.0
Total Split (s)	44.0	51.0	44.0
Total Split (%)	46.3%	53.7%	46.3%
Maximum Green (s)	37.0	43.0	37.0
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	3.0	4.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	6.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Vehicle Extension (s)	3.0	2.5	3.0
Recall Mode	Min	C-Min	Min
Walk Time (s)	7.0		7.0
Flash Don't Walk (s)	9.0		9.0
Pedestrian Calls (#/hr)	0		0
Act Effct Green (s)	37.6	46.4	37.6
Actuated g/C Ratio	0.40	0.49	0.40
v/c Ratio	0.52	0.79	0.84
Control Delay (s/veh)	25.3	20.9	33.4
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	25.3	20.9	33.4
LOS	C	C	C
Approach Delay (s/veh)		20.9	33.4
Approach LOS		C	C
Stops (vph)	205	791	811
Fuel Used(l)	12	41	45
CO Emissions (g/hr)	223	765	843
NOx Emissions (g/hr)	43	148	163
VOC Emissions (g/hr)	51	176	194
Dilemma Vehicles (#)	0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay (s/veh): 26.5		Intersection LOS: C	
Intersection Capacity Utilization 60.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 105: Glendale SB & Glendale NB & QEW WB Off Ramp



Lane Group	WBR	NBT	SBT
Lane Group Flow (vph)	305	1174	1014
v/c Ratio	0.52	0.79	0.84
Control Delay (s/veh)	25.3	20.9	33.4
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	25.3	20.9	33.4
Queue Length 50th (m)	42.3	80.4	88.0
Queue Length 95th (m)	68.2	m68.7	116.0
Internal Link Dist (m)		34.9	12.0
Turn Bay Length (m)			
Base Capacity (vph)	611	1480	1255
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.50	0.79	0.81

Intersection Summary

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

Movement	WBR	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	281	1080	933
Future Volume (vph)	281	1080	933
Ideal Flow (vphpl)	1750	1750	1750
Total Lost time (s)	5.0	6.0	5.0
Lane Util. Factor	1.00	0.95	0.95
Frt	0.87	1.00	1.00
Flt Protected	1.00	1.00	1.00
Satd. Flow (prot)	1484	3023	3050
Flt Permitted	1.00	1.00	1.00
Satd. Flow (perm)	1484	3023	3050
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	305	1174	1014
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	305	1174	1014
Heavy Vehicles (%)	2%	10%	9%
Turn Type	Prot	NA	NA
Protected Phases	7	2	7
Permitted Phases			
Actuated Green, G (s)	35.6	44.4	35.6
Effective Green, g (s)	37.6	46.4	37.6
Actuated g/C Ratio	0.40	0.49	0.40
Clearance Time (s)	7.0	8.0	7.0
Vehicle Extension (s)	3.0	2.5	3.0
Lane Grp Cap (vph)	587	1476	1207
v/s Ratio Prot	0.21	c0.39	c0.33
v/s Ratio Perm			
v/c Ratio	0.52	0.80	0.84
Uniform Delay, d1	21.8	20.3	26.0
Progression Factor	1.00	0.96	1.00
Incremental Delay, d2	0.8	0.4	5.4
Delay (s)	22.6	19.9	31.4
Level of Service	C	B	C
Approach Delay (s/veh)		19.9	31.4
Approach LOS		B	C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

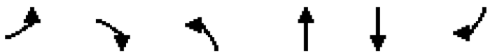
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	740	0	0	0	0	933
Future Volume (vph)	740	0	0	0	0	933
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1630	0	0	0	0	3260
Flt Permitted	0.950					
Satd. Flow (perm)	1630	0	0	0	0	3260
Link Speed (k/h)	50		50			50
Link Distance (m)	67.0		81.0			64.1
Travel Time (s)	4.8		5.8			4.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	804	0	0	0	0	1014
Shared Lane Traffic (%)						
Lane Group Flow (vph)	804	0	0	0	0	1014
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 79.2%		ICU Level of Service D	
Analysis Period (min) 15			

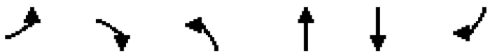
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	740	0	0	0	0	933
Future Volume (Veh/h)	740	0	0	0	0	933
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	804	0	0	0	0	1014
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						64
pX, platoon unblocked						
vC, conflicting volume	507	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	507	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			100	
cM capacity (veh/h)	495	1084			1622	

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total	804	507	507
Volume Left	804	0	0
Volume Right	0	0	0
cSH	495	1700	1700
Volume to Capacity	1.62	0.30	0.30
Queue Length 95th (m)	362.3	0.0	0.0
Control Delay (s/veh)	311.0	0.0	0.0
Lane LOS	F		
Approach Delay (s/veh)	311.0	0.0	
Approach LOS	F		

