Chinook Ridge Lodge and Golf Course Transportation Impact Assessment

Prepared for:
Chinook Ridge Lodge and
Golf Course Ltd.

Prepared by:
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Project No. 1491 04750

September 1, 2011

Corporate Authorization

This document entitled "Chinook Ridge Lodge and Golf Course Transportation Impact Assessment" was prepared by Stantec Consulting Ltd. for the account of the Chinook Ridge Lodge and Golf Course Ltd. The material in it reflects Stantec Consulting Ltd.'s best judgement in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or reliance on or decisions made based on it, are the responsibilities of such third parties. Stantec Consulting Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

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Signature
Date Sept 1, 2011
PERMIT NUMBER: P 0258
The Association of Professional Engineers, Geologists and Geophysicists of Alberta

CORPORATE AUTHORIZATION

PROFESSIONAL ENGINEER ALBERTA
DAVID THATCHER
9/1/11

RESPONSIBLE ENGINEER

CHINOOK RIDGE LODGE AND GOLF COURSE
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Executive Summary

Chinook Ridge Lodge & Golf Course Ltd. is proposing to develop the Chinook Ridge Lodge and Golf Course in the county of Rocky View, located approximately 30 minutes north west of Calgary. The proposed development is situated on approximately 150 acres (60.7 ha) of land west of Madden. The subject lands are bounded by Township Road 290 to the north and Range Road 35 to the east. Highway 22 to the west and Highway 574 to the south provide highway connections to Township Road 290 and Range Road 35 respectively. The Chinook Ridge Lodge and Golf Course is proposed to include an 18-hole golf course with banquet services seating up to 500. Lodging will also be available at the adjacent 21 room boutique hotel and 30 site campground/RV park (including 15 solar powered sleeping cabins and 15 RV stalls) planned for the development. Chinook Ridge Lodge & Golf Course Ltd. has retained Stantec Consulting Ltd. (Stantec) to prepare a Transportation Impact Assessment (TIA) to evaluate the impact of the development.

The analysis contained in this report demonstrates that the addition of the proposed development does not result in any significant impact to the study area intersections and, therefore no roadway improvements are required as a result of this project.

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1.1 BACKGROUND

Chinook Ridge Lodge & Golf Course Ltd. is proposing to develop the Chinook Ridge Lodge and Golf Course in the county of Rocky View, located approximately 30 minutes north west of Calgary. The proposed development is situated on approximately 150 acres (60.7 ha) of land west of Madden. The subject lands are bounded by Township Road 290 to the north and Range Road 35 to the east. Highway 22 to the west and Highway 574 to the south provide highway connections to Township Road 290 and Range Road 35 respectively. **Figure 1.1** illustrates the location of the subject site in relationship to the City of Calgary, which is situated approximately 30 km to the south and east of the subject site.

Lodging will also be available at the adjacent 21 room boutique hotel and 30 site campground/RV park (including 15 solar powered sleeping cabins and 15 RV stalls) planned for the development. Chinook Ridge Lodge & Golf Course Ltd. has retained Stantec Consulting Ltd. (Stantec) to prepare a Transportation Impact Assessment (TIA) to evaluate the impact of the development.

1.2 OBJECTIVES

The objectives of this analysis were established based on consideration of Rocky View County's Road Design Guidelines (Section 408 – Traffic Analysis/Traffic Assessments) and discussions with County staff. The objectives of the study, as agreed to with Rocky View County are to:

- Establish future (2015 and 2035) background traffic conditions in the vicinity of the proposed development with background growth on Township Road 290 and Highway 574 to be assessed based on an assumed 2.5% annually compounded growth rate
- Estimate the magnitude and distribution of peak hour traffic generated by the proposed development at the 2015 and 2035 horizons
- Evaluate the impacts of vehicular traffic generated by the proposed development on the adjacent roadway system
- Identify and recommend any required traffic operation and/or infrastructure improvements necessary to accommodate the traffic anticipated to be generated by the proposed development

1.3 STUDY AREA

The Study area was established based on discussions with Rocky View County. Correspondence regarding the scope of this study is included in **Appendix A**. The study area intersections identified for this study include the following:

- Highway 22 / Township Road 290
- Highway 22 / Highway 574
- Range Road 35 / Township Road 290
- Range Road 35 / Chinook Ridge Golf Course Access
- Range Road 35 / Highway 574
- Highway 766 / Township Road 290
- Highway 766 / Highway 574

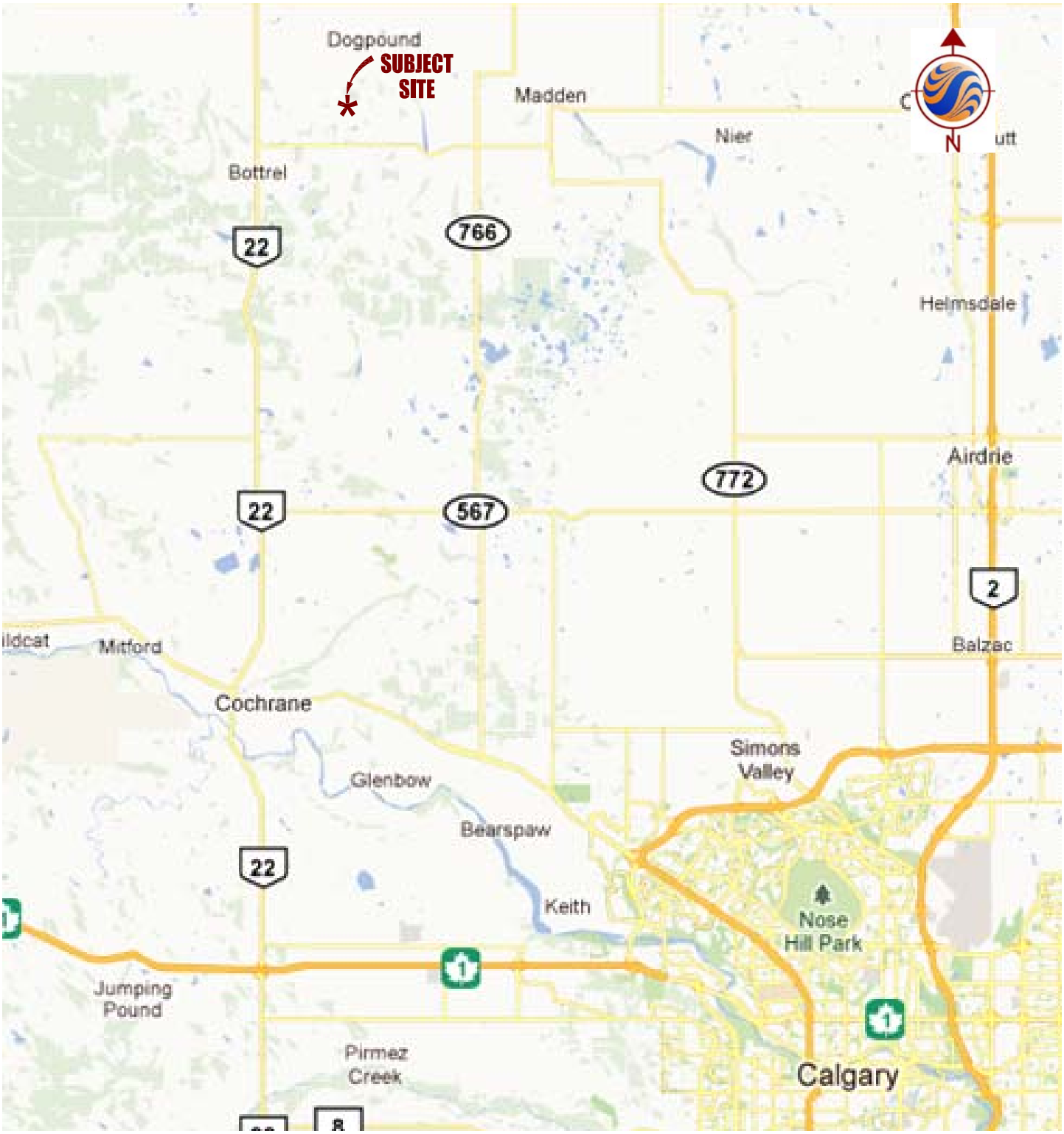

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Figure No.
1.1

Title
Site Location

2.0 Development Proposal

2.1 PROPOSED DEVELOPMENT

The proposed development includes an 18-hole golf course with banquet services as well as a 20 room boutique hotel. During the scoping of this TIA, it was agreed that trip generation for the development would be calculated using ITE Land Use Codes 430 (Golf Course) and 330 (Resort Hotel). The RV stalls and solar-powered cabins are proposed as ancillary use to the golf course and banquet hall and therefore they are not anticipated to generate additional traffic to the site The ITE description for golf courses indicates that they may include banquet facilities, and therefore these facilities have not broken this out separately. Additionally, there are some small spa, exercise and beauty functions that have been considered to be supporting services for the hotel and therefore have not included as separate trip generators. **Table 2.1** summarizes the proposed composition of the development.

Table 2.1 – Development Summary

Use	Intensity
Golf Couse	18 Holes
Resort Hotel	20 Occupied Rooms

2.2 PLANNING HORIZONS

The hotel and lodge are anticipated to open in 2012, with the golf course operations beginning in 2013 or 2014, depending on the type of grass selected. Therefore, this study contains the analysis of the 2015 horizon (all facilities will be fully-operational by 2015) as well as the 2035 horizon considers a period 20 years beyond the opening-day horizon.

3.0 Traffic Volumes

3.1 EXISTING TRAFFIC VOLUMES

Existing traffic counts were conducted at the study area intersections on August 17, 2011 during the AM (7:00-9:00) and PM (4:00-6:00) peak periods. The existing peak hour traffic volumes are graphically depicted in **Figure 3.1**. The count sheets are included in **Appendix B**.

3.2 BACKGROUND TRAFFIC VOLUMES

The background traffic volumes were estimated by applying the agreed upon 2.5% annually compounded growth rate to the volumes depicted in **Figure 3.1.** The resulting 2015 background traffic volumes are depicted in **Figure 3.2** and the 2035 background traffic volumes are depicted in **Figure 3.3.**

3.3 TRIP GENERATION

As noted in Section 2 of this report, during the scoping of this TIA it was agreed that trip generation for the development would be calculated using ITE Land Use Codes 430 (Golf Course) and 330 (Resort Hotel). The trip generation rates and resulting trip generation are summarized in **Table 3.1**.

Table 3.1 – Trip Generation Rates

Use	Units	AM Peak Hour			PM Peak Hour		
			In	Out		In	Out
Golf Course	18 holes	2.23 vph/hole	79%	21%	2.78 vph/hole	45%	55%
		40	32	8	50	23	27
Resort Hotel	21 Occupied Rooms	0.37 vph/occ. room	29%	71%	0.49 vph/occ. room	61%	39%
		7	2	5	10	6	4

3.4 TRIP DISTRIBTUTION AND ASSIGNMENT

The directional distribution patterns for trips generated by the development were estimated based on logical travel patterns. The estimated trip distribution patterns and resulting trip generation are graphically depicted on **Figures 3.4 and 3.5.** The post development traffic volumes were obtained by adding the trip generation illustrated on **Figures 3.4 and 3.5** to the 2015 and 2035 background traffic shown in **Figures 3.2 and 3.3.** The resulting 2015 and 2035 post development traffic volumes are shown on **Figures 3.6 and 3.7,** respectively.

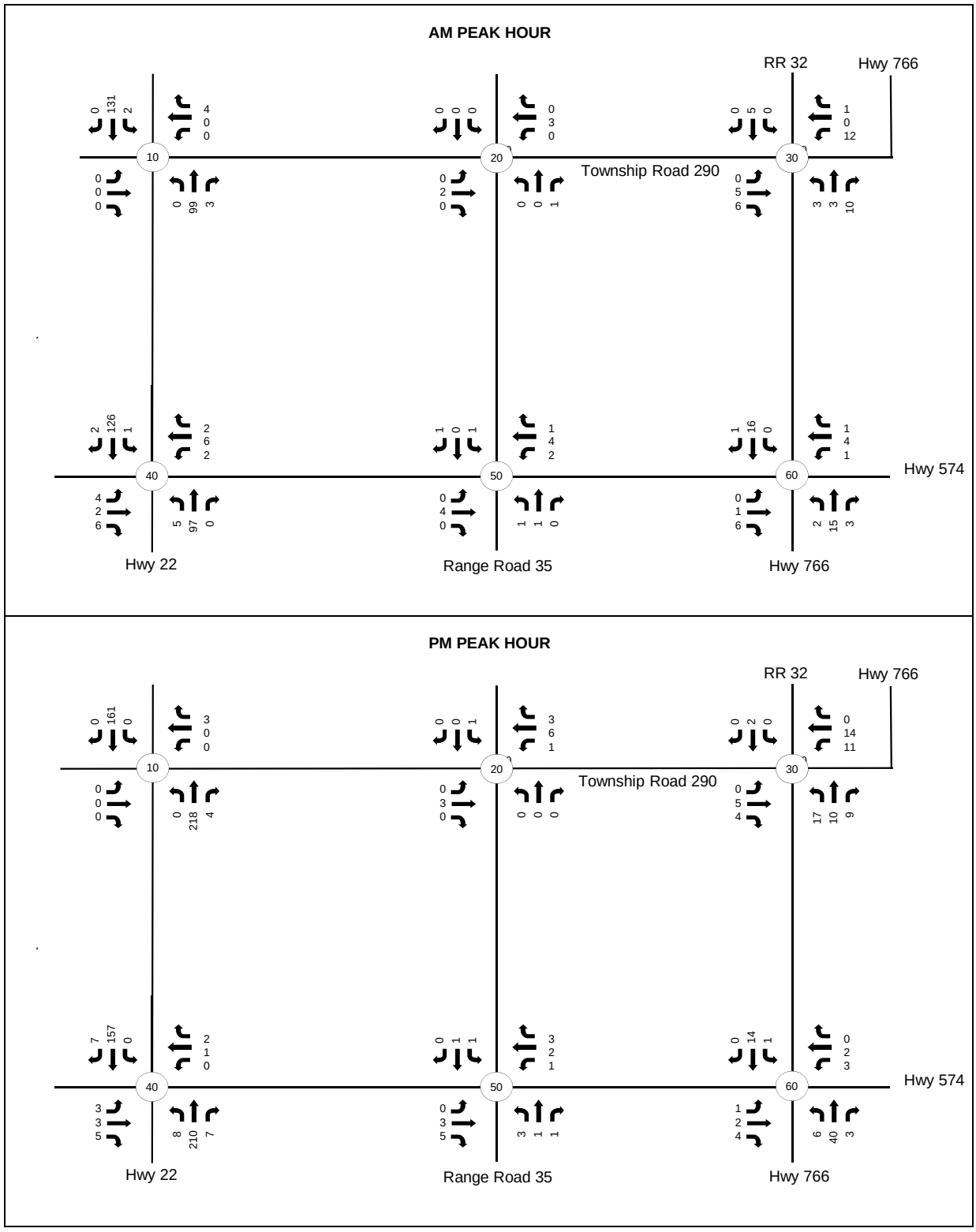

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Figure 3.1
Existing (2011)
Traffic Volumes

