6.3 Ramp LOS Analysis – Build Alternative

Ramp operational analyses were performed for the opening, mid-design and design years for the Build Alternative for the a.m. and p.m. design hours. The six (6) ramps at the three (3) separate interchanges were evaluated using the HCS 2010™ Ramp Software (version 6.5). The ramp merge/diverge analyses results for the future design years are shown in **Table 19**.

Table 19: Future Ramp LOS Analysis Summary – Build Alternative

Wekiva Parkway @ SR 46 Interchange Ramp	FDOT Adopted LOS	YR 2020		YR 2030		YR 2040	
		Density	LOS	Density	LOS	Density	LOS
AM Peak Hour							
EB Off Slip Ramp (Diverging)	D	16.9	B	25.2	C	33.8	D
WB On Slip Ramp (Merging)	D	14.4	B	20.3	C	26.3	C
EB On Slip Ramp (Merging)	D	20.3	C	28.7	D	**37.3**	**E**
WB Off Slip Ramp (Diverging)	D	14.8	B	22.0	C	29.4	D
EB Off Ramp "FF" (Diverging)	D	19.5	B	28.8	D	**38.4**	**E**
WB On Ramp "EE" (Merging)	D	16.0	B	22.4	C	29.0	D
PM Peak Hour							
EB Off Slip Ramp (Diverging)	D	12.8	B	19.3	B	25.9	C
WB On Slip Ramp (Merging)	D	18.1	B	25.7	C	33.5	D
EB On Slip Ramp (Merging)	D	16.1	B	22.6	C	29.3	D
WB Off Slip Ramp (Diverging)	D	19.5	B	28.8	D	**38.4**	**E**
EB Off Ramp "FF" (Diverging)	D	14.8	B	22.0	C	29.4	D
WB On Ramp "EE" (Merging)	D	20.1	C	28.5	D	**37.0**	**E**

Notes:
1. HCM 2010-based outputs are presented for the ramp merge/diverge areas of influence.
2. Density presented in passenger cars/mile/lane.
3. Acceleration lane lengths of 580 ft were used for the HCS ramp analysis based on conversations with the design team.
4. Deceleration lane lengths of 590 ft were used for the HCS ramp analysis based on conversations with the design team.

As shown in **Table 19**, the EB On Slip Ramp (a.m. peak design hour), the EB Off Ramp "FF" (a.m. peak design hour), the WB Off Slip Ramp (p.m. peak design hour), and the WB On Ramp "EE" (p.m. peak design hour) are anticipated to operate at a LOS worse than their adopted LOS D standard during the design year 2040 conditions.

Additional analysis was conducted to determine the acceleration/deceleration lane lengths that would improve the operations, to an acceptable LOS D by the design year 2040 conditions, for the above-mentioned ramps. Based on this analysis, **an acceleration lane length of 1,000 feet (taper + acceleration lane) is required to improve the design year 2040 ramp LOS from E to D at the EB On Slip Ramp (during the a.m. peak design hour) and the WB On Ramp "EE" (during the p.m. peak design hour)**. In addition, **a deceleration lane length of 1,000 feet (taper + deceleration lane) is required to improve the**

design year 2040 ramp LOS from E to D at the EB Off Ramp "FF" (during the a.m. peak design hour) and the WB Off Slip Ramp (during the p.m. peak design hour).

The future Build Alternative a.m. and p.m. peak hour ramp HCS summary sheets analysis are included in **Appendix L.**

6.4 Future Arterial LOS Analysis – Build Alternative

Since Synchro calculates arterial LOS only between signalized intersections, the DDHVs along the SR 429 (Wekiva Parkway) were analyzed using the latest HCS 2010™ Freeway Software (version 6.5). In addition, the DDHVs for the Frontage Road were compared against the latest Generalized Peak Hour Directional Service Volumes (dated December 18, 2012) from 2012 FDOT Quality/Level of Service Handbook to obtain the arterial LOS. The future arterial LOS analyses for the SR 429 (Wekiva Parkway) and the Frontage Road are described in more detail in the following sections.

6.4.1 SR 429 (Wekiva Parkway) Freeway LOS Analysis

The SR 429 (Wekiva Parkway) operational analyses were performed for the opening, mid-design and design years for the Build Alternative for the peak hour peak direction conditions using the HCS 2010™ Freeway Software (version 6.5). The freeway analyses results for the future design years are shown in **Table 20.**

Table 20: Future Freeway LOS Analysis Summary – Build Alternative

SR 429 (Wekiva Parkway) Freeway Segment	FDOT Adopted LOS	YR 2020		YR 2030		YR 2040	
		LOS	Density	LOS	Density	LOS	Density
East of Wekiva River Road	D	B	15.0	C	22.5	D	33.3
East of EB Off/WB On Slip Ramps	D	B	14.9	C	22.3	D	32.9
East of EB On/WB Off Slip Ramps	D	B	17.2	D	26.4	**E**	**41.7**
West of Orange Boulevard	D	B	11.2	B	17.6	C	25.0

Notes:
1. Density presented in passenger cars/mile/lane.
2. LOS and Density are calculated for the peak hour/peak direction.

As shown in **Table 20,** under the Build Alternative, all the SR 429 (Wekiva Parkway) freeway segments are projected to operate at an acceptable LOS during the opening year 2020, mid-design year 2030, and design year 2040 traffic conditions, with the exception of the freeway segment of SR 429 from the EB On/WB Off Slip Ramps to the EB Off "FF"/WB On "EE" Ramps, which is anticipated to operate at an

adverse LOS E during the design year 2040 peak hour/peak direction conditions. It is important to note that this freeway segment is anticipated to operate at an unacceptable LOS only beyond the year 2037.

As previously noted, the SR 429/Wekiva Parkway Section 7A is being designed as a six (6) lane limited access tolled expressway but will only be built initially as a four (4) lane limited access tolled expressway. In addition, based on the FDOT Five Year Work Program FY 2014/2018, funding for the acquisition of Right of Way for a six (6) lane cross-section expressway is programmed in FY 2015/2016. Therefore, it is recommended that a traffic reevaluation be performed by the year 2036 to determine if this section of the Wekiva Parkway needs to be built as a six (6) lane limited access tolled expressway.

The future Build Alternative freeway HCS summary sheets analysis are included in **Appendix M.**

6.4.2 Service Roads Arterial LOS Analysis

The DDHVs along the Frontage Road/SR 46 were compared against the latest generalized peak hour directional service volumes (dated December 18, 2012) from Table 7 of the 2012 FDOT Quality/Level of Service Handbook to obtain the arterial LOS. The generalized peak hour directional service volumes for the LOS letters "A" through "E" that were used in analyzing the Frontage Road/SR 46 are summarized as follows:

Two Lane Class I Arterial (40 mph or Higher-Undivided)

- LOS A – 0 VPH
- LOS B – 0 VPH
- LOS C – 830 VPH
- LOS D – 880 VPH
- LOS E – 880 VPH

Two Lane Class II Arterial (35 mph or Lower-Divided)

- LOS A – 0 VPH
- LOS B – 0 VPH
- LOS C – 444 VPH
- LOS D – 900 VPH
- LOS E – 960 VPH

Four Lane Class I Arterial (40 mph or Higher-Divided)

- LOS A – 0 VPH
- LOS B – 0 VPH
- LOS C – 1,910 VPH
- LOS D – 2,000 VPH
- LOS E – 2,000 VPH

Table 21: Future Arterial LOS Analysis Summary – Build Alternative

Service Road Segment	Number [1] of Lanes	FDOT Adopted LOS	Maximum Service Volume	AADT	DDHV [2]	Arterial LOS	Adverse
Opening Year 2020							
East of Wekiva River Road	2 LUD	D	880	9,600	487	C	No
East of Osprey Hammock Trail	2 LD	D	900	9,700	492	D	No
East of EB Off/WB On Slip Ramps	2 LD	D	900	10,000	508	D	No
East of Longwood Markham Road	2 LD	D	900	9,300	472	D	No
East of EB On/WB Off Slip Ramps	2 LD	D	900	4,000	203	C	No
East of Lake Markham Road	2 LD	D	900	6,000	305	C	No
West of Orange Boulevard	4 LD	D	2,000	20,500	1,041	C	No
East of Orange Boulevard	4 LD	D	2,000	23,500	1,193	C	No
Mid-Design Year 2030							
East of Wekiva River Road	2 LUD	D	900	12,000	609	C	No
East of Osprey Hammock Trail	2 LD	D	900	12,600	640	D	No
East of EB Off/WB On Slip Ramps	2 LD	D	900	13,000	660	D	No
East of Longwood Markham Road	2 LD	D	900	11,500	584	D	No
East of EB On/WB Off Slip Ramps	2 LD	D	900	4,500	228	C	No
East of Lake Markham Road	2 LD	D	900	6,600	335	C	No
West of Orange Boulevard	4 LD	D	2,000	25,000	1,269	C	No
East of Orange Boulevard	4 LD	D	2,000	26,000	1,320	C	No
Design Year 2040							
East of Wekiva River Road	2 LUD	D	900	14,500	736	C	No
East of Osprey Hammock Trail	2 LD	D	900	15,000	761	D	No
East of EB Off/WB On Slip Ramps	2 LD	D	900	15,500	787	D	No
East of Longwood Markham Road	2 LD	D	900	14,000	711	D	No
East of EB On/WB Off Slip Ramps	2 LD	D	900	5,000	254	C	No
East of Lake Markham Road	2 LD	D	900	7,200	365	C	No
West of Orange Boulevard	4 LD	D	2,000	29,500	1,497	C	No
East of Orange Boulevard	4 LD	D	2,000	29,000	1,472	C	No

Notes:
1. Service Volumes for the Frontage Road from Osprey Hammock Trail to west of Orange Boulevard were adjusted using the One-Way Facility Adjustment of 1.2.
2. DDHV = AADT x Standard K Factor 9.0% x D Factor 56.4%.

As shown in **Table 21**, all the roadway segments along Frontage Road/SR 46 are projected to operate at an acceptable LOS during the opening year 2020, mid-design year 2030, and design year 2040 conditions.

7 Summary and Recommendations

This design traffic technical memorandum was prepared as part of the Final Engineering Design Study to evaluate the future capacity for the new roadway construction of the SR 429/SR 46 (Wekiva Parkway – Section 7A / Roadway ID: 77320000) from east of the Wekiva River to Orange Boulevard in Seminole County, Florida.

The New Roadway Construction Project of the SR 429/SR 46 (Wekiva Parkway – Section 7A) will generally follow the existing SR 46 alignment and is expected to be a four (4) lane divided limited access toll road facility. The project will include designing non-tolled, service/frontage roads for local travel, slip ramps to enter and exit the Wekiva Parkway, and several bridges over side streets.

7.1 Existing Conditions

The traffic data that was collected for the year 2013 and existing conditions were evaluated to determine arterial and intersection levels of service (a.m. and p.m. peak hours) for the year 2013. During the year 2013 a.m. and p.m. peak hour conditions, the following intersections along the project corridor were found to operate at a LOS worse than their adopted LOS standard:

- SR 46 at Wekiva Park Drive (stop controlled - during the a.m. and p.m. peak hours)
- SR 46 at Yankee Lake Road (stop controlled - during the a.m. and p.m. peak hours)
- SR 46 at Bella Foresta Place (stop controlled - during the a.m. peak hour)
- SR 46 at Glade View Road (stop controlled - during the a.m. and p.m. peak hours)
- SR 46 at Twelve Oaks Place (stop controlled - during the p.m. peak hour)
- SR 46 at Orange Avenue (stop controlled - during the a.m. and p.m. peak hours)
- SR 46 at Wayside Drive (stop controlled - during the p.m. peak hour)
- SR 46 at Center Road (stop controlled - during the p.m. peak hour)

In addition, SR 46 corridor from east of Wekiva River Road to Orange Boulevard currently operates under unacceptable level of service conditions during the existing a.m. peak and p.m. peak hour conditions.

7.2 Build Alternative

The proposed build geometry for the SR 429 (Wekiva Parkway) corridor includes the construction of a new four (4) lane divided limited access toll road facility generally following the existing SR 46 alignment.

The project will also include designing a two (2)-lane non-tolled, service/frontage road for local travel, slip ramps to enter and exit the Wekiva Parkway, and several bridges over side streets. Per the request of FDOT staff and the design team, the Frontage Road was analyzed under two (2) scenarios The Build Alternative Geometry can be seen in **Figures 10-1 through 10-3.**

7.2.1 Intersection Operational Analysis – Build Alternative (Scenario 1)

For the purpose of the Build Alternative – Scenario 1, the Frontage Road was analyzed as a two (2)-lane road (one lane on each direction) with roundabouts at the intersections of Osprey Hammock Trail, Longwood-Markham Road, Yankee Lake Road, Lake Markham Road, and Glade View Road. Under the Build Alternative – Scenario 1, all the intersections are projected to operate at an acceptable LOS during the opening year 2020, mid-design year 2030, and design year 2040 a.m. and p.m. design hour traffic conditions.

7.2.2 Intersection Operational Analysis – Build Alternative (Scenario 2)

Build Alternative – Scenario 2 was similar to the Build Alternative – Scenario 1. However, for the second scenario, the intersections of the Frontage Road at Longwood-Markham Road, Yankee Lake Road, Lake Markham Road, and Glade View Road were analyzed as "T intersections" with two (2) lanes through the intersection along the eastbound and westbound approaches of the Frontage Road (four lanes total along the Frontage Road through the intersections). Under the Build Alternative – Scenario 2, all the intersections are projected to operate at an acceptable LOS during the opening year 2020, mid-design year 2030, and design year 2040 a.m. and p.m. design hour traffic conditions.

7.2.3 Recommended Build Alternative Scenario

Based on this analysis, it was concluded that the intersections of the Frontage Road at Longwood-Markham Road, Yankee Lake Road, Lake Markham Road, and Glade View Road are anticipated to generate similar delays under both the Build Alternative Scenarios though the design year 2040.

It is important to note that roundabouts eliminate unsafe left turns across opposing traffic lanes and virtually eliminate high-speed right-angle and head-on crashes and therefore are safer than traditional signalized and stop-controlled intersections. In addition, roundabouts often have lower operating and maintenance costs than signalized intersections. They can have ongoing costs for lighting and maintaining the landscaping, but unlike a signalized intersection, there is no signal equipment to install, power, and maintain. Roundabouts have longer service lives than traditional intersections resulting in better economic

value over the long term, especially when you factor in the reduction of fatal and injury crashes. **Therefore, we recommend Scenario 1 as the preferred scenario for the SR 429/SR 46 (Wekiva Parkway – Section 7A) Build Alternative.**

7.2.4 Future Ramp LOS Analysis – Build Alternative

Under the Build Alternative, the EB On Slip Ramp (a.m. peak design hour), the EB Off Ramp "FF" (a.m. peak design hour), the WB Off Slip Ramp (p.m. peak design hour), and the WB On Ramp "EE" (p.m. peak design hour) are anticipated to operate at a LOS worse than their adopted LOS D standard during the design year 2040 conditions.

Additional analysis was conducted to determine the acceleration/deceleration lane lengths that would improve the operations, to an acceptable LOS D by the design year 2040 conditions, for the above-mentioned ramps. Based on this analysis, **an acceleration lane length of 1,000 feet (taper + acceleration lane) is required to improve the design year 2040 ramp LOS from E to D at the EB On Slip Ramp (during the a.m. peak design hour) and the WB On Ramp "EE" (during the p.m. peak design hour)**. In addition, **a deceleration lane length of 1,000 feet (taper + deceleration lane) is required to improve the design year 2040 ramp LOS from E to D at the EB Off Ramp "FF" (during the a.m. peak design hour) and the WB Off Slip Ramp (during the p.m. peak design hour).**

7.2.5 Future Arterial LOS Analysis – Build Alternative

Under the Build Alternative, all the SR 429 (Wekiva Parkway) freeway segments are projected to operate at an acceptable LOS during the opening year 2020, mid-design year 2030, and design year 2040 traffic conditions, with the exception of the freeway segment of SR 429 from the EB On/WB Off Slip Ramps to the EB Off "FF"/WB On "EE" Ramps, which is anticipated to operate at an adverse LOS E during the design year 2040 peak hour/peak direction conditions. It is important to note that this freeway segment is anticipated to operate at an unacceptable LOS only beyond the year 2037.

The SR 429/Wekiva Parkway Section 7A is being designed as a six (6) lane limited access tolled expressway but will only be built initially as a four (4) lane limited access tolled expressway. In addition, based on the FDOT Five Year Work Program FY 2014/2018, funding for the acquisition of Right of Way for a six (6) lane cross-section expressway is programmed in FY 2015/2016. **Therefore, it is recommended that a traffic reevaluation be performed by the year 2036 to determine if this section of the Wekiva Parkway needs to be built as a six (6) lane limited access tolled expressway.**

Furthermore, all the roadway segments along Frontage Road/SR 46 are projected to operate at an acceptable LOS during the opening year 2020, mid-design year 2030, and design year 2040 conditions.

In addition to the above-mentioned improvements, this study used the red time formula (source: ITE Traffic Engineering Manual, 5th Edition) to develop the queue length requirements at signalized intersection of SR 46 at Orange Boulevard for the Build Alternative. The recommended queue lengths for the turn lanes are shown in **Table 22.**

Table 22: Recommended Queue Lengths of Turn Lanes for Signalized Intersections – Year 2040 Build Alternative

Turning Movement	Turning Volume (Veh/Hr)	G/C Ratio	Total Cycle Length (Sec)	Number of Turn Lanes	Per Lane Volume (VPHPL)	Percent Trucks	Adjust. Factor	Calc'd Queue Length (ft)	Rec'd Queue Length (ft)
INTERSECTION:		**SR 46 and Orange Boulevard**							
AM Design Hour									
EB Left	197	0.13	100	1	197	7.7%	1.50	192	200
EB Right	146	0.33	100	1	146	7.7%	1.50	110	**125**
WB Left	140	0.11	100	1	140	7.7%	1.50	140	**150**
WB Right	147	0.31	100	1	147	7.7%	1.50	114	125
NB Left	78	0.20	100	1	78	1.0%	1.50	66	100
SB Left	252	0.36	100	1	252	1.0%	1.50	170	175
PM Design Hour									
EB Left	200	0.14	120	1	200	7.7%	1.50	232	**250**
EB Right	57	0.41	120	1	57	7.7%	1.50	45	100
WB Left	114	0.11	120	1	114	7.7%	1.50	137	**150**
WB Right	271	0.38	120	1	271	7.7%	1.50	226	**250**
NB Left	175	0.26	120	1	175	1.0%	1.50	163	**175**
SB Left	192	0.25	120	1	192	1.0%	1.50	182	**200**

Note:

1. Queue Lengths are calculated based on the following formula: L = (A) (DHV) (1-G/C) (T+1) (F) / (3600/C) / (N) where:

- ***L = Queue length***
- ***DHV = design hour volume, in vph***
- ***G/C = ratio of green time to cycle length***
- ***T = percent of heavy vehicles***
- ***F = adjustment factor (1.25 to 2)***
- ***C = cycle length***
- ***N = # of lanes***
- ***A = Assumed 25 feet for automobile***

2. Recommended queue lengths are shown in yellow shade and bold letters.

3. A minimum queue length of 100 feet is assumed as the recommended length for calculated lengths of less than 100 feet.

Furthermore, the queue length requirements for the dedicated turn lanes at the unsignalized intersections of SR 46 at Center Road and Orange Boulevard at Wayside Drive were developed based on the 95th percentile queue length obtained from the HCM 2000 intersection analysis and can be found in **Table 23.**

Table 23: Recommended Queue Lengths of Turn Lanes for Unsignalized Intersections – Year 2040 Build Alternative

Intersection	Time Period	Turning Movement	Turning Volume (Veh/Hr)	HCM 95th Percentile Queue (ft)	Rec'd Queue Length (ft)
SR 46 & Center Road	AM Peak	WB Left	6	1	**100**
		EB Left	16	0	**100**
	PM Peak	WB Left	6	1	**100**
		EB Left	19	1	**100**
Wayside Drive & Orange Boulevard	AM Peak	NB Right	100	0	**100**
		SB Left	65	5	**100**
	PM Peak	NB Right	72	0	**100**
		SB Left	53	4	**100**

Notes:
1. Recommended queue lengths were obtained from the 95th Percentile Queue (ft) obtained using the HCM 2000 Methodology
2. A minimum queue length of 100 feet is assumed as the recommended length for calculated lengths of less than 100 feet.
3. Recommended queue lengths are shown in yellow shade and bold letters.

It should be noted that the specific lengths do not include the taper or deceleration distance (refer to FDOT index 301 to determine the appropriate specific taper and deceleration length). These storage lengths are recommended at locations where these lengths can be achieved. Actual design and implementation of these storage length requirements will be a function of design and the physical practicality of their construction.

In addition, Equivalent Single Axle Load (ESAL) calculations were performed for five (5) different sections along the SR 429 (Wekiva Parkway) study corridor for the Build Alternative. The five (5) sections include:

- Location 1 – SR 429 (Wekiva Parkway) - East of EB On/WB Off Slip Ramps
- Location 2 – SR 429 (Wekiva Parkway) - West of Orange Boulevard
- Location 3 – Frontage Road - East of EB Off/WB On Slip Ramps
- Location 4 – SR 46 - West of Orange Boulevard
- Location 5 – SR 429 Ramps (Wekiva Parkway) - EE and FF Ramps

The ESAL calculations are provided in **Appendix N** of this report.

8 Appendices

Appendix A *– Line and Grade Conceptual Design*

Appendix B – *Straight Line Diagrams & RCI Data for SR 46 Corridor*

Appendix C – *Raw Traffic Counts*

Appendix D – *FDOT Counts, Seasonal, and Axle Factors*

Appendix E – *Signal Timings & SYNCHRO Intersection Analysis Outputs for Year 2013*

Appendix F – *2012 FDOT Quality/Level of Service Handbook Tables*

Appendix G – *Programmed / Planned Improvement Documentation*

Appendix H – *Trend Analysis Summary Sheets and BEBR Population Projections*

Appendix I – *CFRPM Model Plots*

Appendix J – *TURNS5 Sheets*

Appendix K – *SYNCHRO and HCS Intersection Analysis Outputs for Build Alternative*

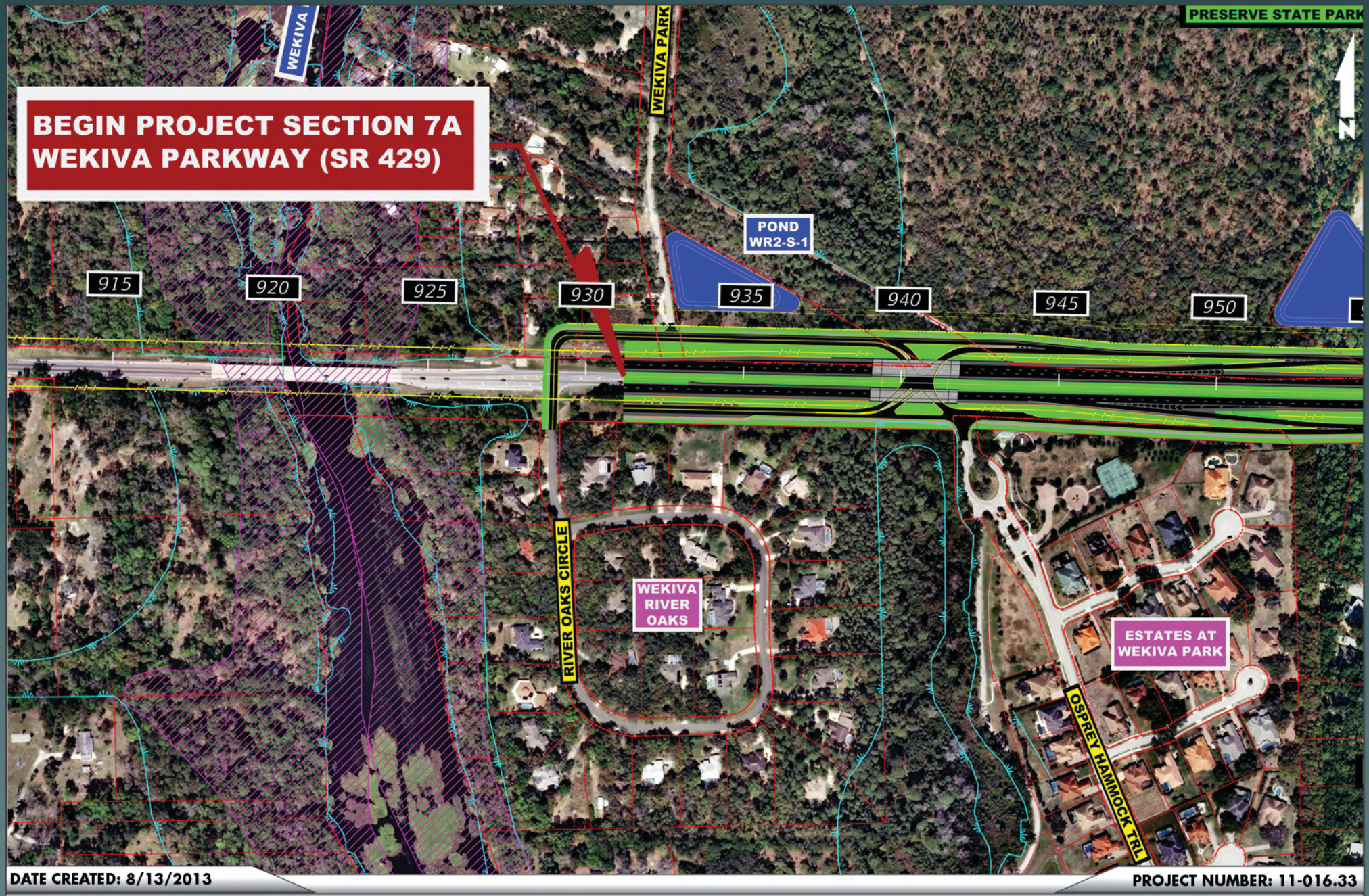
Appendix L – *HCS Ramp Analysis Outputs for Build Alternative*

Appendix M – *HCS Freeway Analysis Outputs for Build Alternative*

Appendix N – *ESAL Calculation*

Appendix A

Line and Grade Conceptual Design



Design Traffic for SR 429 / SR 46 (Wekiva Pkwy)

Financial Project ID: 240200-2 Roadway ID: 77320000

APPENDIX A-1
Line and Grade Conceptual Design

DATE CREATED: 8/13/2013

PROJECT NUMBER: 11-016.33

Design Traffic for SR 429 / SR 46 (Wekiva Pkwy)

Financial Project ID: 240200-2 Roadway ID: 77320000

APPENDIX A-2
Line and Grade Conceptual Design

DATE CREATED: 8/13/2013

PROJECT NUMBER: 11-016.33

Design Traffic for SR 429 / SR 46 (Wekiva Pkwy)

Financial Project ID: 240200-2 Roadway ID: 77320000

APPENDIX A-3
Line and Grade Conceptual Design

DATE CREATED: 8/13/2013

PROJECT NUMBER: 11-016.33

Design Traffic for SR 429 / SR 46 (Wekiva Pkwy)

Financial Project ID: 240200-2 Roadway ID: 77320000

APPENDIX A-4
Line and Grade Conceptual Design

DATE CREATED: 8/13/2013

PROJECT NUMBER: 11-016.33

Design Traffic for SR 429 / SR 46 (Wekiva Pkwy)