Intersection Summary			
Average Delay	137.5		
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	624	0	0	2011	0	0
Future Volume (vph)	624	0	0	2011	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	3162	0	0	3260	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	3162	0	0	3260	0	0
Right Turn on Red	Yes	Yes				Yes
Satd. Flow (RTOR)	10					
Link Speed (k/h)	50			50	50	
Link Distance (m)	54.4			50.4	88.8	
Travel Time (s)	3.9			3.6	6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	678	0	0	2186	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	678	0	0	2186	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.2			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1			2		
Detector Template	Left			Thru		
Leading Detector (m)	2.0			10.0		
Trailing Detector (m)	0.0			0.0		
Detector 1 Position(m)	0.0			0.0		
Detector 1 Size(m)	2.0			0.6		
Detector 1 Type	Cl+Ex			Cl+Ex		
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0		
Detector 1 Queue (s)	0.0			0.0		
Detector 1 Delay (s)	0.0			0.0		
Detector 2 Position(m)				9.4		
Detector 2 Size(m)				0.6		
Detector 2 Type				Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)				0.0		
Turn Type	Prot			NA		
Protected Phases	4			2		
Permitted Phases						
Detector Phase	4			2		
Switch Phase						
Minimum Initial (s)	10.0			10.0		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Split (s)	26.0			17.0		
Total Split (s)	34.0			61.0		
Total Split (%)	35.8%			64.2%		
Maximum Green (s)	26.0			54.0		
Yellow Time (s)	4.0			4.0		
All-Red Time (s)	4.0			3.0		
Lost Time Adjust (s)	0.0			0.0		
Total Lost Time (s)	8.0			7.0		
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.5			2.5		
Recall Mode	None			C-Max		
Act Effct Green (s)	23.6			56.4		
Actuated g/C Ratio	0.25			0.59		
v/c Ratio	0.86			1.13		
Control Delay (s/veh)	45.0			87.0		
Queue Delay	0.0			0.9		
Total Delay (s/veh)	45.0			87.9		
LOS	D			F		
Approach Delay (s/veh)	45.0			87.9		
Approach LOS	D			F		
Stops (vph)	568			1603		
Fuel Used(l)	38			180		
CO Emissions (g/hr)	699			3352		
NOx Emissions (g/hr)	135			647		
VOC Emissions (g/hr)	161			773		
Dilemma Vehicles (#)	0			0		

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.13			
Intersection Signal Delay (s/veh): 77.8		Intersection LOS: E	
Intersection Capacity Utilization 151.4%		ICU Level of Service H	
Analysis Period (min) 15			

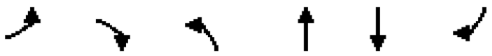
Splits and Phases: 107: Glendale NB & E-N Ramp

Lane Group	EBL	NBT
Lane Group Flow (vph)	678	2186
v/c Ratio	0.86	1.13
Control Delay (s/veh)	45.0	87.0
Queue Delay	0.0	0.9
Total Delay (s/veh)	45.0	87.9
Queue Length 50th (m)	62.6	~263.4
Queue Length 95th (m)	82.5	#312.3
Internal Link Dist (m)	30.4	26.4
Turn Bay Length (m)		
Base Capacity (vph)	872	1936
Starvation Cap Reductn	0	484
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.78	1.51

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	624	0	0	2011	0	0
Future Volume (vph)	624	0	0	2011	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	8.0			7.0		
Lane Util. Factor	0.97			0.95		
Frt	1.00			1.00		
Flt Protected	0.95			1.00		
Satd. Flow (prot)	3162			3260		
Flt Permitted	0.95			1.00		
Satd. Flow (perm)	3162			3260		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	678	0	0	2186	0	0
RTOR Reduction (vph)	8	0	0	0	0	0
Lane Group Flow (vph)	670	0	0	2186	0	0
Turn Type	Prot			NA		
Protected Phases	4			2		
Permitted Phases						
Actuated Green, G (s)	23.6			56.4		
Effective Green, g (s)	23.6			56.4		
Actuated g/C Ratio	0.25			0.59		
Clearance Time (s)	8.0			7.0		
Vehicle Extension (s)	2.5			2.5		
Lane Grp Cap (vph)	785			1935		
v/s Ratio Prot	c0.21			c0.67		
v/s Ratio Perm						
v/c Ratio	0.85			1.13		
Uniform Delay, d1	34.1			19.3		
Progression Factor	1.00			1.00		
Incremental Delay, d2	8.9			65.6		
Delay (s)	42.9			84.9		
Level of Service	D			F		
Approach Delay (s/veh)	42.9			84.9	0.0	
Approach LOS	D			F	A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	75.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	151.4%	ICU Level of Service	H
Analysis Period (min)	15		

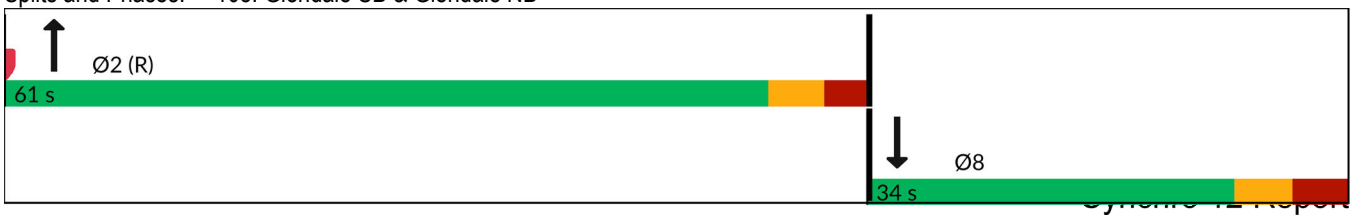
c Critical Lane Group

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	2011	0	0	989	0	0	0	0	0	0	0
Future Volume (vph)	0	2011	0	0	989	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	3325	0	0	3325	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	3325	0	0	3325	0	0	0	0	0	0	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.0			51.3			50.8			50.4	
Travel Time (s)		3.5			3.7			3.7			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	2186	0	0	1075	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2186	0	0	1075	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2							
Detector Template		Thru			Thru							
Leading Detector (m)		10.0			10.0							
Trailing Detector (m)		0.0			0.0							
Detector 1 Position(m)		0.0			0.0							
Detector 1 Size(m)		0.6			0.6							
Detector 1 Type		Cl+Ex			Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0							
Detector 1 Queue (s)		0.0			0.0							
Detector 1 Delay (s)		0.0			0.0							
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Detector Phase		2			8							
Switch Phase												