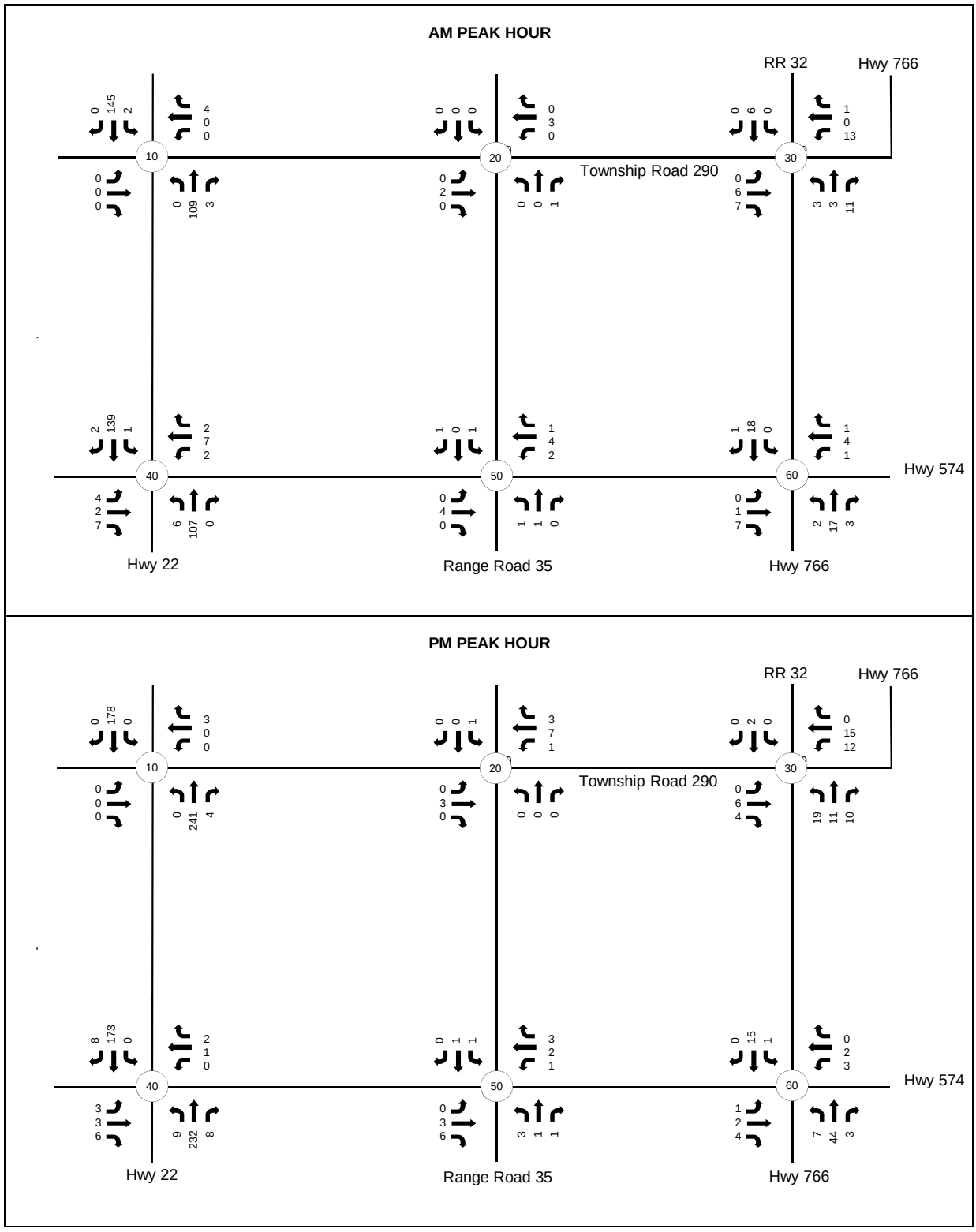

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Figure 3.2
2015 Background
Traffic Volumes

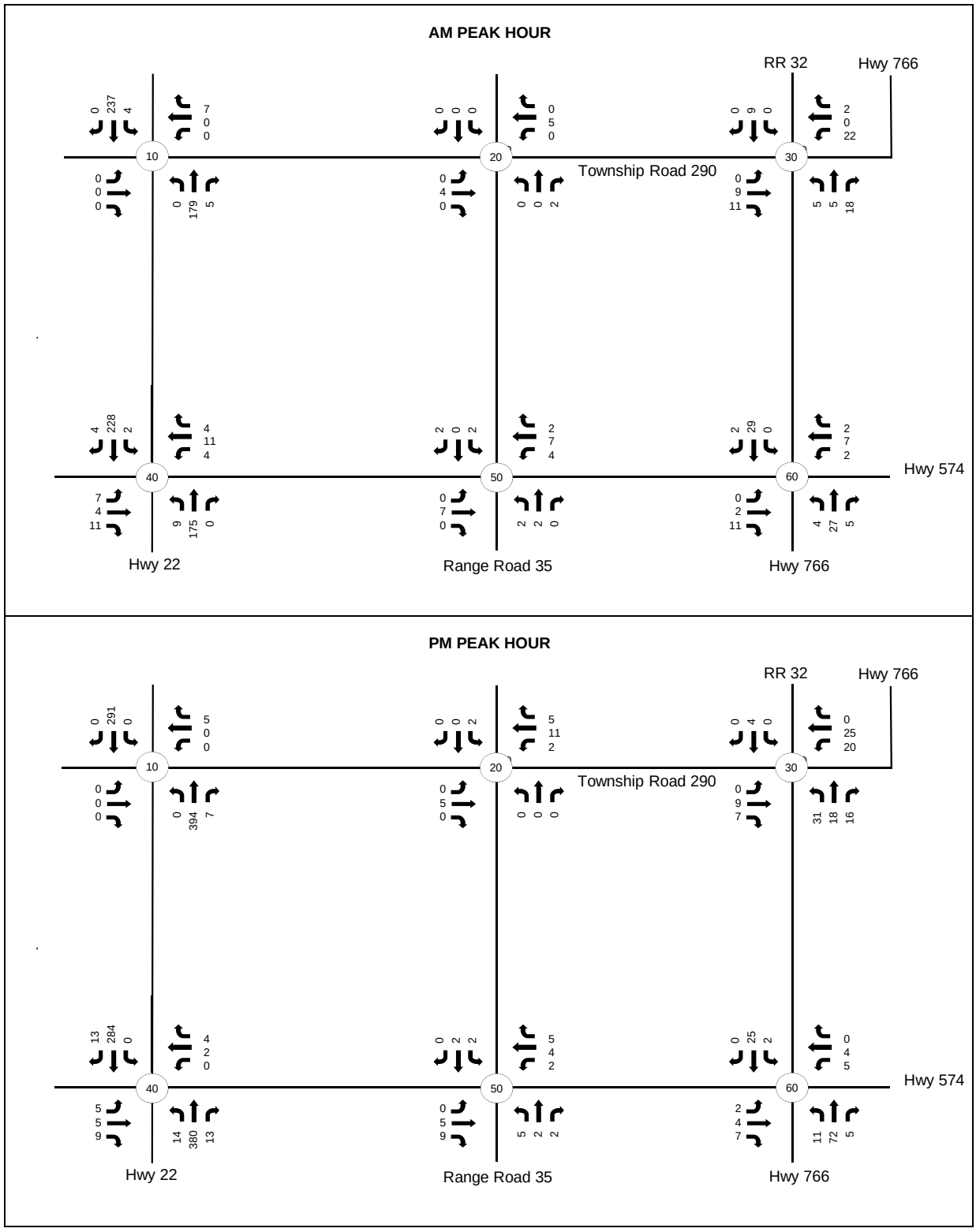

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Figure 3.3
2035 Background
Traffic Volumes

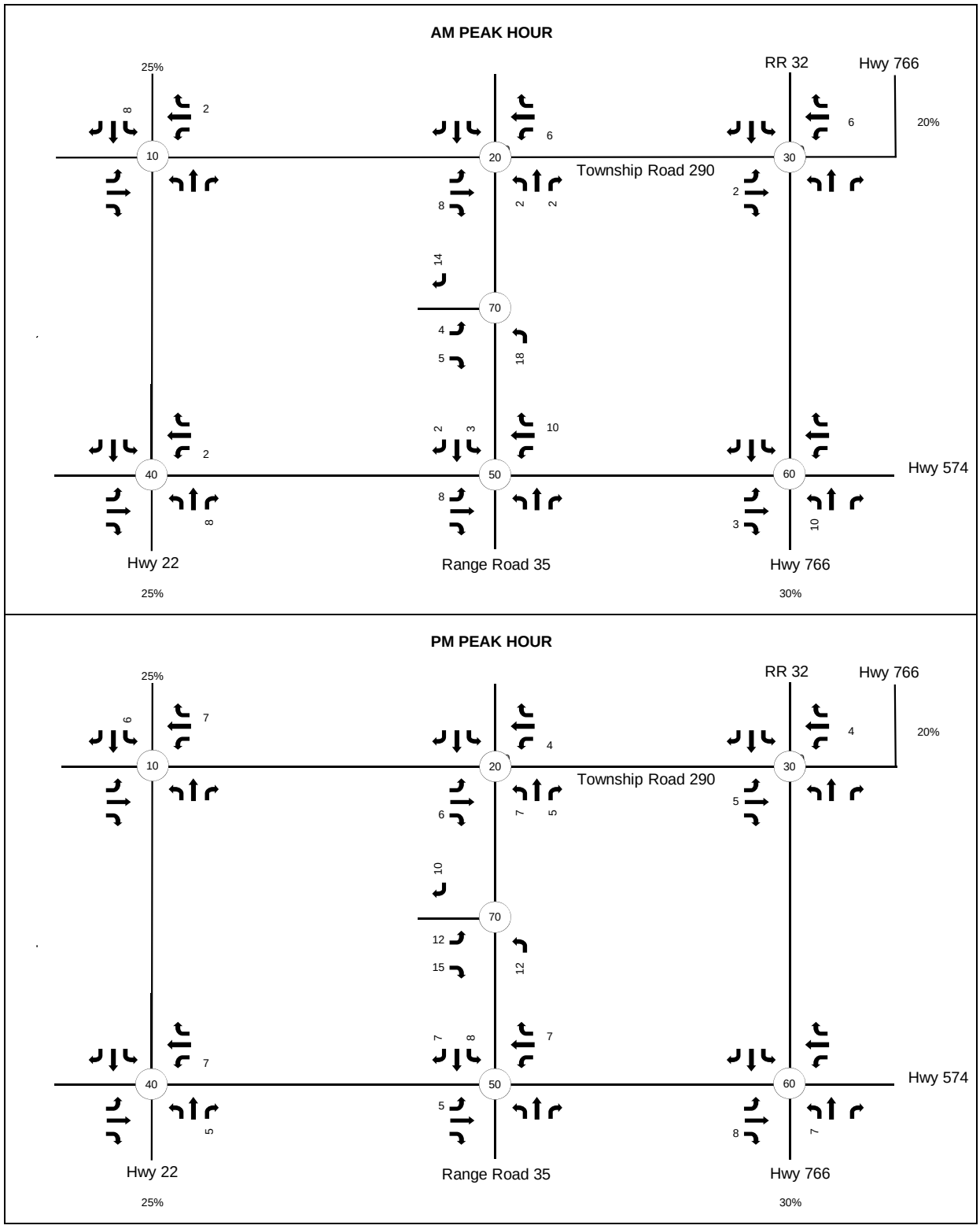

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Figure 3.4
Golf Course Site-Generated Traffic Volumes

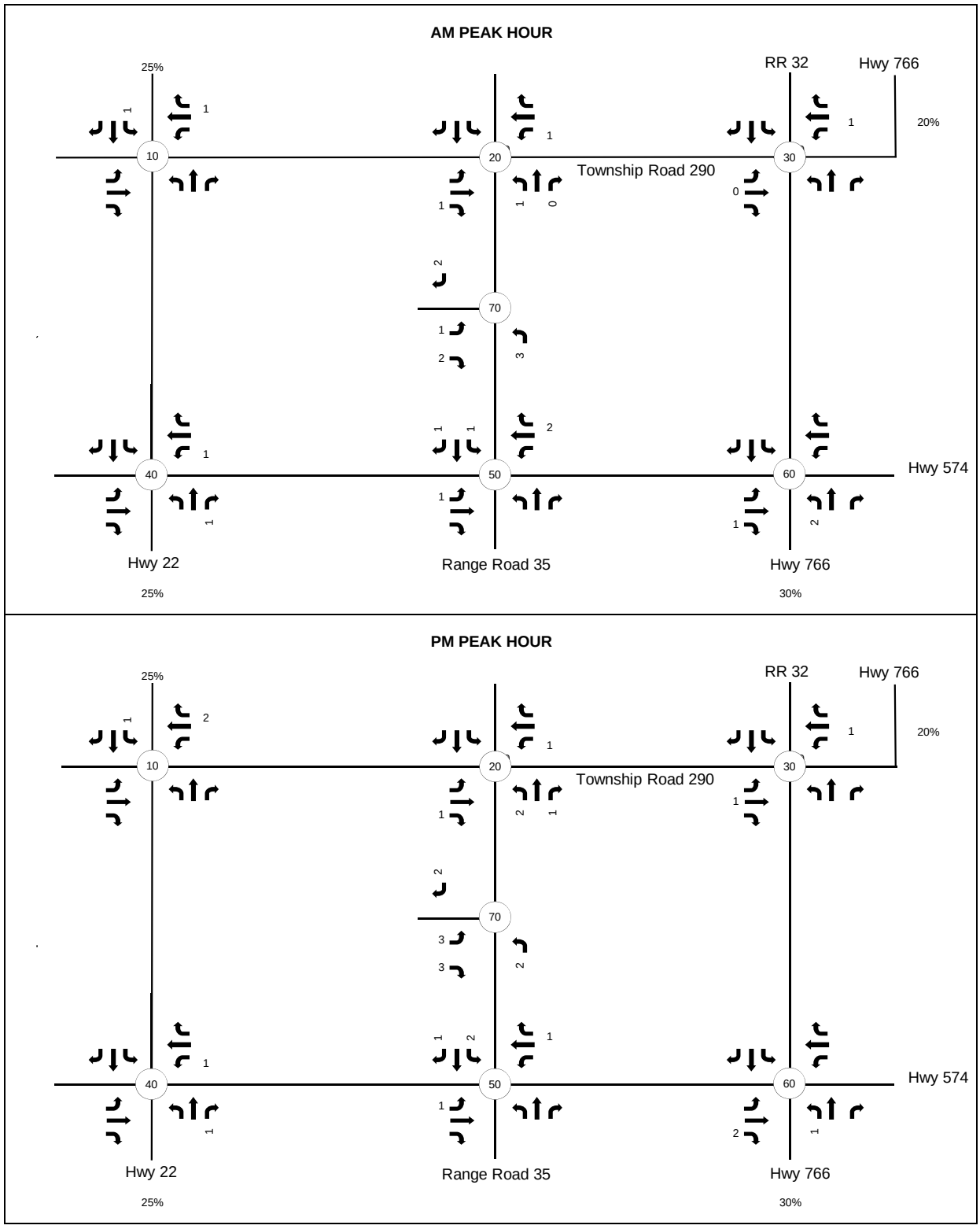

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Figure 3.5
Hotel Site-Generated Traffic Volumes