Financial Project ID: 240200-2 Roadway ID: 77320000

APPENDIX A-5
Line and Grade Conceptual Design

Appendix B

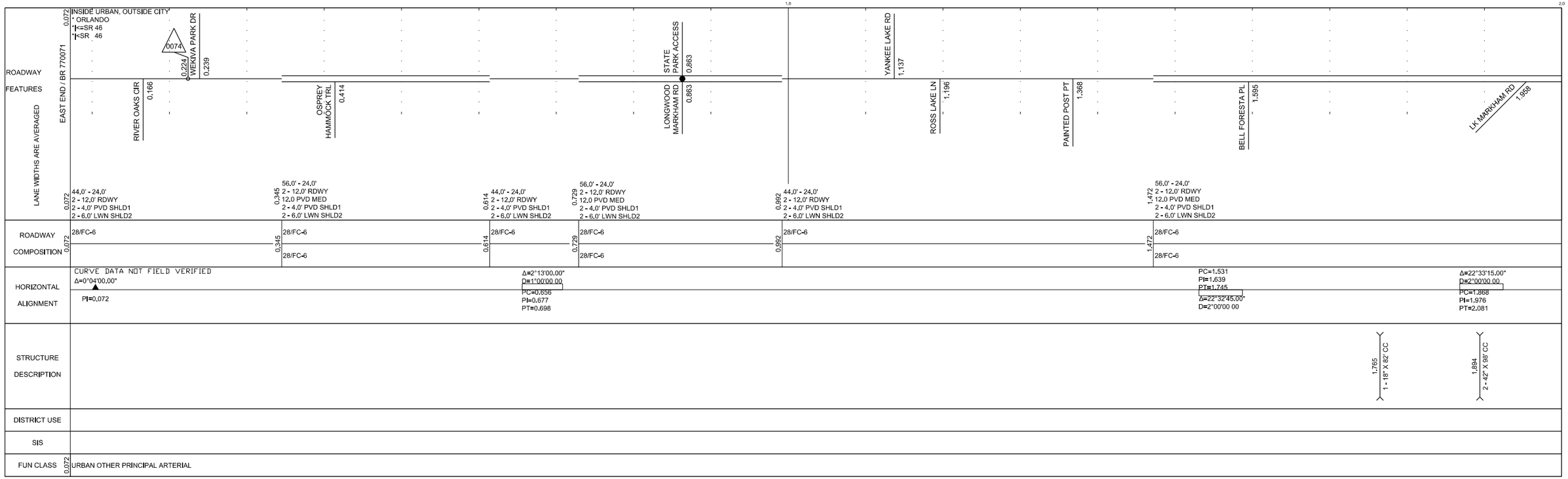
Straight Line Diagrams & RCI Data for SR 46 Corridor

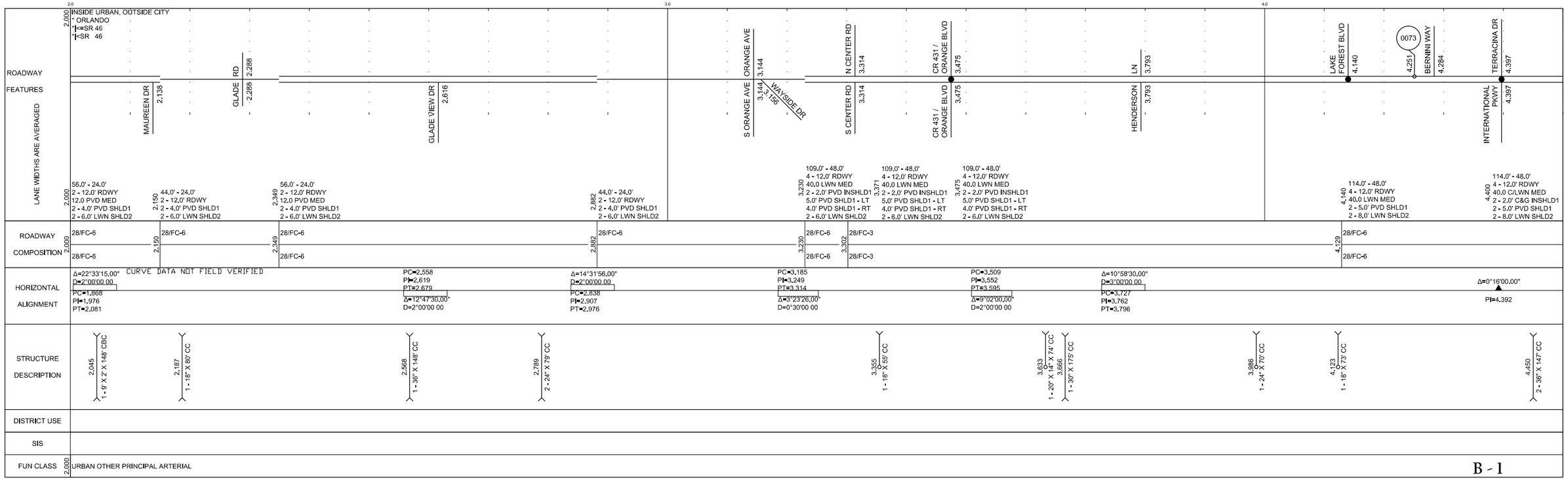
INTERIM REVISIONS	5 YR INV	SLD REV	BMP	EMP	INV	SLD REV
DATE	08/07/2008	08/26/2008	004.783	008.929	03/04/2013 KA	05/28/2013 MR
BY	Klm / Freddie	URS	004.783	005.223	02/20/2012 MR	02/20/2012 MR
			000.072	008.929		08/12/2009 MR

FLORIDA DEPARTMENT OF TRANSPORTATION

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

SECTION STATUS	INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	ROADWAY ID	SHEET NO:
02		SR 46	SEMINOLE	05	77030000	1 OF 2





B - 1

Created at: 05/22/2013 02:43

Roadway ID:	Man-Dist:	Geo-Dist:		County:	Beg. MP:	End. MP:	Net Length:	Overall Status:
77030000	5		5	SEMINOLE	0.072	8.929	8.857	ACTIVE ON THE SHS

Description: SR46;LAKE C.L.-SR15 VideoLog Enterprise GIS

Feature 121 - FUNCTIONAL CLASSIFICATION — LENGTH/NON-INTERLOCKING

Beg. MP	End. MP	Characteristic	Value	Unit	Side	Offset	Char. Updated
0.072	8.929	FUNCTIONAL CLASSIFICATION	PRIN ART	CD	C		PL934TH 12/02/2004
0.072	8.929	PROPOSED FUNCTIONAL CLASSIF.	ART OTHER	CD	C		KNMEIGP 12/03/2012

Feature 146 - ACCESS MANAGEMENT — LENGTH/INTERLOCKING

Beg. MP	End. MP	Characteristic	Value	Unit	Side	Offset	Char. Updated
0.072	8.483	ACCESS MGMT CLASSIFICATION	CLASS03	CD	C		RCICNVRT 04/22/1993

Feature 212 - THRU LANES — LENGTH/INTERLOCKING

Beg. MP	End. MP	Characteristic	Value	Unit	Side	Offset	Char. Updated
0.072	0.614	NUMBER OF ROADWAY LANES	1	EA	L		RCICNVRT 08/19/2003
		PAVEMENT SURFACE WIDTH	12	FT	L		RCICNVRT 08/19/2003
0.072	0.614	NUMBER OF ROADWAY LANES	1	EA	R		RCICNVRT 08/19/2003
		PAVEMENT SURFACE WIDTH	12	FT	R		RCICNVRT 08/19/2003
0.614	0.729	NUMBER OF ROADWAY LANES	2	EA	C		RCICNVRT 08/19/2003
		PAVEMENT SURFACE WIDTH	24	FT	C		RCICNVRT 08/19/2003
0.729	0.992	NUMBER OF ROADWAY LANES	1	EA	L		RCICNVRT 09/11/1997
		PAVEMENT SURFACE WIDTH	12	FT	L		RCICNVRT 09/11/1997
0.729	0.992	NUMBER OF ROADWAY LANES	1	EA	R		RCICNVRT 09/11/1997
		PAVEMENT SURFACE WIDTH	12	FT	R		RCICNVRT 09/11/1997
0.992	1.472	NUMBER OF ROADWAY LANES	2	EA	C		RCICNVRT 09/11/1997
		PAVEMENT SURFACE WIDTH	24	FT	C		RCICNVRT 09/11/1997
1.472	2.15	NUMBER OF ROADWAY LANES	1	EA	L		RCICNVRT 09/11/1997
		PAVEMENT SURFACE WIDTH	12	FT	L		RCICNVRT 09/11/1997
1.472	2.15	NUMBER OF ROADWAY LANES	1	EA	R		RCICNVRT 09/11/1997
		PAVEMENT SURFACE WIDTH	12	FT	R		RCICNVRT 09/11/1997
2.15	2.349	NUMBER OF ROADWAY LANES	2	EA	C		RCICNVRT 09/11/1997
		PAVEMENT SURFACE WIDTH	24	FT	C		RCICNVRT 09/11/1997
2.349	2.882	NUMBER OF ROADWAY LANES	1	EA	L		RCICNVRT 09/11/1997
		PAVEMENT SURFACE WIDTH	12	FT	L		RCICNVRT 09/11/1997
2.349	2.882	NUMBER OF ROADWAY LANES	1	EA	R		RCICNVRT 09/11/1997
		PAVEMENT SURFACE WIDTH	12	FT	R		RCICNVRT 09/11/1997
2.882	3.23	NUMBER OF ROADWAY LANES	2	EA	C		RCICNVRT 07/12/1999
		PAVEMENT SURFACE WIDTH	24	FT	C		RCICNVRT 07/12/1999
3.23	5.09	NUMBER OF ROADWAY LANES	2	EA	L		MT593AK 02/05/2008
		PAVEMENT SURFACE WIDTH	24	FT	L		MT593AK 02/05/2008
3.23	5.09	NUMBER OF ROADWAY LANES	2	EA	R		MT593AK 02/05/2008
		PAVEMENT SURFACE WIDTH	24	FT	R		MT593AK 02/05/2008

Feature 216 - BIKE LANES/PED SIDEWALK — LENGTH/INTERLOCKING

Beg. MP	End. MP	Characteristic	Value	Unit	Side	Offset	Char. Updated
0.072	7.809	BICYCLE LANE	0 - UNDESIGNATED	CD	L		KNMEIGP 12/04/2008
0.072	7.809	BICYCLE LANE	0 - UNDESIGNATED	CD	R		KNMEIGP 12/04/2008

Feature 217 - SIDEWALKS — LENGTH/NON-INTERLOCKING

Beg. MP	End. MP	Characteristic	Value	Unit	Side	Offset	Char. Updated
0.347	0.592	SIDEWALK WIDTH	5	FT	R	R	MT593AK 08/05/2013

Feature 311 - SPEED ZONE — LENGTH/INTERLOCKING

Beg. MP	End. MP	Characteristic	Value	Unit	Side	Offset	Char. Updated
0.072	3.475	DATE SPEED ZONE APPROVED	02/05/2009	DA	C		TO562JG 02/13/2009
		MAXIMUM SPEED LIMIT	55	MH	C		TO562JG 02/13/2009

Feature 214 - OUTSIDE SHOULDERS							LENGTH/NON-INTERLOCKING
Beg. MP	End. MP	Characteristic	Value	Unit	Side	Offset	Char. Updated
0.072	0.614	HIGHWAY SHOULDER TYPE	1 - PAVED	CD	L	L	RCICNVRT 08/19/2003
0.072	0.614	HIGHWAY SHOULDER WIDTH	4	FT	L	L	RCICNVRT 08/19/2003
0.072	0.614	HIGHWAY SHOULDER TYPE 2	3 - LAWN	CD	L	L	RCICNVRT 08/19/2003
0.072	0.614	HIGHWAY SHOULDER WIDTH 2	6	FT	L	L	RCICNVRT 08/19/2003
0.072	0.614	HIGHWAY SHOULDER TYPE	1 - PAVED	CD	R	R	RCICNVRT 08/19/2003
0.072	0.614	HIGHWAY SHOULDER WIDTH	4	FT	R	R	RCICNVRT 08/19/2003
0.072	0.614	HIGHWAY SHOULDER TYPE 2	3 - LAWN	CD	R	R	RCICNVRT 08/19/2003
0.072	0.614	HIGHWAY SHOULDER WIDTH 2	6	FT	R	R	RCICNVRT 08/19/2003
0.614	0.729	HIGHWAY SHOULDER TYPE	1 - PAVED	CD	C	R & L	RCICNVRT 08/19/2003
0.614	0.729	HIGHWAY SHOULDER WIDTH	4	FT	C	R & L	RCICNVRT 08/19/2003
0.614	0.729	HIGHWAY SHOULDER TYPE 2	3 - LAWN	CD	C	R & L	RCICNVRT 08/19/2003
0.614	0.729	HIGHWAY SHOULDER WIDTH 2	6	FT	C	R & L	RCICNVRT 08/19/2003
0.729	0.992	HIGHWAY SHOULDER TYPE	1 - PAVED	CD	L	L	RCICNVRT 09/11/1997
0.729	0.992	HIGHWAY SHOULDER WIDTH	4	FT	L	L	RCICNVRT 09/11/1997
0.729	0.992	HIGHWAY SHOULDER TYPE 2	3 - LAWN	CD	L	L	RCICNVRT 09/11/1997
0.729	0.992	HIGHWAY SHOULDER WIDTH 2	6	FT	L	L	RCICNVRT 09/11/1997
0.729	0.992	HIGHWAY SHOULDER TYPE	1 - PAVED	CD	R	R	RCICNVRT 09/11/1997
0.729	0.992	HIGHWAY SHOULDER WIDTH	4	FT	R	R	RCICNVRT 09/11/1997
0.729	0.992	HIGHWAY SHOULDER TYPE 2	3 - LAWN	CD	R	R	RCICNVRT 09/11/1997
0.729	0.992	HIGHWAY SHOULDER WIDTH 2	6	FT	R	R	RCICNVRT 09/11/1997
0.992	1.472	HIGHWAY SHOULDER TYPE	1 - PAVED	CD	C	R & L	RCICNVRT 09/11/1997
0.992	1.472	HIGHWAY SHOULDER WIDTH	4	FT	C	R & L	RCICNVRT 06/16/1979
0.992	1.472	HIGHWAY SHOULDER TYPE 2	3 - LAWN	CD	C	R & L	RCICNVRT 09/11/1997
0.992	1.472	HIGHWAY SHOULDER WIDTH 2	6	FT	C	R & L	RCICNVRT 04/07/1995
1.472	2.15	HIGHWAY SHOULDER TYPE	1 - PAVED	CD	L	L	RCICNVRT 09/11/1997
1.472	2.15	HIGHWAY SHOULDER WIDTH	4	FT	L	L	RCICNVRT 09/11/1997
1.472	2.15	HIGHWAY SHOULDER TYPE 2	3 - LAWN	CD	L	L	RCICNVRT 09/11/1997
1.472	2.15	HIGHWAY SHOULDER WIDTH 2	6	FT	L	L	RCICNVRT 09/11/1997
1.472	2.15	HIGHWAY SHOULDER TYPE	1 - PAVED	CD	R	R	RCICNVRT 09/11/1997
1.472	2.15	HIGHWAY SHOULDER WIDTH	4	FT	R	R	RCICNVRT 09/11/1997
1.472	2.15	HIGHWAY SHOULDER TYPE 2	3 - LAWN	CD	R	R	RCICNVRT 09/11/1997
1.472	2.15	HIGHWAY SHOULDER WIDTH 2	6	FT	R	R	RCICNVRT 09/11/1997
2.15	2.349	HIGHWAY SHOULDER TYPE	1 - PAVED	CD	C	R & L	RCICNVRT 09/11/1997
2.15	2.349	HIGHWAY SHOULDER WIDTH	4	FT	C	R & L	RCICNVRT 09/11/1997
2.15	2.349	HIGHWAY SHOULDER TYPE 2	3 - LAWN	CD	C	R & L	RCICNVRT 09/11/1997
2.15	2.349	HIGHWAY SHOULDER WIDTH 2	6	FT	C	R & L	RCICNVRT 09/11/1997
2.349	2.882	HIGHWAY SHOULDER TYPE	1 - PAVED	CD	L	L	RCICNVRT 09/11/1997
2.349	2.882	HIGHWAY SHOULDER WIDTH	4	FT	L	L	RCICNVRT 09/11/1997
2.349	2.882	HIGHWAY SHOULDER TYPE 2	3 - LAWN	CD	L	L	RCICNVRT 09/11/1997
2.349	2.882	HIGHWAY SHOULDER WIDTH 2	6	FT	L	L	RCICNVRT 09/11/1997
2.349	2.882	HIGHWAY SHOULDER TYPE	1 - PAVED	CD	R	R	RCICNVRT 09/11/1997
2.349	2.882	HIGHWAY SHOULDER WIDTH	4	FT	R	R	RCICNVRT 09/11/1997
2.349	2.882	HIGHWAY SHOULDER TYPE 2	3 - LAWN	CD	R	R	RCICNVRT 09/11/1997
2.349	2.882	HIGHWAY SHOULDER WIDTH 2	6	FT	R	R	RCICNVRT 09/11/1997
2.882	3.23	HIGHWAY SHOULDER TYPE	1 - PAVED	CD	C	R & L	RCICNVRT 07/16/1999
2.882	3.23	HIGHWAY SHOULDER WIDTH	4	FT	C	R & L	RCICNVRT 07/16/1999
2.882	3.23	HIGHWAY SHOULDER TYPE 2	3 - LAWN	CD	C	R & L	RCICNVRT 07/16/1999
2.882	3.23	HIGHWAY SHOULDER WIDTH 2	6	FT	C	R & L	RCICNVRT 07/16/1999
3.23	4.14	HIGHWAY SHOULDER TYPE	1 - PAVED	CD	L	L	MT593AK 01/24/2008
3.23	4.14	HIGHWAY SHOULDER WIDTH	5	FT	L	L	MT593AK 01/24/2008
3.23	4.14	HIGHWAY SHOULDER WIDTH 2	6	FT	L	L	MT593AK 01/24/2008
3.23	4.14	HIGHWAY SHOULDER TYPE 2	3 - LAWN	CD	L	L	MT593AK 01/24/2008
3.23	4.14	HIGHWAY SHOULDER TYPE	1 - PAVED	CD	R	R	MT593AK 01/24/2008
3.23	4.14	HIGHWAY SHOULDER WIDTH	4	FT	R	R	MT593AK 01/24/2008
3.23	4.14	HIGHWAY SHOULDER TYPE 2	3 - LAWN	CD	R	R	MT593AK 01/24/2008
3.23	4.14	HIGHWAY SHOULDER WIDTH 2	6	FT	R	R	MT593AK 01/24/2008

Appendix C

Raw Traffic Counts

TRAFFIC COUNT DATA

FINANCE NO:	11-016.20
LOCATION CODE:	#1
COUNT LOCATION:	#1 - SR 46 East of Wekiva River

TYPE OF COUNT:

48 Hour Classification Count

TIME OF COUNT:

Start Date:	5/7/2013	Start Time:	Midnight
End Date:	5/8/2013	End Time:	Midnight

VOLUMES:

		Peak Hour Start Time:	5:00 PM
Average Daily:	19,574	Average Peak Hour:	1,978
Daily Truck Avg:	2,035	Max Hour Truck Avg:	196
		Peak Hour Truck Avg:	140

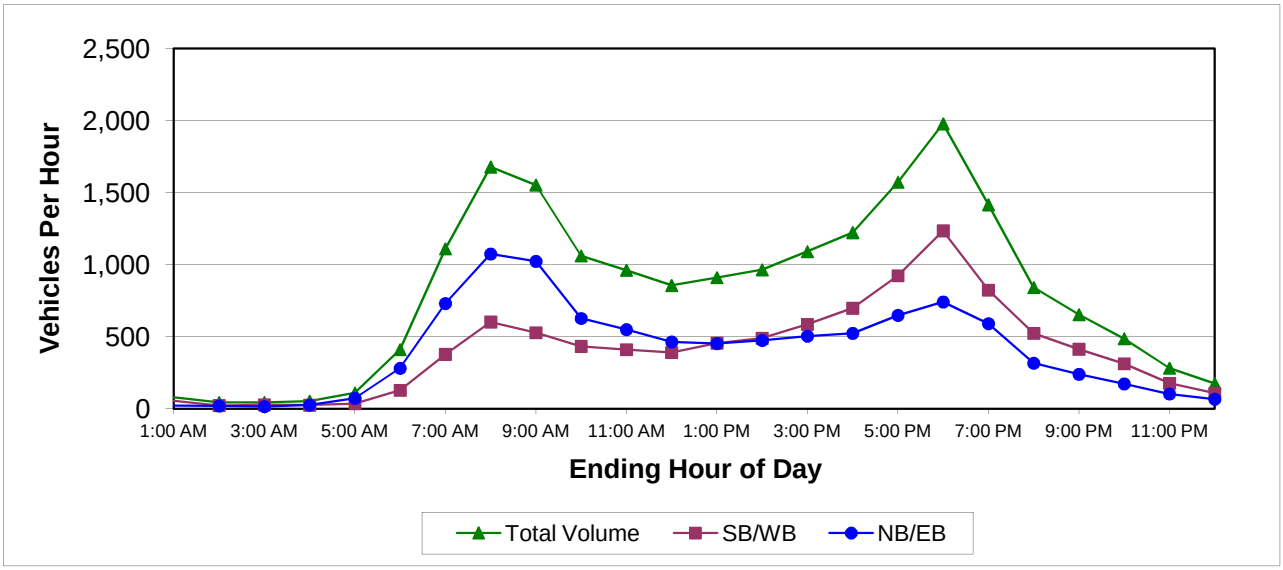
TRAVEL CHARACTERISTICS:

K MEASURED		D MEASURED	
K=	10.1%	D=	62.5%
T Max Hour	9.9%	T daily	10.4%
T med (max)	5.5%	T med Daily	5.7%
T heavy (max)	4.4%	T heavy Daily	4.7%
T Peak Hour	7.1%		
T med Peak Hour	4.9%		
T heavy Peak Hour	2.2%		

HOURLY DISTRIBUTIONS OF TRAFFIC VOLUMES

FINANCE NO: 11-016.20
LOCATION CODE: #1
COUNT LOCATION: #1 - SR 46 East of Wekiva River

HOUR ENDING AT	HOURLY VOLUME DIRECTION (NB OR EB)	HOURLY VOLUME DIRECTION (SB OR WB)	TOTAL VOLUME BOTH DIRECTIONS	DISTRIBUTION PERCENT DIRECTION (NB OR EB)	DISTRIBUTION PERCENT DIRECTION (SB OR WB)	TOTAL PERCENT BOTH DIRECTIONS
1:00 AM	24	56	80	0.25%	0.57%	0.41%
2:00 AM	22	24	45	0.22%	0.24%	0.23%
3:00 AM	17	29	46	0.17%	0.30%	0.24%
4:00 AM	27	27	54	0.28%	0.28%	0.28%
5:00 AM	74	37	111	0.76%	0.38%	0.57%
6:00 AM	282	130	412	2.89%	1.32%	2.10%
7:00 AM	732	379	1,111	7.49%	3.86%	5.67%
8:00 AM	1,075	604	1,679	11.01%	6.15%	8.58%
9:00 AM	1,024	529	1,553	10.48%	5.39%	7.93%
10:00 AM	628	434	1,062	6.43%	4.43%	5.43%
11:00 AM	551	412	962	5.64%	4.20%	4.91%
12:00 PM	466	392	857	4.77%	3.99%	4.38%
1:00 PM	455	457	911	4.65%	4.66%	4.65%
2:00 PM	475	491	966	4.86%	5.00%	4.93%
3:00 PM	506	587	1,092	5.18%	5.98%	5.58%
4:00 PM	525	699	1,224	5.37%	7.13%	6.25%
5:00 PM	650	924	1,574	6.65%	9.42%	8.04%
6:00 PM	743	1,236	1,978	7.60%	12.60%	10.11%
7:00 PM	592	825	1,417	6.06%	8.41%	7.24%
8:00 PM	318	525	842	3.25%	5.35%	4.30%
9:00 PM	241	414	655	2.46%	4.22%	3.34%
10:00 PM	174	314	488	1.78%	3.20%	2.49%
11:00 PM	104	179	283	1.06%	1.82%	1.44%
12:00 AM	68	109	177	0.70%	1.11%	0.90%
TOTALS	9,768	9,806	19,574	100.0%	100.0%	100.0%



ANNUAL VEHICLE CLASSIFICATION REPORT

FINANCE NO: 11-016.20

LOCATION CODE: #1

COUNT LOCATION: #1 - SR 46 East of Wekiva River

Vehicle Classification	Vehicle Type	Average Daily Statistics	
		Volume	Percentage
Class 1	Motorcycles	201	1.03%
Class 2	Cars	13,066	66.74%
Class 3	Pick-Ups & Vans	4,208	21.50%
Class 4	Buses	140	0.72%
Class 5	2 Axle, Single Unit Trucks	984	5.03%
Class 6	3 Axle, Single Unit Trucks	110	0.56%
Class 7	4 Axle, Single Unit Trucks	36	0.18%
Class 8	2 Axle Trctr with 1 or 2 Axle Trlr, 3 Axle Trctr with 1 Axle	351	1.79%
Class 9	3 Axle Tractor with 2 Axle Trailer	378	1.93%
Class 10	3 Axle Tractor with 3 Axle Trailer	30	0.15%
Class 11	5 Axle Multi Trailer	3	0.02%
Class 12	6 Axle Multi Trailer	2	0.01%
Class 13	7 or more Axles	3	0.02%
Class 14	Not Used	64	0.33%
Class 15	Other	0	0.00%
TOTALS		**19,576**	**100.00%**

TRAFFIC COUNT DATA

FINANCE NO:	240200-2 - SR 429/SR 46 (Section 7A)
LOCATION CODE:	1 - SR 46
COUNT LOCATION:	West of Orange Boulevard

TYPE OF COUNT:

48 Hour Classification Count

TIME OF COUNT:

Start Date:	7/16/2013	Start Time:	Midnight
End Date:	7/17/2013	End Time:	Midnight

VOLUMES:

		Peak Hour Start Time:	5:00 PM
Average Daily:	20,102	Average Peak Hour:	1,897
Daily Truck Avg:	2,130	Max Hour Truck Avg:	199
		Peak Hour Truck Avg:	158