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Minimum Initial (s)		10.0			10.0							
Minimum Split (s)		17.0			26.0							
Total Split (s)		61.0			34.0							
Total Split (%)		64.2%			35.8%							
Maximum Green (s)		54.0			26.0							
Yellow Time (s)		4.0			4.0							
All-Red Time (s)		3.0			4.0							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		7.0			8.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		2.5			3.0							
Recall Mode		C-Min			None							
Walk Time (s)		7.0			7.0							
Flash Don't Walk (s)		9.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		54.0			26.0							
Actuated g/C Ratio		0.57			0.27							
v/c Ratio		1.16			1.18							
Control Delay (s/veh)		99.4			125.6							
Queue Delay		0.0			0.0							
Total Delay (s/veh)		99.4			125.6							
LOS		F			F							
Approach Delay (s/veh)		99.4			125.6							
Approach LOS		F			F							
Stops (vph)		1665			824							
Fuel Used(l)		200			119							
CO Emissions (g/hr)		3728			2212							
NOx Emissions (g/hr)		720			427							
VOC Emissions (g/hr)		860			510							
Dilemma Vehicles (#)		0			0							

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green, Master Intersection			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.18			
Intersection Signal Delay (s/veh): 108.0		Intersection LOS: F	
Intersection Capacity Utilization 66.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 108: Glendale SB & Glendale NB



Lane Group	NBT	SBT
Lane Group Flow (vph)	2186	1075
v/c Ratio	1.16	1.18
Control Delay (s/veh)	99.4	125.6
Queue Delay	0.0	0.0
Total Delay (s/veh)	99.4	125.6
Queue Length 50th (m)	~264.3	~132.0
Queue Length 95th (m)	#308.4	#172.7
Internal Link Dist (m)	25.0	27.3
Turn Bay Length (m)		
Base Capacity (vph)	1890	910
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.16	1.18

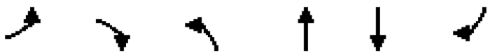
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

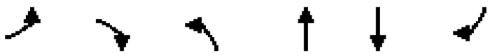
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	2011	0	0	989	0	0	0	0	0	0	0
Future Volume (vph)	0	2011	0	0	989	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		7.0			8.0							
Lane Util. Factor		0.95			0.95							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		3325			3325							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		3325			3325							
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2186	0	0	1075	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2186	0	0	1075	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	18%	0%	0%	13%	0%	0%	0%	0%	0%	0%
Turn Type		NA			NA							
Protected Phases		2			8							
Permitted Phases												
Actuated Green, G (s)		54.0			26.0							
Effective Green, g (s)		54.0			26.0							
Actuated g/C Ratio		0.57			0.27							
Clearance Time (s)		7.0			8.0							
Vehicle Extension (s)		2.5			3.0							
Lane Grp Cap (vph)		1890			910							
v/s Ratio Prot		c0.66			c0.32							
v/s Ratio Perm												
v/c Ratio		1.16			1.18							
Uniform Delay, d1		20.5			34.5							
Progression Factor		1.00			1.00							
Incremental Delay, d2		76.9			92.9							
Delay (s)		97.4			127.4							
Level of Service		F			F							
Approach Delay (s/veh)		97.4			127.4			0.0			0.0	
Approach LOS		F			F			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	107.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	117	132	41	73	2
Future Volume (vph)	2	117	132	41	73	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	0.0	0.0	15.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.867				0.997	
Flt Protected	0.999		0.950			
Satd. Flow (prot)	1486	0	1630	1716	1711	0
Flt Permitted	0.999		0.950			
Satd. Flow (perm)	1486	0	1630	1716	1711	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	96.3			112.4	188.4	
Travel Time (s)	6.9			8.1	13.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	127	143	45	79	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	129	0	143	45	81	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

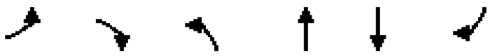
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	117	132	41	73	2
Future Volume (Veh/h)	2	117	132	41	73	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	127	143	45	79	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	411	80	81			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	411	80	81			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	87	91			
cM capacity (veh/h)	541	980	1517			

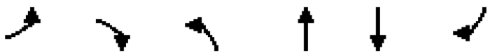
Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	129	143	45	81
Volume Left	2	143	0	0
Volume Right	127	0	0	2
cSH	968	1517	1700	1700
Volume to Capacity	0.13	0.09	0.03	0.05
Queue Length 95th (m)	3.7	2.5	0.0	0.0
Control Delay (s/veh)	9.3	7.6	0.0	0.0
Lane LOS	A	A		
Approach Delay (s/veh)	9.3	5.8		0.0
Approach LOS	A			

Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	29.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	117	133	190	188	2
Future Volume (vph)	1	117	133	190	188	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Storage Length (m)	0.0	0.0	25.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.866				0.999	
Flt Protected			0.950			
Satd. Flow (prot)	1486	0	1630	1716	1714	0
Flt Permitted			0.950			
Satd. Flow (perm)	1486	0	1630	1716	1714	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	81.9			136.2	112.4	
Travel Time (s)	5.9			9.8	8.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	127	145	207	204	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	128	0	145	207	206	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	117	133	190	188	2
Future Volume (Veh/h)	1	117	133	190	188	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	127	145	207	204	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	702	205	206			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	702	205	206			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	85	89			
cM capacity (veh/h)	361	836	1365			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	128	145	207	206
Volume Left	1	145	0	0
Volume Right	127	0	0	2
cSH	827	1365	1700	1700
Volume to Capacity	0.15	0.11	0.12	0.12
Queue Length 95th (m)	4.4	2.8	0.0	0.0
Control Delay (s/veh)	10.1	7.9	0.0	0.0
Lane LOS	B	A		
Approach Delay (s/veh)	10.1	3.3		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	901	116	0	865	0	95
Future Volume (vph)	901	116	0	865	0	95
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.985					0.865
Flt Protected						
Satd. Flow (prot)	1690	0	0	1716	0	1484
Flt Permitted						
Satd. Flow (perm)	1690	0	0	1716	0	1484
Link Speed (k/h)	60			60	50	
Link Distance (m)	34.5			168.7	76.7	
Travel Time (s)	2.1			10.1	5.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	979	126	0	940	0	103
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1105	0	0	940	0	103
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.11	1.11	1.11	1.11	1.11	1.11
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 72.2%		ICU Level of Service C	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	901	116	0	865	0	95
Future Volume (Veh/h)	901	116	0	865	0	95
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	979	126	0	940	0	103
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			979		1982	1042
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			979		1982	1042
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		100	63
cM capacity (veh/h)			705		68	279

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	1105	940	103
Volume Left	0	0	0
Volume Right	126	0	103
cSH	1700	1700	279
Volume to Capacity	0.65	0.55	0.37
Queue Length 95th (m)	0.0	0.0	13.1
Control Delay (s/veh)	0.0	0.0	25.3
Lane LOS			D
Approach Delay (s/veh)	0.0	0.0	25.3
Approach LOS			D

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: York & Glendale-2.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\240479-Arcady
Report generation date: 2025-01-21 12:58:43 PM

Summary of intersection performance

	Sat						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	Two Lane - TT REM (2044)						
Leg North	0.62	1.00	16.88	0.39	C	8.30	A
Leg West	0.36	~1	5.36	0.26	A		
Leg South	2.52	5.10	10.74	0.72	B		
Leg East	1.39	1.02	5.06	0.58	A		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - TT (2039), AM" model duration: 8:00 AM - 9:00 AM
"D2 - TT (2039), PM" model duration: 4:00 PM - 5:00 PM
"D3 - TT (2039), Sat" model duration: 12:00 PM - 1:00 PM
"D4 - BG (2044), AM" model duration: 8:00 AM - 9:00 AM
"D5 - BG (2044), PM" model duration: 4:00 PM - 5:00 PM
"D6 - BG (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D7 - TT (2044), AM" model duration: 8:00 AM - 9:00 AM
"D8 - TT (2044), PM" model duration: 4:00 PM - 5:00 PM
"D9 - TT (2044), Sat" model duration: 12:00 PM - 1:00 PM
"D10 - TT REM (2044), AM" model duration: 8:00 AM - 9:00 AM
"D11 - TT REM (2044), PM" model duration: 4:00 PM - 5:00 PM
"D12 - TT REM (2044), Sat " model duration: 12:00 PM - 1:00 PM

Run using Junctions 8.0.6.541 at 2025-01-21 12:58:43 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2024-10-29
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

Two Lane - TT REM (2044), Sat

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Two Lane	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
TT REM (2044), Sat	TT REM (2044)	Sat		PHF	12:00	13:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				8.30	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	(untitled)	
West	West	(untitled)	
South	South	(untitled)	
East	East	(untitled)	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	7.00	8.00	30.00	20.00	40.00	25.00	

Bypass

Leg	Leg Has Bypass	Bypass Utilisation (%)
North		
West	✓	100
South	✓	100
East		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.794	2436.345

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	123.00	100.000
West	PHF	✓	720.00	100.000
South	PHF	✓	1655.00	100.000
East	PHF	✓	916.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	123.00	0.92	SecondQuarter
West	720.00	0.92	SecondQuarter
South	1655.00	0.92	SecondQuarter
East	916.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	7.000	39.000	62.000	15.000
	West	40.000	0.000	498.000	182.000
	South	70.000	722.000	0.000	863.000
	East	23.000	267.000	611.000	15.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.06	0.32	0.50	0.12
	West	0.06	0.00	0.69	0.25
	South	0.04	0.44	0.00	0.52

	East	0.03	0.29	0.67	0.02

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.000	1.000	1.000
	West	1.000	1.000	1.036	1.000
	South	1.000	1.021	1.000	1.029
	East	1.000	1.007	1.022	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	0.0	0.0	0.0
	West	0.0	0.0	3.6	0.0
	South	0.0	2.1	0.0	2.9
	East	0.0	0.7	2.2	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.39	16.88	0.62	1.00	C	123.00	123.00	25.73	12.55	0.43	25.74	12.56
West	0.26	5.36	0.36	~1	A	720.00	222.00	18.39	4.97	0.31	18.40	4.97
South	0.72	10.74	2.52	5.10	B	1655.00	792.00	117.65	8.91	1.96	117.71	8.92
East	0.58	5.06	1.39	1.02	A	916.00	916.00	66.20	4.34	1.10	66.21	4.34