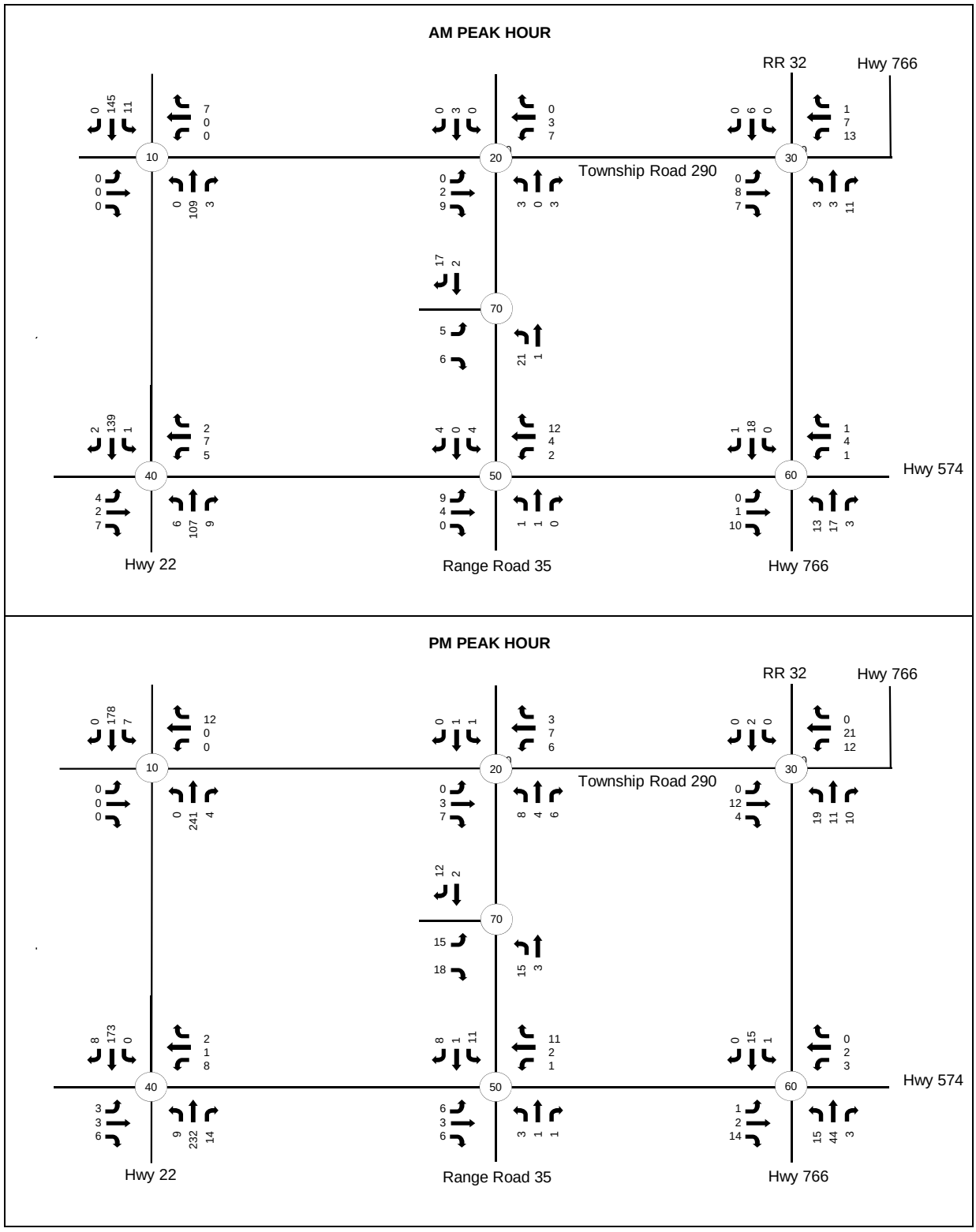

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Figure 3.6
2015 Post-Development
Traffic Volumes

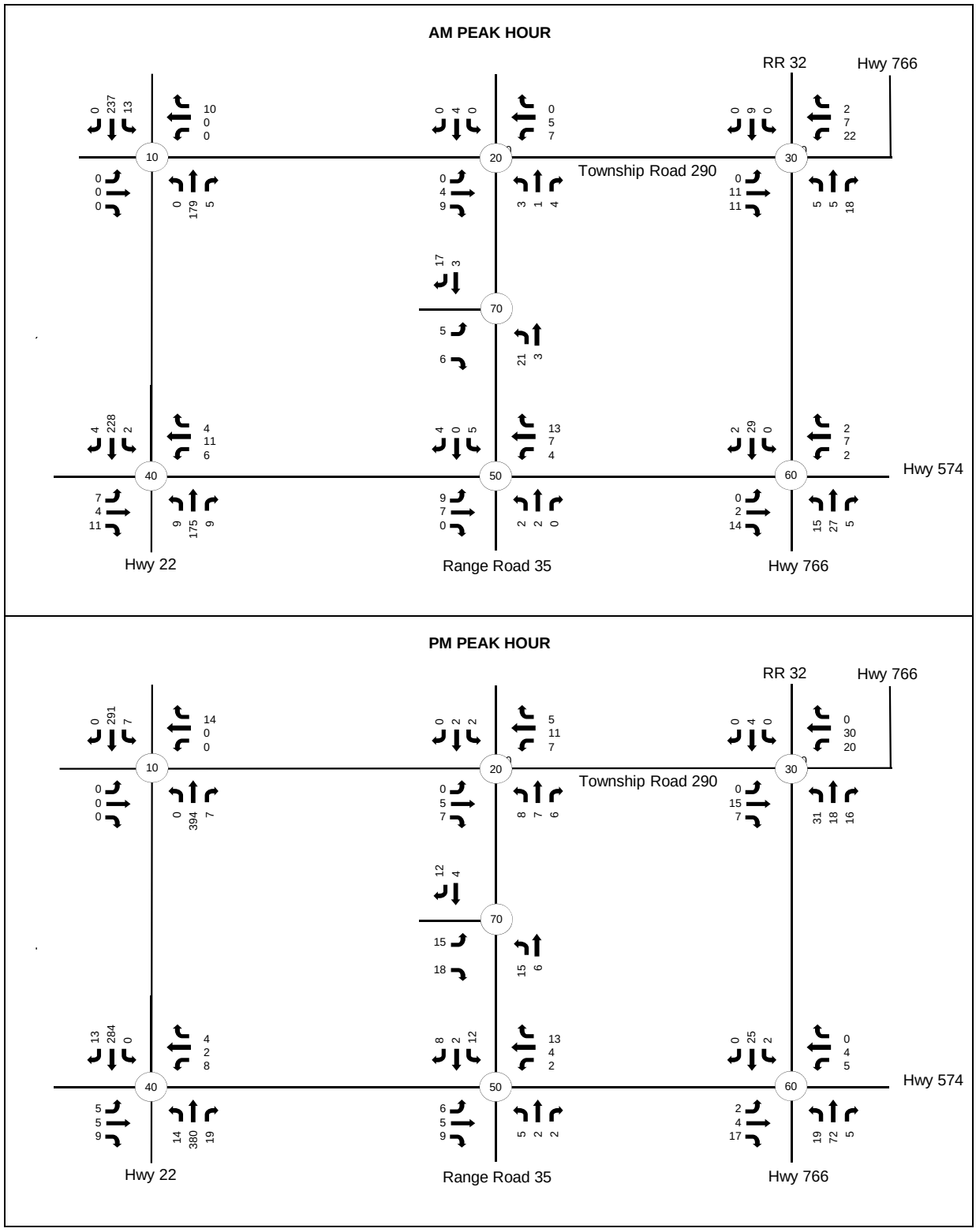

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Figure 3.7
2035 Post-Development
Traffic Volumes

4.0 Intersection analysis

4.1 ANALYSIS CRITERIA

Analysis of the study area intersections was undertaken using the Synchro 7 software package, which is based on the Highway Capacity Manual (HCM 2000).

For unsignalized intersections, the methodology considers the intersection geometry, the traffic volumes, the posted speed limit and the type of intersection control. The average delay for each individual movement from the minor street, the major street left-turn movements and the overall intersection are calculated. An operation level of service (LOS) is then assigned based on the calculated average delay. For signalized intersections, the methodology considers the intersection geometry, the traffic volumes, the posted speed limit, the traffic signal phasing / timing plan as well as pedestrian volumes. The average delay for each lane group and the overall intersection are calculated. An operation LOS is then assigned based on the calculated average delay. The level of service criteria for both signalized and unsignalized intersections is described in **Table 4.1**.

The volume-to-capacity (v / c) ratio was also considered. If the v / c ratio for a movement is greater than 1.00, then that movement has technically exceeded capacity. The County's threshold for the v / c ratio is 0.90 for through movements and 0.90 for critical movements.

Table 4.1 – Level of Service Criteria

Level of Service	Average Control Delay (seconds per vehicle)		Comment
	Signalized Intersection	Unsignalized Intersection	
A	10.0 or less	10.0 or less	Very good operation
B	10.1 to 20.0	10.1 to 15.0	Good operation
C	20.1 to 35.0	15.1 to 25.0	Acceptable operation
D	35.1 to 55.0	25.1 to 35.0	Congestion
E	55.1 to 80.0	35.1 to 50.0	Significant congestion
F	More than 80.0	More than 50.0	Unacceptable operation
Breakdown	Very high	Very high	Conditions so poor that capacity calculations are meaningless

4.2 BACKGROUND OPERATING CONDITIONS

The analysis of the 2015 background horizon demonstrates that all study area intersections are anticipated to operate at acceptable levels of service as unsignalized intersections with no modifications to the existing intersection geometry. The results of the 2015 background analysis are summarized in **Table 4.2**.

The analysis of the 2035 background horizon demonstrates that all study area intersections are anticipated to operate at acceptable levels of service as unsignalized intersections with no modifications to the existing intersection geometry. The results of the 2035 background analysis are summarized in **Table 4.3**.

Capacity Analysis Report summaries for the analysis of the background conditions are included in **Appendix C.**

4.3 POST DEVELOPMENT OPERATING CONDITIONS

The analysis of the 2015 post development horizon demonstrates that all study area intersections are anticipated to operate at acceptable levels of service as unsignalized intersections with no modifications to the existing intersection geometry. The results of the 2015 post development analysis are summarized in **Table 4.4**.

The analysis of the 2035 post development horizon demonstrates that all study area intersections are anticipated to operate at acceptable levels of service as unsignalized intersections with no modifications to the existing intersection geometry. The results of the 2035 post development analysis are summarized in **Table 4.5**.

Capacity Analysis Report summaries for the analysis of the post development conditions are included in **Appendix C.**

Table 4.2 - Level of Service Summary for 2015 Background Traffic Volumes

Intersection	Intersection ID	Intersection Control Device	Interval	Measure	Eastbound			Westbound			Northbound			Southbound			Overall Intersection LOS
					Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
Highway 22 / Township Road 290	10	Stop-Control Township Road 290	AM Peak Hour	Volumes (vph)	0	0	0	0	0	4	0	109	3	2	145	0	A
				Level of Service		A			A			A			A		
				V/C Ratio by Movement		0.00			0.00			0.00			0.00		
				Queue Length (in metres)		0			0			0			0		
			PM Peak Hour	Volumes (vph)	0	0	0	0	0	3	0	241	4	0	178	0	A
				Level of Service		A			A			A			A		
				V/C Ratio by Movement		0.00			0.00			0.00			0.00		
				Queue Length (in metres)		0			0			0			0		
Township Road 290 / Range Road 35	20	Stop-Control Range Road 35	AM Peak Hour	Volumes (vph)	0	2	0	0	3	0	0	0	1	0	0	0	A
				Level of Service		A			A			A			A		
				V/C Ratio by Movement		0.00			0.00			0.00			0.00		
				Queue Length (in metres)		0			0			0			0		
			PM Peak Hour	Volumes (vph)	0	3	0	1	7	3	0	0	0	1	0	0	A
				Level of Service		A			A			A			A		
				V/C Ratio by Movement		0.00			0.00			0.00			0.00		
				Queue Length (in metres)		0			0			0			0		
Highway 766 / Township Road 290	30	Stop-Control Township Road 290	AM Peak Hour	Volumes (vph)	0	6	7	13	0	1	3	3	11	0	6	0	A
				Level of Service		A			A		A		A		A		
				V/C Ratio by Movement													
				Queue Length (in metres)													
			PM Peak Hour	Volumes (vph)	0	6	4	12	15	0	19	11	10	0	2	0	A
				Level of Service		A			A		A		A		A		
				V/C Ratio by Movement		0.01			0.03		0.01		0.01		0.00		
				Queue Length (in metres)		0			1		0		0		0		
Highway 22 / Highway 574	40	Stop-Control Highway 574	AM Peak Hour	Volumes (vph)	4	2	7	2	7	2	6	107	0	1	139	2	A
				Level of Service		A			B			A			A		
				V/C Ratio by Movement		0.02			0.02			0.00			0.00		
				Queue Length (in metres)		0			0			0			0		
			PM Peak Hour	Volumes (vph)	3	3	6	0	1	2	9	232	8	0	173	8	A
				Level of Service		B			B			A			A		
				V/C Ratio by Movement		0.02			0.00			0.01			0.00		
				Queue Length (in metres)		1			0			0			0		
Highway 574 / Range Road 35	50	Stop-Control Range Road 35	AM Peak Hour	Volumes (vph)	0	4	0	2	4	1	1	1	0	1	0	1	A
				Level of Service		A			A			A			A		
				V/C Ratio by Movement		0.00			0.00			0.00			0.00		
				Queue Length (in metres)		0			0			0			0		
			PM Peak Hour	Volumes (vph)	0	3	6	1	2	3	3	1	1	1	1	0	A
				Level of Service		A			A			A			A		
				V/C Ratio by Movement		0.00			0.00			0.01			0.00		
				Queue Length (in metres)		0			0			0			0		
Highway 766 / Highway 574	60	Stop-Control Highway 574	AM Peak Hour	Volumes (vph)	0	1	7	1	4	1	2	17	3	0	18	1	A
				Level of Service		A			A		A		A		A		
				V/C Ratio by Movement		0.01			0.01		0.00		0.00		0.00		
				Queue Length (in metres)		0			0		0		0		0		
			PM Peak Hour	Volumes (vph)	1	2	4	3	2	0	7	44	3	1	15	0	A
				Level of Service		A			A		A		A		A		
				V/C Ratio by Movement		0.01			0.01		0.00		0.00		0.00		
				Queue Length (in metres)		0			0		0		0		0		

Notes:

1. 95th percentile queues are based on Synchro results.
2. Bold indicates movements with v/c ratios > 0.90 or LOS F.

Table 4.3 - Level of Service Summary for 2035 Background Traffic Volumes

Intersection	Intersection ID	Intersection Control Device	Interval	Measure	Eastbound			Westbound			Northbound			Southbound			Overall Intersection LOS
					Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
Highway 22 / Township Road 290	10	Stop-Control Township Road 290	AM Peak Hour	Volumes (vph)	0	0	0	0	0	7	0	179	5	4	237	0	A
				Level of Service	A			A			A			A			
				V/C Ratio by Movement	0.00			0.01			0.00			0.00			
				Queue Length (in metres)	0			0			0			0			
			PM Peak Hour	Volumes (vph)	0	0	0	0	0	5	0	394	7	0	291	0	A
				Level of Service	A			B			A			A			
				V/C Ratio by Movement	0.00			0.01			0.00			0.00			
				Queue Length (in metres)	0			0			0			0			
Township Road 290 / Range Road 35	20	Stop-Control Range Road 35	AM Peak Hour	Volumes (vph)	0	4	0	0	5	0	0	0	2	0	0	0	A
				Level of Service	A			A			A			A			
				V/C Ratio by Movement	0.00			0.00			0.00			0.00			
				Queue Length (in metres)	0			0			0			0			
			PM Peak Hour	Volumes (vph)	0	5	0	2	11	5	0	0	0	2	0	0	A
				Level of Service	A			A			A			A			
				V/C Ratio by Movement	0.00			0.00			0.00			0.00			
				Queue Length (in metres)	0			0			0			0			
Highway 766 / Township Road 290	30	Stop-Control Township Road 290	AM Peak Hour	Volumes (vph)	0	9	11	22	0	2	5	5	18	0	9	0	A
				Level of Service	A			A			A		A	A			
				V/C Ratio by Movement	0.02			0.03			0.00		0.01	0.00			
				Queue Length (in metres)	1			1			0		0	0			
			PM Peak Hour	Volumes (vph)	0	9	7	20	25	0	31	18	16	0	4	0	A
				Level of Service	A			A			A		A	A			
				V/C Ratio by Movement	0.02			0.06			0.02		0.01	0.00			
				Queue Length (in metres)	1			1			1		0	0			
Highway 22 / Highway 574	40	Stop-Control Highway 574	AM Peak Hour	Volumes (vph)	7	4	11	4	11	4	9	175	0	2	228	4	A
				Level of Service	B			B			A			A			
				V/C Ratio by Movement	0.04			0.04			0.01			0.00			
				Queue Length (in metres)	1			1			0			0			
			PM Peak Hour	Volumes (vph)	5	5	9	0	2	4	14	380	13	0	284	13	A
				Level of Service	B			B			A			A			
				V/C Ratio by Movement	0.04			0.01			0.01			0.00			
				Queue Length (in metres)	1			0			0			0			
Highway 574 / Range Road 35	50	Stop-Control Range Road 35	AM Peak Hour	Volumes (vph)	0	7	0	4	7	2	2	2	0	2	0	2	A
				Level of Service	A			A			A			A			
				V/C Ratio by Movement	0.00			0.00			0.00			0.00			
				Queue Length (in metres)	0			0			0			0			
			PM Peak Hour	Volumes (vph)	0	5	9	2	4	5	5	2	2	2	2	0	A
				Level of Service	A			A			A			A			
				V/C Ratio by Movement	0.00			0.00			0.01			0.00			
				Queue Length (in metres)	0			0			0			0			
Highway 766 / Highway 574	60	Stop-Control Highway 574	AM Peak Hour	Volumes (vph)	0	2	11	2	7	2	4	27	5	0	29	2	A
				Level of Service	A			A			A		A	A			
				V/C Ratio by Movement	0.01			0.01			0.00		0.00	0.00			
				Queue Length (in metres)	0			0			0		0	0			
			PM Peak Hour	Volumes (vph)	2	4	7	5	4	0	11	72	5	2	25	0	A
				Level of Service	A			A			A		A	A			
				V/C Ratio by Movement	0.02			0.01			0.01		0.00	0.00			
				Queue Length (in metres)	0			0			0		0	0			

Notes:

1. 95th percentile queues are based on Synchro results.
2. Bold indicates movements with v/c ratios > 0.90 or LOS F.