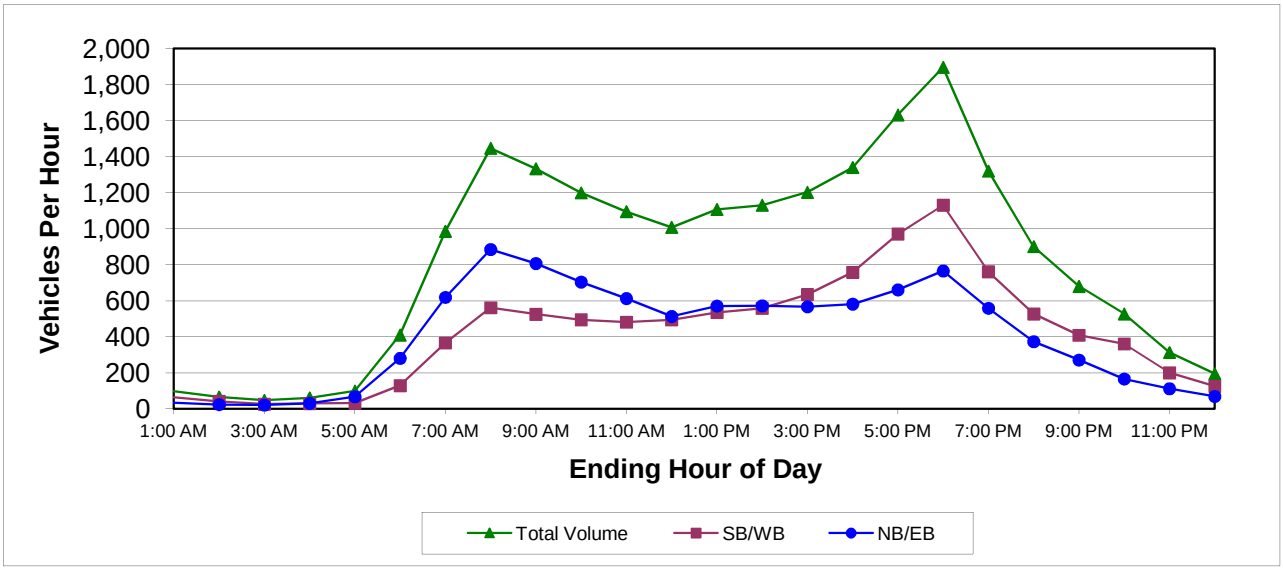
TRAVEL CHARACTERISTICS:

K MEASURED		D MEASURED	
K=	9.4%	D=	59.6%
T Max Hour	10.5%	T daily	10.6%
T med (max)	5.5%	T med Daily	5.9%
T heavy (max)	5.0%	T heavy Daily	4.7%
T Peak Hour	8.3%		
T med Peak Hour	4.9%	Axle Factor	0.97
T heavy Peak Hour	3.5%		

HOURLY DISTRIBUTIONS OF TRAFFIC VOLUMES

FINANCE NO: 240200-2 - SR 429/SR 46 (Section 7A)
240200-2 1 - SR 46
1 - SR 46 West of Orange Boulevard

HOUR ENDING AT	HOURLY VOLUME DIRECTION (NB OR EB)	HOURLY VOLUME DIRECTION (SB OR WB)	TOTAL VOLUME BOTH DIRECTIONS	DISTRIBUTION PERCENT DIRECTION (NB OR EB)	DISTRIBUTION PERCENT DIRECTION (SB OR WB)	TOTAL PERCENT BOTH DIRECTIONS
1:00 AM	35	65	99	0.35%	0.63%	0.49%
2:00 AM	25	42	67	0.25%	0.41%	0.33%
3:00 AM	22	27	49	0.22%	0.26%	0.24%
4:00 AM	32	30	62	0.32%	0.29%	0.31%
5:00 AM	68	32	100	0.69%	0.31%	0.50%
6:00 AM	281	130	411	2.84%	1.27%	2.04%
7:00 AM	620	367	986	6.27%	3.58%	4.90%
8:00 AM	885	562	1,447	8.96%	5.50%	7.20%
9:00 AM	808	526	1,333	8.18%	5.14%	6.63%
10:00 AM	705	495	1,200	7.13%	4.84%	5.97%
11:00 AM	613	482	1,095	6.21%	4.71%	5.45%
12:00 PM	514	495	1,008	5.20%	4.84%	5.01%
1:00 PM	572	536	1,108	5.79%	5.24%	5.51%
2:00 PM	573	559	1,131	5.80%	5.46%	5.63%
3:00 PM	568	635	1,203	5.75%	6.21%	5.98%
4:00 PM	582	759	1,341	5.89%	7.42%	6.67%
5:00 PM	661	971	1,632	6.69%	9.50%	8.12%
6:00 PM	766	1,131	1,897	7.75%	11.06%	9.43%
7:00 PM	559	761	1,320	5.66%	7.44%	6.57%
8:00 PM	374	528	901	3.78%	5.16%	4.48%
9:00 PM	272	409	681	2.75%	4.00%	3.39%
10:00 PM	167	361	528	1.69%	3.53%	2.62%
11:00 PM	113	201	313	1.14%	1.96%	1.56%
12:00 AM	70	126	196	0.70%	1.23%	0.97%
TOTALS	9,878	10,225	20,102	100.0%	100.0%	100.0%



ANNUAL VEHICLE CLASSIFICATION REPORT

FINANCE NO: 240200-2 - SR 429/SR 46 (Section 7A)

LOCATION CODE: 1 - SR 46 240200-2

COUNT LOCATION: West of Orange Boulevard 1 - SR 46

Vehicle Classification	Vehicle Type	Average Daily Statistics	
		Volume	Percentage
Class 1	Motorcycles	125	0.62%
Class 2	Cars	13,163	65.47%
Class 3	Pick-Ups & Vans	4,557	22.66%
Class 4	Buses	127	0.63%
Class 5	2 Axle, Single Unit Trucks	1,060	5.27%
Class 6	3 Axle, Single Unit Trucks	145	0.72%
Class 7	4 Axle, Single Unit Trucks	24	0.12%
Class 8	2 Axle Trctr with 1 or 2 Axle Trlr, 3 Axle Trctr with 1 Axle	401	1.99%
Class 9	3 Axle Tractor with 2 Axle Trailer	318	1.58%
Class 10	3 Axle Tractor with 3 Axle Trailer	32	0.16%
Class 11	5 Axle Multi Trailer	11	0.05%
Class 12	6 Axle Multi Trailer	5	0.02%
Class 13	7 or more Axles	10	0.05%
Class 14	Not Used	128	0.64%
Class 15	Other	0	0.00%
TOTALS		**20,106**	**100.00%**

Traffic Count Data

GMB Engineers & Planners, Inc.

PROJECT	SR 429/SR 46 (Section 7A)
LOCATION CODE	1
COUNT LOCATION	#1- SR 46 East of Orange Blvd.
GMB PROJECT #	11-016.33

TYPE OF COUNT:

48-Hour APPROACH VOLUME COUNT

TIME OF COUNT:

Start Date	July 24, 2013	**Start Time**	12:00 AM
End Date	July 26, 2013	**End Time**	12:00 AM

VOLUME AVERAGES

	Total	EB	WB
ADT	23,352	11,662	11,690

Peak Hour 5:00 PM to 6:00 PM

Peak Hour Total	EB	WB
1,968	802	1,166

MEASURED TRAVEL CHARACTERISTICS

Peak to Daily Ratio

K = 8.43% **D =** 59.3%

Hourly Distribution of Traffic Volumes

GMB Engineers & Planners, Inc.

PROJECT	SR 429/SR 46 (Section 7A)
LOCATION CODE	1
COUNT LOCATION	#1- SR 46 East of Orange Blvd.
GMB PROJECT #	11-016.33

HOUR END AT	HOURLY VOLUME DIRECTION (EB)	HOURLY VOLUME DIRECTION (WB)	TOTAL VOLUMES BOTH DIRECTIONS	DISTRIBUTION PERCENT DIRECTION (EB)	DISTRIBUTION PERCENT DIRECTION (WB)	TOTAL PERCENT BOTH DIRECTIONS
1:00 AM	37	77	114	0.32%	0.66%	0.49%
2:00 AM	28	41	69	0.24%	0.35%	0.30%
3:00 AM	26	35	61	0.22%	0.30%	0.26%
4:00 AM	32	40	72	0.27%	0.34%	0.31%
5:00 AM	69	44	113	0.59%	0.38%	0.48%
6:00 AM	272	135	407	2.33%	1.15%	1.74%
7:00 AM	636	435	1,071	5.45%	3.72%	4.59%
8:00 AM	1,001	614	1,615	8.58%	5.25%	6.92%
9:00 AM	972	611	1,583	8.33%	5.23%	6.78%
10:00 AM	790	545	1,335	6.77%	4.66%	5.72%
11:00 AM	711	529	1,240	6.10%	4.53%	5.31%
12:00 PM	725	609	1,334	6.22%	5.21%	5.71%
1:00 PM	745	643	1,388	6.39%	5.50%	5.94%
2:00 PM	673	697	1,370	5.77%	5.96%	5.87%
3:00 PM	694	749	1,443	5.95%	6.41%	6.18%
4:00 PM	707	853	1,560	6.06%	7.30%	6.68%
5:00 PM	737	1,003	1,740	6.32%	8.58%	7.45%
6:00 PM	802	1,166	1,968	6.88%	9.97%	8.43%
7:00 PM	691	910	1,601	5.93%	7.78%	6.86%
8:00 PM	472	637	1,109	4.05%	5.45%	4.75%
9:00 PM	374	527	901	3.21%	4.51%	3.86%
10:00 PM	236	420	656	2.02%	3.59%	2.81%
11:00 PM	150	240	390	1.29%	2.05%	1.67%
12:00 AM	82	130	212	0.70%	1.11%	0.91%
TOTALS	**11,662**	**11,690**	**23,352**	**99.99%**	**100.00%**	**100.00%**

Traffic Count Data

GMB Engineers & Planners, Inc.

PROJECT	SR 429/SR 46 (Section 7A)
LOCATION CODE	2
COUNT LOCATION	#2- Longwood-Markham Road South of SR 46
GMB PROJECT #	11-016.33

TYPE OF COUNT:

48-Hour APPROACH VOLUME COUNT

TIME OF COUNT:

Start Date	July 16, 2013	**Start Time**	12:00 AM
End Date	July 18, 2013	**End Time**	12:00 AM

VOLUME AVERAGES

	Total	NB	SB
ADT	3,320	1,706	1,614

Peak Hour 5:00 PM to 6:00 PM

Peak Hour Total	NB	SB
370	237	133

MEASURED TRAVEL CHARACTERISTICS

Peak to Daily Ratio

K = 11.14% **D =** 64.1%

Hourly Distribution of Traffic Volumes

GMB Engineers & Planners, Inc.

PROJECT	SR 429/SR 46 (Section 7A)
LOCATION CODE	2
COUNT LOCATION	#2- Longwood-Markham Road South of SR 46
GMB PROJECT #	11-016.33

HOUR END AT	HOURLY VOLUME DIRECTION (NB)	HOURLY VOLUME DIRECTION (SB)	TOTAL VOLUMES BOTH DIRECTIONS	DISTRIBUTION PERCENT DIRECTION (NB)	DISTRIBUTION PERCENT DIRECTION (SB)	TOTAL PERCENT BOTH DIRECTIONS
1:00 AM	10	10	20	0.59%	0.62%	0.60%
2:00 AM	4	5	9	0.23%	0.31%	0.27%
3:00 AM	4	2	6	0.23%	0.12%	0.18%
4:00 AM	2	2	4	0.12%	0.12%	0.12%
5:00 AM	5	6	11	0.29%	0.37%	0.33%
6:00 AM	14	39	53	0.82%	2.42%	1.60%
7:00 AM	44	102	146	2.58%	6.32%	4.40%
8:00 AM	94	188	282	5.51%	11.65%	8.49%
9:00 AM	117	162	279	6.86%	10.04%	8.40%
10:00 AM	88	88	176	5.16%	5.45%	5.30%
11:00 AM	72	64	136	4.22%	3.97%	4.10%
12:00 PM	79	81	160	4.63%	5.02%	4.82%
1:00 PM	93	82	175	5.45%	5.08%	5.27%
2:00 PM	92	88	180	5.39%	5.45%	5.42%
3:00 PM	102	85	187	5.98%	5.27%	5.63%
4:00 PM	135	89	224	7.91%	5.51%	6.75%
5:00 PM	158	97	255	9.26%	6.01%	7.68%
6:00 PM	237	133	370	13.89%	8.24%	11.14%
7:00 PM	141	100	241	8.26%	6.20%	7.26%
8:00 PM	82	70	152	4.81%	4.34%	4.58%
9:00 PM	64	50	114	3.75%	3.10%	3.43%
10:00 PM	37	42	79	2.17%	2.60%	2.38%
11:00 PM	19	15	34	1.11%	0.93%	1.02%
12:00 AM	13	14	27	0.76%	0.87%	0.81%
TOTALS	**1,706**	**1,614**	**3,320**	**99.98%**	**100.00%**	**100.00%**

Traffic Count Data

GMB Engineers & Planners, Inc.

PROJECT	SR 429/SR 46 (Section 7A)
LOCATION CODE	3
COUNT LOCATION	#3- Lake-Markham Road South of SR 46
GMB PROJECT #	11-016.33

TYPE OF COUNT:

48-Hour APPROACH VOLUME COUNT

TIME OF COUNT:

Start Date	July 16, 2013	**Start Time**	12:00 AM
End Date	July 18, 2013	**End Time**	12:00 AM

VOLUME AVERAGES

	Total	NB	SB
ADT	1,200	613	587

Peak Hour 4:45 PM to 5:45 PM

Peak Hour Total	NB	SB
105	46	59

MEASURED TRAVEL CHARACTERISTICS

Peak to Daily Ratio

K = 8.75% **D =** 56.2%

Hourly Distribution of Traffic Volumes

GMB Engineers & Planners, Inc.

PROJECT	SR 429/SR 46 (Section 7A)
LOCATION CODE	3
COUNT LOCATION	#3- Lake-Markham Road South of SR 46
GMB PROJECT #	11-016.33

HOUR END AT	HOURLY VOLUME DIRECTION (NB)	HOURLY VOLUME DIRECTION (SB)	TOTAL VOLUMES BOTH DIRECTIONS	DISTRIBUTION PERCENT DIRECTION (NB)	DISTRIBUTION PERCENT DIRECTION (SB)	TOTAL PERCENT BOTH DIRECTIONS
1:00 AM	2	4	6	0.33%	0.68%	0.50%
2:00 AM	1	6	7	0.16%	1.02%	0.58%
3:00 AM	3	3	6	0.49%	0.51%	0.50%
4:00 AM	3	1	4	0.49%	0.17%	0.33%
5:00 AM	2	1	3	0.33%	0.17%	0.25%
6:00 AM	9	2	11	1.47%	0.34%	0.92%
7:00 AM	21	6	27	3.43%	1.02%	2.25%
8:00 AM	34	28	62	5.55%	4.77%	5.17%
9:00 AM	51	44	95	8.32%	7.50%	7.92%
10:00 AM	43	30	73	7.01%	5.11%	6.08%
11:00 AM	39	27	66	6.36%	4.60%	5.50%
12:00 PM	42	41	83	6.85%	6.98%	6.92%
1:00 PM	41	41	82	6.69%	6.98%	6.83%
2:00 PM	40	33	73	6.53%	5.62%	6.08%
3:00 PM	34	39	73	5.55%	6.64%	6.08%
4:00 PM	45	28	73	7.34%	4.77%	6.08%
5:00 PM	36	46	82	5.87%	7.84%	6.83%
6:00 PM	47	55	102	7.67%	9.37%	8.50%
7:00 PM	37	48	85	6.04%	8.18%	7.08%
8:00 PM	27	36	63	4.40%	6.13%	5.25%
9:00 PM	28	34	62	4.57%	5.79%	5.17%
10:00 PM	14	19	33	2.28%	3.24%	2.75%
11:00 PM	10	12	22	1.63%	2.04%	1.83%
12:00 AM	4	3	7	0.65%	0.51%	0.58%
TOTALS	**613**	**587**	**1,200**	**100.01%**	**100.00%**	**100.00%**

Traffic Count Data

GMB Engineers & Planners, Inc.

PROJECT	SR 429/SR 46 (Section 7A)
LOCATION CODE	4
COUNT LOCATION	#4- Orange Blvd. North of SR 46
GMB PROJECT #	11-016.33

TYPE OF COUNT:

48-Hour APPROACH VOLUME COUNT

TIME OF COUNT:

Start Date	July 16, 2013	**Start Time**	12:00 AM
End Date	July 18, 2013	**End Time**	12:00 AM

VOLUME AVERAGES

	Total	NB	SB
ADT	5,498	2,700	2,798

Peak Hour 4:30 PM to 5:30 PM

Peak Hour Total	NB	SB
487	279	208

MEASURED TRAVEL CHARACTERISTICS

Peak to Daily Ratio

K = 8.86% **D =** 57.3%

Hourly Distribution of Traffic Volumes

GMB Engineers & Planners, Inc.

PROJECT	SR 429/SR 46 (Section 7A)
LOCATION CODE	4
COUNT LOCATION	#4- Orange Blvd. North of SR 46
GMB PROJECT #	11-016.33

HOUR END AT	HOURLY VOLUME DIRECTION (NB)	HOURLY VOLUME DIRECTION (SB)	TOTAL VOLUMES BOTH DIRECTIONS	DISTRIBUTION PERCENT DIRECTION (NB)	DISTRIBUTION PERCENT DIRECTION (SB)	TOTAL PERCENT BOTH DIRECTIONS
1:00 AM	18	10	28	0.67%	0.36%	0.51%
2:00 AM	11	7	18	0.41%	0.25%	0.33%
3:00 AM	5	3	8	0.19%	0.11%	0.15%
4:00 AM	3	7	10	0.11%	0.25%	0.18%
5:00 AM	6	9	15	0.22%	0.32%	0.27%
6:00 AM	18	39	57	0.67%	1.39%	1.04%
7:00 AM	53	116	169	1.96%	4.15%	3.07%
8:00 AM	118	242	360	4.37%	8.65%	6.55%
9:00 AM	141	269	410	5.22%	9.61%	7.46%
10:00 AM	129	203	332	4.78%	7.26%	6.04%
11:00 AM	126	164	290	4.67%	5.86%	5.27%
12:00 PM	144	154	298	5.33%	5.50%	5.42%
1:00 PM	177	189	366	6.56%	6.75%	6.66%
2:00 PM	161	170	331	5.96%	6.08%	6.02%
3:00 PM	180	164	344	6.67%	5.86%	6.26%
4:00 PM	182	164	346	6.74%	5.86%	6.29%
5:00 PM	243	200	443	9.00%	7.15%	8.06%
6:00 PM	289	196	485	10.70%	7.01%	8.82%
7:00 PM	235	171	406	8.70%	6.11%	7.38%
8:00 PM	157	130	287	5.81%	4.65%	5.22%
9:00 PM	137	87	224	5.07%	3.11%	4.07%
10:00 PM	90	58	148	3.33%	2.07%	2.69%
11:00 PM	51	25	76	1.89%	0.89%	1.38%
12:00 AM	26	21	47	0.96%	0.75%	0.85%
TOTALS	**2,700**	**2,798**	**5,498**	**99.99%**	**100.00%**	**100.00%**

Traffic Count Data

GMB Engineers & Planners, Inc.

PROJECT	SR 429/SR 46 (Section 7A)
LOCATION CODE	5
COUNT LOCATION	#5- Orange Blvd. South of SR 46
GMB PROJECT #	11-016.33

TYPE OF COUNT:

48-Hour APPROACH VOLUME COUNT

TIME OF COUNT:

Start Date	July 16, 2013	**Start Time**	12:00 AM
End Date	July 18, 2013	**End Time**	12:00 AM

VOLUME AVERAGES

	Total	NB	SB
ADT	5,492	3,049	2,443

Peak Hour 5:00 PM to 6:00 PM

Peak Hour Total	NB	SB
542	369	173

MEASURED TRAVEL CHARACTERISTICS

Peak to Daily Ratio

K = 9.87% **D =** 68.1%

Hourly Distribution of Traffic Volumes

GMB Engineers & Planners, Inc.

PROJECT	SR 429/SR 46 (Section 7A)
LOCATION CODE	5
COUNT LOCATION	#5- Orange Blvd. South of SR 46
GMB PROJECT #	11-016.33

HOUR END AT	HOURLY VOLUME DIRECTION (NB)	HOURLY VOLUME DIRECTION (SB)	TOTAL VOLUMES BOTH DIRECTIONS	DISTRIBUTION PERCENT DIRECTION (NB)	DISTRIBUTION PERCENT DIRECTION (SB)	TOTAL PERCENT BOTH DIRECTIONS
1:00 AM	16	12	28	0.52%	0.49%	0.51%
2:00 AM	13	8	21	0.43%	0.33%	0.38%
3:00 AM	7	6	13	0.23%	0.25%	0.24%
4:00 AM	5	3	8	0.16%	0.12%	0.15%
5:00 AM	6	11	17	0.20%	0.45%	0.31%
6:00 AM	18	49	67	0.59%	2.01%	1.22%
7:00 AM	59	90	149	1.94%	3.68%	2.71%
8:00 AM	159	188	347	5.21%	7.70%	6.32%
9:00 AM	178	212	390	5.84%	8.68%	7.10%
10:00 AM	176	176	352	5.77%	7.20%	6.41%
11:00 AM	148	135	283	4.85%	5.53%	5.15%
12:00 PM	179	133	312	5.87%	5.44%	5.68%
1:00 PM	177	177	354	5.81%	7.25%	6.45%
2:00 PM	170	158	328	5.58%	6.47%	5.97%
3:00 PM	198	147	345	6.49%	6.02%	6.28%
4:00 PM	207	136	343	6.79%	5.57%	6.25%
5:00 PM	294	171	465	9.64%	7.00%	8.47%
6:00 PM	369	173	542	12.10%	7.08%	9.87%
7:00 PM	231	149	380	7.58%	6.10%	6.92%
8:00 PM	149	113	262	4.89%	4.63%	4.77%
9:00 PM	120	77	197	3.94%	3.15%	3.59%
10:00 PM	93	61	154	3.05%	2.50%	2.80%
11:00 PM	44	38	82	1.44%	1.56%	1.49%
12:00 AM	33	20	53	1.08%	0.82%	0.97%
TOTALS	**3,049**	**2,443**	**5,492**	**100.00%**	**100.00%**	**100.00%**

Traffic Count Data

GMB Engineers & Planners, Inc.

PROJECT	SR 429/SR 46 (Section 7A)
LOCATION CODE	6
COUNT LOCATION	#6- Orange Blvd. South of Wayside Drive
GMB PROJECT #	11-016.33

TYPE OF COUNT:

48-Hour APPROACH VOLUME COUNT

TIME OF COUNT:

Start Date	July 16, 2013	**Start Time**	12:00 AM
End Date	July 18, 2013	**End Time**	12:00 AM

VOLUME AVERAGES

	Total	NB	SB
ADT	6,322	3,135	3,187

Peak Hour 5:00 PM to 6:00 PM

Peak Hour Total	NB	SB
567	335	232

MEASURED TRAVEL CHARACTERISTICS

Peak to Daily Ratio

K = 8.97% **D =** 59.1%

Hourly Distribution of Traffic Volumes

GMB Engineers & Planners, Inc.

PROJECT	SR 429/SR 46 (Section 7A)
LOCATION CODE	6
COUNT LOCATION	#6- Orange Blvd. South of Wayside Drive
GMB PROJECT #	11-016.33

HOUR END AT	HOURLY VOLUME DIRECTION (NB)	HOURLY VOLUME DIRECTION (SB)	TOTAL VOLUMES BOTH DIRECTIONS	DISTRIBUTION PERCENT DIRECTION (NB)	DISTRIBUTION PERCENT DIRECTION (SB)	TOTAL PERCENT BOTH DIRECTIONS
1:00 AM	16	13	29	0.51%	0.41%	0.46%
2:00 AM	13	10	23	0.41%	0.31%	0.36%
3:00 AM	8	8	16	0.26%	0.25%	0.25%
4:00 AM	9	4	13	0.29%	0.13%	0.21%
5:00 AM	8	17	25	0.26%	0.53%	0.40%
6:00 AM	21	73	94	0.67%	2.29%	1.49%
7:00 AM	61	136	197	1.95%	4.27%	3.12%
8:00 AM	167	252	419	5.33%	7.91%	6.63%
9:00 AM	184	309	493	5.87%	9.70%	7.80%
10:00 AM	187	233	420	5.96%	7.31%	6.64%
11:00 AM	175	169	344	5.58%	5.30%	5.44%
12:00 PM	186	163	349	5.93%	5.11%	5.52%
1:00 PM	193	213	406	6.16%	6.68%	6.42%
2:00 PM	188	194	382	6.00%	6.09%	6.04%
3:00 PM	196	178	374	6.25%	5.59%	5.92%
4:00 PM	216	173	389	6.89%	5.43%	6.15%
5:00 PM	280	218	498	8.93%	6.84%	7.88%
6:00 PM	335	232	567	10.69%	7.28%	8.97%
7:00 PM	225	197	422	7.18%	6.18%	6.68%
8:00 PM	162	147	309	5.17%	4.61%	4.89%
9:00 PM	123	103	226	3.92%	3.23%	3.57%
10:00 PM	98	79	177	3.13%	2.48%	2.80%
11:00 PM	44	44	88	1.40%	1.38%	1.39%
12:00 AM	40	22	62	1.28%	0.69%	0.98%
TOTALS	**3,135**	**3,187**	**6,322**	**100.02%**	**100.00%**	**100.00%**

Traffic Count Data

GMB Engineers & Planners, Inc.

PROJECT	SR 429/SR 46 (Section 7A)
LOCATION CODE	7
COUNT LOCATION	#7- Wayside Drive East of Orange Blvd.
GMB PROJECT #	11-016.33

TYPE OF COUNT:

48-Hour APPROACH VOLUME COUNT

TIME OF COUNT:

Start Date	July 16, 2013	**Start Time**	12:00 AM
End Date	July 18, 2013	**End Time**	12:00 AM

VOLUME AVERAGES

	Total	EB	WB
ADT	1,604	700	904

Peak Hour 4:45 PM to 5:45 PM

Peak Hour Total	EB	WB
197	61	136

MEASURED TRAVEL CHARACTERISTICS

Peak to Daily Ratio

K = 12.28% **D =** 69.0%

Hourly Distribution of Traffic Volumes

GMB Engineers & Planners, Inc.