Main Results for each time segment

Main results: (12:00-12:15)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	115.87	115.87	28.97	0.00	0.00	114.62	130.97	1512.05	0.00	482.33	0.00	0.240	0.00	0.31	9.757	A
West	678.26	209.13	52.28	469.13	0.00	208.04	961.18	665.49	0.00	972.29	724.70	0.215	0.00	0.27	4.703	A
South	1559.06	746.09	186.52	812.97	469.13	739.77	630.92	242.61	0.00	1217.03	922.85	0.613	0.00	1.58	7.590	A
East	862.90	862.90	215.72	0.00	812.97	859.24	198.61	783.78	0.00	1813.89	1599.74	0.476	0.00	0.92	3.819	A

Main results: (12:15-12:30)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	133.70	133.70	33.42	0.00	0.00	132.48	151.66	1750.14	0.00	344.53	0.00	0.388	0.31	0.62	16.881	C
West	782.61	241.30	60.33	541.30	0.00	240.97	1113.01	769.61	0.00	912.02	724.70	0.265	0.27	0.36	5.362	A
South	1798.91	860.87	215.22	938.04	541.30	857.09	729.65	280.93	0.00	1194.85	922.85	0.720	1.58	2.52	10.737	B
East	995.65	995.65	248.91	0.00	938.04	993.76	229.98	908.05	0.00	1715.20	1599.74	0.580	0.92	1.39	5.060	A

Main results: (12:30-12:45)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS

North	126.57	126.57	31.64	0.00	0.00	127.10	144.24	1663.74	0.00	394.54	0.00	0.321	0.62	0.48	13.488	B
West	740.87	228.43	57.11	512.43	0.00	228.56	1059.38	731.46	0.00	934.10	724.70	0.245	0.36	0.33	5.104	A
South	1702.97	814.96	203.74	888.01	512.43	816.26	693.28	266.74	0.00	1203.07	922.85	0.677	2.52	2.20	9.523	A
East	942.55	942.55	235.64	0.00	888.01	943.31	218.32	864.67	0.00	1749.65	1599.74	0.539	1.39	1.20	4.543	A

Main results: (12:45-13:00)

Leg	Total Demand (PCE/hr)	Intersection Demand (PCE/hr)	Intersection Arrivals (PCE)	Bypass Demand (PCE/hr)	Bypass Exit Flow (PCE/hr)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	115.87	115.87	28.97	0.00	0.00	116.49	132.17	1524.40	0.00	475.19	0.00	0.244	0.48	0.33	10.055	B
West	678.26	209.13	52.28	469.13	0.00	209.33	970.90	669.98	0.00	969.69	724.70	0.216	0.33	0.28	4.737	A
South	1559.06	746.09	186.52	812.97	469.13	748.27	635.00	244.31	0.00	1216.05	922.85	0.614	2.20	1.65	7.882	A
East	862.90	862.90	215.72	0.00	812.97	863.95	199.96	792.62	0.00	1806.87	1599.74	0.478	1.20	0.94	3.887	A

Queueing Delay Results for each time segment

Queueing Delay results: (12:00-12:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	4.46	0.30	9.757	A	A
West	3.98	0.27	4.703	A	A
South	22.31	1.49	7.590	A	A
East	13.32	0.89	3.819	A	A

Queueing Delay results: (12:15-12:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	8.68	0.58	16.881	C	B
West	5.25	0.35	5.362	A	A
South	35.50	2.37	10.737	B	B
East	20.17	1.34	5.060	A	A

Queueing Delay results: (12:30-12:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	7.50	0.50	13.488	B	B
West	4.95	0.33	5.104	A	A
South	34.05	2.27	9.523	A	A
East	18.35	1.22	4.543	A	A

Queueing Delay results: (12:45-13:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	5.09	0.34	10.055	B	B
West	4.22	0.28	4.737	A	A
South	25.79	1.72	7.882	A	A
East	14.35	0.96	3.887	A	A

Queue Variation Results for each time segment

Queue Variation results: (12:00-12:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.31	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.27	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.58	0.00	0.00	3.06	4.08			N/A	N/A
East	0.92	0.00	0.00	1.02	1.02			N/A	N/A

Queue Variation results: (12:15-12:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.62	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
						Percentiles could not be calculated. This may be			

West	0.36	~1	~1	~1	~1	because the mean queue is very small or very big.		N/A	N/A
South	2.52	0.00	0.00	0.00	5.10			N/A	N/A
East	1.39	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:30-12:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.48	0.00	0.00	0.00	1.00			N/A	N/A
West	0.33	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	2.20	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	1.20	?	?	?	?	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (12:45-13:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.33	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.28	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	1.65	0.00	0.00	3.06	5.10			N/A	N/A
East	0.94	0.00	0.00	0.00	1.02			N/A	N/A

Appendix M

Roundabout Screening Form

Roundabout Screening Form

Version dated May 21, 2021

Date: 2025-02-18

Name(s) of Analyst(s): DC

Short Name of Intersection: York & Townline

Part A Preliminary Information

A1 Full name of intersection (all legs and Regional Road numbers)
York Road (Highway 81) and Townline Road

A2 Intersection location (local municipality, town, distance from major intersection, etc.)
Niagara-On-The-Lake

A3 Background information (i.e. rationale for conducting roundabout screening)
Operational Improvement

A4 Site description (number of legs, lanes per approach) | Currently under signal control?
Four legs, single lane approach | No