Table 4.4 - Level of Service Summary for 2015 Post-Development Traffic Volumes

Intersection	Intersection ID	Intersection Control Device	Interval	Measure	Eastbound			Westbound			Northbound			Southbound			Overall Intersection LOS
					Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
Highway 22 / Township Road 290	10	Stop-Control Township Road 290	AM Peak Hour	Volumes (vph)	0	0	0	0	0	7	0	109	3	11	145	0	A
				Level of Service	A			A			A			A			
				V/C Ratio by Movement	0.00			0.01			0.00			0.01			
				Queue Length (in metres)	0			0			0			0			
			PM Peak Hour	Volumes (vph)	0	0	0	0	0	12	0	241	4	7	178	0	A
				Level of Service	A			A			A			A			
				V/C Ratio by Movement	0.00			0.02			0.00			0.01			
				Queue Length (in metres)	0			0			0			0			
Township Road 290 / Range Road 35	20	Stop-Control Range Road 35	AM Peak Hour	Volumes (vph)	0	2	9	7	3	0	3	0	3	0	3	0	A
				Level of Service	A			A			A			A			
				V/C Ratio by Movement	0.00			0.00			0.01			0.00			
				Queue Length (in metres)	0			0			0			0			
			PM Peak Hour	Volumes (vph)	0	3	7	6	7	3	8	4	6	1	1	0	A
				Level of Service	A			A			A			A			
				V/C Ratio by Movement	0.00			0.00			0.02			0.00			
				Queue Length (in metres)	0			0			1			0			
Highway 766 / Township Road 290	30	Stop-Control Township Road 290	AM Peak Hour	Volumes (vph)	0	8	7	13	7	1	3	3	11	0	6	0	A
				Level of Service	A			A			A		A	A			
				V/C Ratio by Movement	0.02			0.02			0.00		0.01	0.00			
				Queue Length (in metres)	0			1			0		0	0			
			PM Peak Hour	Volumes (vph)	0	12	4	12	21	0	19	11	10	0	2	0	A
				Level of Service	A			A			A		A	A			
				V/C Ratio by Movement	0.02			0.04			0.01		0.01	0.00			
				Queue Length (in metres)	1			1			0		0	0			
Highway 22 / Highway 574	40	Stop-Control Highway 574	AM Peak Hour	Volumes (vph)	4	2	7	5	7	2	6	107	9	1	139	2	A
				Level of Service	A			B			A			A			
				V/C Ratio by Movement	0.02			0.02			0.00			0.00			
				Queue Length (in metres)	0			1			0			0			
			PM Peak Hour	Volumes (vph)	3	3	6	8	1	2	9	232	14	0	173	8	A
				Level of Service	B			B			A			A			
				V/C Ratio by Movement	0.02			0.02			0.01			0.00			
				Queue Length (in metres)	1			1			0			0			
Highway 574 / Range Road 35	50	Stop-Control Range Road 35	AM Peak Hour	Volumes (vph)	9	4	0	2	4	12	1	1	0	4	0	4	A
				Level of Service	A			A			A			A			
				V/C Ratio by Movement	0.01			0.00			0.00			0.01			
				Queue Length (in metres)	0			0			0			0			
			PM Peak Hour	Volumes (vph)	6	3	6	1	2	11	3	1	1	11	1	8	A
				Level of Service	A			A			A			A			
				V/C Ratio by Movement	0.00			0.00			0.01			0.02			
				Queue Length (in metres)	0			0			0			1			
Highway 766 / Highway 574	60	Stop-Control Highway 574	AM Peak Hour	Volumes (vph)	0	1	10	1	4	1	13	17	3	0	18	1	A
				Level of Service	A			A			A		A	A			
				V/C Ratio by Movement	0.01			0.01			0.01		0.00	0.00			
				Queue Length (in metres)	0			0			0		0	0			
			PM Peak Hour	Volumes (vph)	1	2	14	3	2	0	15	44	3	1	15	0	A
				Level of Service	A			A			A		A	A			
				V/C Ratio by Movement	0.02			0.01			0.01		0.00	0.00			
				Queue Length (in metres)	0			0			0		0	0			
Site Access	70	Stop-Control Site Access	AM Peak Hour	Volumes (vph)	5		6				21	1			2	17	A
				Level of Service	A						A				A		
				V/C Ratio by Movement	0.01						0.01				0.01		
				Queue Length (in metres)	0						0				0		
			PM Peak Hour	Volumes (vph)	15		18				15	3			2	12	A
				Level of Service	A						A				A		
				V/C Ratio by Movement	0.03						0.01				0.01		
				Queue Length (in metres)	1						0				0		

Notes:

1. 95th percentile queues are based on Synchro results.
2. Bold indicates movements with v/c ratios > 0.90 or LOS F.

Table 4.5 - Level of Service Summary for 2035 Post-Development Traffic Volumes

Intersection	Intersection ID	Intersection Control Device	Interval	Measure	Eastbound			Westbound			Northbound			Southbound			Overall Intersection LOS
					Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
Highway 22 / Township Road 290	10	Stop-Control Township Road 290	AM Peak Hour	Volumes (vph)	0	0	0	0	0	10	0	179	5	13	237	0	A
				Level of Service	A			A			A			A			
				V/C Ratio by Movement	0.00			0.01			0.00			0.01			
				Queue Length (in metres)	0			0			0			0			
			PM Peak Hour	Volumes (vph)	0	0	0	0	0	14	0	394	7	7	291	0	
				Level of Service	A			B			A			A			
				V/C Ratio by Movement	0.00			0.02			0.00			0.01			
				Queue Length (in metres)	0			1			0			0			
Township Road 290 / Range Road 35	20	Stop-Control Range Road 35	AM Peak Hour	Volumes (vph)	0	4	9	7	5	0	3	1	4	0	4	0	A
				Level of Service	A			A			A			A			
				V/C Ratio by Movement	0.00			0.00			0.01			0.00			
				Queue Length (in metres)	0			0			0			0			
			PM Peak Hour	Volumes (vph)	0	5	7	7	11	5	8	7	6	2	2	0	
				Level of Service	A			A			A			A			
				V/C Ratio by Movement	0.00			0.00			0.02			0.00			
				Queue Length (in metres)	0			0			1			0			
Highway 766 / Township Road 290	30	Stop-Control Township Road 290	AM Peak Hour	Volumes (vph)	0	11	11	22	7	2	5	5	18	0	9	0	A
				Level of Service	A			A			A		A	A			
				V/C Ratio by Movement	0.02			0.04			0.00		0.01	0.00			
				Queue Length (in metres)	1			1			0		0	0			
			PM Peak Hour	Volumes (vph)	0	15	7	20	30	0	31	18	16	0	4	0	
				Level of Service	A			A			A		A	A			
				V/C Ratio by Movement	0.03			0.07			0.02		0.01	0.00			
				Queue Length (in metres)	1			2			1		0	0			
Highway 22 / Highway 574	40	Stop-Control Highway 574	AM Peak Hour	Volumes (vph)	7	4	11	6	11	4	9	175	9	2	228	4	A
				Level of Service	B			B			A			A			
				V/C Ratio by Movement	0.04			0.04			0.01			0.00			
				Queue Length (in metres)	1			1			0			0			
			PM Peak Hour	Volumes (vph)	5	5	9	8	2	4	14	380	19	0	284	13	
				Level of Service	B			C			A			A			
				V/C Ratio by Movement	0.05			0.04			0.01			0.00			
				Queue Length (in metres)	1			1			0			0			
Highway 574 / Range Road 35	50	Stop-Control Range Road 35	AM Peak Hour	Volumes (vph)	9	7	0	4	7	13	2	2	0	5	0	4	A
				Level of Service	A			A			A			A			
				V/C Ratio by Movement	0.01			0.00			0.00			0.01			
				Queue Length (in metres)	0			0			0			0			
			PM Peak Hour	Volumes (vph)	6	5	9	2	4	13	5	2	2	12	2	8	
				Level of Service	A			A			A			A			
				V/C Ratio by Movement	0.00			0.00			0.01			0.02			
				Queue Length (in metres)	0			0			0			1			
Highway 766 / Highway 574	60	Stop-Control Highway 574	AM Peak Hour	Volumes (vph)	0	2	14	2	7	2	15	27	5	0	29	2	A
				Level of Service	A			A			A		A	A			
				V/C Ratio by Movement	0.02			0.01			0.01		0.00	0.00			
				Queue Length (in metres)	0			0			0		0	0			
			PM Peak Hour	Volumes (vph)	2	4	17	5	4	0	19	72	5	2	25	0	
				Level of Service	A			A			A		A	A			
				V/C Ratio by Movement	0.03			0.01			0.01		0.00	0.00			
				Queue Length (in metres)	1			0			0		0	0			
Site Access	70	Stop-Control Site Access	AM Peak Hour	Volumes (vph)	5		6				21	3			3	17	A
				Level of Service	A						A				A		
				V/C Ratio by Movement	0.01						0.01				0.01		
				Queue Length (in metres)	0						0				0		
			PM Peak Hour	Volumes (vph)	15		18				15	6			4	12	
				Level of Service	A						A				A		
				V/C Ratio by Movement	0.03						0.01				0.01		
				Queue Length (in metres)	1						0				0		

Notes:

1. 95th percentile queues are based on Synchro results.
2. Bold indicates movements with v/c ratios > 0.90 or LOS F.

5.0 Conclusions

The Chinook Ridge Lodge and Golf Course is proposed to include an 18-hole golf course with banquet services seating up to 500. Lodging will also be available at the adjacent 21 room boutique hotel and 30 site campground/RV park (including 15 solar powered sleeping cabins and 15 RV stalls) planned for the development. The analysis contained in this report demonstrates that the addition of the proposed development does not result in any significant impact to the study area intersections and, therefore no roadway improvements are required as a result of this project.

Appendix A – Correspondence

Thatcher, David

From: nmirza@rockyview.ca
Sent: Wednesday, July 06, 2011 10:01 AM
To: Thatcher, David
Subject: RE: TIA - Terms of Reference

Hi Dave,

I was away from the office due to illness the last couple days. I apologize for not getting back to you sooner.

It may be worthwhile to study the following intersections as well:

-HWY 22 @ HWY 574 and TWP 290.
-HWY 766 @ HWY 574 and TWP 290.

I see these roadways and intersections as being the main carriers of traffic from Cochrane, Airdrie and Calgary.

At this time I do not see any other proposed developments within close proximity to the proposed golf course development.

Previously the County has accepted 2.5% linear growth for background traffic. Is there is technical preference for 2% annually compounded growth?

Is the proposal to complete the entire development in one phase by 2015? If the development is proposed to be completed in multiple phases then we would like to see traffic horizons broken down as such. The County would also like to see a 20 year horizon computed to see how the roadways and intersections are performing and if any future improvements are required as result of this development.

Should you have any questions do not hesitate to get in touch.

Regards,

Noor Mirza | ROCKY VIEW COUNTY
Municipal Engineer
DIR 403.520.3992 | FAX 403.520.7288

911-32 Avenue NE | Calgary, AB | T2E 6X6 nmirza@rockyview.ca | www.rockyview.ca

-----Original Message-----
From: Thatcher, David [mailto:David.Thatcher@stantec.com]
Sent: Monday, July 04, 2011 2:35 PM
To: Noor Mirza
Subject: RE: TIA - Terms of Reference

Hi Noor,

I just wanted to follow-up to see if you could provide me you feedback on the below proposed scope of work.

Dave

-----Original Message-----
From: Thatcher, David
Sent: Wednesday, June 22, 2011 5:22 PM
To: 'nmirza@rockyview.ca'
Subject: RE: TIA - Terms of Reference

Thanks Noor. My main question was actually regarding the scope the study. I'd like to get your comments on the below proposed scope of work. As I mentioned in my voicemail, please give me a call to discuss the below at your earliest convenience as I'd like to get our data collection done as soon as possible. Thanks.

The proposed Chinook Ridge golf course is an 18-hole golf course situated on approximately 160 acres of land. The course will contain a 20-room boutique hotel, a banquet hall (http://www.chinookridge.ca/). I'd propose that we include trip generation for the golf course using ITE Land Use Codes 430 (Golf Course) and 330 (Resort Hotel). The ITE description for golf courses indicate that they may include banquet facilities, therefore I have not broken this out separately. Additionally, there are some small spa, exercise and beauty functions that we have considered to be supporting services for the hotel and therefore have not included as separate trip generators. Please let me know if you have any different thoughts regarding trip generation.

At a minimum, we would want to study the following intersections:
Township Road 290 and Range Road 35
Access Point(s) and Range Road 35
Highway 574 and Range Road 35

I'd like to get your thoughts on whether or not you think that we need to look at any other intersections along either Township Road 290 or Highway 574. As part of our data collection effort, we would also collect daily traffic information on Township Road 290, Highway 574 and Range Road 35.

We would propose a 2015 horizon for the study and would apply a 2% annually compounded growth rate to the background volumes to determine the 2015 background traffic volumes. If there are any other developments in the area that you think should be considered in the development of the background traffic volumes please let me know.

Thanks in advance for your input on this scope and I look forward to discussing this further with you.

David J Thatcher, P.Eng.
Senior Associate
Stantec
200-325 25th Street SE
Calgary AB T2A 7H8
Ph: (403) 716-7981
Fx: (403) 716-8129
Cell: (403) 542-4390
david.thatcher@stantec.com
www.stantec.com

-----Original Message-----
From: nmirza@rockyview.ca [mailto:nmirza@rockyview.ca]
Sent: Wednesday, June 22, 2011 4:29 PM
To: Thatcher, David
Subject: TIA - Terms of Reference

Hi David,

Below is link to Section 400 of the County Servicing Standards. Terms of reference are outlined in Section 408.

http://www.rockyview.ca/LinkClick.aspx?fileticket=yoiakNJOp7Y%3d&tabid=686

If you have any further questions do not hesitate to get in touch.

Kind Regards,

Noor Mirza | ROCKY VIEW COUNTY
Municipal Engineer
DIR 403.520.3992 | FAX 403.520.7288

911-32 Avenue NE | Calgary, AB | T2E 6X6
nmirza@rockyview.ca<mailto:nmirza@rockyview.ca> |
www.rockyview.ca<http://www.rockyview.ca/>

Appendix B – Existing Traffic Data

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT

ME2 TRANSPORTATION DATA CORP.