PROJECT	SR 429/SR 46 (Section 7A)
LOCATION CODE	7
COUNT LOCATION	#7- Wayside Drive East of Orange Blvd.
GMB PROJECT #	11-016.33

HOUR END AT	HOURLY VOLUME DIRECTION (EB)	HOURLY VOLUME DIRECTION (WB)	TOTAL VOLUMES BOTH DIRECTIONS	DISTRIBUTION PERCENT DIRECTION (EB)	DISTRIBUTION PERCENT DIRECTION (WB)	TOTAL PERCENT BOTH DIRECTIONS
1:00 AM	3	4	7	0.43%	0.44%	0.44%
2:00 AM	0	3	3	0.00%	0.33%	0.19%
3:00 AM	1	2	3	0.14%	0.22%	0.19%
4:00 AM	2	0	2	0.29%	0.00%	0.12%
5:00 AM	3	4	7	0.43%	0.44%	0.44%
6:00 AM	6	6	12	0.86%	0.66%	0.75%
7:00 AM	27	13	40	3.86%	1.44%	2.49%
8:00 AM	69	28	97	9.86%	3.10%	6.05%
9:00 AM	68	48	116	9.71%	5.31%	7.23%
10:00 AM	60	46	106	8.57%	5.09%	6.61%
11:00 AM	38	42	80	5.43%	4.65%	4.99%
12:00 PM	41	47	88	5.86%	5.20%	5.49%
1:00 PM	39	53	92	5.57%	5.86%	5.74%
2:00 PM	48	54	102	6.86%	5.97%	6.36%
3:00 PM	42	57	99	6.00%	6.31%	6.17%
4:00 PM	39	52	91	5.57%	5.75%	5.67%
5:00 PM	44	95	139	6.29%	10.51%	8.67%
6:00 PM	57	134	191	8.14%	14.82%	11.91%
7:00 PM	41	68	109	5.86%	7.52%	6.80%
8:00 PM	30	60	90	4.29%	6.64%	5.61%
9:00 PM	18	39	57	2.57%	4.31%	3.55%
10:00 PM	14	28	42	2.00%	3.10%	2.62%
11:00 PM	6	15	21	0.86%	1.66%	1.31%
12:00 AM	4	6	10	0.57%	0.66%	0.62%
TOTALS	**700**	**904**	**1,604**	**100.02%**	**100.00%**	**100.00%**

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Lake	**City**	Wekiva
Intersection	River Oaks Circle	&	SR 46
Date	April 30, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.28

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	1	0	2	0	0	0
7:15 - 7:30	0	0	2	0	0	0
7:30 - 7:45	0	0	7	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	2	0	0	0
8:15 - 8:30	2	0	3	0	0	0
8:30 - 8:45	1	0	1	0	0	0
8:45 - 9:00	0	0	0	0	0	0
	4	0	17	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	232	0	0	142	0
7:15 - 7:30	0	240	0	3	167	0
7:30 - 7:45	0	310	0	2	147	0
7:45 - 8:00	0	317	0	2	139	1
8:00 - 8:15	0	256	0	1	123	0
8:15 - 8:30	0	238	0	0	140	0
8:30 - 8:45	0	227	0	1	133	0
8:45 - 9:00	0	194	0	0	110	0
	0	2,014	0	9	1,101	1

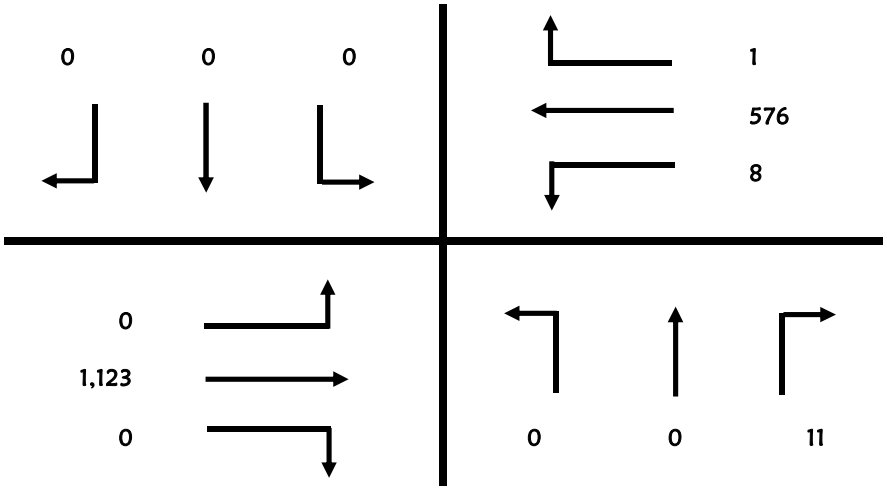
North / South
River Oaks Circle

East / West
SR 46

Peak Hour
7:15 - 8:15

Peak Hour Factor
0.92

Total Pk Hr Voume
1,719



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Lake	**City**	Wekiva
Intersection	River Oaks Circle	&	SR 46
Date	April 30, 2013		
Time Period	7:00 to 9:00		**Trucks**

GMB Project #: 11-016.28

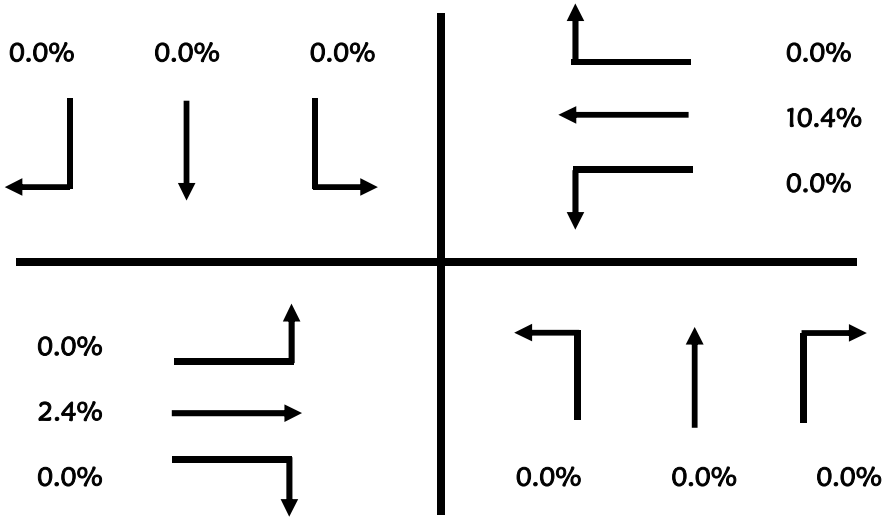
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	3	0	0	11	0
7:15 - 7:30	0	3	0	0	21	0
7:30 - 7:45	0	7	0	0	17	0
7:45 - 8:00	0	9	0	0	13	0
8:00 - 8:15	0	8	0	0	9	0
8:15 - 8:30	0	3	0	0	10	0
8:30 - 8:45	0	1	0	0	14	0
8:45 - 9:00	0	3	0	0	7	0

North / South
River Oaks Circle

East / West
SR 46

Peak Hour
7:15 - 8:15



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Lake	**City**	Wekiva
Intersection	River Oaks Circle	&	SR 46
Date	April 30, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.28

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	1	0	0	0
16:15 - 16:30	1	0	0	0	0	0
16:30 - 16:45	0	0	1	0	0	0
16:45 - 17:00	0	0	3	0	0	0
17:00 - 17:15	1	0	1	0	0	0
17:15 - 17:30	0	0	2	0	0	0
17:30 - 17:45	1	0	2	0	0	0
17:45 - 18:00	0	0	1	0	0	0
	3	0	11	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	165	0	4	241	0
16:15 - 16:30	0	138	1	2	238	0
16:30 - 16:45	0	167	0	2	264	0
16:45 - 17:00	0	184	1	1	247	0
17:00 - 17:15	0	158	0	5	259	0
17:15 - 17:30	0	201	1	5	303	0
17:30 - 17:45	0	166	0	4	317	0
17:45 - 18:00	0	172	0	1	293	0
	0	1,351	3	24	2,162	0

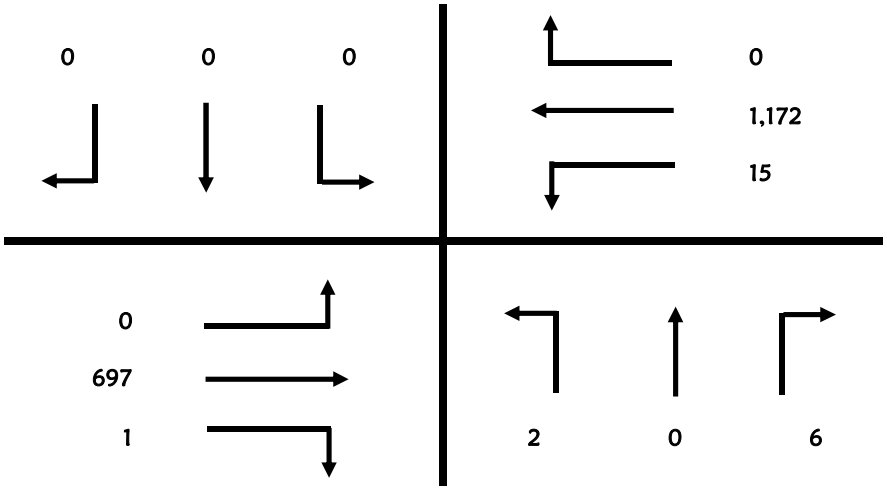
North / South
River Oaks Circle

East / West
SR 46

Peak Hour
17:00 - 18:00

Peak Hour Factor
0.92

Total Pk Hr Voume
1,893



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Lake	**City**	Wekiva
Intersection	River Oaks Circle	&	SR 46
Date	April 30, 2013		
Time Period	16:00 to 18:00		**Trucks**

GMB Project #: 11-016.28

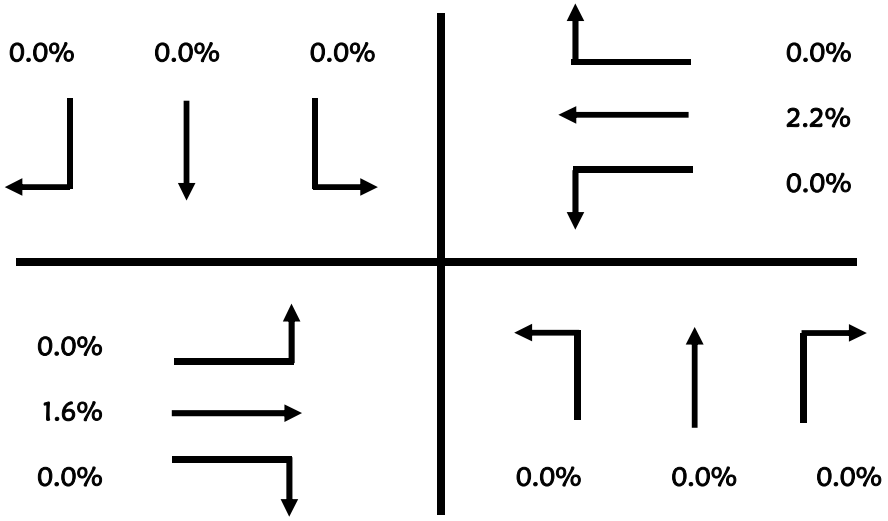
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	5	0	0	12	0
16:15 - 16:30	0	5	0	0	9	0
16:30 - 16:45	0	2	0	0	2	0
16:45 - 17:00	0	2	0	0	6	0
17:00 - 17:15	0	4	0	0	6	0
17:15 - 17:30	0	5	0	0	5	0
17:30 - 17:45	0	1	0	0	2	0
17:45 - 18:00	0	1	0	0	13	0

North / South
River Oaks Circle

East / West
SR 46

Peak Hour
17:00 - 18:00



Pedestrian & Bicycle Summary

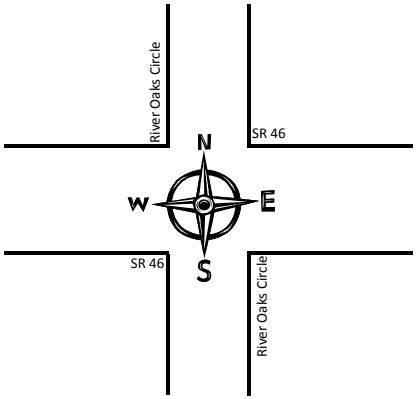
Project #: 11-016.28 **NB/SB:** River Oaks Circle

Date: 4/30/2013 **EB/WB:** SR 46

Hour

	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike									0
Ped									0
Westbound ◀ Bike									0
Ped									0

Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 7:15				
3 7:30				
4 7:45				
5 8:00				
6 8:15				
7 8:30				
8 8:45				
	0	0	0	0



Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 7:15				
3 7:30				
4 7:45				
5 8:00				
6 8:15				
7 8:30				
8 8:45				
	0	0	0	0

Eastbound ▶ Bike									0
Ped									0
Westbound ◀ Bike									0
Ped									0

	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45
	1	2	3	4	5	6	7	8

Hour

Intersection Sketch

*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date:

Project:

Name:

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Lake	**City**	Wekiva
Intersection	Wekiva Park Dr	&	SR 46
Date	April 30, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.28

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	2	0	1
7:15 - 7:30	0	0	0	3	0	0
7:30 - 7:45	0	0	0	2	0	2
7:45 - 8:00	0	0	0	1	0	1
8:00 - 8:15	0	0	0	4	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	1	0	1
8:45 - 9:00	0	0	0	5	0	0
	0	0	0	18	0	5

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	1	225	0	0	150	1
7:15 - 7:30	0	255	0	0	161	2
7:30 - 7:45	0	322	0	0	154	2
7:45 - 8:00	1	306	0	0	165	1
8:00 - 8:15	0	260	0	0	135	0
8:15 - 8:30	0	251	0	0	138	3
8:30 - 8:45	1	247	0	0	140	3
8:45 - 9:00	0	181	0	0	107	1
	3	2,047	0	0	1,150	13

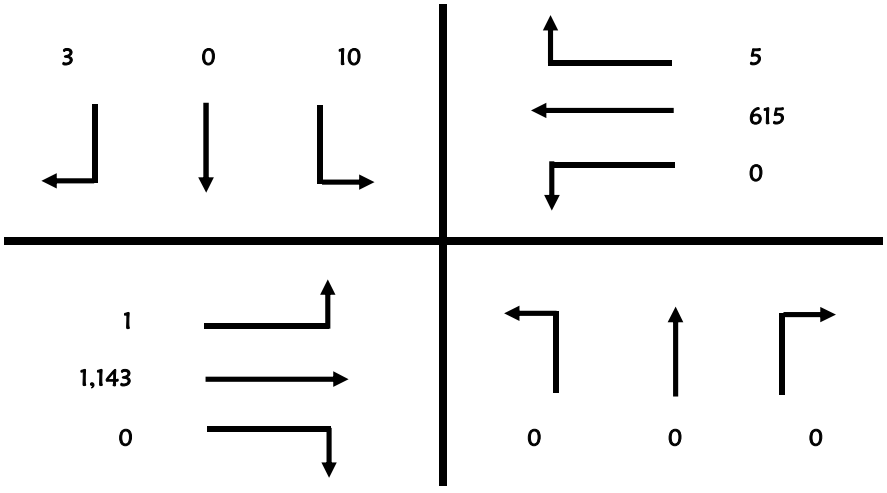
North / South
Wekiva Park Dr

East / West
SR 46

Peak Hour
7:15 - 8:15

Peak Hour Factor
0.92

Total Pk Hr Voume
1,777



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Lake	**City**	Wekiva
Intersection	Wekiva Park Dr	&	SR 46
Date	April 30, 2013		
Time Period	7:00 to 9:00		**Trucks**

GMB Project #: 11-016.28

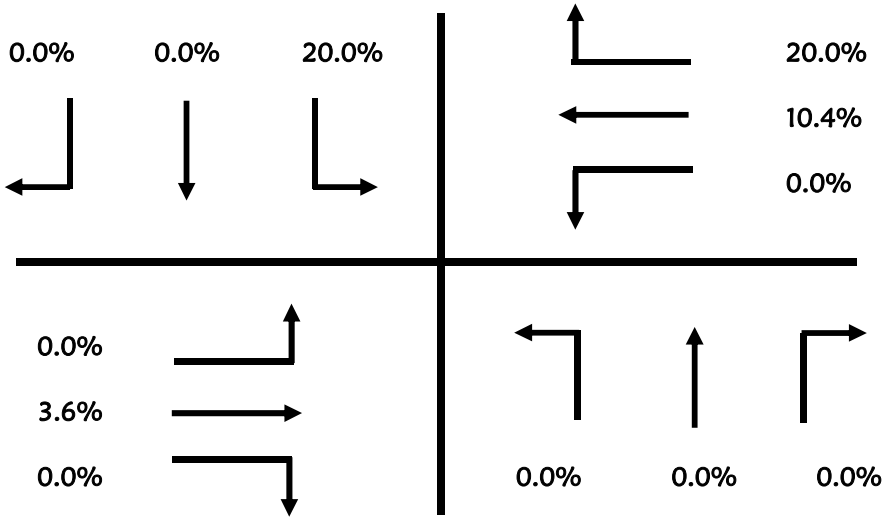
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	1	0	0
7:30 - 7:45	0	0	0	1	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	1	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	9	0	0	9	1
7:15 - 7:30	0	5	0	0	24	1
7:30 - 7:45	0	12	0	0	14	0
7:45 - 8:00	0	11	0	0	17	0
8:00 - 8:15	0	13	0	0	9	0
8:15 - 8:30	0	8	0	0	11	0
8:30 - 8:45	0	5	0	0	19	1
8:45 - 9:00	0	7	0	0	10	0

North / South
Wekiva Park Dr

East / West
SR 46

Peak Hour
7:15 - 8:15



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Lake	**City**	Wekiva
Intersection	Wekiva Park Dr	&	SR 46
Date	April 30, 2013		**All Vehicles**
Time Period	4:00 to 6:00		

GMB Project #: 11-016.28

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
4:00 - 4:15	0	0	0	2	0	0
4:15 - 4:30	0	0	0	4	0	0
4:30 - 4:45	0	0	0	2	0	1
4:45 - 5:00	0	0	0	3	0	0
5:00 - 5:15	0	0	0	0	0	2
5:15 - 5:30	0	0	0	4	0	0
5:30 - 5:45	0	0	0	0	0	0
5:45 - 6:00	0	0	0	5	0	0
	0	0	0	20	0	3

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
4:00 - 4:15	0	158	0	0	205	4
4:15 - 4:30	0	146	0	0	225	3
4:30 - 4:45	3	155	0	0	250	5
4:45 - 5:00	4	174	0	0	235	2
5:00 - 5:15	1	153	0	0	266	2
5:15 - 5:30	2	217	0	0	329	2
5:30 - 5:45	3	169	0	0	330	3
5:45 - 6:00	1	158	0	0	256	3
	14	1,330	0	0	2,096	24

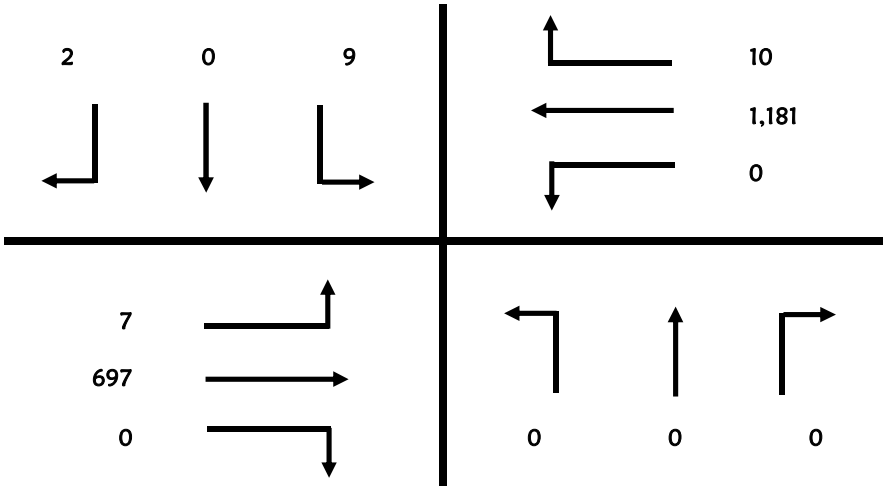
North / South
Wekiva Park Dr

East / West
SR 46

Peak Hour
5:00 - 6:00

Peak Hour Factor
0.86

Total Pk Hr Voume
1,906



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Lake	**City**	Wekiva
Intersection	Wekiva Park Dr	&	SR 46
Date	April 30, 2013		
Time Period	4:00 to 6:00		**Trucks**

GMB Project #: 11-016.28

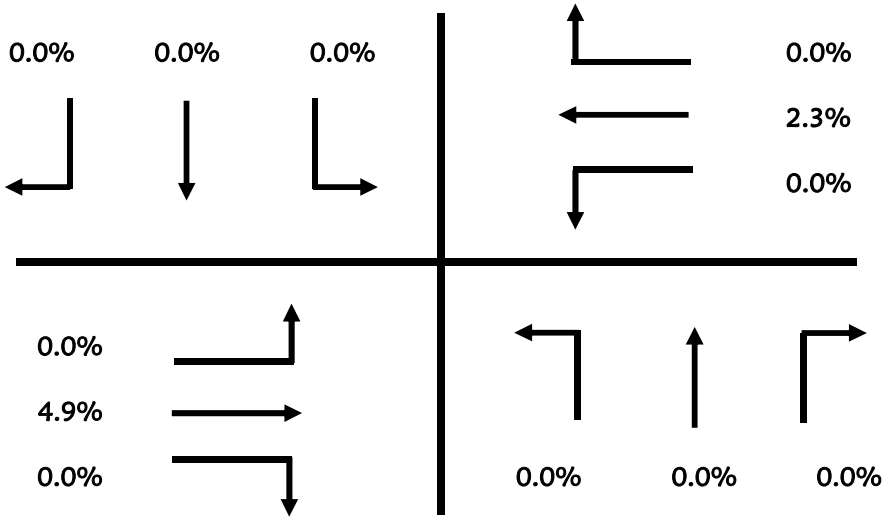
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
4:00 - 4:15	0	0	0	1	0	0
4:15 - 4:30	0	0	0	1	0	0
4:30 - 4:45	0	0	0	0	0	0
4:45 - 5:00	0	0	0	0	0	0
5:00 - 5:15	0	0	0	0	0	0
5:15 - 5:30	0	0	0	0	0	0
5:30 - 5:45	0	0	0	0	0	0
5:45 - 6:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
4:00 - 4:15	0	13	0	0	14	0
4:15 - 4:30	0	8	0	0	7	1
4:30 - 4:45	0	5	0	0	3	0
4:45 - 5:00	0	13	0	0	5	0
5:00 - 5:15	0	13	0	0	7	0
5:15 - 5:30	0	11	0	0	5	0
5:30 - 5:45	0	5	0	0	4	0
5:45 - 6:00	0	5	0	0	11	0

North / South
Wekiva Park Dr

East / West
SR 46

Peak Hour
5:00 - 6:00



Pedestrian & Bicycle Summary

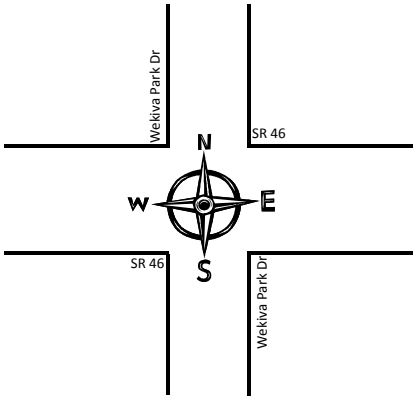
Project #: 11-016.28 **NB/SB:** Wekiva Park Dr

Date: 4/30/2013 **EB/WB:** SR 46

Hour

	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike									0
Ped									0
Westbound ◀ Bike									0
Ped									0

Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 7:15				
3 7:30				
4 7:45				
5 8:00				
6 8:15				
7 8:30				
8 8:45				
	0	0	0	0



Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 7:15				
3 7:30				
4 7:45				
5 8:00				
6 8:15				
7 8:30				
8 8:45				
	0	0	0	0

	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike									0
Ped									0
Westbound ◀ Bike									0
Ped									0

Hour

Intersection Sketch

*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date:

Project:

Name:

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Osprey Hammock Tr	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	1	0	10	0	0	0
7:15 - 7:30	1	0	7	0	0	0
7:30 - 7:45	1	0	8	0	0	0
7:45 - 8:00	0	0	7	0	0	0
8:00 - 8:15	1	0	9	0	0	0
8:15 - 8:30	0	0	11	0	0	0
8:30 - 8:45	1	0	8	0	0	0
8:45 - 9:00	0	0	6	0	0	0
	5	0	66	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	234	0	0	140	0
7:15 - 7:30	0	252	1	2	168	0
7:30 - 7:45	0	322	1	2	163	0
7:45 - 8:00	6	276	0	2	149	0
8:00 - 8:15	0	254	0	0	125	0
8:15 - 8:30	0	249	2	1	135	0
8:30 - 8:45	0	241	0	2	132	0
8:45 - 9:00	1	214	1	5	127	0
	7	2,042	5	14	1,139	0

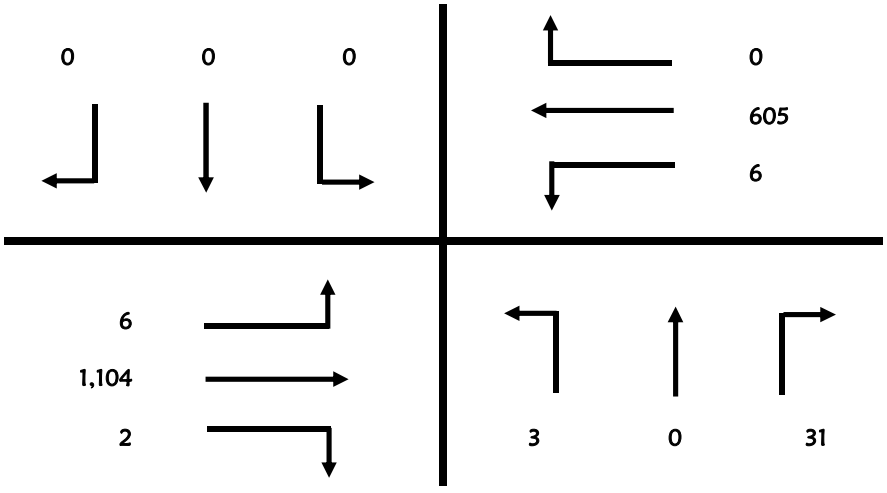
North / South
Osprey Hammock Tr

East / West
SR 46

Peak Hour
7:15 - 8:15

Peak Hour Factor
0.88

Total Pk Hr Voume
1,757



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Osprey Hammock Tr		&	SR 46	
Date	July 17, 2013				
Time Period	7:00	to	9:00	**Trucks**	

GMB Project #: 11-016.33

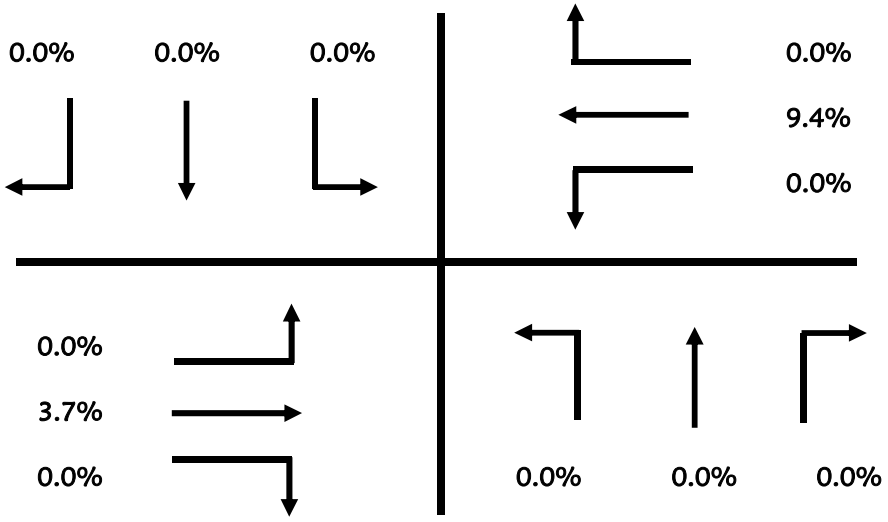
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	4	0	0	14	0
7:15 - 7:30	0	9	0	0	13	0
7:30 - 7:45	0	12	0	0	11	0
7:45 - 8:00	0	12	0	0	17	0
8:00 - 8:15	0	8	0	0	16	0
8:15 - 8:30	0	7	0	0	12	0
8:30 - 8:45	0	11	0	0	17	0
8:45 - 9:00	0	8	0	0	7	0