		AADT		Posted & 85th percentile speeds		
A5	Major street road classification: Arterial Road		vpd	60		km/h
A6	Minor street road classification: Local		vpd	50		km/h

A7 Forecast peak hour entering flow, total on all legs
(greater than 2,500 vph may indicate need for two-lane roundabout): 2214 vph

A8 Current operational issues (i.e. high delays, queuing, etc.)
High Delays

A9 Planned work on either road within next 10 years (Capital or Rehab programs)
N/A

Part B Site-Specific Considerations

B1 Property Impacts

B1.1	Are existing property constraints (i.e. historical buildings, cemetery, etc.) within 10 m of the edge of the intersecting roadways?	No
B1.2	Is there opportunity to shift the roundabout to avoid this conflict?	Yes
B1.3	Are there environmentally sensitive lands or property on any corner that may be difficult to acquire?	No
	Meets threshold for a roundabout being suitable?	Yes

The threshold is met ("Yes") if "No" is indicated, meaning that there should be no undue property impacts with a roundabout.

Roundabout Screening Form

Version dated May 21, 2021

Date	2025-02-18
Name(s) of Analyst(s)	DC
Short Name of Intersection	York & Townline

B2 Precluding Factors

B2.1	Are bridges or culverts within 100 m of the intersection?	No
B2.2	Are high-volume driveways within 100 m of the intersection?	No
B2.3	Are railway tracks or traffic control devices within 200 m of the intersection?	No
B2.4	Are existing or planned schools or significant pedestrian generators within 300 m?	No
B2.5	Are any approaches on a problematic vertical alignment that can't be corrected?	No
B2.6	Are there major utilities (i.e. Trans Canada pipeline, hydro towers) within or very close to the ROW?	No
	Meets threshold for a roundabout being suitable?	Yes

The threshold is met if "Yes" is indicated for at most 1 of the precluding factors. If there is more than 1 precluding factor then the threshold is not met and the indication is "No", which means that a roundabout may be problematic at the subject intersection. This is not to say that a roundabout is not possible, just that there may be difficulties or higher costs.

B3 Suitability Factors

B3.1	Are capacity problems currently being experienced, or expected in the future?	Yes
B3.2	Is there a high proportion of turning movements at the intersection?	Yes
B3.3	Are any traffic signal justifications met or projected to be met in the next 2 to 5 years?	No
B3.4	Does the intersection have an unusual geometry (i.e. offset, skew, 5-legs)?	No
B3.5	Is the intersection at a town border or transition between rural and urban areas?	No
	Meets threshold for a roundabout being suitable?	Yes

The threshold is met if "Yes" is indicated for 2 or more of the suitability factors. This means a roundabout should be technically feasible and possibly even preferred at the subject intersection.

Part C Safety Considerations

C1 Fatal Collisions

C1.1	In the past 10 years, how many fatal crashes have occurred at the subject intersection?	0
	Meets threshold for a roundabout being suitable?	No

The threshold is met if there has been 1 or more fatalities.

Roundabout Screening Form

Version dated May 21, 2021

Date 2025-02-18

Name(s) of Analyst(s) DC

Short Name of Intersection York & Townline

C2 Injury Collisions

C2.1 In the past 5 years, how many non-fatal injury crashes have occurred? [ ]

Meets threshold for a roundabout being suitable? No

The threshold is met if there have been 2 or more collisions resulting in injury.

C3 Collisions by Type

C3.1 In the past 5 years, how many crashes have been head-on? [ ]

C3.2 In the past 5 years, how many crashes have been right angle? [ ]

C3.3 In the past 5 years, how many crashes have been turning movement? [ ]

C3.4 In the past 5 years, how many crashes have been from U-turns? [ ]

Meets threshold for a roundabout being suitable? No

The threshold is met if the total number of these types of collisions is 5 or more.