Location Hwy 22 & Twp 290 Date 17-Aug-11 Observers GSS

time	FROM THE NORTH on Hwy 22						FROM THE SOUTH on Hwy 22						FROM THE EAST on Twp 290						FROM THE WEST on Twp 290					
ending	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	30	0	8	0	0	0	12	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	39	0	3	0	0	0	32	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	29	0	5	0	0	0	13	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
8:00	0	33	0	4	0	0	0	28	1	4	0	0	0	0	1	0	0	0	0	0	0	0	0	0
8:15	0	37	0	12	0	0	0	19	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	26	0	2	0	0	0	26	1	2	0	0	0	0	2	1	0	0	0	0	0	0	0	0
8:45	1	33	0	10	0	0	0	22	0	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0
9:00	1	35	0	15	0	0	0	32	2	4	0	0	0	0	1	0	0	0	0	0	0	0	0	0
2 hr total	2	262	0	59	0	0	0	184	5	21	1	0	0	0	6	1	0	0	0	0	0	0	0	0
		264		22%				189		11%				6		17%				0		#DIV/0!		
peak hour	2	131	0				0	99	3				0	0	4				0	0	0			
		133						102						4						0				
4:15	1	42	0	9	0	0	0	50	1	12	0	0	1	0	1	0	0	0	0	0	0	0	0	0
4:30	0	45	0	6	0	0	0	50	1	6	0	0	1	0	3	0	0	0	0	0	0	0	0	0
4:45	0	29	0	4	0	0	0	37	0	7	0	0	1	0	0	0	0	0	0	0	0	0	0	0
5:00	0	47	0	7	0	0	0	55	1	8	0	0	0	0	1	0	0	0	0	0	0	0	0	0
5:15	0	34	0	4	0	0	0	50	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30	0	45	0	6	0	0	0	64	2	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45	0	35	0	5	0	0	0	49	1	5	0	0	0	0	2	0	0	0	0	0	0	0	0	0
6:00	0	22	0	2	0	0	0	53	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 hr total	1	299	0	43	0	0	0	408	7	57	0	0	3	0	7	0	0	0	0	0	0	0	0	0
		300		14%				415		14%				10		0%				0		#DIV/0!		
peak hour	0	161	0				0	218	4				0	0	3				0	0	0			
		161						222						3						0				
4 hour	3	561	0				0	592	12				3	0	13				0	0	0			
total		564						604						16						0				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT

ME2 TRANSPORTATION DATA CORP.

Location Hwy 22 & Hwy 574 Date 17-Aug-11 Observers Anita

time	FROM THE NORTH on Hwy 22						FROM THE SOUTH on Hwy 22						FROM THE EAST on Hwy 574						FROM THE WEST on Hwy 574					
ending	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	27	1	9	0	0	0	20	0	1	0	0	0	0	0	0	0	0	1	0	3	0	0	0
7:30	0	37	0	1	0	0	1	23	0	4	0	0	1	0	0	0	0	0	1	0	4	1	0	0
7:45	0	28	1	7	0	0	0	21	0	2	0	0	1	0	0	0	0	0	0	0	2	0	0	0
8:00	1	36	1	4	0	0	1	20	0	3	0	0	0	1	0	0	0	0	0	0	1	0	0	0
8:15	0	35	0	10	0	0	1	21	0	2	0	0	0	4	0	0	0	0	0	0	2	0	0	0
8:30	0	26	1	4	0	0	1	23	0	2	0	0	1	1	1	1	0	0	2	0	2	1	0	0
8:45	0	29	0	8	0	0	2	24	0	5	0	0	1	1	1	0	0	0	0	1	2	0	0	0
9:00	1	36	1	16	0	0	1	29	0	2	0	0	0	0	0	0	0	0	2	1	0	1	0	0
2 hr total	2	254	5	59	0	0	7	181	0	21	0	0	4	7	2	1	0	0	6	2	16	3	0	0
		261		23%				188		11%				13		8%				24		13%		
peak hour	1	126	2				5	97	0				2	6	2				4	2	6			
		129						102						10						12				
4:15	0	37	1	7	0	0	6	52	0	12	0	0	0	2	0	0	0	0	0	0	2	0	0	0
4:30	1	45	3	10	0	0	3	46	0	5	0	0	0	1	0	0	0	0	1	0	2	0	0	0
4:45	2	29	0	2	0	0	1	42	0	8	0	0	1	0	0	0	0	0	2	0	1	0	0	0
5:00	0	49	0	9	0	0	2	46	1	8	0	0	0	0	0	0	0	0	1	0	2	0	0	0
5:15	0	24	3	2	0	0	0	47	2	7	0	0	0	0	1	0	0	0	1	1	0	0	0	0
5:30	0	46	3	6	0	0	3	72	1	9	0	0	0	0	0	0	0	0	0	2	2	0	0	0
5:45	0	38	1	6	0	0	3	45	3	4	0	0	0	1	1	0	0	0	1	0	1	0	0	0
6:00	0	20	1	2	0	0	5	51	0	5	0	0	0	0	2	0	0	0	0	1	1	0	0	0
2 hr total	3	288	12	44	0	0	23	401	7	58	0	0	1	4	4	0	0	0	6	4	11	0	0	0
		303		15%				431		13%				9		0%				21		0%		
peak hour	0	157	7				8	210	7				0	1	2				3	3	5			
		164						225						3						11				
4 hour total	5	542	17				30	582	7				5	11	6				12	6	27			
		564						619						22						45				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT

ME2 TRANSPORTATION DATA CORP.

Location Hwy 766 & Twp 290 Date 17-Aug-11 Observers BR

time	FROM THE NORTH on Hwy 766						FROM THE SOUTH on Hwy 766						FROM THE EAST on Twp 290						FROM THE WEST on Twp 290					
ending	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	2	1	0	0	0
7:45	0	1	0	0	0	0	2	1	3	0	0	0	2	1	0	0	0	0	0	2	3	0	0	0
8:00	0	1	0	0	0	0	1	0	1	0	0	0	6	0	0	1	0	0	0	1	2	0	0	0
8:15	0	1	0	0	0	0	1	2	2	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0
8:30	0	1	0	0	0	0	0	1	2	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
8:45	0	2	0	0	0	0	1	0	5	1	0	0	4	0	1	2	0	0	0	4	1	1	0	0
9:00	0	1	0	0	0	0	2	0	1	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0
2 hr total	0	7	0	0	0	0	7	5	14	1	0	0	16	2	2	3	0	0	0	10	10	1	0	0
		7		0%				26		4%				20		15%				20		5%		
peak hour	0	5	0				3	3	10				12	0	1				0	5	6			
		5						16						13						11				
4:15	0	2	0	0	0	0	0	0	3	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
4:30	0	0	0	0	0	0	0	2	11	2	0	0	3	1	1	2	0	0	0	1	0	0	0	0
4:45	0	0	0	0	0	0	2	3	6	3	0	0	3	4	0	0	0	0	0	1	0	0	0	0
5:00	0	1	0	0	0	0	2	0	5	1	0	0	2	3	0	0	0	0	0	0	0	0	0	0
5:15	0	1	0	0	0	0	5	3	1	0	0	0	0	6	0	0	0	0	0	1	1	0	0	0
5:30	0	0	0	0	0	0	2	1	3	0	0	0	2	3	0	0	0	0	0	0	2	0	0	0
5:45	0	0	0	0	0	0	6	3	2	0	0	0	1	3	0	0	0	0	0	0	1	0	0	0
6:00	0	1	0	0	0	0	4	3	3	0	0	0	8	2	0	0	0	0	0	4	0	1	0	0
2 hr total	0	5	0	0	0	0	21	15	34	6	0	0	20	23	1	2	0	0	0	7	4	1	0	0
		5		0%				70		9%				44		5%				11		9%		
peak hour	0	2	0				17	10	9				11	14	0				0	5	4			
		2						36						25						9				
4 hour	0	12	0				28	20	48				36	25	3				0	17	14			
total		12						96						64						31				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT

ME2 TRANSPORTATION DATA CORP.

Location Hwy 766 & Hwy 574 Date 17-Aug-11 Observers PG

time	FROM THE NORTH on Hwy 766						FROM THE SOUTH on Hwy 766						FROM THE EAST on Hwy 574						FROM THE WEST on Hwy 574					
ending	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	4	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
7:30	0	2	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	6	0	0	0	0	0	4	1	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0
8:00	0	4	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
8:15	0	4	0	0	0	0	1	4	1	0	0	0	0	2	1	0	0	0	0	0	3	0	0	0
8:30	0	4	0	0	0	0	0	5	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0
8:45	0	5	1	0	0	0	1	4	2	1	0	0	1	0	0	0	0	0	0	1	1	0	0	0
9:00	0	3	0	1	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0
2 hr total	0	32	3	1	0	0	4	23	4	2	0	0	3	5	1	1	0	0	1	2	7	0	0	0
		35		3%				31		6%				9		11%				10		0%		
peak hour	0	16	1				2	15	3				1	4	1				0	1	6			
		17						20						6						7				
4:15	0	3	0	0	0	0	1	4	2	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0
4:30	1	1	1	1	0	0	3	13	1	4	1	0	0	1	0	0	0	0	0	0	0	0	0	0
4:45	0	3	0	0	0	0	0	11	0	1	0	0	0	0	1	0	0	0	1	1	0	1	0	0
5:00	0	3	0	0	0	0	1	7	0	1	0	0	0	1	0	0	0	0	0	1	1	0	0	0
5:15	1	1	0	0	0	0	1	8	0	0	0	0	2	1	0	0	0	0	1	2	1	0	0	0
5:30	0	5	0	0	0	0	4	8	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0
5:45	0	1	0	1	0	0	0	11	2	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0
6:00	0	7	0	0	0	0	1	13	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
2 hr total	2	24	1	2	0	0	11	75	6	9	1	0	3	4	1	0	0	0	2	4	6	1	0	0
		27		7%				92		10%				8		0%				12		8%		
peak hour	1	14	0				6	40	3				3	2	0				1	2	4			
		15						49						5						7				
4 hour total	2	56	4				15	98	10				6	9	2				3	6	13			
		62						123						17						22				

INTERSECTION TRAFFIC FLOW ANALYSIS REPORT

ME2 TRANSPORTATION DATA CORP.

Location Range Road 35 & Twp 290 Date 17-Aug-11 Observers MS

time	FROM THE NORTH on RR 35						FROM THE SOUTH on RR 35						FROM THE EAST on Twp 290						FROM THE WEST on Twp 290					
ending	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
7:30	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
8:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
8:45	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0
2 hr total	2	0	0	0	0	0	0	0	1	0	0	0	1	4	0	0	0	0	1	3	1	0	0	0
		2		0%				1		0%				5		0%				5		0%		
peak hour	0	0	0				0	0	1				0	3	0				0	2	0			
		0						1						3						2				
4:15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:30	1	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0
4:45	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
5:00	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0
5:30	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	1	0	0	0	1	0	0	0	0
5:45	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	1	0	0
6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
2 hr total	2	0	0	0	0	0	4	0	0	1	0	0	1	9	3	1	0	0	0	4	0	2	0	0
		2		0%				4		25%				13		8%				4		50%		
peak hour	1	0	0				0	0	0				1	6	3				0	3	0			
		1						0						10						3				
4 hour total	4	0	0				4	0	1				2	13	3				1	7	1			
		4						5						18						9				

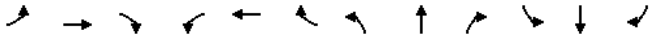
INTERSECTION TRAFFIC FLOW ANALYSIS REPORT

ME2 TRANSPORTATION DATA CORP.

Location Range Road 35 & Hwy 574 Date 17-Aug-11 Observers MH

time	FROM THE NORTH on RR 35						FROM THE SOUTH on RR 35						FROM THE EAST on Hwy 574						FROM THE WEST on Hwy 574					
ending	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE	LT	ST	RT	CV	PED	BIKE
7:15	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	
8:15	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	1	0	0	0	
8:30	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	
8:45	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	
9:00	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	
2 hr total	1	0	2	0	0	0	3	2	0	0	0	0	2	5	1	1	0	0	0	5	2	0	0	0
		3		0%				5		0%				8		13%				7		0%		
peak hour	1	0	1				1	1	0				2	4	1				0	4	0			
		2						2						7						4				
4:15	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:30	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
4:45	0	0	0	0	0	0	1	1	0	1	0	0	0	2	0	2	0	0	0	1	3	0	0	0
5:00	1	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0
5:15	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0
5:30	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0
5:45	1	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0
6:00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2 hr total	2	1	2	0	0	0	5	1	1	1	0	0	1	5	4	2	0	0	1	4	5	0	0	0
		5		0%				7		14%				10		20%				10		0%		
peak hour	1	1	0				3	1	1				1	2	3				0	3	5			
		2						5						6						8				
4 hour total	3	1	4				8	3	1				3	10	5				1	9	7			
		8						12						18						17				

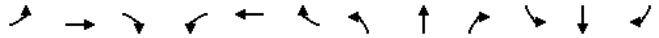
Appendix C – Capacity Analysis Report Summaries



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	4	0	109	3	2	145	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	0	0	0	4	0	116	3	2	154	0
Pedestrians								1				
Lane Width (m)								4.8				
Walking Speed (m/s)								1.2				
Percent Blockage								0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	280	278	155	277	276	118	154			119		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	280	278	155	277	276	118	154			119		
tC, single (s)	7.1	6.5	6.2	7.3	6.7	6.4	4.2			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.2	3.5	2.3			2.4		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	672	633	895	645	606	895	1373			1354		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	4	119	156
Volume Left	0	0	0	2
Volume Right	0	4	3	0
cSH	1700	895	1373	1354
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.1	0.0	0.0
Control Delay (s)	0.0	9.0	0.0	0.1
Lane LOS	A	A		A
Approach Delay (s)	0.0	9.0	0.0	0.1
Approach LOS	A	A		

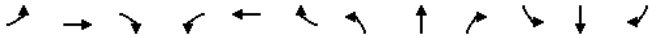
Intersection Summary				
Average Delay			0.2	
Intersection Capacity Utilization			19.8%	ICU Level of Service
Analysis Period (min)			15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	2	0	0	3	0	0	0	1	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	2	0	0	3	0	0	0	1	0	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)												
pX, platoon unblocked												
vC, conflicting volume	3			2			5	5	2	6	5	3
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3			2			5	5	2	6	5	3
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1632			1633			1020	894	1088	1018	894	1087

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	2	3	1	0
Volume Left	0	0	0	0
Volume Right	0	0	1	0
cSH	1632	1633	1088	1700
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	8.3	0.0
Lane LOS			A	A
Approach Delay (s)	0.0	0.0	8.3	0.0
Approach LOS			A	A

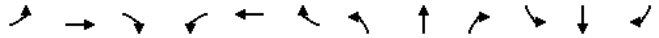
Intersection Summary				
Average Delay			1.4	
Intersection Capacity Utilization			13.3%	ICU Level of Service
Analysis Period (min)			15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	6	7	13	0	1	3	3	11	0	6	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	6	7	14	0	1	3	3	12	0	6	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)												
pX, platoon unblocked												
vC, conflicting volume	17	28	6	27	16	3	6			15		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	17	28	6	27	16	3	6			15		
tC, single (s)	7.1	6.5	6.2	7.2	6.7	6.4	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	100	99	99	99	100	100	100			100		
cM capacity (veh/h)	987	858	1068	938	851	1044	1601			1616		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	14	15	6	12	6
Volume Left	0	14	3	0	0
Volume Right	7	1	0	12	0
cSH	959	945	1601	1700	1616
Volume to Capacity	0.01	0.02	0.00	0.01	0.00
Queue Length 95th (m)	0.3	0.4	0.0	0.0	0.0
Control Delay (s)	8.8	8.9	3.6	0.0	0.0
Lane LOS	A	A	A		
Approach Delay (s)	8.8	8.9	1.3		0.0
Approach LOS	A	A			