North / South
Osprey Hammock Tr

East / West
SR 46

Peak Hour
7:15 - 8:15



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Osprey Hammock Tr	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	2	0	0	0
16:15 - 16:30	0	0	5	0	0	0
16:30 - 16:45	3	0	10	0	0	0
16:45 - 17:00	0	0	10	0	0	0
17:00 - 17:15	0	0	6	0	0	0
17:15 - 17:30	1	0	5	0	0	0
17:30 - 17:45	2	0	6	0	0	0
17:45 - 18:00	1	0	8	0	0	0
	7	0	52	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	145	2	5	202	0
16:15 - 16:30	0	125	3	9	225	0
16:30 - 16:45	0	155	2	10	205	0
16:45 - 17:00	0	131	2	5	218	0
17:00 - 17:15	0	158	0	12	283	0
17:15 - 17:30	0	198	2	16	320	0
17:30 - 17:45	0	193	0	9	315	0
17:45 - 18:00	0	152	1	6	254	0
	0	1,257	12	72	2,022	0

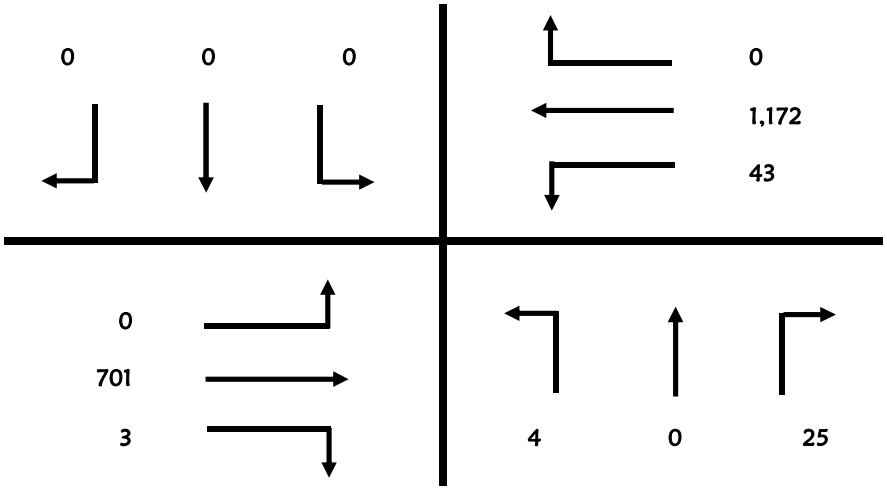
North / South
Osprey Hammock Tr

East / West
SR 46

Peak Hour
17:00 - 18:00

Peak Hour Factor
0.90

Total Pk Hr Voume
1,948



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Osprey Hammock Tr		&	SR 46	
Date	July 17, 2013				
Time Period	16:00	to	18:00	**Trucks**	

GMB Project #: 11-016.33

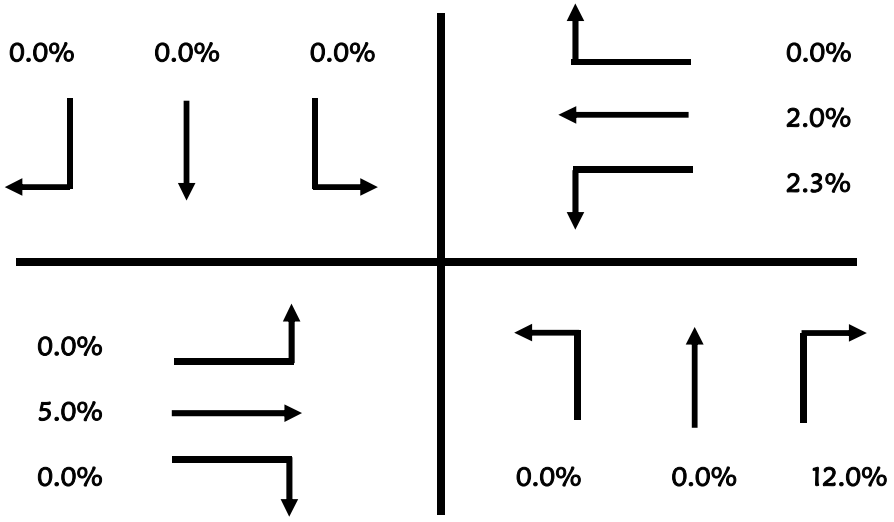
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	1	0	0	0
16:30 - 16:45	0	0	1	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	1	0	0	0
17:15 - 17:30	0	0	1	0	0	0
17:30 - 17:45	0	0	1	0	0	0
17:45 - 18:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	7	0	0	10	0
16:15 - 16:30	0	10	0	0	4	0
16:30 - 16:45	0	4	0	0	8	0
16:45 - 17:00	0	6	1	1	8	0
17:00 - 17:15	0	6	0	0	6	0
17:15 - 17:30	0	9	0	1	6	0
17:30 - 17:45	0	17	0	0	7	0
17:45 - 18:00	0	3	0	0	4	0

North / South
Osprey Hammock Tr

East / West
SR 46

Peak Hour
17:00 - 18:00



Pedestrian & Bicycle Summary

Project #: 11-016.33 **NB/SB:** Osprey Hammock Tr

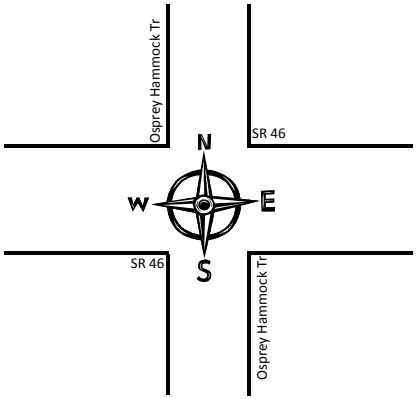
Date: 7/17/2013 **EB/WB:** SR 46

Hour

	7:00	8:00		16:00	17:00			
	1	2	3	4	5	6	7	8

Eastbound	▶	Bike								0
		Ped								0
Westbound	◀	Bike								0
		Ped								0

Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	0



Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	0

Eastbound	▶	Bike								0
		Ped		1						1
Westbound	◀	Bike								0
		Ped		1						1

	7:00	8:00		16:00	17:00			
	1	2	3	4	5	6	7	8

Hour

Intersection Sketch

*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

#1 - SR 46 @ Osprey Hammock Tr.

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date: 7-16-13

Project: 11-016.33

Name: Gary C - 38

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Longwood Markham Rd	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	8	0	10	0	0	0
7:15 - 7:30	17	0	9	0	0	0
7:30 - 7:45	17	0	11	0	0	0
7:45 - 8:00	17	0	9	1	0	0
8:00 - 8:15	11	0	19	0	0	0
8:15 - 8:30	21	1	10	1	0	2
8:30 - 8:45	21	1	11	0	0	0
8:45 - 9:00	11	0	9	0	0	1
	123	2	88	2	0	3

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	199	34	1	126	1
7:15 - 7:30	0	211	43	2	156	0
7:30 - 7:45	1	272	65	2	149	0
7:45 - 8:00	0	241	37	0	123	0
8:00 - 8:15	1	225	37	3	124	1
8:15 - 8:30	0	213	46	8	117	0
8:30 - 8:45	1	213	31	6	105	1
8:45 - 9:00	0	182	23	6	109	3
	3	1,756	316	28	1,009	6

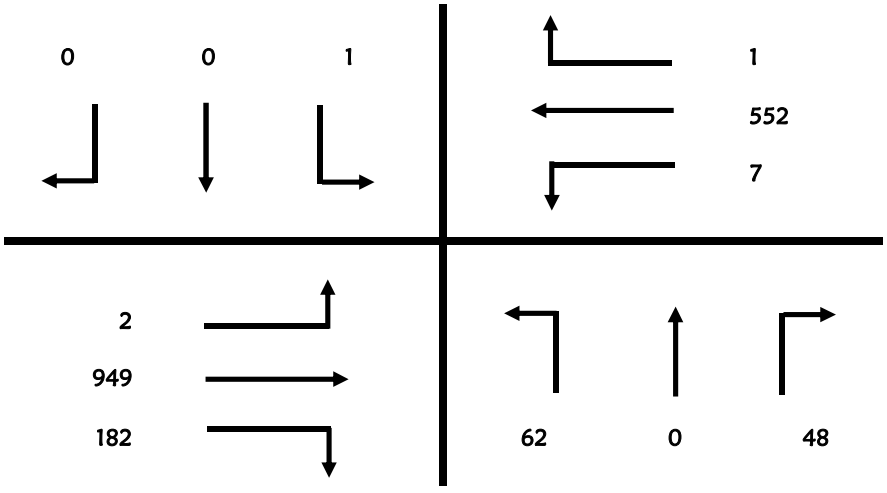
North / South
Longwood Markham Rd

East / West
SR 46

Peak Hour
7:15 - 8:15

Peak Hour Factor
0.87

Total Pk Hr Voume
1,804



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Longwood Markham Rd	&	SR 46
Date	July 17, 2013		
Time Period	7:00 to 9:00		**Trucks**

GMB Project #: 11-016.33

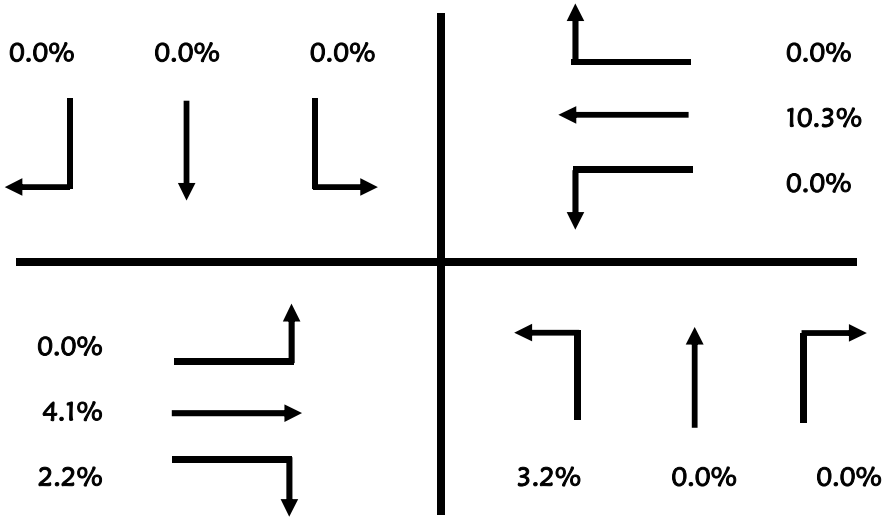
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	1	0	0	0	0	0
8:00 - 8:15	1	0	0	0	0	0
8:15 - 8:30	2	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	4	0	1	17	0
7:15 - 7:30	0	11	1	0	11	0
7:30 - 7:45	0	12	0	0	10	0
7:45 - 8:00	0	8	3	0	19	0
8:00 - 8:15	0	8	0	0	17	0
8:15 - 8:30	0	7	1	2	11	0
8:30 - 8:45	0	10	0	2	14	0
8:45 - 9:00	0	9	0	1	6	0

North / South
Longwood Markham Rd

East / West
SR 46

Peak Hour
7:15 - 8:15



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Longwood Markham Rd	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	21	0	17	0	0	0
16:15 - 16:30	36	0	8	0	0	0
16:30 - 16:45	24	0	11	0	0	0
16:45 - 17:00	23	0	11	0	0	0
17:00 - 17:15	55	0	14	1	0	1
17:15 - 17:30	56	0	12	1	0	0
17:30 - 17:45	39	0	17	0	0	0
17:45 - 18:00	56	0	11	0	0	0
	310	0	101	2	0	1

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	2	145	10	9	144	0
16:15 - 16:30	0	116	22	10	160	1
16:30 - 16:45	0	143	14	14	156	0
16:45 - 17:00	0	137	16	12	173	0
17:00 - 17:15	0	154	14	9	248	0
17:15 - 17:30	0	191	26	10	331	0
17:30 - 17:45	0	189	24	8	280	0
17:45 - 18:00	0	141	14	22	187	0
	2	1,216	140	94	1,679	1

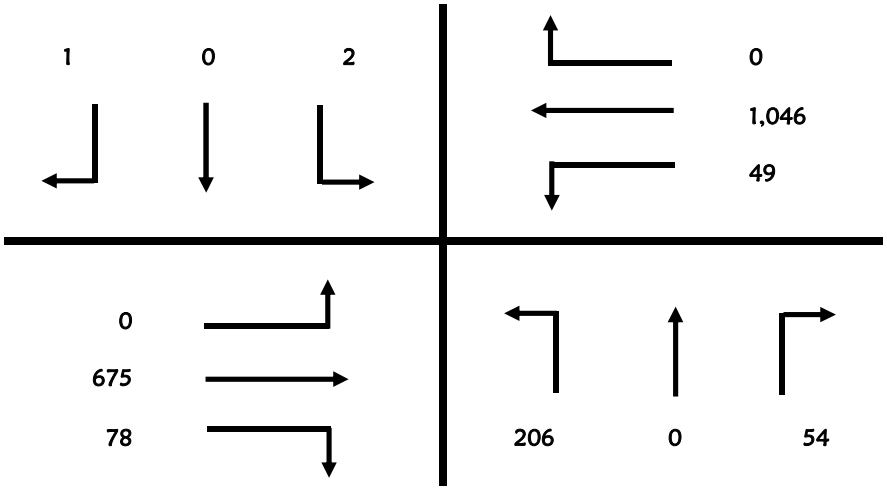
North / South
Longwood Markham Rd

East / West
SR 46

Peak Hour
17:00 - 18:00

Peak Hour Factor
0.84

Total Pk Hr Voume
2,111



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Longwood Markham Rd		&	SR 46	
Date	July 17, 2013				
Time Period	16:00	to	18:00	**Trucks**	

GMB Project #: 11-016.33

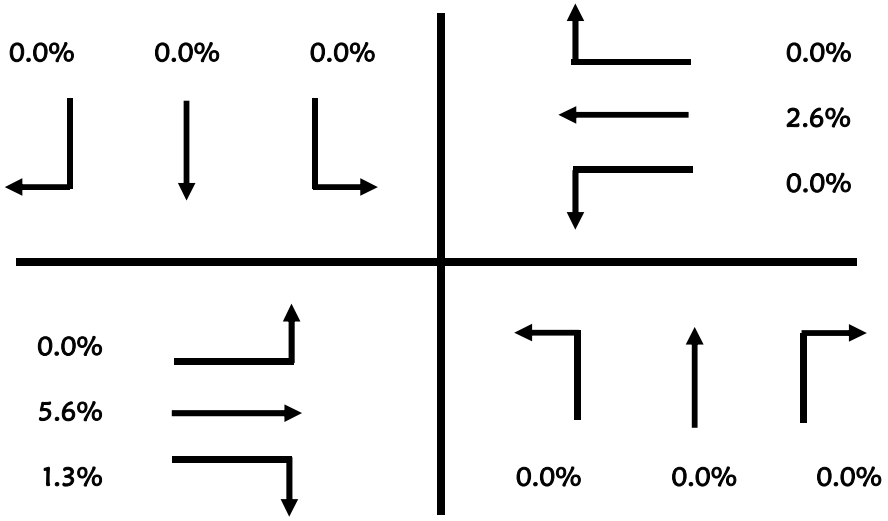
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	1	0	0	0
16:15 - 16:30	0	0	1	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	1	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	6	0	0	13	0
16:15 - 16:30	0	11	0	0	3	0
16:30 - 16:45	0	5	0	1	8	0
16:45 - 17:00	0	5	0	0	10	0
17:00 - 17:15	0	6	0	0	6	0
17:15 - 17:30	0	10	0	0	9	0
17:30 - 17:45	0	19	1	0	9	0
17:45 - 18:00	0	3	0	0	3	0

North / South
Longwood Markham Rd

East / West
SR 46

Peak Hour
17:00 - 18:00



Pedestrian & Bicycle Summary

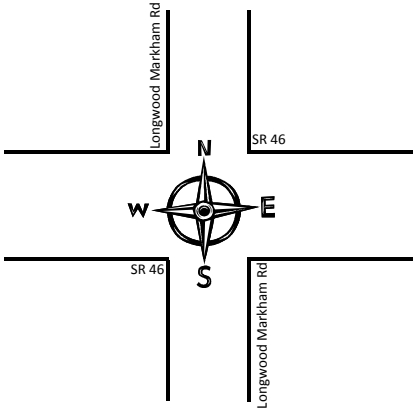
Project #: 11-016.33 **NB/SB:** Longwood Markham Rd

Date: 7/17/2013 **EB/WB:** SR 46

Hour

	7:00	8:00		16:00	17:00			
	1	2	3	4	5	6	7	8
Eastbound ▶ Bike								0
Ped								0
Westbound ◀ Bike								0
Ped								0

Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	0

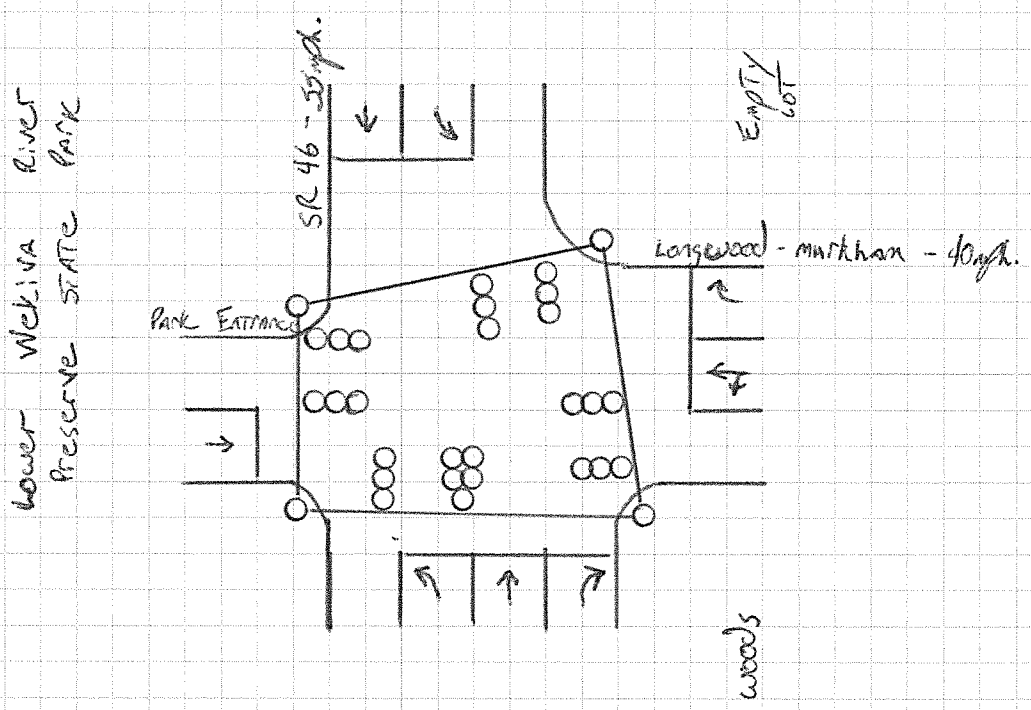


Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00		1		
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	1	0	0

Eastbound ▶ Bike									0
Ped									0
Westbound ◀ Bike									0
Ped									0
	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	

Hour

Intersection Sketch



*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

#2 - SR 46. @ Longwood Markham Rd.

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date: 7-16-13

Project: 11-016.33

Name: GAP / C-44

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Yankee Lake Rd	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	2	0	0
7:45 - 8:00	0	0	0	1	0	0
8:00 - 8:15	0	0	0	1	0	0
8:15 - 8:30	0	0	0	2	0	3
8:30 - 8:45	0	0	0	5	0	0
8:45 - 9:00	0	0	0	1	0	1
	0	0	0	12	0	4

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	208	0	0	135	0
7:15 - 7:30	1	222	0	0	157	0
7:30 - 7:45	0	271	0	0	146	1
7:45 - 8:00	0	255	0	0	134	1
8:00 - 8:15	1	242	0	0	120	1
8:15 - 8:30	0	221	0	0	120	5
8:30 - 8:45	1	217	0	0	122	0
8:45 - 9:00	1	204	0	0	121	4
	4	1,840	0	0	1,055	12

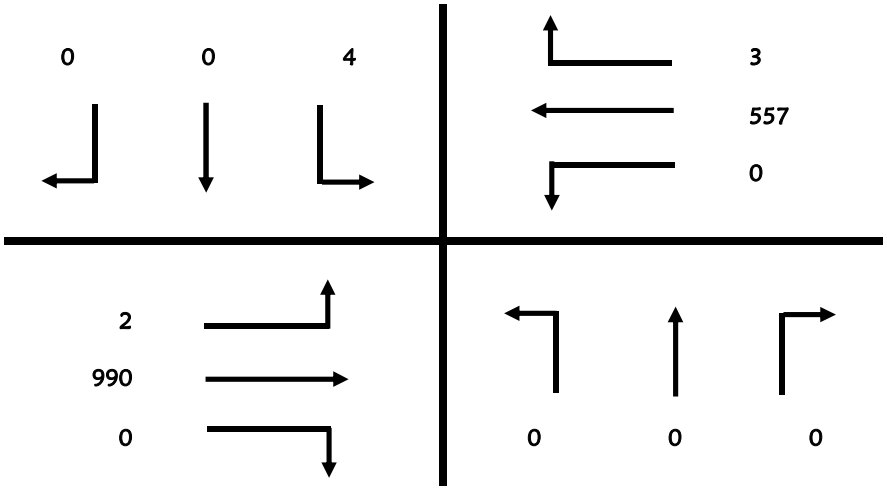
North / South
Yankee Lake Rd

East / West
SR 46

Peak Hour
7:15 - 8:15

Peak Hour Factor
0.93

Total Pk Hr Voume
1,556



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Yankee Lake Rd		&	SR 46	
Date	July 17, 2013				
Time Period	7:00	to	9:00	**Trucks**	

GMB Project #: 11-016.33

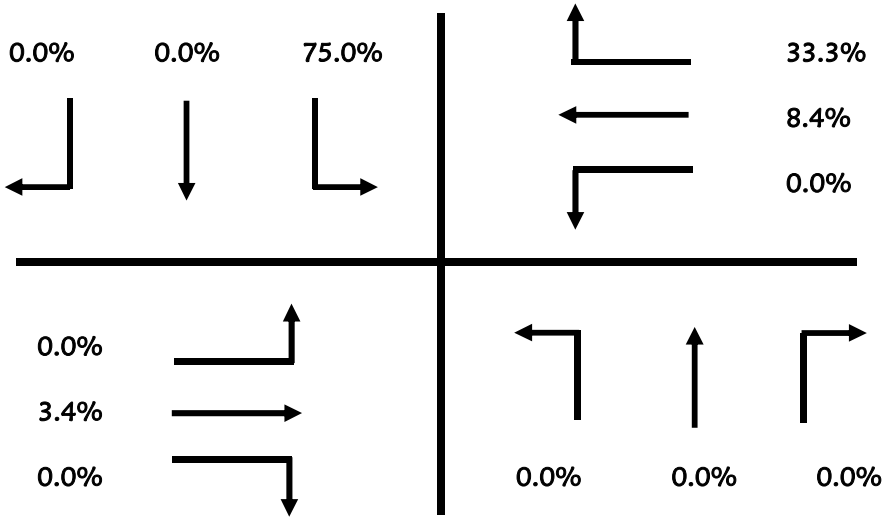
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	2	0	0
7:45 - 8:00	0	0	0	1	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	1	0	2
8:30 - 8:45	0	0	0	1	0	0
8:45 - 9:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	4	0	0	17	0
7:15 - 7:30	0	7	0	0	7	0
7:30 - 7:45	0	12	0	0	8	0
7:45 - 8:00	0	7	0	0	17	0
8:00 - 8:15	0	8	0	0	15	1
8:15 - 8:30	0	5	0	0	11	4
8:30 - 8:45	0	9	0	0	16	0
8:45 - 9:00	1	7	0	0	5	3

North / South
Yankee Lake Rd

East / West
SR 46

Peak Hour
7:15 - 8:15



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Yankee Lake Rd	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	1
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	2	0	0
16:45 - 17:00	0	0	0	2	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0
	0	0	0	4	0	1

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	164	0	0	203	3
16:15 - 16:30	0	130	0	0	232	0
16:30 - 16:45	0	166	0	0	196	0
16:45 - 17:00	0	150	0	0	247	0
17:00 - 17:15	0	174	0	0	263	0
17:15 - 17:30	0	200	0	0	313	0
17:30 - 17:45	0	207	0	0	291	0
17:45 - 18:00	0	157	0	0	239	0
	0	1,348	0	0	1,984	3

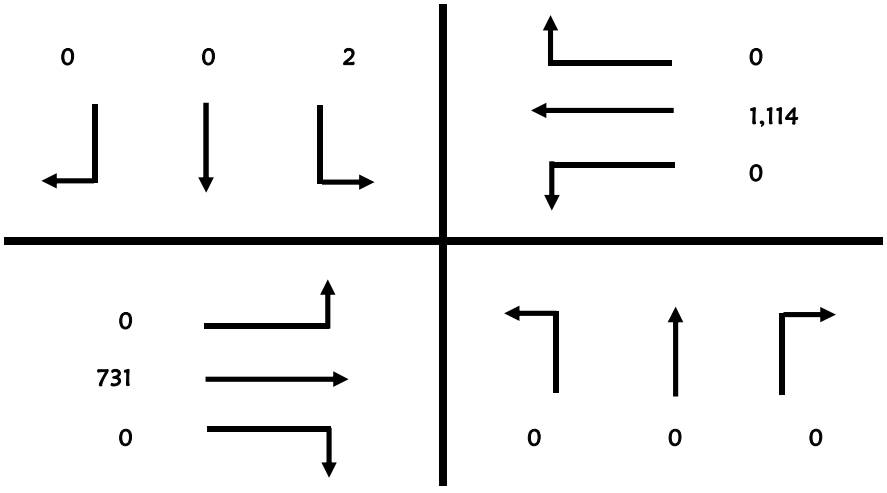
North / South
Yankee Lake Rd

East / West
SR 46

Peak Hour
16:45 - 17:45

Peak Hour Factor
0.90

Total Pk Hr Voume
1,847



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Yankee Lake Rd		&	SR 46	
Date	July 17, 2013				
Time Period	16:00	to	18:00	**Trucks**	

GMB Project #: 11-016.33

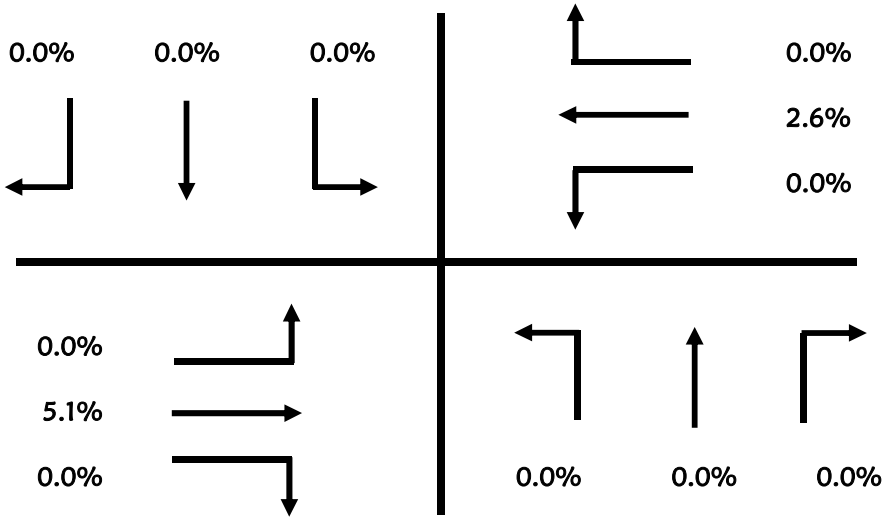
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	6	0	0	10	0
16:15 - 16:30	0	8	0	0	4	0
16:30 - 16:45	0	4	0	0	6	0
16:45 - 17:00	0	6	0	0	9	0
17:00 - 17:15	0	5	0	0	8	0
17:15 - 17:30	0	9	0	0	4	0
17:30 - 17:45	0	17	0	0	8	0
17:45 - 18:00	0	3	0	0	1	0

North / South
Yankee Lake Rd

East / West
SR 46

Peak Hour
16:45 - 17:45



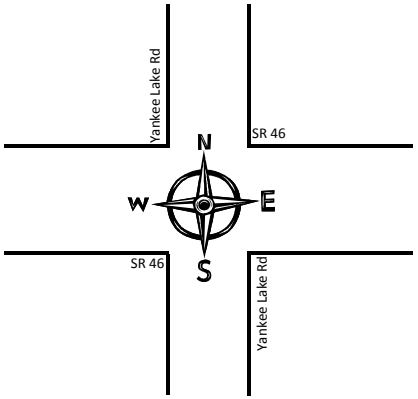
Pedestrian & Bicycle Summary

Project #: 11-016.33 **NB/SB:** Yankee Lake Rd

Date: 7/17/2013 **EB/WB:** SR 46

Hour

	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike									0
Ped									0
Westbound ◀ Bike	1								1
Ped									0



Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	0

Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	0

	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike		2							2
Ped									0
Westbound ◀ Bike									0
Ped									0

Hour

Intersection Sketch

*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

#3 - SR 46 @ Yankee Lake Rd.