Should this location proceed to an Intersection Control Study? **Yes**

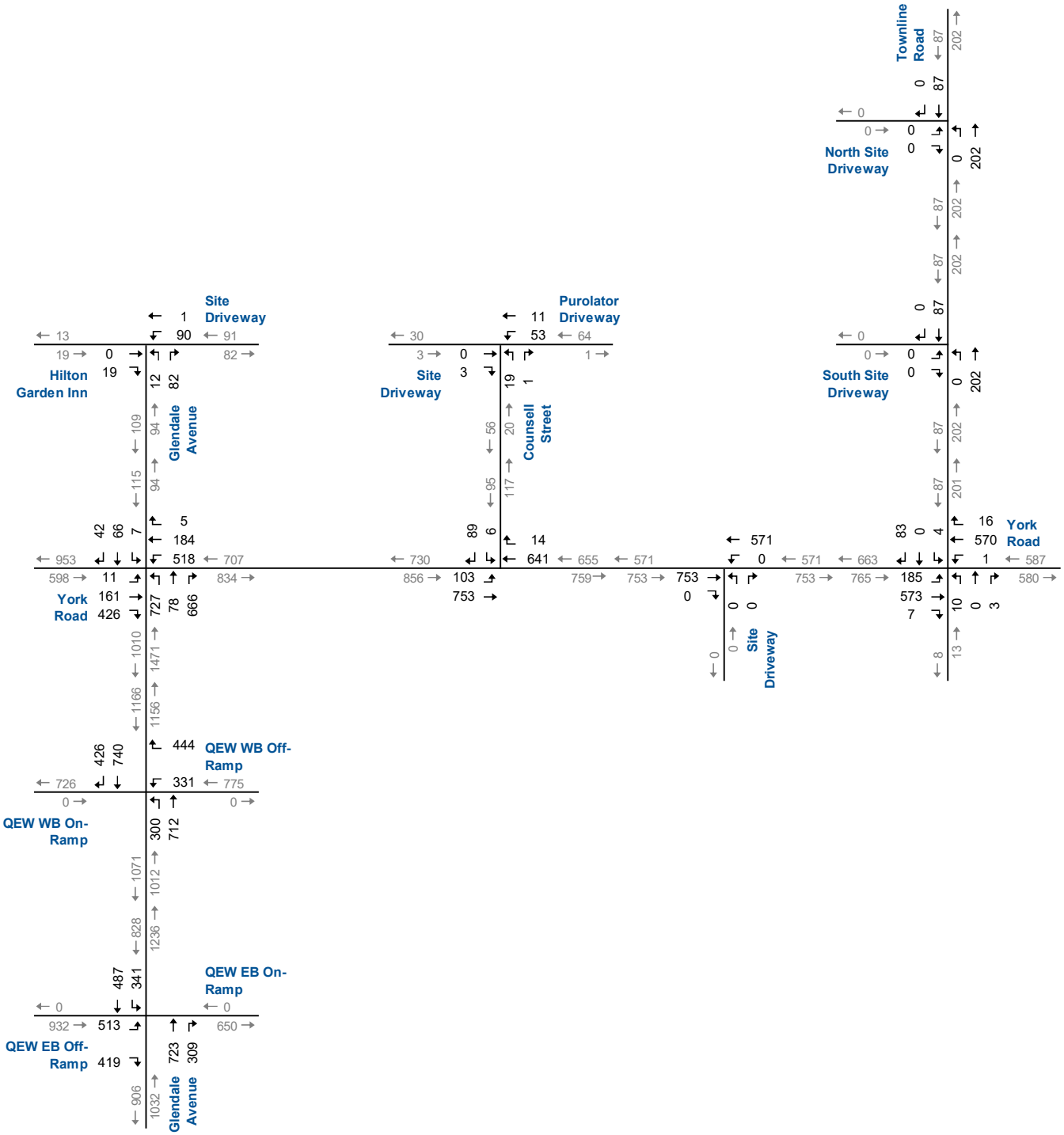
A "Yes" will be returned, indicating the subject intersection should proceed to an Intersection Control Study, when the Property Impacts threshold is met and 1 of the following 3 thresholds is also met:

1. *A "Yes" is returned under either the Precluding Factors or Suitability Factors*
2. *A "Yes" is returned under the Fatal Collisions*
3. *A "Yes" is returned under either the Injury Collisions or Collisions by Type*