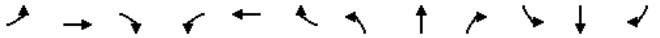
Intersection Summary				
Average Delay	5.2			
Intersection Capacity Utilization	20.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	2	7	2	7	2	6	107	0	1	139	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	4	2	7	2	7	2	6	114	0	1	148	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	284	278	149	286	279	114	150			114		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	284	278	149	286	279	114	150			114		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2			4.3		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.4		
p0 queue free %	99	100	99	100	99	100	100			100		
cM capacity (veh/h)	637	609	869	644	616	923	1378			1355		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	14	12	120	151
Volume Left	4	2	6	1
Volume Right	7	2	0	2
cSH	738	661	1378	1355
Volume to Capacity	0.02	0.02	0.00	0.00
Queue Length 95th (m)	0.4	0.4	0.1	0.0
Control Delay (s)	10.0	10.5	0.4	0.1
Lane LOS	A	B	A	A
Approach Delay (s)	10.0	10.5	0.4	0.1
Approach LOS	A	B		

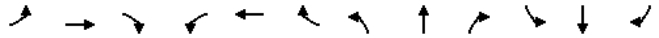
Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	20.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	4	0	2	4	1	1	1	0	1	0	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	4	0	2	4	1	1	1	0	1	0	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	5			4			14	14	4	14	13	5
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	5			4			14	14	4	14	13	5
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1629			1548			1005	883	1085	1006	884	1084

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	4	7	2	2
Volume Left	0	2	1	1
Volume Right	0	1	0	1
cSH	1629	1548	940	1044
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.1	0.0
Control Delay (s)	0.0	2.1	8.8	8.5
Lane LOS		A	A	A
Approach Delay (s)	0.0	2.1	8.8	8.5
Approach LOS			A	A

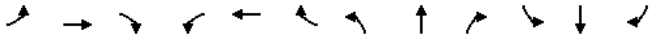
Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	13.3%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1	7	1	4	1	2	17	3	0	18	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	1	7	1	4	1	2	18	3	0	19	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	45	45	20	50	43	18	20			21		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	45	45	20	50	43	18	20			21		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.3			2.2		
p0 queue free %	100	100	99	100	99	100	100			100		
cM capacity (veh/h)	956	849	1064	919	831	1035	1570			1588		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	9	6	20	3	20
Volume Left	0	1	2	0	0
Volume Right	7	1	0	3	1
cSH	1031	874	1570	1700	1588
Volume to Capacity	0.01	0.01	0.00	0.00	0.00
Queue Length 95th (m)	0.2	0.2	0.0	0.0	0.0
Control Delay (s)	8.5	9.2	0.8	0.0	0.0
Lane LOS	A	A	A		
Approach Delay (s)	8.5	9.2	0.7		0.0
Approach LOS	A	A			

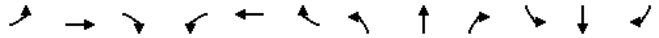
Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	20.0%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	3	0	241	4	0	178	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	0	0	0	3	0	254	4	0	187	0
Pedestrians								1				
Lane Width (m)								4.8				
Walking Speed (m/s)								1.2				
Percent Blockage								0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	446	445	188	444	443	256	187			258		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	446	445	188	444	443	256	187			258		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	524	511	858	527	512	788	1318			1240		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	3	258	187
Volume Left	0	0	0	0
Volume Right	0	3	4	0
cSH	1700	788	1318	1240
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.1	0.0	0.0
Control Delay (s)	0.0	9.6	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	0.0	9.6	0.0	0.0
Approach LOS	A	A		

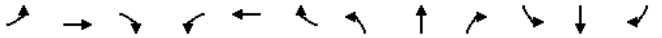
Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	23.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	3	0	1	7	3	0	0	0	1	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	3	0	1	7	3	0	0	0	1	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)												
pX, platoon unblocked												
vC, conflicting volume	11			3			14	16	3	14	14	9
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	11			3			14	16	3	14	14	9
tC, single (s)	4.6			4.2			7.3	6.8	6.5	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.7			2.3			3.7	4.2	3.5	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1346			1580			945	834	1017	1007	884	1079

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	12	0	1
Volume Left	0	1	0	1
Volume Right	0	3	0	0
cSH	1346	1580	1700	1007
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.7	0.0	8.6
Lane LOS		A	A	A
Approach Delay (s)	0.0	0.7	0.0	8.6
Approach LOS			A	A

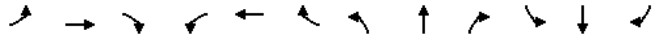
Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	6	4	12	15	0	19	11	10	0	2	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	6	4	13	16	0	20	12	11	0	2	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)												
pX, platoon unblocked												
vC, conflicting volume	62	64	2	61	54	12	2			22		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	62	64	2	61	54	12	2			22		
tC, single (s)	7.2	6.6	6.3	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	99	100	99	98	100	99			100		
cM capacity (veh/h)	894	803	1062	909	821	1060	1575			1606		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	11	28	32	11	2
Volume Left	0	13	20	0	0
Volume Right	4	0	0	11	0
cSH	890	858	1575	1700	1606
Volume to Capacity	0.01	0.03	0.01	0.01	0.00
Queue Length 95th (m)	0.3	0.8	0.3	0.0	0.0
Control Delay (s)	9.1	9.3	4.7	0.0	0.0
Lane LOS	A	A	A		
Approach Delay (s)	9.1	9.3	3.5		0.0
Approach LOS	A	A			

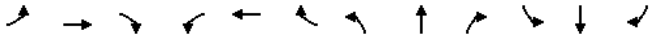
Intersection Summary					
Average Delay	6.1				
Intersection Capacity Utilization	23.2%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	3	6	0	1	2	9	232	8	0	173	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	3	3	6	0	1	2	9	244	8	0	182	8
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	456	458	186	462	458	248	191			253		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	456	458	186	462	458	248	191			253		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	99	99	99	100	100	100	99			100		
cM capacity (veh/h)	513	499	861	505	499	795	1320			1240		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	13	3	262	191
Volume Left	3	0	9	0
Volume Right	6	2	8	8
cSH	637	664	1320	1240
Volume to Capacity	0.02	0.00	0.01	0.00
Queue Length 95th (m)	0.5	0.1	0.2	0.0
Control Delay (s)	10.8	10.5	0.3	0.0
Lane LOS	B	B	A	
Approach Delay (s)	10.8	10.5	0.3	0.0
Approach LOS	B	B		

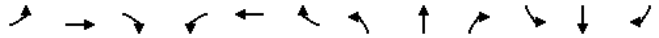
Intersection Summary					
Average Delay	0.6				
Intersection Capacity Utilization	30.7%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	3	6	1	2	3	3	1	1	1	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	3	6	1	2	3	3	1	1	1	1	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)												
pX, platoon unblocked												
vC, conflicting volume	5			9			13	14	6	14	15	4
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	5			9			13	14	6	14	15	4
tC, single (s)	4.1			4.3			7.2	6.6	6.3	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.4			3.6	4.1	3.4	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1629			1500			973	857	1042	1005	882	1086

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	9	6	5	2
Volume Left	0	1	3	1
Volume Right	6	3	1	0
cSH	1629	1500	960	940
Volume to Capacity	0.00	0.00	0.01	0.00
Queue Length 95th (m)	0.0	0.0	0.1	0.1
Control Delay (s)	0.0	1.2	8.8	8.8
Lane LOS		A	A	A
Approach Delay (s)	0.0	1.2	8.8	8.8
Approach LOS			A	A

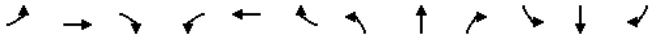
Intersection Summary					
Average Delay	3.1				
Intersection Capacity Utilization	13.3%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	2	4	3	2	0	7	44	3	1	15	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1	2	4	3	2	0	7	46	3	1	16	0
Pedestrians								1				
Lane Width (m)								4.2				
Walking Speed (m/s)								1.2				
Percent Blockage								0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	80	82	17	85	79	46	16			49		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	80	82	17	85	79	46	16			49		
tC, single (s)	7.2	6.6	6.3	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	888	792	1044	896	811	1029	1551			1526		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	7	5	54	3	17
Volume Left	1	3	7	0	1
Volume Right	4	0	0	3	0
cSH	936	860	1551	1700	1526
Volume to Capacity	0.01	0.01	0.00	0.00	0.00
Queue Length 95th (m)	0.2	0.1	0.1	0.0	0.0
Control Delay (s)	8.9	9.2	1.0	0.0	0.5
Lane LOS	A	A	A		A
Approach Delay (s)	8.9	9.2	1.0		0.5
Approach LOS	A	A			

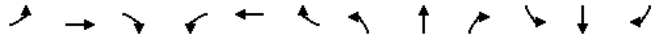
Intersection Summary					
Average Delay	2.1				
Intersection Capacity Utilization	20.3%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	7	0	179	5	4	237	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	0	0	0	7	0	190	5	4	252	0
Pedestrians								1				
Lane Width (m)								4.8				
Walking Speed (m/s)								1.2				
Percent Blockage								0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	461	456	253	455	454	193	252			196		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	461	456	253	455	454	193	252			196		
tC, single (s)	7.1	6.5	6.2	7.3	6.7	6.4	4.2			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.2	3.5	2.3			2.4		
p0 queue free %	100	100	100	100	100	99	100			100		
cM capacity (veh/h)	508	502	790	489	479	812	1262			1266		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	7	196	256
Volume Left	0	0	0	4
Volume Right	0	7	5	0
cSH	1700	812	1262	1266
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.2	0.0	0.1
Control Delay (s)	0.0	9.5	0.0	0.2
Lane LOS	A	A		A
Approach Delay (s)	0.0	9.5	0.0	0.2
Approach LOS	A	A		

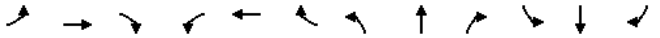
Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	26.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	4	0	0	5	0	0	0	2	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	4	0	0	5	0	0	0	2	0	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)												
pX, platoon unblocked												
vC, conflicting volume	5			4			10	10	4	12	10	5
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	5			4			10	10	4	12	10	5
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1629			1631			1014	889	1085	1009	889	1084

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	4	5	2	0
Volume Left	0	0	0	0
Volume Right	0	0	2	0
cSH	1629	1631	1085	1700
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	8.3	0.0
Lane LOS			A	A
Approach Delay (s)	0.0	0.0	8.3	0.0
Approach LOS			A	A

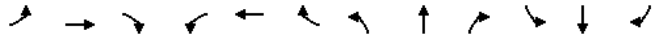
Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	9	11	22	0	2	5	5	18	0	9	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	10	12	23	0	2	5	5	19	0	10	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)												
pX, platoon unblocked												
vC, conflicting volume	28	45	10	42	26	5	10			24		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	28	45	10	42	26	5	10			24		
tC, single (s)	7.1	6.5	6.2	7.2	6.7	6.4	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	100	99	99	97	100	100	100			100		
cM capacity (veh/h)	970	838	1063	909	840	1041	1597			1603		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	21	26	11	19	10
Volume Left	0	23	5	0	0
Volume Right	12	2	0	19	0
cSH	949	919	1597	1700	1603
Volume to Capacity	0.02	0.03	0.00	0.01	0.00
Queue Length 95th (m)	0.5	0.7	0.1	0.0	0.0
Control Delay (s)	8.9	9.0	3.6	0.0	0.0
Lane LOS	A	A	A		
Approach Delay (s)	8.9	9.0	1.3		0.0
Approach LOS	A	A			

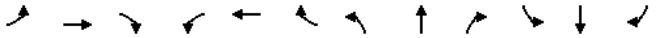
Intersection Summary				
Average Delay	5.3			
Intersection Capacity Utilization	20.0%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	4	11	4	11	4	9	175	0	2	228	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	7	4	12	4	12	4	10	186	0	2	243	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	464	454	245	468	456	186	247			186		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	464	454	245	468	456	186	247			186		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2			4.3		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.4		
p0 queue free %	98	99	98	99	98	99	99			100		
cM capacity (veh/h)	475	481	768	481	487	841	1268			1272		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	23	20	196	249
Volume Left	7	4	10	2
Volume Right	12	4	0	4
cSH	589	533	1268	1272
Volume to Capacity	0.04	0.04	0.01	0.00
Queue Length 95th (m)	0.9	0.9	0.2	0.0
Control Delay (s)	11.4	12.0	0.4	0.1
Lane LOS	B	B	A	A
Approach Delay (s)	11.4	12.0	0.4	0.1
Approach LOS	B	B		

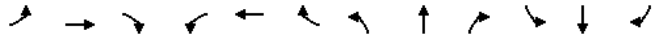
Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	25.5%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	7	0	4	7	2	2	2	0	2	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	7	0	4	7	2	2	2	0	2	0	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	10			7			27	26	7	26	24	9
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	10			7			27	26	7	26	24	9
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1623			1544			985	869	1081	986	870	1079

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	7	14	4	4
Volume Left	0	4	2	2
Volume Right	0	2	0	2
cSH	1623	1544	923	1031
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.1	0.1	0.1
Control Delay (s)	0.0	2.3	8.9	8.5
Lane LOS		A	A	A
Approach Delay (s)	0.0	2.3	8.9	8.5
Approach LOS			A	A

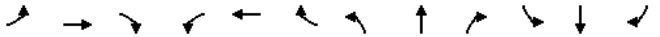
Intersection Summary				
Average Delay			3.5	
Intersection Capacity Utilization			14.2%	ICU Level of Service
Analysis Period (min)			15	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	2	11	2	7	2	4	27	5	0	29	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	2	12	2	7	2	4	29	5	0	31	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	75	74	32	82	70	29	33			34		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	75	74	32	82	70	29	33			34		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.3			2.2		
p0 queue free %	100	100	99	100	99	100	100			100		
cM capacity (veh/h)	910	818	1048	871	801	1021	1553			1571		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	14	12	33	5	33
Volume Left	0	2	4	0	0
Volume Right	12	2	0	5	2
cSH	1004	847	1553	1700	1571
Volume to Capacity	0.01	0.01	0.00	0.00	0.00
Queue Length 95th (m)	0.3	0.3	0.1	0.0	0.0
Control Delay (s)	8.6	9.3	1.0	0.0	0.0
Lane LOS	A	A	A		
Approach Delay (s)	8.6	9.3	0.8		0.0
Approach LOS	A	A			

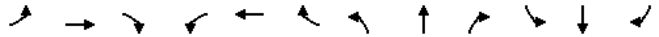
Intersection Summary				
Average Delay			2.7	
Intersection Capacity Utilization			20.0%	ICU Level of Service
Analysis Period (min)			15	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	5	0	394	7	0	291	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	0	0	0	5	0	415	7	0	306	0
Pedestrians								1				
Lane Width (m)								4.8				
Walking Speed (m/s)								1.2				
Percent Blockage								0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	730	728	307	726	725	418	306			422		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	730	728	307	726	725	418	306			422		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	100	100	100	100	100	99	100			100		
cM capacity (veh/h)	338	352	737	342	354	639	1189			1076		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	5	422	306
Volume Left	0	0	0	0
Volume Right	0	5	7	0
cSH	1700	639	1189	1076
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.2	0.0	0.0
Control Delay (s)	0.0	10.7	0.0	0.0
Lane LOS	A	B		
Approach Delay (s)	0.0	10.7	0.0	0.0
Approach LOS	A	B		

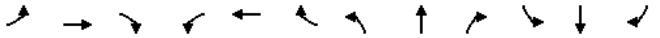
Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	32.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	5	0	2	11	5	0	0	0	2	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	5	0	2	12	5	0	0	0	2	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)												
pX, platoon unblocked												
vC, conflicting volume	17			5			24	26	5	24	24	14
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	17			5			24	26	5	24	24	14
tC, single (s)	4.6			4.2			7.3	6.8	6.5	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.7			2.3			3.7	4.2	3.5	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1338			1577			931	823	1014	992	873	1071

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	5	19	0	2
Volume Left	0	2	0	2
Volume Right	0	5	0	0
cSH	1338	1577	1700	992
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.8	0.0	8.6
Lane LOS		A	A	A
Approach Delay (s)	0.0	0.8	0.0	8.6
Approach LOS			A	A