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date: 7-16-13

Project: 11-016.33

Name: GAP

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Ross Lake Lane	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	1	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	2	0	0	0
7:45 - 8:00	0	0	3	0	0	0
8:00 - 8:15	0	0	2	0	0	0
8:15 - 8:30	0	0	4	0	0	0
8:30 - 8:45	0	0	2	0	0	0
8:45 - 9:00	0	0	0	0	0	0
	0	0	14	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	203	0	0	134	0
7:15 - 7:30	0	204	1	1	158	0
7:30 - 7:45	0	276	0	0	149	0
7:45 - 8:00	0	260	0	0	138	0
8:00 - 8:15	0	243	0	0	119	0
8:15 - 8:30	0	225	0	0	121	0
8:30 - 8:45	0	212	0	0	123	0
8:45 - 9:00	0	200	0	0	133	0
	0	1,823	1	1	1,075	0

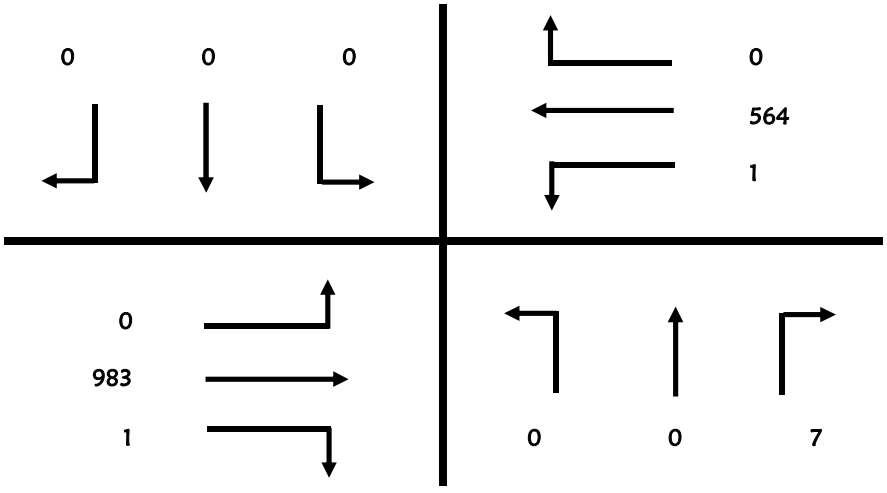
North / South
Ross Lake Lane

East / West
SR 46

Peak Hour
7:15 - 8:15

Peak Hour Factor
0.91

Total Pk Hr Voume
1,556



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Ross Lake Lane		&	SR 46	
Date	July 17, 2013				
Time Period	7:00	to	9:00	**Trucks**	

GMB Project #: 11-016.33

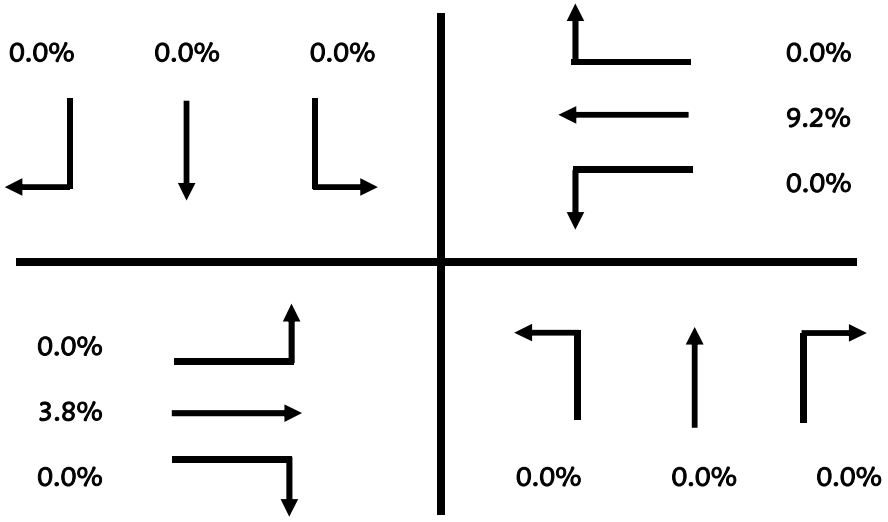
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	4	0	0	14	0
7:15 - 7:30	0	6	0	0	11	0
7:30 - 7:45	0	12	0	0	12	0
7:45 - 8:00	0	9	0	0	15	0
8:00 - 8:15	0	10	0	0	14	0
8:15 - 8:30	0	9	0	0	13	0
8:30 - 8:45	0	10	0	0	19	0
8:45 - 9:00	0	10	0	0	9	0

North / South
Ross Lake Lane

East / West
SR 46

Peak Hour
7:15 - 8:15



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Ross Lake Lane	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	1	0	0	0
16:15 - 16:30	0	0	1	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	2	0	0	0
17:00 - 17:15	0	0	1	0	0	0
17:15 - 17:30	0	0	1	0	0	0
17:30 - 17:45	0	0	1	0	0	0
17:45 - 18:00	0	0	0	0	0	0
	0	0	7	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	171	0	1	219	0
16:15 - 16:30	0	131	0	2	222	0
16:30 - 16:45	0	157	0	2	214	0
16:45 - 17:00	0	160	0	2	221	0
17:00 - 17:15	0	170	0	0	268	0
17:15 - 17:30	0	204	0	3	313	0
17:30 - 17:45	0	185	2	1	288	0
17:45 - 18:00	0	176	1	2	251	0
	0	1,354	3	13	1,996	0

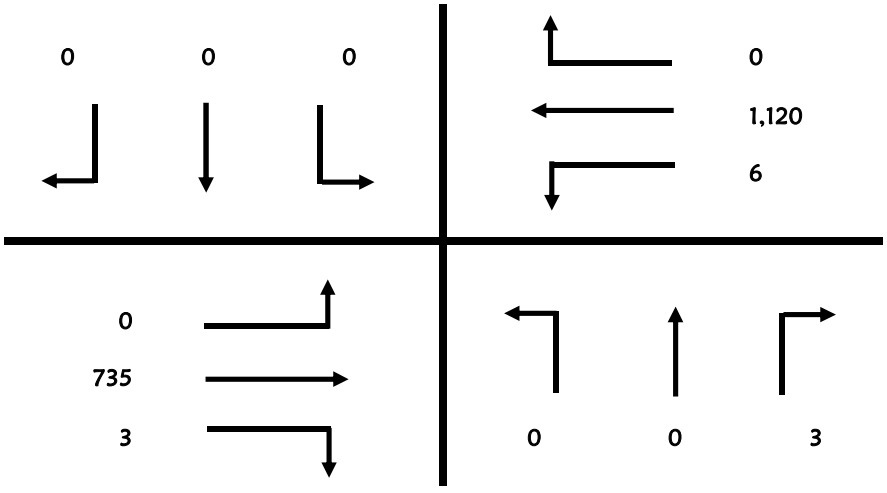
North / South
Ross Lake Lane

East / West
SR 46

Peak Hour
17:00 - 18:00

Peak Hour Factor
0.90

Total Pk Hr Voume
1,867



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Ross Lake Lane		&	SR 46	
Date	July 17, 2013				
Time Period	16:00	to	18:00	**Trucks**	

GMB Project #: 11-016.33

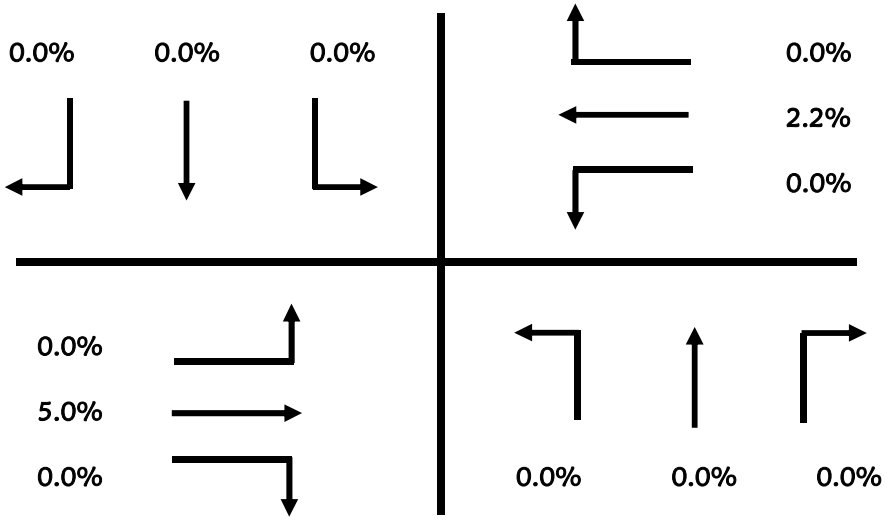
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	6	0	0	10	0
16:15 - 16:30	0	15	0	0	3	0
16:30 - 16:45	0	4	0	0	8	0
16:45 - 17:00	0	7	0	0	9	0
17:00 - 17:15	0	6	0	0	6	0
17:15 - 17:30	0	9	0	0	7	0
17:30 - 17:45	0	17	0	0	8	0
17:45 - 18:00	0	5	0	0	4	0

North / South
Ross Lake Lane

East / West
SR 46

Peak Hour
17:00 - 18:00



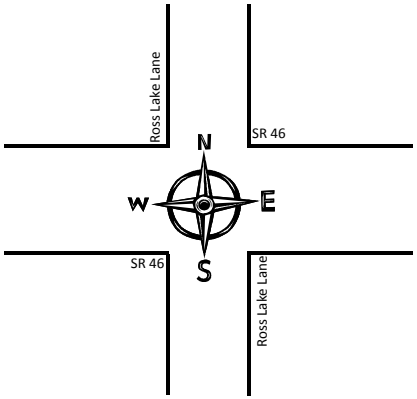
Pedestrian & Bicycle Summary

Project #: 11-016.33 **NB/SB:** Ross Lake Lane

Date: 7/17/2013 **EB/WB:** SR 46

		Hour	7:00	8:00		16:00	17:00				
			1	2	3	4	5	6	7	8	
Eastbound	▶ Bike										0
	Ped										0
Westbound	◀ Bike		1								1
	Ped										0

Hour	Southbound Ped ▼	Southbound Bike ▼	Northbound Ped ▼	Northbound Bike ▼
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	0



Hour	Southbound Ped ▼	Southbound Bike ▼	Northbound Ped ▼	Northbound Bike ▼	Hour
					1 7:00
					2 8:00
					3
					4 16:00
					5 17:00
					6
					7
					8
	0	0	0	0	

			7:00	8:00		16:00	17:00				
			1	2	3	4	5	6	7	8	
Eastbound	▶ Bike			2							2
	Ped										0
Westbound	◀ Bike										0
	Ped										0

Hour

Intersection Sketch

*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

#4 - SR46 @ Ross Lake Lane

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date: 7-16-13

Project: 11-016.33

Name: Gary C-56

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Bella Foresta Place	&	SR 46
Date	July 18, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	1	0	1	0	0	0
7:15 - 7:30	0	0	5	0	0	0
7:30 - 7:45	0	0	2	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	2	0	3	0	0	0
8:15 - 8:30	0	0	2	0	0	0
8:30 - 8:45	0	0	4	0	0	0
8:45 - 9:00	0	0	3	0	0	0
	3	0	20	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	180	1	6	129	0
7:15 - 7:30	0	212	1	4	161	0
7:30 - 7:45	0	267	0	2	151	0
7:45 - 8:00	0	269	0	0	152	0
8:00 - 8:15	0	226	3	3	105	0
8:15 - 8:30	0	191	1	8	111	0
8:30 - 8:45	0	195	1	1	113	0
8:45 - 9:00	0	217	0	3	116	0
	0	1,757	7	27	1,038	0

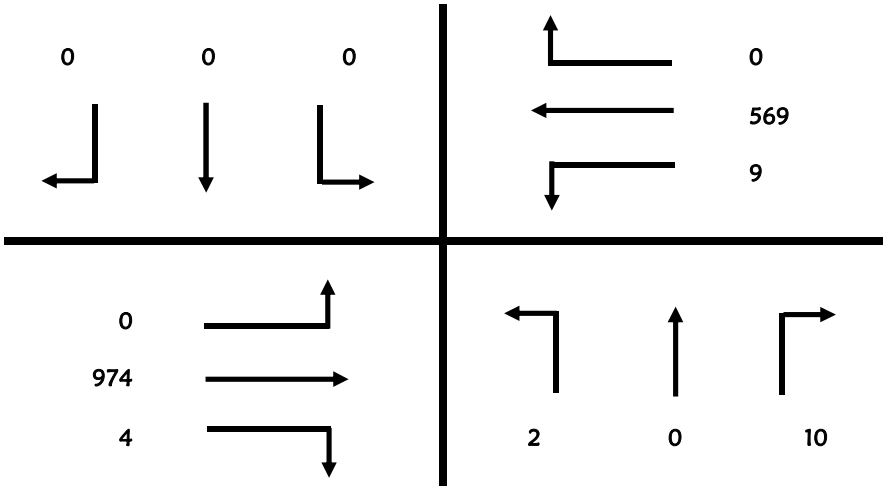
North / South
Bella Foresta Place

East / West
SR 46

Peak Hour
7:15 - 8:15

Peak Hour Factor
0.93

Total Pk Hr Voume
1,568



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Bella Foresta Place		&	SR 46	
Date	July 18, 2013				
Time Period	7:00	to	9:00	**Trucks**	

GMB Project #: 11-016.33

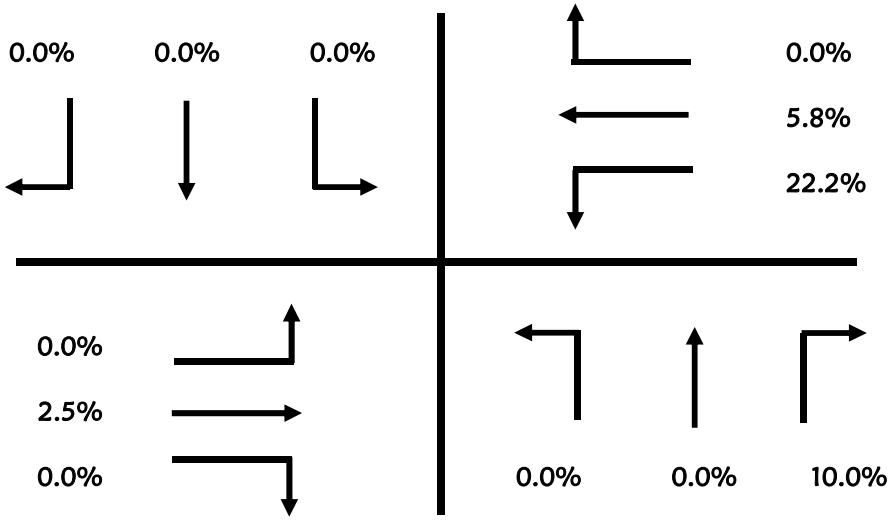
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	1	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	2	0	0	0
8:45 - 9:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	7	0	0	10	0
7:15 - 7:30	0	10	0	2	11	0
7:30 - 7:45	0	6	0	0	8	0
7:45 - 8:00	0	2	0	0	10	0
8:00 - 8:15	0	6	0	0	4	0
8:15 - 8:30	0	4	1	0	8	0
8:30 - 8:45	0	7	0	0	6	0
8:45 - 9:00	0	8	0	0	6	0

North / South
Bella Foresta Place

East / West
SR 46

Peak Hour
7:15 - 8:15



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Bella Foresta Place	&	SR 46
Date	July 18, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	1	0	6	0	0	0
16:15 - 16:30	0	0	3	0	0	0
16:30 - 16:45	1	0	2	0	0	0
16:45 - 17:00	0	0	5	0	0	0
17:00 - 17:15	0	0	3	0	0	0
17:15 - 17:30	0	0	5	0	0	0
17:30 - 17:45	0	0	1	0	0	0
17:45 - 18:00	2	0	4	0	0	0
	4	0	29	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	166	0	2	212	0
16:15 - 16:30	0	149	1	1	225	0
16:30 - 16:45	0	139	0	1	249	0
16:45 - 17:00	0	191	0	3	248	0
17:00 - 17:15	0	172	0	1	253	0
17:15 - 17:30	0	178	0	1	345	0
17:30 - 17:45	0	205	0	2	285	0
17:45 - 18:00	0	152	0	1	254	0
	0	1,352	1	12	2,071	0

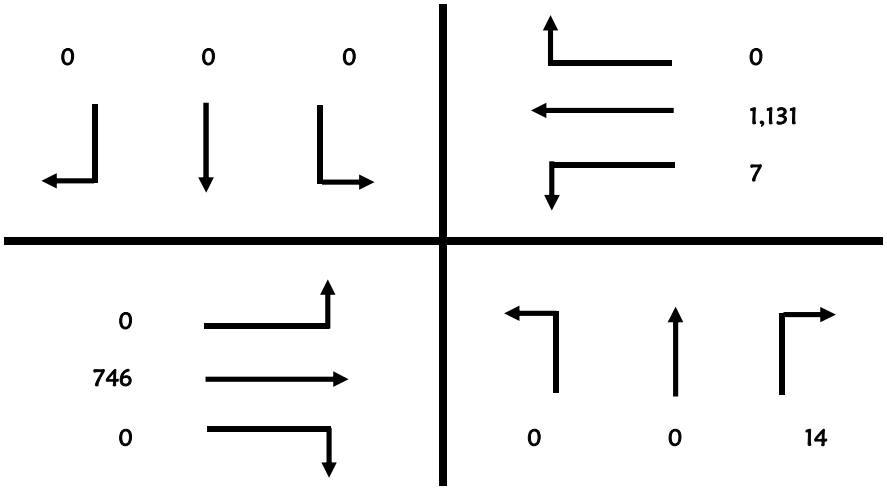
North / South
Bella Foresta Place

East / West
SR 46

Peak Hour
16:45 - 17:45

Peak Hour Factor
0.90

Total Pk Hr Voume
1,898



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Bella Foresta Place		&	SR 46	
Date	July 18, 2013				
Time Period	16:00	to	18:00	**Trucks**	

GMB Project #: 11-016.33

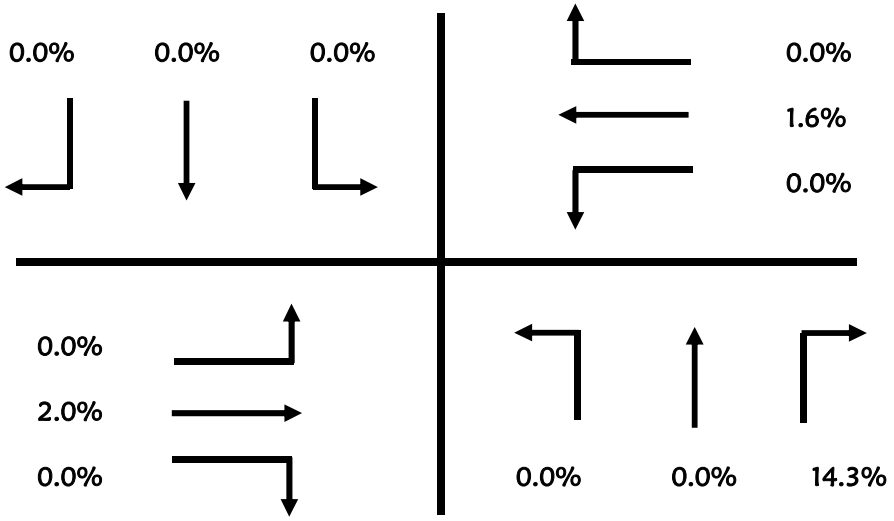
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	1	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	1	0	0	0
17:15 - 17:30	0	0	1	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	5	0	0	6	0
16:15 - 16:30	0	6	0	1	7	0
16:30 - 16:45	0	2	0	0	6	0
16:45 - 17:00	0	3	0	0	3	0
17:00 - 17:15	0	7	0	0	6	0
17:15 - 17:30	0	1	0	0	5	0
17:30 - 17:45	0	4	0	0	4	0
17:45 - 18:00	0	4	0	0	1	0

North / South
Bella Foresta Place

East / West
SR 46

Peak Hour
16:45 - 17:45



Pedestrian & Bicycle Summary

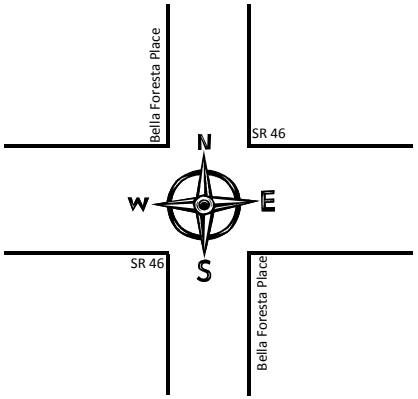
Project #: 11-016.33 **NB/SB:** Bella Foresta Place

Date: 7/18/2013 **EB/WB:** SR 46 *** NO PEDS**

Hour

		1	2	3	4	5	6	7	8	
Eastbound ▶	Bike									0
	Ped									0
Westbound ◀	Bike									0
	Ped									0

Hour	Southbound Ped ▼	Southbound Bike	Northbound Ped ▼	Northbound Bike
1				
2				
3				
4				
5				
6				
7				
8				
	0	0	0	0

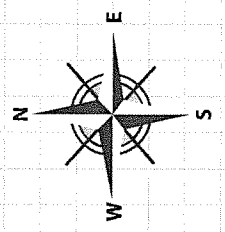


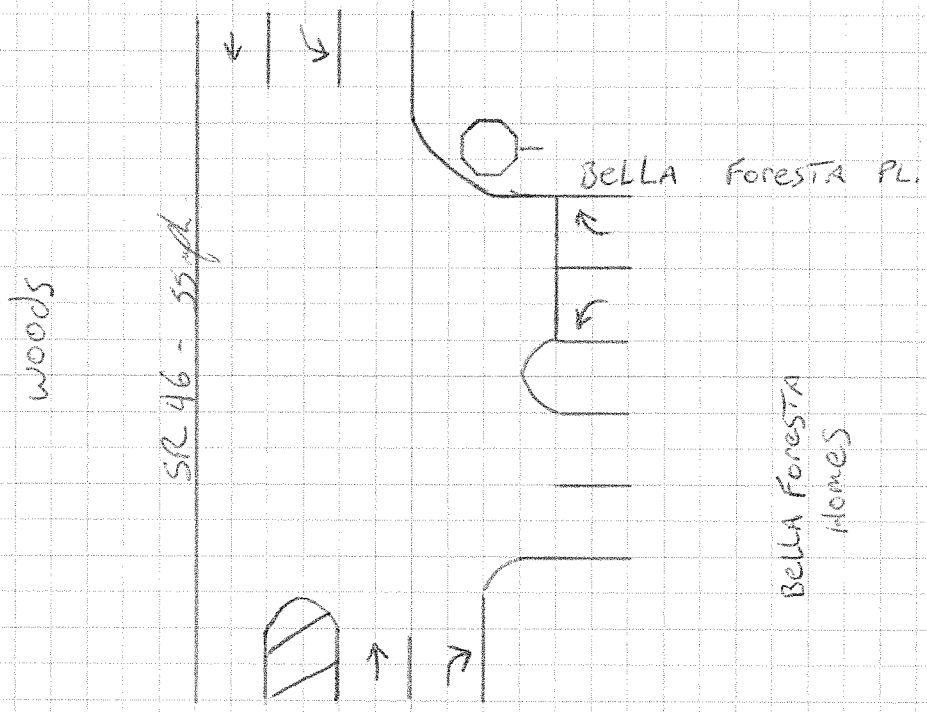
Hour	Southbound Ped ▼	Southbound Bike	Northbound Ped ▼	Northbound Bike
1				
2				
3				
4				
5				
6				
7				
8				
	0	0	0	0

		1	2	3	4	5	6	7	8	
Eastbound ▶	Bike									0
	Ped									0
Westbound ◀	Bike									0
	Ped									0

Hour

Intersection Sketch





#5 - SR 46 @ BELLA FORESTA PLACE

*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date: 7-17-13

Project: 11-016.33

Name: GAM

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Lake Markham Rd	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	2	0	11	0	0	0
7:15 - 7:30	2	0	2	0	0	0
7:30 - 7:45	1	0	9	0	0	0
7:45 - 8:00	0	0	7	0	0	0
8:00 - 8:15	1	0	12	0	0	0
8:15 - 8:30	0	0	12	0	0	0
8:30 - 8:45	1	0	9	0	0	0
8:45 - 9:00	3	0	10	0	0	0
	10	0	72	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	187	1	2	136	0
7:15 - 7:30	0	207	3	3	160	0
7:30 - 7:45	0	264	5	5	152	0
7:45 - 8:00	0	262	2	3	137	0
8:00 - 8:15	0	237	3	4	123	0
8:15 - 8:30	0	223	5	4	129	0
8:30 - 8:45	0	211	2	9	118	0
8:45 - 9:00	0	194	3	10	123	0
	0	1,785	24	40	1,078	0