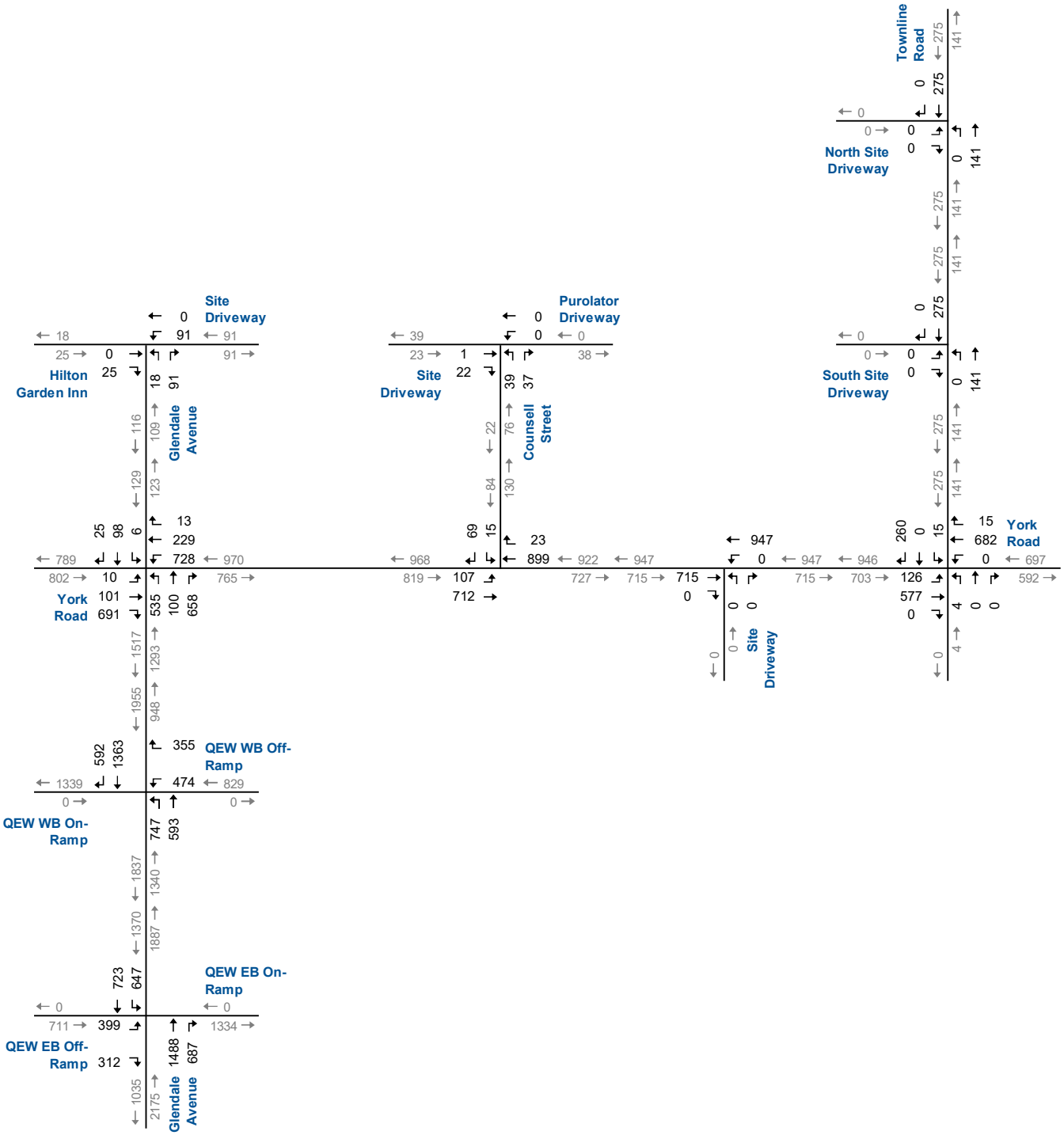
Part D Comments

Appendix N

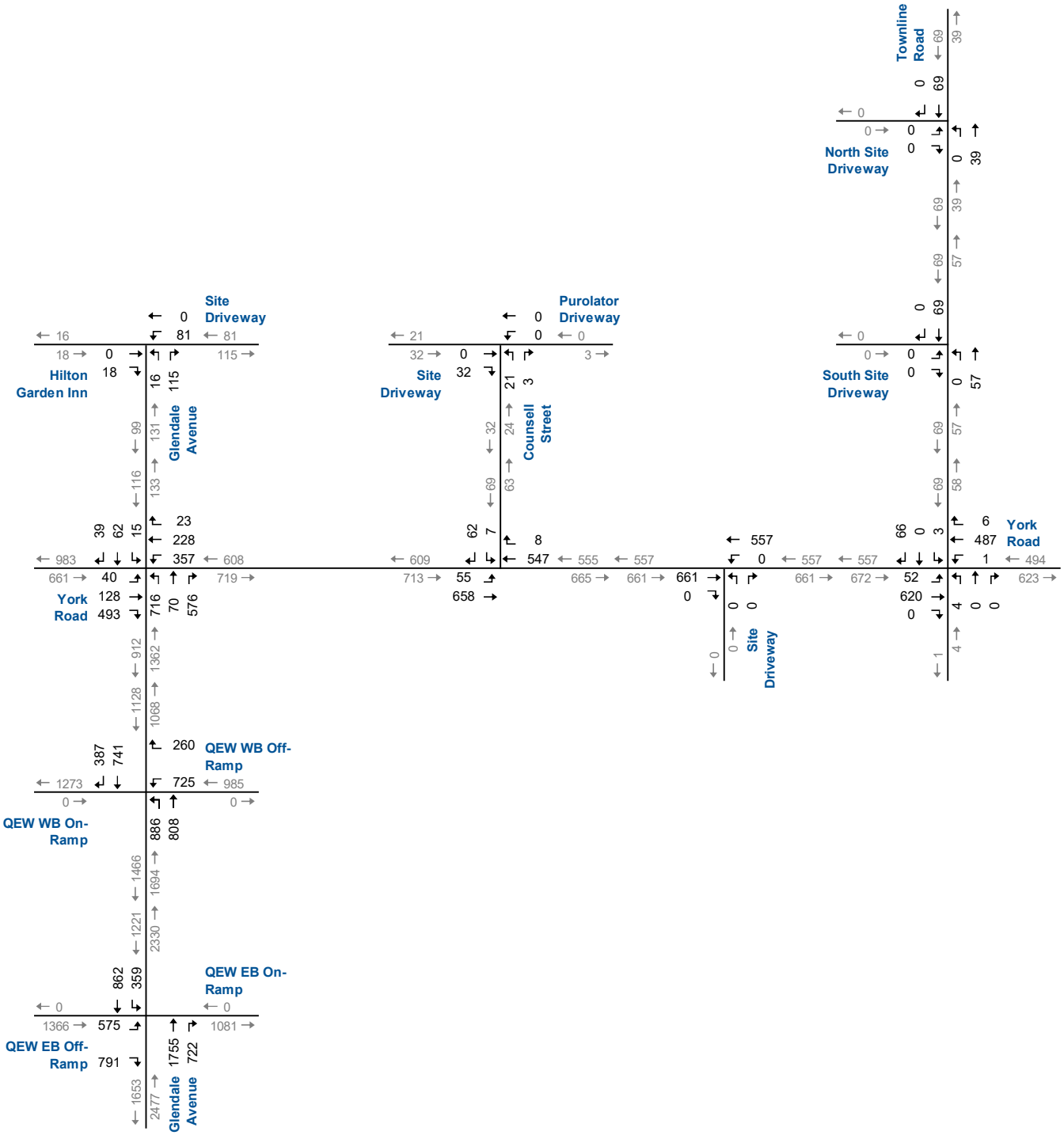
Phase 2 Isolated Projections/Analysis



524 York (Phase 2) – Total Traffic (2044) AM Peak Hour



524 York (Phase 2) – Total Traffic (2044) PM Peak Hour



524 York (Phase 2) – Total Traffic (2044) Saturday Peak Hour