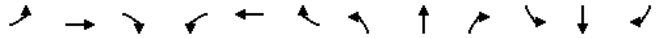
Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	9	7	20	25	0	31	18	16	0	4	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	9	7	21	26	0	33	19	17	0	4	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)												
pX, platoon unblocked												
vC, conflicting volume	102	105	4	101	88	19	4			36		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	102	105	4	101	88	19	4			36		
tC, single (s)	7.2	6.6	6.3	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	99	99	98	97	100	98			100		
cM capacity (veh/h)	827	756	1059	846	779	1051	1573			1588		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	17	47	52	17	4
Volume Left	0	21	33	0	0
Volume Right	7	0	0	17	0
cSH	864	808	1573	1700	1588
Volume to Capacity	0.02	0.06	0.02	0.01	0.00
Queue Length 95th (m)	0.5	1.4	0.5	0.0	0.0
Control Delay (s)	9.2	9.7	4.7	0.0	0.0
Lane LOS	A	A	A		
Approach Delay (s)	9.2	9.7	3.5		0.0
Approach LOS	A	A			

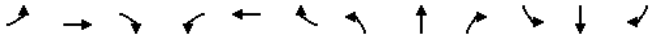
Intersection Summary				
Average Delay	6.3			
Intersection Capacity Utilization	25.2%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	5	9	0	2	4	14	380	13	0	284	13
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	5	5	9	0	2	4	15	400	14	0	299	14
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	747	749	306	754	749	407	313			414		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	747	749	306	754	749	407	313			414		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	98	98	99	100	99	99	99			100		
cM capacity (veh/h)	325	339	739	317	339	649	1188			1079		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	6	428	313
Volume Left	5	0	15	0
Volume Right	9	4	14	14
cSH	449	497	1188	1079
Volume to Capacity	0.04	0.01	0.01	0.00
Queue Length 95th (m)	1.1	0.3	0.3	0.0
Control Delay (s)	13.4	12.3	0.4	0.0
Lane LOS	B	B	A	
Approach Delay (s)	13.4	12.3	0.4	0.0
Approach LOS	B	B		

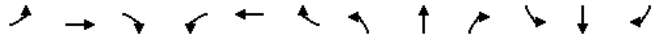
Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	45.3%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	5	9	2	4	5	5	2	2	2	2	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	5	9	2	4	5	5	2	2	2	2	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)												
pX, platoon unblocked												
vC, conflicting volume	9			15			22	24	10	24	26	7
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	9			15			22	24	10	24	26	7
tC, single (s)	4.1			4.3			7.2	6.6	6.3	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.4			3.6	4.1	3.4	3.5	4.0	3.3
p0 queue free %	100			100			99	100	100	100	100	100
cM capacity (veh/h)	1623			1493			957	845	1037	987	870	1082

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	15	12	9	4
Volume Left	0	2	5	2
Volume Right	9	5	2	0
cSH	1623	1493	946	925
Volume to Capacity	0.00	0.00	0.01	0.00
Queue Length 95th (m)	0.0	0.0	0.2	0.1
Control Delay (s)	0.0	1.4	8.8	8.9
Lane LOS		A	A	A
Approach Delay (s)	0.0	1.4	8.8	8.9
Approach LOS			A	A

Intersection Summary				
Average Delay	3.4			
Intersection Capacity Utilization	13.3%	ICU Level of Service		A
Analysis Period (min)	15			



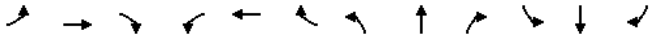
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	4	7	5	4	0	11	72	5	2	25	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2	4	7	5	4	0	12	76	5	2	26	0
Pedestrians								1				
Lane Width (m)								4.2				
Walking Speed (m/s)								1.2				
Percent Blockage								0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	132	135	27	140	129	76	26			81		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	132	135	27	140	129	76	26			81		
tC, single (s)	7.2	6.6	6.3	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	100	99	99	99	99	100	99			100		
cM capacity (veh/h)	818	738	1030	819	758	991	1537			1485		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	14	9	87	5	28
Volume Left	2	5	12	0	2
Volume Right	7	0	0	5	0
cSH	887	791	1537	1700	1485
Volume to Capacity	0.02	0.01	0.01	0.00	0.00
Queue Length 95th (m)	0.4	0.3	0.2	0.0	0.0
Control Delay (s)	9.1	9.6	1.0	0.0	0.6
Lane LOS	A	A	A		A
Approach Delay (s)	9.1	9.6	1.0		0.6
Approach LOS	A	A			

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	20.3%	ICU Level of Service		A
Analysis Period (min)	15			

2015 Post-Development Traffic Volumes
10: Township Road 290 & Highway 22

AM Peak Hour
8/31/2011



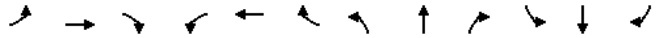
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	7	0	109	3	11	145	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	0	0	0	7	0	116	3	12	154	0
Pedestrians								1				
Lane Width (m)								4.8				
Walking Speed (m/s)								1.2				
Percent Blockage								0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	303	297	155	296	295	118	154			119		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	303	297	155	296	295	118	154			119		
tC, single (s)	7.1	6.5	6.2	7.3	6.7	6.4	4.2			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.2	3.5	2.3			2.4		
p0 queue free %	100	100	100	100	100	99	100			99		
cM capacity (veh/h)	644	613	895	623	587	895	1373			1354		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	7	119	166
Volume Left	0	0	0	12
Volume Right	0	7	3	0
cSH	1700	895	1373	1354
Volume to Capacity	0.00	0.01	0.00	0.01
Queue Length 95th (m)	0.0	0.2	0.0	0.2
Control Delay (s)	0.0	9.1	0.0	0.6
Lane LOS	A	A		A
Approach Delay (s)	0.0	9.1	0.0	0.6
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	25.5%	ICU Level of Service	A	
Analysis Period (min)	15			

2015 Post-Development Traffic Volumes
20: Township Road 290 & Range Road 35

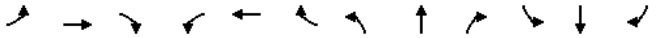
AM Peak Hour
8/31/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	2	9	7	3	0	3	0	3	0	3	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	2	10	7	3	0	3	0	3	0	3	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)												
pX, platoon unblocked												
vC, conflicting volume	3			12			27	25	7	28	30	3
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3			12			27	25	7	28	30	3
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1632			1620			982	868	1081	980	863	1087

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	12	11	6	3
Volume Left	0	7	3	0
Volume Right	10	0	3	0
cSH	1632	1620	1030	863
Volume to Capacity	0.00	0.00	0.01	0.00
Queue Length 95th (m)	0.0	0.1	0.1	0.1
Control Delay (s)	0.0	5.1	8.5	9.2
Lane LOS		A	A	A
Approach Delay (s)	0.0	5.1	8.5	9.2
Approach LOS			A	A

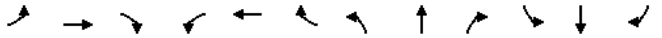
Intersection Summary				
Average Delay	4.3			
Intersection Capacity Utilization	16.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	8	7	13	7	1	3	3	11	0	6	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	9	7	14	7	1	3	3	12	0	6	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)												
pX, platoon unblocked												
vC, conflicting volume	21	28	6	28	16	3	6			15		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	21	28	6	28	16	3	6			15		
tC, single (s)	7.1	6.5	6.2	7.2	6.7	6.4	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	100	99	99	99	99	100	100			100		
cM capacity (veh/h)	975	858	1068	935	851	1044	1601			1616		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	16	22	6	12	6
Volume Left	0	14	3	0	0
Volume Right	7	1	0	12	0
cSH	944	910	1601	1700	1616
Volume to Capacity	0.02	0.02	0.00	0.01	0.00
Queue Length 95th (m)	0.4	0.6	0.0	0.0	0.0
Control Delay (s)	8.9	9.1	3.6	0.0	0.0
Lane LOS	A	A	A		
Approach Delay (s)	8.9	9.1	1.3		0.0
Approach LOS	A	A			

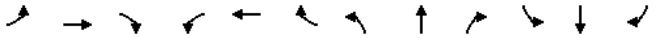
Intersection Summary				
Average Delay	5.9			
Intersection Capacity Utilization	20.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	2	7	5	7	2	6	107	9	1	139	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	4	2	7	5	7	2	6	114	10	1	148	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	288	287	149	291	284	119	150			123		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	288	287	149	291	284	119	150			123		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2			4.3		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.4		
p0 queue free %	99	100	99	99	99	100	100			100		
cM capacity (veh/h)	632	601	869	640	612	917	1378			1343		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	14	15	130	151
Volume Left	4	5	6	1
Volume Right	7	2	10	2
cSH	734	653	1378	1343
Volume to Capacity	0.02	0.02	0.00	0.00
Queue Length 95th (m)	0.4	0.5	0.1	0.0
Control Delay (s)	10.0	10.6	0.4	0.1
Lane LOS	A	B	A	A
Approach Delay (s)	10.0	10.6	0.4	0.1
Approach LOS	A	B		

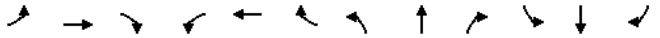
Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	20.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	4	0	2	4	12	1	1	0	4	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	10	4	0	2	4	13	1	1	0	4	0	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	17			4			43	45	4	39	38	11
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	17			4			43	45	4	39	38	11
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	100	100	100	100	100
cM capacity (veh/h)	1613			1548			956	845	1085	965	852	1076

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	14	19	2	9
Volume Left	10	2	1	4
Volume Right	0	13	0	4
cSH	1613	1548	897	1017
Volume to Capacity	0.01	0.00	0.00	0.01
Queue Length 95th (m)	0.1	0.0	0.1	0.2
Control Delay (s)	5.0	0.8	9.0	8.6
Lane LOS	A	A	A	A
Approach Delay (s)	5.0	0.8	9.0	8.6
Approach LOS			A	A

Intersection Summary				
Average Delay	4.1			
Intersection Capacity Utilization	13.3%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1	10	1	4	1	13	17	3	0	18	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	1	11	1	4	1	14	18	3	0	19	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	69	69	20	77	66	18	20			21		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	69	69	20	77	66	18	20			21		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.3			2.2		
p0 queue free %	100	100	99	100	99	100	99			100		
cM capacity (veh/h)	918	819	1064	876	801	1035	1570			1588		

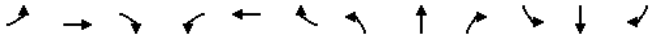
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	12	6	32	3	20
Volume Left	0	1	14	0	0
Volume Right	11	1	0	3	1
cSH	1036	844	1570	1700	1588
Volume to Capacity	0.01	0.01	0.01	0.00	0.00
Queue Length 95th (m)	0.3	0.2	0.2	0.0	0.0
Control Delay (s)	8.5	9.3	3.2	0.0	0.0
Lane LOS	A	A	A		
Approach Delay (s)	8.5	9.3	2.9		0.0
Approach LOS	A	A			

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	20.0%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	5	6	21	1	2	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	5	6	22	1	2	18
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	57	11	20			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	57	11	20			
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	99	99			
cM capacity (veh/h)	930	1061	1577			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	12	23	20
Volume Left	5	22	0
Volume Right	6	0	18
cSH	997	1577	1700
Volume to Capacity	0.01	0.01	0.01
Queue Length 95th (m)	0.3	0.3	0.0
Control Delay (s)	8.7	7.0	0.0
Lane LOS	A	A	
Approach Delay (s)	8.7	7.0	0.0
Approach LOS	A		

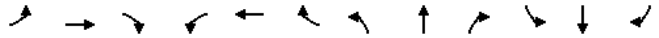
Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	17.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	12	0	241	4	7	178	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	0	0	0	13	0	256	4	7	189	0
Pedestrians								1				
Lane Width (m)								4.8				
Walking Speed (m/s)								1.2				
Percent Blockage								0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	476	465	190	464	463	259	189			261		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	476	465	190	464	463	259	189			261		
tC, single (s)	7.1	6.5	6.2	7.3	6.7	6.4	4.2			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.2	3.5	2.3			2.4		
p0 queue free %	100	100	100	100	100	98	100			99		
cM capacity (veh/h)	492	495	856	481	472	745	1332			1196		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	13	261	197
Volume Left	0	0	0	7
Volume Right	0	13	4	0
cSH	1700	745	1332	1196
Volume to Capacity	0.00	0.02	0.00	0.01
Queue Length 95th (m)	0.0	0.4	0.0	0.1
Control Delay (s)	0.0	9.9	0.0	0.4
Lane LOS	A	A		A
Approach Delay (s)	0.0	9.9	0.0	0.4
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	25.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	3	7	6	7	3	8	4	6	1	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	3	7	6	7	3	9	4	6	1	1	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)												
pX, platoon unblocked												
vC, conflicting volume	11			11			29	30	7	37	32	9
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	11			11			29	30	7	37	32	9
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	100	99	100	100	100
cM capacity (veh/h)	1622			1622			981	863	1081	961	861	1079

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	17	19	2
Volume Left	0	6	9	1
Volume Right	7	3	6	0
cSH	1622	1622	982	908
Volume to Capacity	0.00	0.00	0.02	0.00
Queue Length 95th (m)	0.0	0.1	0.5	0.1
Control Delay (s)	0.0	2.7	8.7	9.0
Lane LOS		A	A	A
Approach Delay (s)	0.0	2.7	8.7	9.0
Approach LOS			A	A

Intersection Summary				
Average Delay	4.8			
Intersection Capacity Utilization	16.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	12	4	12	21	0	19	11	10	0	2	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	13	4	13	22	0	20	12	11	0	2	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)												
pX, platoon unblocked												
vC, conflicting volume	65	65	2	65	54	12	2			22		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	65	65	2	65	54	12	2			22		
tC, single (s)	7.1	6.5	6.2	7.2	6.7	6.4	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	100	98	100	99	97	100	99			100		
cM capacity (veh/h)	893	810	1073	875	802	1032	1607			1606		

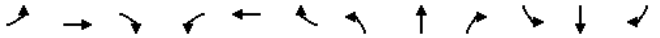
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	17	35	32	11	2
Volume Left	0	13	20	0	0
Volume Right	4	0	0	11	0
cSH	863	827	1607	1700	1606
Volume to Capacity	0.02	0.04	0.01	0.01	0.00
Queue Length 95th (m)	0.5	1.0	0.3	0.0	0.0
Control Delay (s)	9.3	9.5	4.6	0.0	0.0
Lane LOS	A	A	A		
Approach Delay (s)	9.3	9.5	3.5		0.0
Approach LOS	A	A			

Intersection Summary				
Average Delay	6.6			
Intersection Capacity Utilization	23.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	3	6	8	1	2	9	232	14	0	173	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	3	3	6	9	1	2	10	247	15	0	184	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	464	469	188	470	466	254	193			262		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	464	469	188	470	466	254	193			262		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2			4.3		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.4		
p0 queue free %	99	99	99	98	100	100	99			100		
cM capacity (veh/h)	485	473	826	485	482	770	1329			1190		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	13	12	271	193
Volume Left	3	9	10	0
Volume Right	6	2	15	9
cSH	606	520	1329	1190
Volume to Capacity	0.02	0.02	0.01	0.00
Queue Length 95th (m)	0.5	0.5	0.2	0.0
Control Delay (s)	11.1	12.1	0.3	0.0
Lane LOS	B	B	A	
Approach Delay (s)	11.1	12.1	0.3	0.0
Approach LOS	B	B		

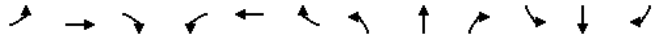
Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	30.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	3	6	1	2	11	3	1	1	11	1	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	6	3	6	1	2	12	3	1	1	12	1	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	14			10			38	35	6	31	32	8
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	14			10			38	35	6	31	32	8
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	99	100	99
cM capacity (veh/h)	1618			1541			960	857	1082	977	860	1080