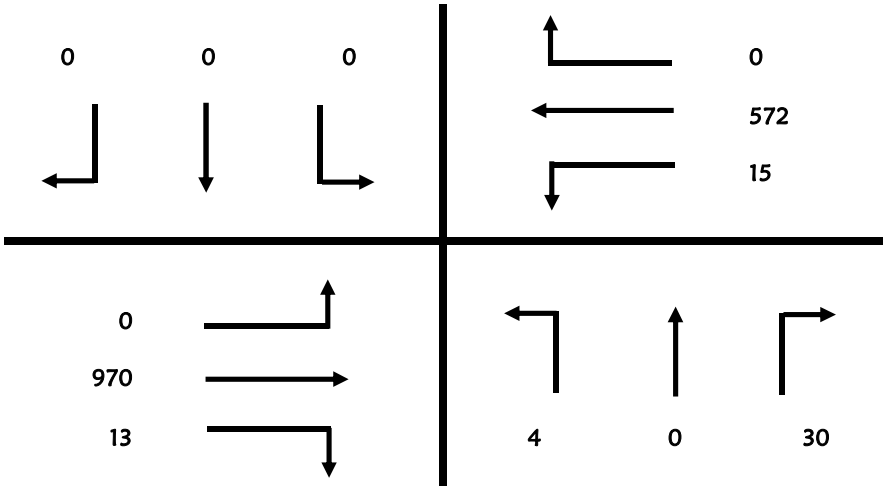
North / South
Lake Markham Rd

East / West
SR 46

Peak Hour
7:15 - 8:15

Peak Hour Factor
0.92

Total Pk Hr Voume
1,604



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Lake Markham Rd		&	SR 46	
Date	July 17, 2013				
Time Period	7:00	to	9:00	**Trucks**	

GMB Project #: 11-016.33

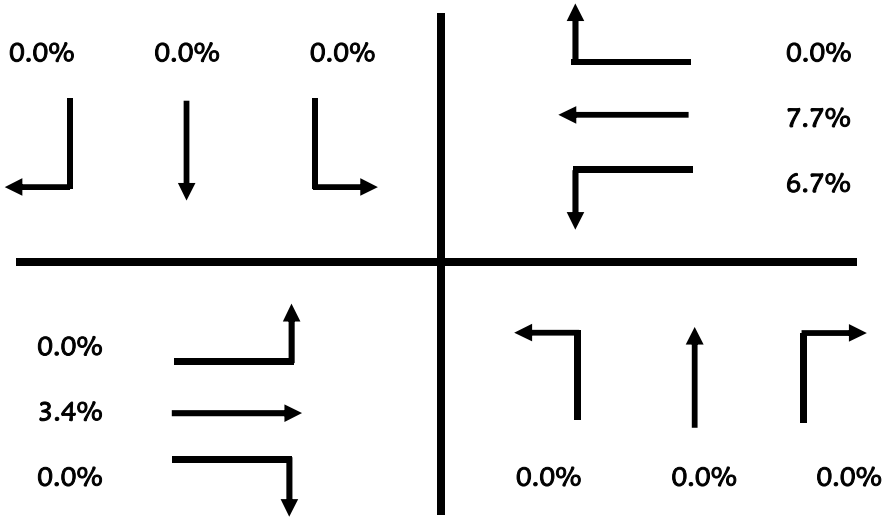
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	4	0	0	15	0
7:15 - 7:30	0	7	0	0	9	0
7:30 - 7:45	0	11	0	0	8	0
7:45 - 8:00	0	7	0	1	13	0
8:00 - 8:15	0	8	0	0	14	0
8:15 - 8:30	0	7	0	0	16	0
8:30 - 8:45	0	7	0	1	15	0
8:45 - 9:00	0	6	0	0	9	0

North / South
Lake Markham Rd

East / West
SR 46

Peak Hour
7:15 - 8:15



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Lake Markham Rd	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	11	0	0	0
16:15 - 16:30	1	0	5	0	0	0
16:30 - 16:45	3	0	4	0	0	0
16:45 - 17:00	2	0	4	0	0	0
17:00 - 17:15	2	0	15	0	0	0
17:15 - 17:30	2	0	10	0	0	0
17:30 - 17:45	2	0	7	0	0	0
17:45 - 18:00	3	0	5	0	0	0
	15	0	61	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	167	1	11	205	0
16:15 - 16:30	0	134	1	9	232	0
16:30 - 16:45	0	178	1	9	203	0
16:45 - 17:00	0	147	6	12	241	0
17:00 - 17:15	0	165	4	14	267	0
17:15 - 17:30	0	203	1	8	313	0
17:30 - 17:45	0	199	2	17	294	0
17:45 - 18:00	0	169	0	10	236	0
	0	1,362	16	90	1,991	0

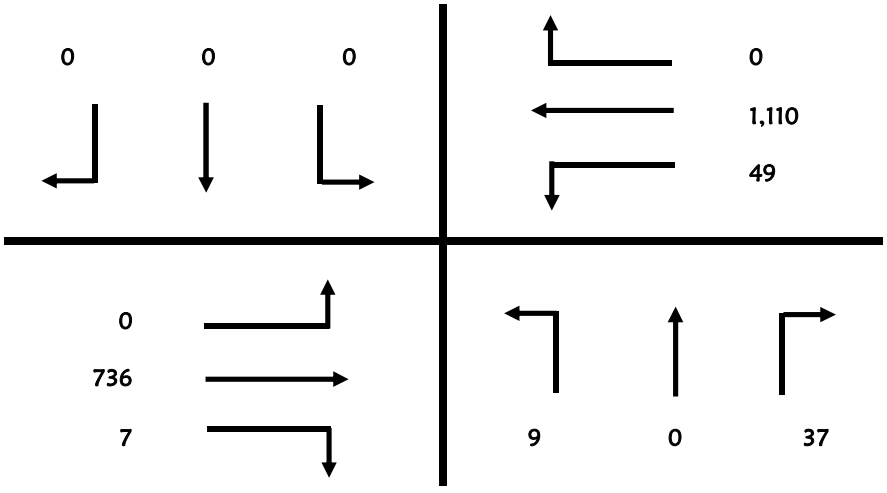
North / South
Lake Markham Rd

East / West
SR 46

Peak Hour
17:00 - 18:00

Peak Hour Factor
0.91

Total Pk Hr Voume
1,948



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Lake Markham Rd		&	SR 46	
Date	July 17, 2013				
Time Period	16:00	to	18:00	**Trucks**	

GMB Project #: 11-016.33

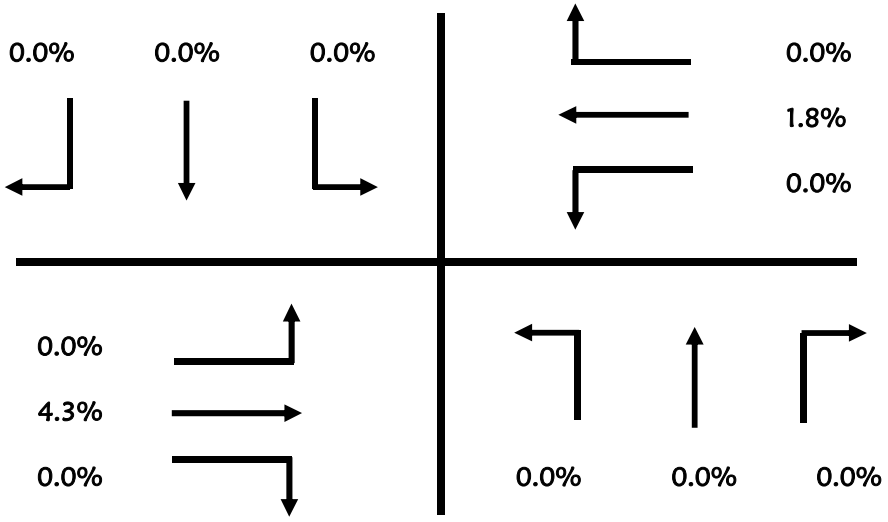
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	1	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	4	0	0	10	0
16:15 - 16:30	0	8	0	0	4	0
16:30 - 16:45	0	5	0	0	6	0
16:45 - 17:00	0	5	0	0	9	0
17:00 - 17:15	0	5	0	0	6	0
17:15 - 17:30	0	8	0	0	6	0
17:30 - 17:45	0	13	0	0	7	0
17:45 - 18:00	0	6	0	0	1	0

North / South
Lake Markham Rd

East / West
SR 46

Peak Hour
17:00 - 18:00



Pedestrian & Bicycle Summary

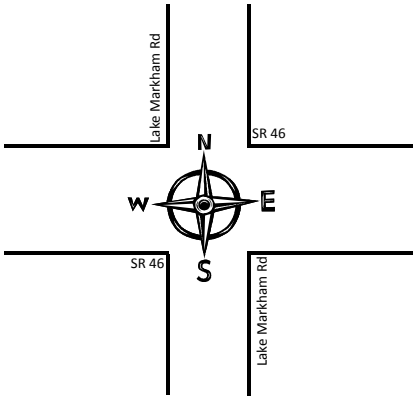
Project #: 11-016.33 **NB/SB:** Lake Markham Rd

Date: 7/17/2013 **EB/WB:** SR 46

Hour

	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike									0
Ped									0
Westbound ◀ Bike									0
Ped									0

Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	0



Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	0

	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike		1							1
Ped					1				1
Westbound ◀ Bike									0
Ped					1				1

Hour

Intersection Sketch

*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date:

Project:

Name:

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Maureen Dr	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	1	0	0	0
7:45 - 8:00	0	0	1	0	0	0
8:00 - 8:15	0	0	1	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	1	0	2	0	0	0
8:45 - 9:00	0	0	0	0	0	0
	1	0	5	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	191	0	0	150	0
7:15 - 7:30	0	180	1	0	155	0
7:30 - 7:45	0	289	0	0	163	0
7:45 - 8:00	0	255	0	0	140	0
8:00 - 8:15	0	248	0	0	126	0
8:15 - 8:30	0	219	0	0	140	1
8:30 - 8:45	0	221	0	1	128	0
8:45 - 9:00	0	205	0	0	141	0
	0	1,808	1	1	1,143	1

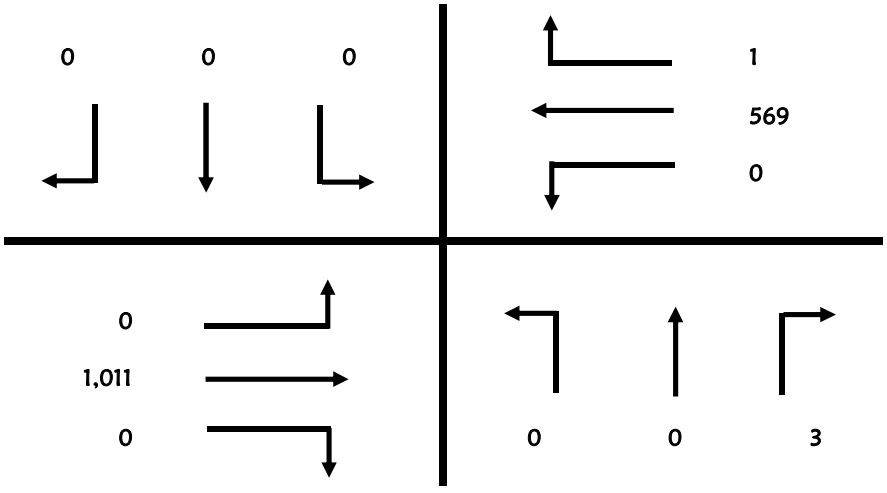
North / South
Maureen Dr

East / West
SR 46

Peak Hour
7:30 - 8:30

Peak Hour Factor
0.87

Total Pk Hr Voume
1,584



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Maureen Dr		&	SR 46	
Date	July 17, 2013				
Time Period	7:00	to	9:00	**Trucks**	

GMB Project #: 11-016.33

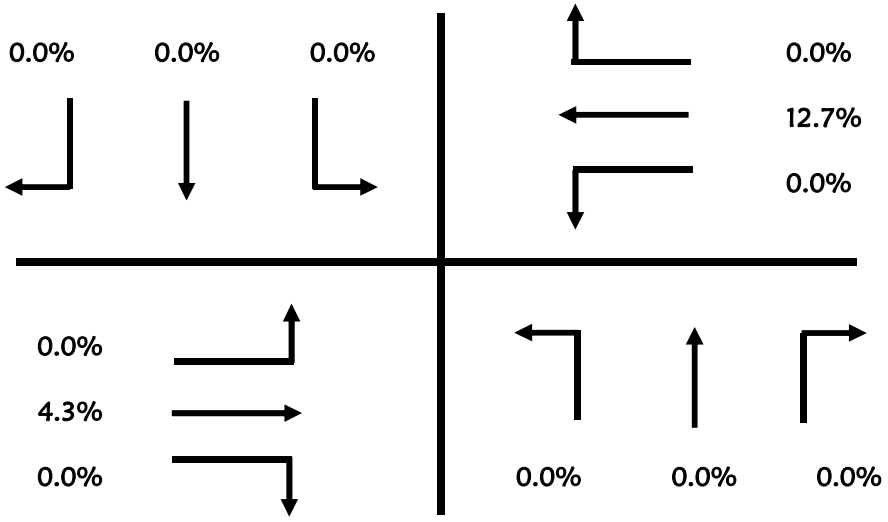
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	1	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	5	0	0	20	0
7:15 - 7:30	0	8	0	0	9	0
7:30 - 7:45	0	14	0	0	16	0
7:45 - 8:00	0	10	0	0	17	0
8:00 - 8:15	0	11	0	0	21	0
8:15 - 8:30	0	8	0	0	18	0
8:30 - 8:45	0	11	0	1	16	0
8:45 - 9:00	0	9	0	0	17	0

North / South
Maureen Dr

East / West
SR 46

Peak Hour
7:30 - 8:30



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Maureen Dr	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	1	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	1	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	1	0	0	0
17:15 - 17:30	0	0	1	0	0	0
17:30 - 17:45	0	0	1	0	0	0
17:45 - 18:00	0	0	1	0	0	0
	1	0	5	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	169	2	0	161	0
16:15 - 16:30	0	153	1	2	164	0
16:30 - 16:45	2	147	0	2	204	0
16:45 - 17:00	0	144	0	0	203	0
17:00 - 17:15	0	204	3	0	262	0
17:15 - 17:30	0	205	0	3	330	0
17:30 - 17:45	2	191	2	1	287	0
17:45 - 18:00	0	165	0	1	280	0
	4	1,378	8	9	1,891	0

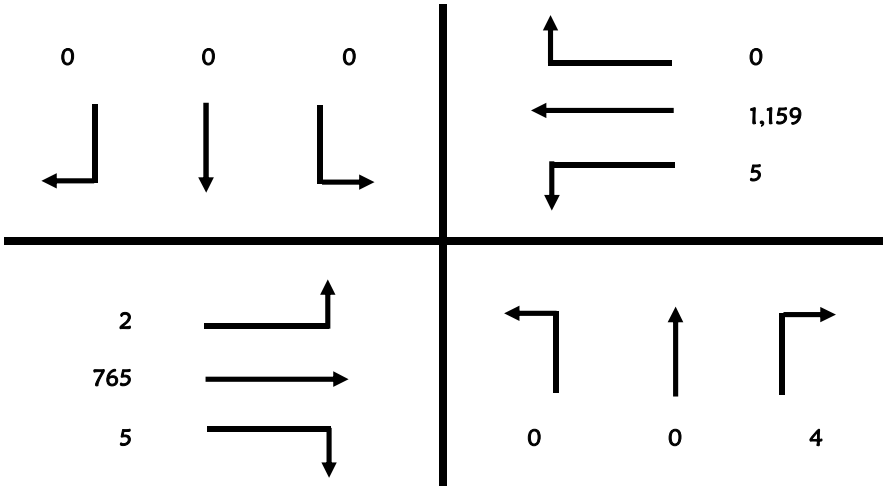
North / South
Maureen Dr

East / West
SR 46

Peak Hour
17:00 - 18:00

Peak Hour Factor
0.90

Total Pk Hr Voume
1,940



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Maureen Dr		&	SR 46	
Date	July 17, 2013				
Time Period	16:00	to	18:00		**Trucks**

GMB Project #: 11-016.33

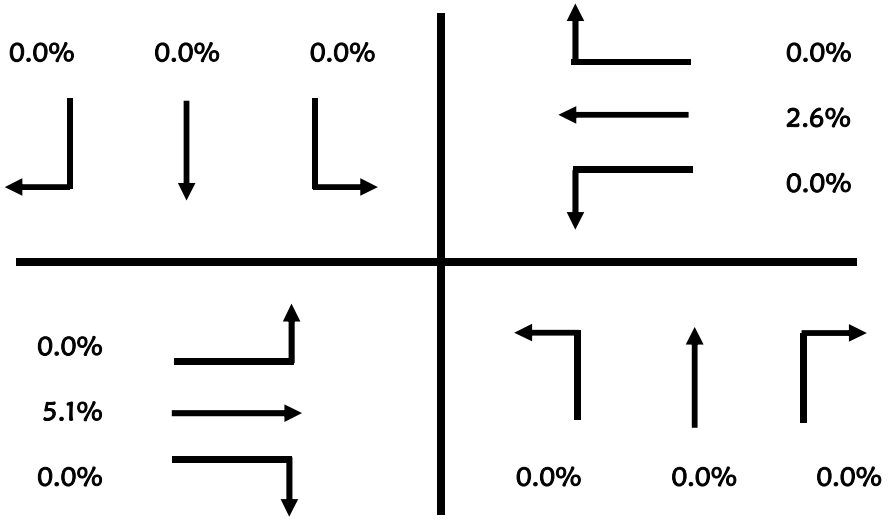
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	9	0	0	10	0
16:15 - 16:30	0	12	0	0	4	0
16:30 - 16:45	0	6	0	0	6	0
16:45 - 17:00	0	7	0	0	12	0
17:00 - 17:15	0	7	0	0	8	0
17:15 - 17:30	0	10	0	0	5	0
17:30 - 17:45	0	19	0	0	12	0
17:45 - 18:00	0	3	0	0	5	0

North / South
Maureen Dr

East / West
SR 46

Peak Hour
17:00 - 18:00



Pedestrian & Bicycle Summary

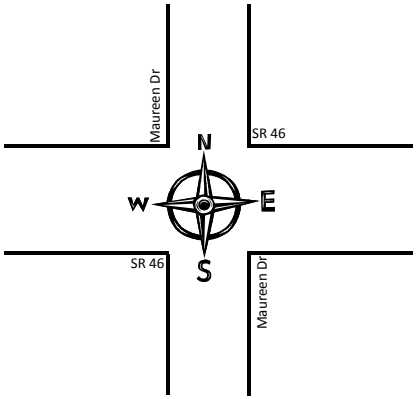
Project #: 11-016.33 **NB/SB:** Maureen Dr

Date: 7/17/2013 **EB/WB:** SR 46

Hour

	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike									0
Ped									0
Westbound ◀ Bike	1								1
Ped									0

Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	0



Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	0

	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike		1							1
Ped									0
Westbound ◀ Bike									0
Ped									0

Hour

Intersection Sketch

*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date:

Project:

Name:

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Glade Rd	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	2	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	1	0	0	0
7:45 - 8:00	0	0	2	0	0	0
8:00 - 8:15	0	0	1	0	0	0
8:15 - 8:30	0	0	2	0	0	0
8:30 - 8:45	1	0	0	0	0	0
8:45 - 9:00	0	0	1	0	0	0
	1	0	9	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	201	0	0	136	0
7:15 - 7:30	0	209	0	0	159	0
7:30 - 7:45	0	271	0	0	152	0
7:45 - 8:00	0	272	0	1	140	0
8:00 - 8:15	0	260	0	0	119	0
8:15 - 8:30	0	225	0	0	135	0
8:30 - 8:45	0	229	0	0	123	0
8:45 - 9:00	0	201	1	0	130	0
	0	1,868	1	1	1,094	0

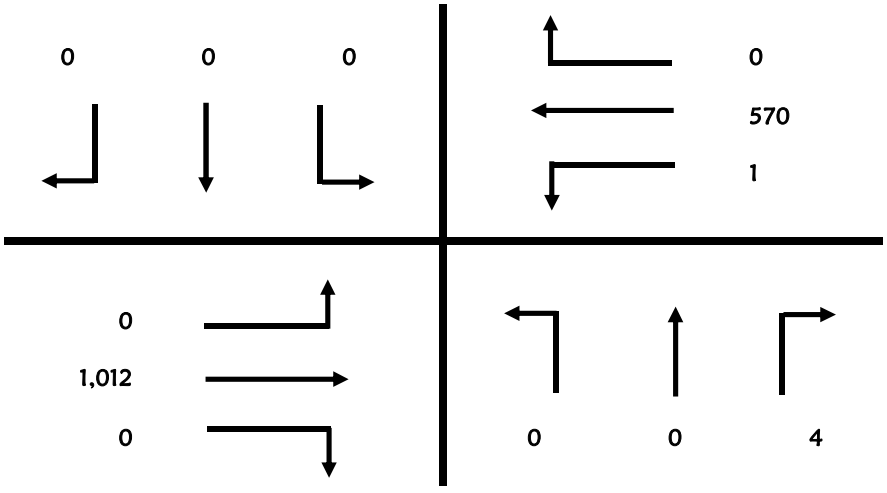
North / South
Glade Rd

East / West
SR 46

Peak Hour
7:15 - 8:15

Peak Hour Factor
0.94

Total Pk Hr Voume
1,587



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Glade Rd		&	SR 46	
Date	July 17, 2013				
Time Period	7:00	to	9:00	**Trucks**	

GMB Project #: 11-016.33

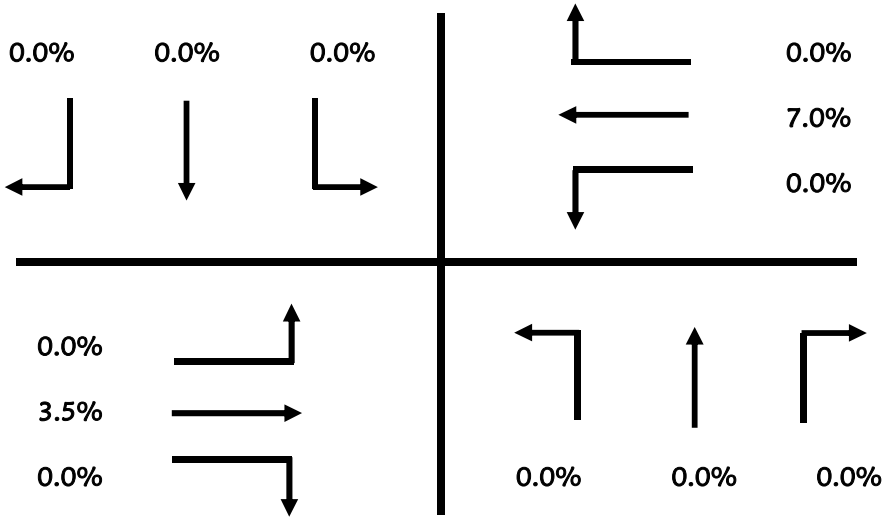
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	3	0	0	16	0
7:15 - 7:30	0	7	0	0	7	0
7:30 - 7:45	0	11	0	0	7	0
7:45 - 8:00	0	8	0	0	13	0
8:00 - 8:15	0	9	0	0	13	0
8:15 - 8:30	0	8	0	0	14	0
8:30 - 8:45	0	9	0	0	13	0
8:45 - 9:00	0	6	0	0	8	0

North / South
Glade Rd

East / West
SR 46

Peak Hour
7:15 - 8:15



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Glade Rd	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	1	0	0	0	0	0
16:15 - 16:30	0	0	1	0	0	0
16:30 - 16:45	0	0	1	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	3	0	0	0
17:15 - 17:30	0	0	1	0	0	0
17:30 - 17:45	1	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0
	2	0	6	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	187	0	1	244	0
16:15 - 16:30	0	146	1	1	241	0
16:30 - 16:45	0	177	1	3	232	0
16:45 - 17:00	0	163	1	2	260	0
17:00 - 17:15	0	194	0	0	272	0
17:15 - 17:30	0	211	0	1	352	0
17:30 - 17:45	0	206	0	2	285	0
17:45 - 18:00	0	160	1	2	228	0
	0	1,444	4	12	2,114	0

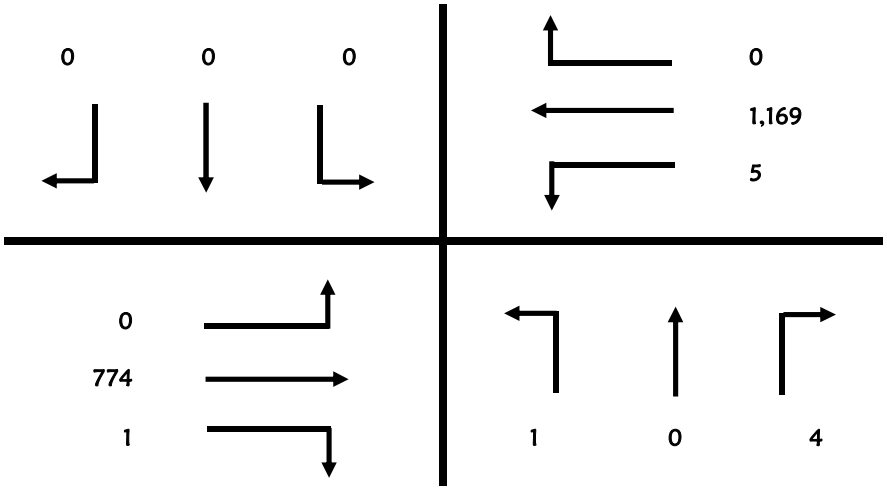
North / South
Glade Rd

East / West
SR 46

Peak Hour
16:45 - 17:45

Peak Hour Factor
0.87

Total Pk Hr Voume
1,954



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Glade Rd		&	SR 46	
Date	July 17, 2013				
Time Period	16:00	to	18:00	**Trucks**	

GMB Project #: 11-016.33

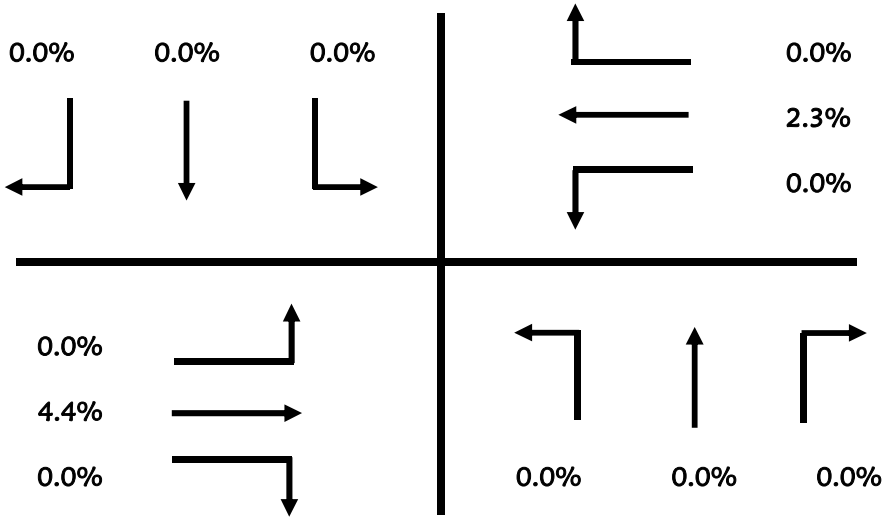
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	1	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	4	0	0	9	0
16:15 - 16:30	0	7	1	0	4	0
16:30 - 16:45	0	6	0	0	6	0
16:45 - 17:00	0	5	0	0	10	0
17:00 - 17:15	0	6	0	0	6	0
17:15 - 17:30	0	10	0	0	4	0
17:30 - 17:45	0	13	0	0	7	0
17:45 - 18:00	0	6	0	0	6	0