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	15	5	21
Volume Left	6	1	3	12
Volume Right	6	12	1	9
cSH	1618	1541	958	1009
Volume to Capacity	0.00	0.00	0.01	0.02
Queue Length 95th (m)	0.1	0.0	0.1	0.5
Control Delay (s)	2.9	0.5	8.8	8.6
Lane LOS	A	A	A	A
Approach Delay (s)	2.9	0.5	8.8	8.6
Approach LOS			A	A

Intersection Summary					
Average Delay	5.0				
Intersection Capacity Utilization	13.3%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	2	14	3	2	0	15	44	3	1	15	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1	2	15	3	2	0	16	47	3	1	16	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)												
pX, platoon unblocked												
vC, conflicting volume	98	100	16	113	97	47	16			50		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	98	100	16	113	97	47	16			50		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.3			2.2		
p0 queue free %	100	100	99	100	100	100	99			100		
cM capacity (veh/h)	880	785	1069	824	768	997	1576			1550		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	18	5	63	3	17
Volume Left	1	3	16	0	1
Volume Right	15	0	0	3	0
cSH	1013	800	1576	1700	1550
Volume to Capacity	0.02	0.01	0.01	0.00	0.00
Queue Length 95th (m)	0.4	0.2	0.2	0.0	0.0
Control Delay (s)	8.6	9.5	1.9	0.0	0.5
Lane LOS	A	A	A		A
Approach Delay (s)	8.6	9.5	1.8		0.5
Approach LOS	A	A			

Intersection Summary					
Average Delay	3.1				
Intersection Capacity Utilization	20.0%	ICU Level of Service		A	
Analysis Period (min)	15				

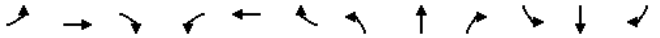
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	15	18	15	3	2	12
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	16	19	16	3	2	13
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	44	9	15			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	44	9	15			
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	98	99			
cM capacity (veh/h)	950	1065	1584			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	35	19	15
Volume Left	16	16	0
Volume Right	19	0	13
cSH	1009	1584	1700
Volume to Capacity	0.03	0.01	0.01
Queue Length 95th (m)	0.8	0.2	0.0
Control Delay (s)	8.7	6.1	0.0
Lane LOS	A	A	
Approach Delay (s)	8.7	6.1	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	17.7%	ICU Level of Service	A
Analysis Period (min)	15		

2035 Post-Development Traffic Volumes
10: Township Road 290 & Highway 22

AM Peak Hour
8/31/2011



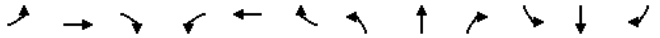
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	10	0	179	5	13	237	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	0	0	0	11	0	190	5	14	252	0
Pedestrians								1				
Lane Width (m)								4.8				
Walking Speed (m/s)								1.2				
Percent Blockage								0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	484	476	253	474	473	193	252			196		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	484	476	253	474	473	193	252			196		
tC, single (s)	7.1	6.5	6.2	7.3	6.7	6.4	4.2			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.2	3.5	2.3			2.4		
p0 queue free %	100	100	100	100	100	99	100			99		
cM capacity (veh/h)	486	486	790	472	463	812	1262			1266		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	11	196	266
Volume Left	0	0	0	14
Volume Right	0	11	5	0
cSH	1700	812	1262	1266
Volume to Capacity	0.00	0.01	0.00	0.01
Queue Length 95th (m)	0.0	0.3	0.0	0.3
Control Delay (s)	0.0	9.5	0.0	0.5
Lane LOS	A	A		A
Approach Delay (s)	0.0	9.5	0.0	0.5
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	34.0%	ICU Level of Service		A
Analysis Period (min)	15			

2035 Post-Development Traffic Volumes
20: Township Road 290 & Range Road 35

AM Peak Hour
8/31/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	4	9	7	5	0	3	1	4	0	4	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	4	10	7	5	0	3	1	4	0	4	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)												
pX, platoon unblocked												
vC, conflicting volume	5			14			31	29	9	34	34	5
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	5			14			31	29	9	34	34	5
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1629			1618			975	864	1079	970	858	1084

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	14	13	9	4
Volume Left	0	7	3	0
Volume Right	10	0	4	0
cSH	1629	1618	1007	858
Volume to Capacity	0.00	0.00	0.01	0.00
Queue Length 95th (m)	0.0	0.1	0.2	0.1
Control Delay (s)	0.0	4.2	8.6	9.2
Lane LOS		A	A	A
Approach Delay (s)	0.0	4.2	8.6	9.2
Approach LOS			A	A

Intersection Summary				
Average Delay	4.2			
Intersection Capacity Utilization	16.7%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	11	11	22	7	2	5	5	18	0	9	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	12	12	23	7	2	5	5	19	0	10	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)												
pX, platoon unblocked												
vC, conflicting volume	31	45	10	43	26	5	10			24		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	31	45	10	43	26	5	10			24		
tC, single (s)	7.1	6.5	6.2	7.2	6.7	6.4	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	100	99	99	97	99	100	100			100		
cM capacity (veh/h)	958	838	1063	906	840	1041	1597			1603		

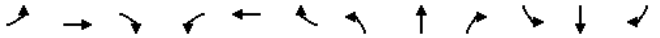
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	23	33	11	19	10
Volume Left	0	23	5	0	0
Volume Right	12	2	0	19	0
cSH	938	897	1597	1700	1603
Volume to Capacity	0.02	0.04	0.00	0.01	0.00
Queue Length 95th (m)	0.6	0.9	0.1	0.0	0.0
Control Delay (s)	8.9	9.2	3.6	0.0	0.0
Lane LOS	A	A	A		
Approach Delay (s)	8.9	9.2	1.3		0.0
Approach LOS	A	A			

Intersection Summary				
Average Delay	5.7			
Intersection Capacity Utilization	20.0%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	4	11	6	11	4	9	175	9	2	228	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	7	4	12	6	12	4	10	186	10	2	243	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	469	464	245	473	461	191	247			196		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	469	464	245	473	461	191	247			196		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2			4.3		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.4		
p0 queue free %	98	99	98	99	98	99	99			100		
cM capacity (veh/h)	472	475	768	478	484	836	1268			1261		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	23	22	205	249
Volume Left	7	6	10	2
Volume Right	12	4	10	4
cSH	585	524	1268	1261
Volume to Capacity	0.04	0.04	0.01	0.00
Queue Length 95th (m)	0.9	1.0	0.2	0.0
Control Delay (s)	11.4	12.2	0.4	0.1
Lane LOS	B	B	A	A
Approach Delay (s)	11.4	12.2	0.4	0.1
Approach LOS	B	B		

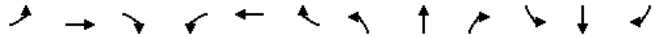
Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	26.1%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	7	0	4	7	13	2	2	0	5	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	10	7	0	4	7	14	2	2	0	5	0	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	21			7			54	56	7	51	49	14
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	21			7			54	56	7	51	49	14
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	100	100	99	100	100
cM capacity (veh/h)	1608			1544			939	831	1081	946	839	1071

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	17	26	4	10
Volume Left	10	4	2	5
Volume Right	0	14	0	4
cSH	1608	1544	882	998
Volume to Capacity	0.01	0.00	0.00	0.01
Queue Length 95th (m)	0.1	0.1	0.1	0.2
Control Delay (s)	4.1	1.2	9.1	8.6
Lane LOS	A	A	A	A
Approach Delay (s)	4.1	1.2	9.1	8.6
Approach LOS			A	A

Intersection Summary					
Average Delay	4.0				
Intersection Capacity Utilization	13.3%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	2	14	2	7	2	15	27	5	0	29	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	2	15	2	7	2	16	29	5	0	31	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	98	98	32	109	94	29	33			34		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	98	98	32	109	94	29	33			34		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.3			2.2		
p0 queue free %	100	100	99	100	99	100	99			100		
cM capacity (veh/h)	873	788	1048	829	772	1021	1553			1571		

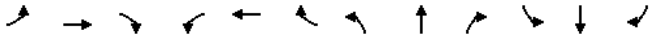
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	17	12	45	5	33
Volume Left	0	2	16	0	0
Volume Right	15	2	0	5	2
cSH	1006	818	1553	1700	1571
Volume to Capacity	0.02	0.01	0.01	0.00	0.00
Queue Length 95th (m)	0.4	0.3	0.2	0.0	0.0
Control Delay (s)	8.6	9.5	2.7	0.0	0.0
Lane LOS	A	A	A		
Approach Delay (s)	8.6	9.5	2.4		0.0
Approach LOS	A	A			

Intersection Summary					
Average Delay	3.4				
Intersection Capacity Utilization	20.0%	ICU Level of Service		A	
Analysis Period (min)	15				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	5	6	21	3	3	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	5	6	22	3	3	18
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	60	12	21			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	60	12	21			
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	99	99			
cM capacity (veh/h)	926	1060	1575			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	12	26	21
Volume Left	5	22	0
Volume Right	6	0	18
cSH	994	1575	1700
Volume to Capacity	0.01	0.01	0.01
Queue Length 95th (m)	0.3	0.3	0.0
Control Delay (s)	8.7	6.4	0.0
Lane LOS	A	A	
Approach Delay (s)	8.7	6.4	0.0
Approach LOS	A		

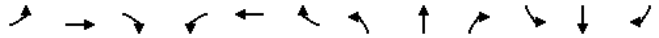
Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	14	0	394	7	7	291	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	0	0	0	15	0	419	7	7	310	0
Pedestrians								1				
Lane Width (m)								4.8				
Walking Speed (m/s)								1.2				
Percent Blockage								0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	762	751	311	748	747	423	310			427		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	762	751	311	748	747	423	310			427		
tC, single (s)	7.1	6.5	6.2	7.3	6.7	6.4	4.2			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.2	3.5	2.3			2.4		
p0 queue free %	100	100	100	100	100	98	100			99		
cM capacity (veh/h)	314	340	733	308	322	600	1202			1034		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	15	427	317
Volume Left	0	0	0	7
Volume Right	0	15	7	0
cSH	1700	600	1202	1034
Volume to Capacity	0.00	0.02	0.00	0.01
Queue Length 95th (m)	0.0	0.6	0.0	0.2
Control Delay (s)	0.0	11.2	0.0	0.3
Lane LOS	A	B		A
Approach Delay (s)	0.0	11.2	0.0	0.3
Approach LOS	A	B		

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	32.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	5	7	7	11	5	8	7	6	2	2	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	5	7	7	12	5	9	7	6	2	2	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)												
pX, platoon unblocked												
vC, conflicting volume	17			13			39	41	9	48	42	14
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	17			13			39	41	9	48	42	14
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	99	99	100	100	100
cM capacity (veh/h)	1613			1619			965	851	1079	942	850	1071

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	13	24	22	4
Volume Left	0	7	9	2
Volume Right	7	5	6	0
cSH	1613	1619	951	894
Volume to Capacity	0.00	0.00	0.02	0.00
Queue Length 95th (m)	0.0	0.1	0.5	0.1
Control Delay (s)	0.0	2.2	8.9	9.0
Lane LOS		A	A	A
Approach Delay (s)	0.0	2.2	8.9	9.0
Approach LOS			A	A

Intersection Summary				
Average Delay	4.6			
Intersection Capacity Utilization	17.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	15	7	20	30	0	31	18	16	0	4	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	16	7	21	32	0	33	19	17	0	4	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)												
pX, platoon unblocked												
vC, conflicting volume	105	106	4	105	89	19	4			36		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	105	106	4	105	89	19	4			36		
tC, single (s)	7.1	6.5	6.2	7.2	6.7	6.4	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	100	98	99	97	96	100	98			100		
cM capacity (veh/h)	826	762	1070	813	761	1023	1604			1588		

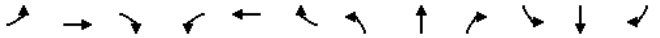
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	23	53	52	17	4
Volume Left	0	21	33	0	0
Volume Right	7	0	0	17	0
cSH	839	781	1604	1700	1588
Volume to Capacity	0.03	0.07	0.02	0.01	0.00
Queue Length 95th (m)	0.7	1.7	0.5	0.0	0.0
Control Delay (s)	9.4	9.9	4.7	0.0	0.0
Lane LOS	A	A	A		
Approach Delay (s)	9.4	9.9	3.5		0.0
Approach LOS	A	A			

Intersection Summary				
Average Delay	6.6			
Intersection Capacity Utilization	25.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	5	9	8	2	4	14	380	19	0	284	13
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	5	5	10	9	2	4	15	404	20	0	302	14
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	759	763	309	765	760	414	316			424		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	759	763	309	765	760	414	316			424		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2			4.3		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.4		
p0 queue free %	98	98	99	97	99	99	99			100		
cM capacity (veh/h)	303	317	706	301	324	625	1195			1031		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	15	439	316
Volume Left	5	9	15	0
Volume Right	10	4	20	14
cSH	422	358	1195	1031
Volume to Capacity	0.05	0.04	0.01	0.00
Queue Length 95th (m)	1.1	1.0	0.3	0.0
Control Delay (s)	13.9	15.5	0.4	0.0
Lane LOS	B	C	A	
Approach Delay (s)	13.9	15.5	0.4	0.0
Approach LOS	B	C		

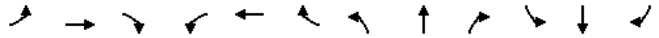
Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	43.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	5	9	2	4	13	5	2	2	12	2	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	6	5	10	2	4	14	5	2	2	13	2	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	18			15			48	45	10	41	43	11
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	18			15			48	45	10	41	43	11
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	100	100	99	100	99
cM capacity (veh/h)	1612			1534			945	846	1077	959	848	1076

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	21	20	10	23
Volume Left	6	2	5	13
Volume Right	10	14	2	9
cSH	1612	1534	946	986
Volume to Capacity	0.00	0.00	0.01	0.02
Queue Length 95th (m)	0.1	0.0	0.2	0.6
Control Delay (s)	2.2	0.8	8.8	8.7
Lane LOS	A	A	A	A
Approach Delay (s)	2.2	0.8	8.8	8.7
Approach LOS			A	A

Intersection Summary					
Average Delay	4.7				
Intersection Capacity Utilization	13.3%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	4	17	5	4	0	19	72	5	2	25	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	2	4	18	5	4	0	20	77	5	2	27	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)												
pX, platoon unblocked												
vC, conflicting volume	150	153	27	168	148	77	27			82		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	150	153	27	168	148	77	27			82		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.3			2.2		
p0 queue free %	100	99	98	99	99	100	99			100		
cM capacity (veh/h)	810	732	1055	751	717	960	1562			1509		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	24	10	97	5	29
Volume Left	2	5	20	0	2
Volume Right	18	0	0	5	0
cSH	956	736	1562	1700	1509
Volume to Capacity	0.03	0.01	0.01	0.00	0.00
Queue Length 95th (m)	0.6	0.3	0.3	0.0	0.0
Control Delay (s)	8.9	10.0	1.6	0.0	0.6
Lane LOS	A	A	A		A
Approach Delay (s)	8.9	10.0	1.5		0.6
Approach LOS	A	A			

Intersection Summary					
Average Delay	2.9				
Intersection Capacity Utilization	20.0%	ICU Level of Service		A	
Analysis Period (min)	15				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	15	18	15	6	4	12
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	16	19	16	6	4	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	49	11	17			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	49	11	17			
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	98	99			
cM capacity (veh/h)	943	1062	1581			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	35	22	17
Volume Left	16	16	0
Volume Right	19	0	13
cSH	1004	1581	1700
Volume to Capacity	0.03	0.01	0.01
Queue Length 95th (m)	0.8	0.2	0.0
Control Delay (s)	8.7	5.2	0.0
Lane LOS	A	A	
Approach Delay (s)	8.7	5.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	17.8%	ICU Level of Service	A
Analysis Period (min)	15		