North / South
Glade Rd

East / West
SR 46

Peak Hour
16:45 - 17:45



Pedestrian & Bicycle Summary

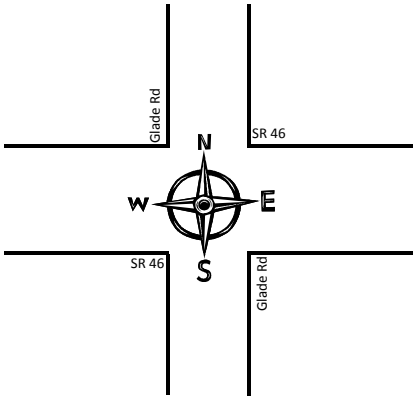
Project #: 11-016.33 **NB/SB:** Glade Rd *** NO PEDS**

Date: 7/17/2013 **EB/WB:** SR 46

Hour

		1	2	3	4	5	6	7	8	
Eastbound ▶	Bike									0
	Ped									0
Westbound ◀	Bike									0
	Ped									0

Hour	Southbound Ped ▼	Southbound Bike ▼	Northbound Ped ▼	Northbound Bike ▼
1				
2				
3				
4				
5				
6				
7				
8				
	0	0	0	0

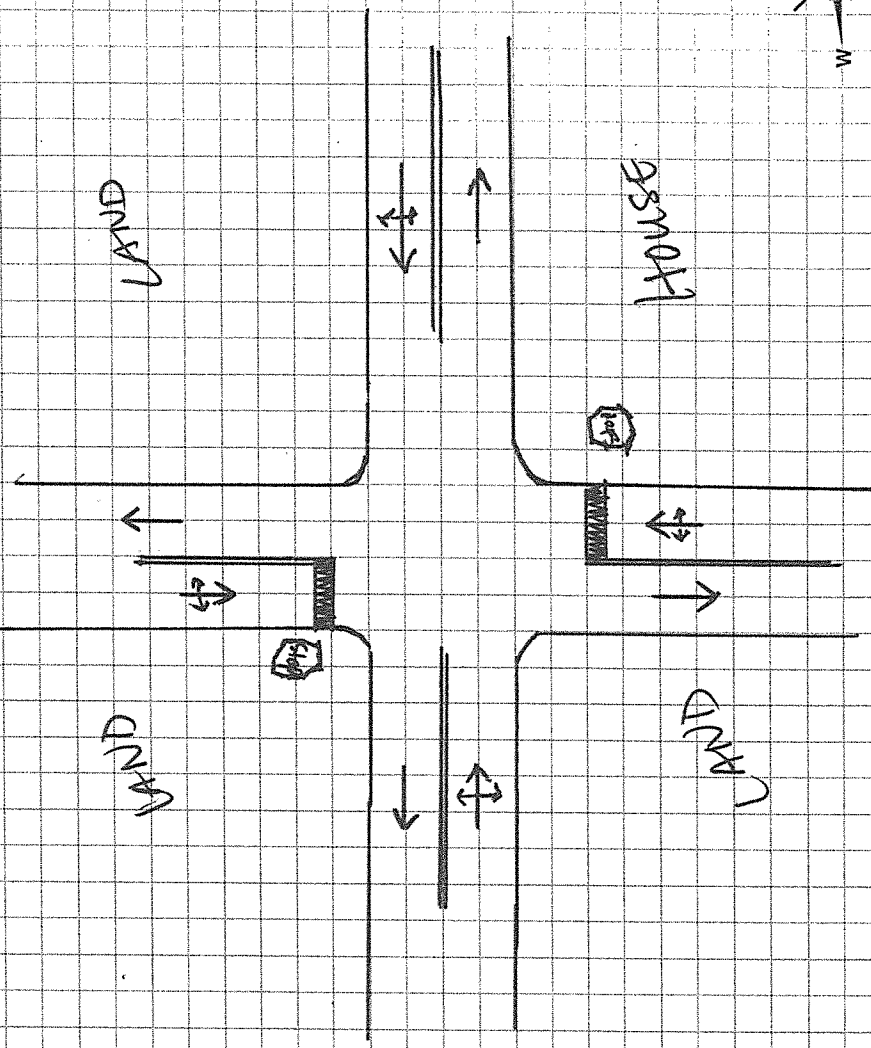


Hour	Southbound Ped ▼	Southbound Bike ▼	Northbound Ped ▼	Northbound Bike ▼
1				
2				
3				
4				
5				
6				
7				
8				
	0	0	0	0

		1	2	3	4	5	6	7	8	
Eastbound ▶	Bike									0
	Ped									0
Westbound ◀	Bike									0
	Ped									0

Hour

Intersection Sketch



*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date:

Project:

Name:

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Glade View Dr	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	4	0	0	0
7:15 - 7:30	1	0	3	0	0	0
7:30 - 7:45	1	0	2	0	0	0
7:45 - 8:00	1	0	3	0	0	0
8:00 - 8:15	0	0	2	0	0	0
8:15 - 8:30	2	0	7	0	0	0
8:30 - 8:45	0	0	1	0	0	0
8:45 - 9:00	2	0	4	0	0	0
	7	0	26	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	197	0	0	151	0
7:15 - 7:30	0	204	0	0	155	0
7:30 - 7:45	0	269	2	1	158	0
7:45 - 8:00	0	266	2	0	137	0
8:00 - 8:15	0	248	3	1	127	0
8:15 - 8:30	0	223	1	0	139	0
8:30 - 8:45	0	214	0	2	124	0
8:45 - 9:00	0	198	0	1	134	0
	0	1,819	8	5	1,125	0

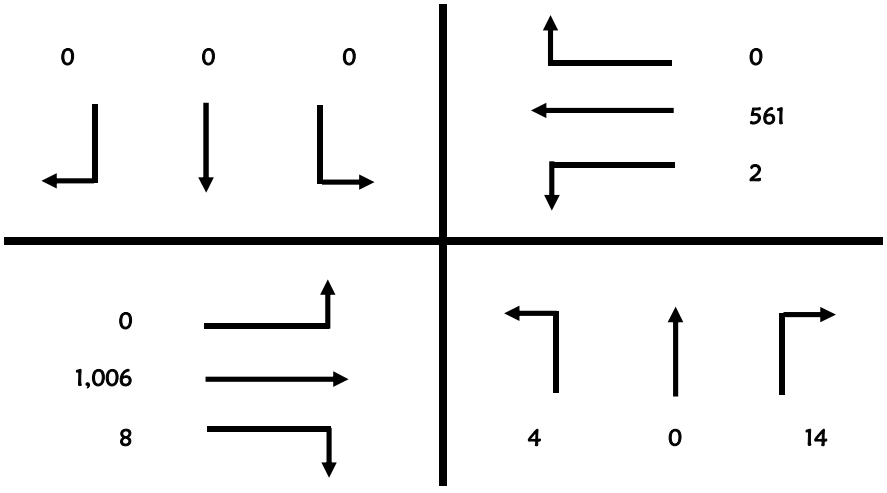
North / South
Glade View Dr

East / West
SR 46

Peak Hour
7:30 - 8:30

Peak Hour Factor
0.92

Total Pk Hr Voume
1,595



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Glade View Dr		&	SR 46	
Date	July 17, 2013				
Time Period	7:00	to	9:00	**Trucks**	

GMB Project #: 11-016.33

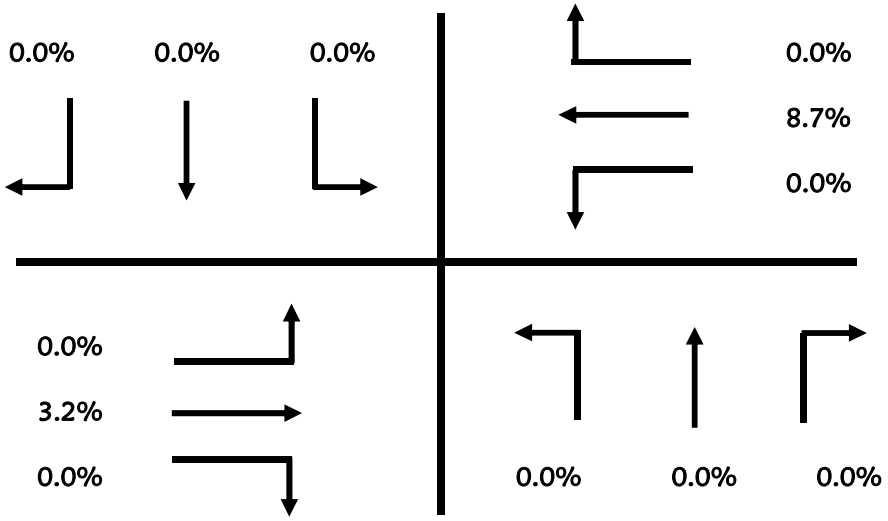
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	3	0	0	16	0
7:15 - 7:30	0	6	0	0	6	0
7:30 - 7:45	0	11	0	0	10	0
7:45 - 8:00	0	6	0	0	11	0
8:00 - 8:15	0	8	0	0	13	0
8:15 - 8:30	0	7	0	0	15	0
8:30 - 8:45	0	7	0	0	13	0
8:45 - 9:00	0	6	0	0	8	0

North / South
Glade View Dr

East / West
SR 46

Peak Hour
7:30 - 8:30



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Glade View Dr	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	3	0	5	0	0	0
16:15 - 16:30	0	0	1	0	0	0
16:30 - 16:45	0	0	1	0	0	0
16:45 - 17:00	1	0	1	0	0	0
17:00 - 17:15	0	0	4	0	0	0
17:15 - 17:30	1	0	1	0	0	0
17:30 - 17:45	0	0	3	0	0	0
17:45 - 18:00	1	0	2	0	0	0
	6	0	18	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	171	3	4	220	0
16:15 - 16:30	0	137	1	2	233	0
16:30 - 16:45	0	180	0	4	242	0
16:45 - 17:00	0	153	1	3	243	0
17:00 - 17:15	0	182	2	3	273	0
17:15 - 17:30	0	210	0	4	353	0
17:30 - 17:45	0	207	2	1	286	0
17:45 - 18:00	0	175	1	3	265	0
	0	1,415	10	24	2,115	0

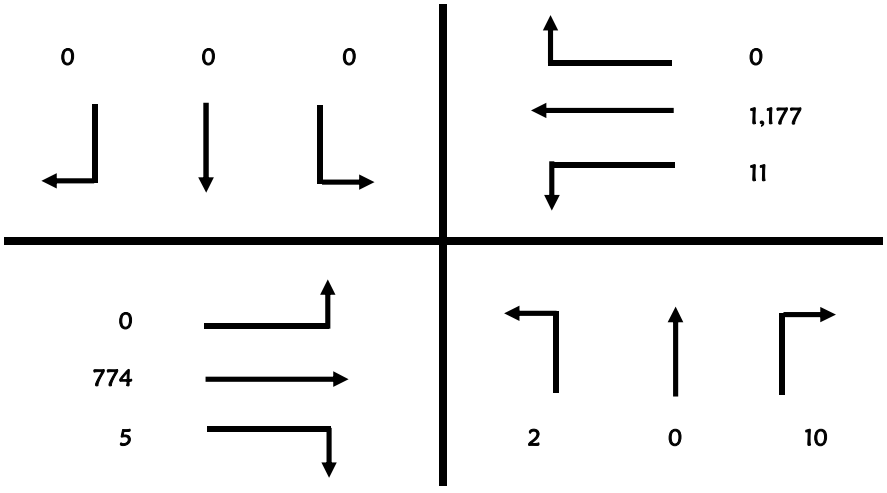
North / South
Glade View Dr

East / West
SR 46

Peak Hour
17:00 - 18:00

Peak Hour Factor
0.87

Total Pk Hr Voume
1,979



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Glade View Dr		&	SR 46	
Date	July 17, 2013				
Time Period	16:00	to	18:00		**Trucks**

GMB Project #: 11-016.33

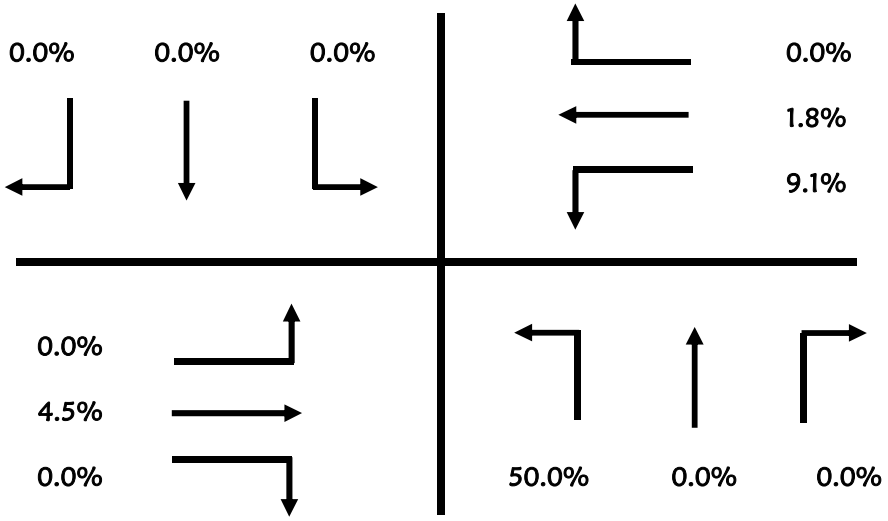
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	1	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	4	0	0	10	0
16:15 - 16:30	0	7	1	0	4	0
16:30 - 16:45	0	6	0	0	7	0
16:45 - 17:00	0	5	0	0	10	0
17:00 - 17:15	0	7	0	0	7	0
17:15 - 17:30	0	9	0	0	3	0
17:30 - 17:45	0	13	0	0	8	0
17:45 - 18:00	0	6	0	1	3	0

North / South
Glade View Dr

East / West
SR 46

Peak Hour
17:00 - 18:00



Pedestrian & Bicycle Summary

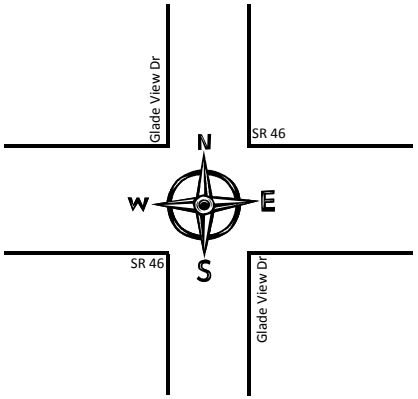
Project #: 11-016.33 **NB/SB:** Glade View Dr

Date: 7/17/2013 **EB/WB:** SR 46

Hour

		7:00	8:00		16:00	17:00				
		1	2	3	4	5	6	7	8	
Eastbound ▶	Bike				3					3
	Ped									0
Westbound ◀	Bike	1			3					4
	Ped									0

Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	0



Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	0

		7:00	8:00		16:00	17:00				
		1	2	3	4	5	6	7	8	
Eastbound ▶	Bike		1							1
	Ped									0
Westbound ◀	Bike									0
	Ped		1							1

Hour

Intersection Sketch

*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date:

Project:

Name:

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Twelve Oaks Place	&	SR 46
Date	July 16, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	2	0	0
7:30 - 7:45	0	0	0	0	0	1
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	1	0	0
8:30 - 8:45	0	0	0	2	0	0
8:45 - 9:00	0	0	0	2	0	0
	0	0	0	7	0	1

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	206	0	0	140	1
7:15 - 7:30	0	188	0	0	152	2
7:30 - 7:45	0	280	0	0	153	0
7:45 - 8:00	0	252	0	0	131	1
8:00 - 8:15	0	246	0	0	118	0
8:15 - 8:30	0	242	0	0	133	0
8:30 - 8:45	0	205	0	0	122	3
8:45 - 9:00	0	214	0	0	131	0
	0	1,833	0	0	1,080	7

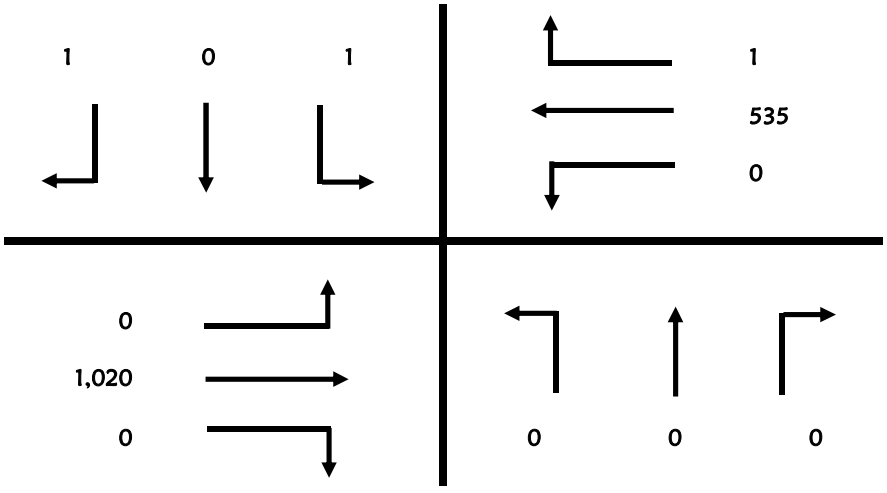
North / South
Twelve Oaks Place

East / West
SR 46

Peak Hour
7:30 - 8:30

Peak Hour Factor
0.90

Total Pk Hr Voume
1,558



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Twelve Oaks Place		&	SR 46	
Date	July 16, 2013				
Time Period	7:00	to	9:00	**Trucks**	

GMB Project #: 11-016.33

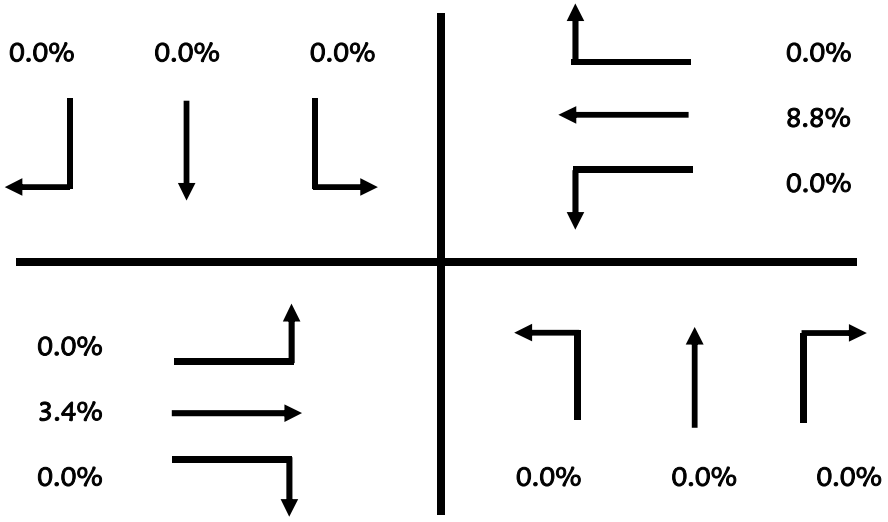
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	1	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	4	0	0	15	0
7:15 - 7:30	0	6	0	0	8	0
7:30 - 7:45	0	10	0	0	11	0
7:45 - 8:00	0	7	0	0	9	0
8:00 - 8:15	0	10	0	0	13	0
8:15 - 8:30	0	8	0	0	14	0
8:30 - 8:45	0	7	0	0	16	0
8:45 - 9:00	0	8	0	0	12	0

North / South
Twelve Oaks Place

East / West
SR 46

Peak Hour
7:30 - 8:30



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Twelve Oaks Place	&	SR 46
Date	July 16, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	1	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	1	0	1
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	1	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	1	0	1
17:45 - 18:00	0	0	0	1	0	0
	0	0	0	5	0	2

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	191	0	0	246	1
16:15 - 16:30	0	152	0	0	261	6
16:30 - 16:45	0	183	0	0	272	2
16:45 - 17:00	0	172	0	0	272	10
17:00 - 17:15	0	203	0	0	306	1
17:15 - 17:30	1	174	0	0	287	3
17:30 - 17:45	0	215	0	0	317	7
17:45 - 18:00	1	188	0	0	287	1
	2	1,478	0	0	2,248	31

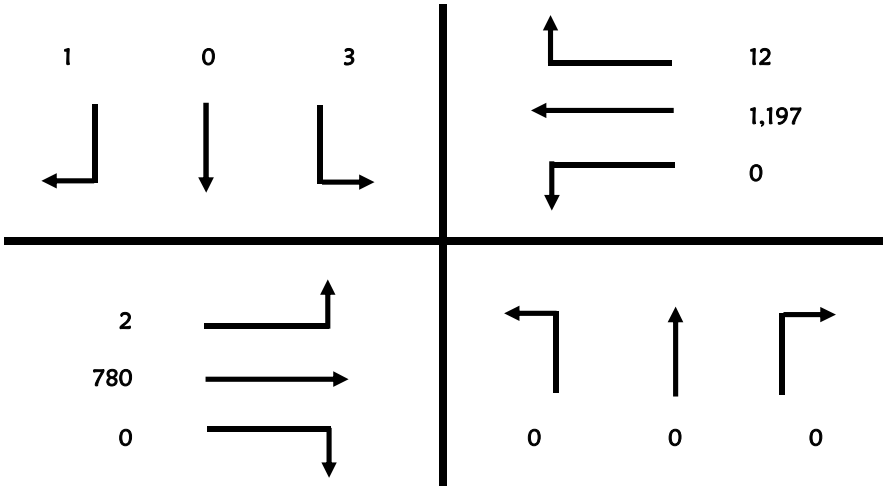
North / South
Twelve Oaks Place

East / West
SR 46

Peak Hour
17:00 - 18:00

Peak Hour Factor
0.92

Total Pk Hr Voume
1,995



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Twelve Oaks Place		&	SR 46	
Date	July 16, 2013				
Time Period	16:00	to	18:00	**Trucks**	

GMB Project #: 11-016.33

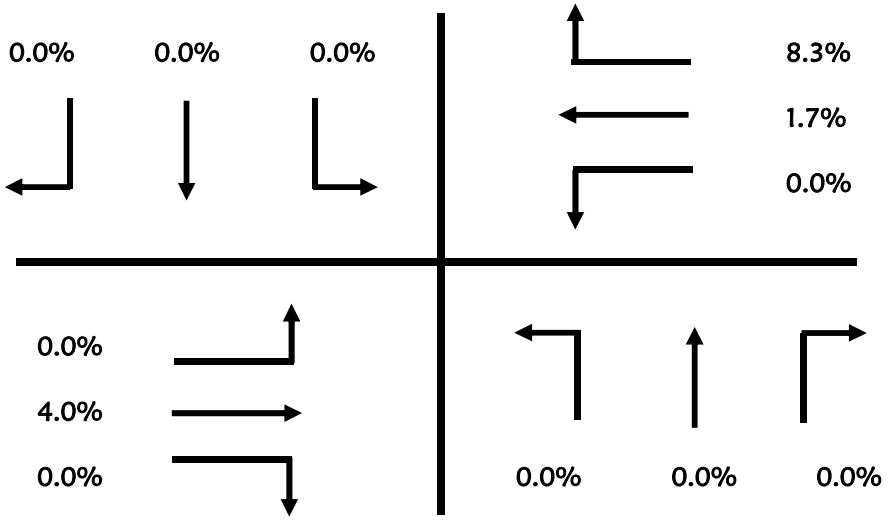
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	5	0	0	8	0
16:15 - 16:30	0	8	0	0	4	0
16:30 - 16:45	0	6	0	0	7	0
16:45 - 17:00	0	5	0	0	10	0
17:00 - 17:15	0	6	0	0	7	1
17:15 - 17:30	0	5	0	0	2	0
17:30 - 17:45	0	14	0	0	8	0
17:45 - 18:00	0	6	0	0	3	0

North / South
Twelve Oaks Place

East / West
SR 46

Peak Hour
17:00 - 18:00



Pedestrian & Bicycle Summary

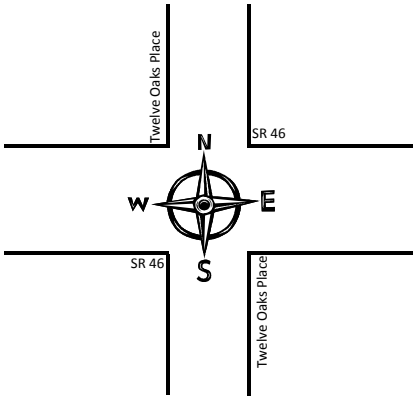
Project #: 11-016.33 **NB/SB:** Twelve Oaks Place *** NO PEDS**

Date: 7/16/2013 **EB/WB:** SR 46

Hour

		1	2	3	4	5	6	7	8	
Eastbound ▶	Bike									0
	Ped									0
Westbound ◀	Bike									0
	Ped									0

Hour	Southbound Ped ▼	Southbound Bike ▼	Northbound Ped ▼	Northbound Bike ▼
1				
2				
3				
4				
5				
6				
7				
8				
	0	0	0	0



Hour	Southbound Ped ▼	Southbound Bike ▼	Northbound Ped ▼	Northbound Bike ▼
1				
2				
3				
4				
5				
6				
7				
8				
	0	0	0	0

		1	2	3	4	5	6	7	8	
Eastbound ▶	Bike									0
	Ped									0
Westbound ◀	Bike									0
	Ped									0

Hour

Intersection Sketch

*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date:

Project:

Name:

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Orange Ave	&	SR 46
Date	July 16, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	2	0	1
7:15 - 7:30	0	0	0	2	0	0
7:30 - 7:45	1	0	0	2	0	2
7:45 - 8:00	0	0	0	1	0	1
8:00 - 8:15	0	0	1	1	0	1
8:15 - 8:30	0	0	0	2	0	0
8:30 - 8:45	0	0	0	2	0	2
8:45 - 9:00	0	0	0	1	0	3
	1	0	1	13	0	10

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	213	0	0	140	1
7:15 - 7:30	0	190	1	0	156	0
7:30 - 7:45	1	284	0	0	148	0
7:45 - 8:00	0	255	0	0	131	1
8:00 - 8:15	1	249	0	0	119	0
8:15 - 8:30	2	244	0	0	131	3
8:30 - 8:45	1	207	0	0	121	0
8:45 - 9:00	2	218	0	0	130	5
	7	1,860	1	0	1,076	10

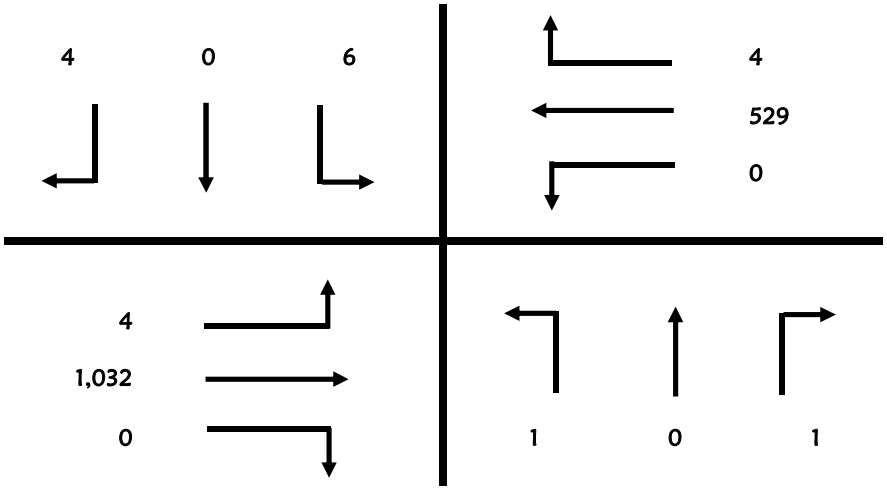
North / South
Orange Ave

East / West
SR 46

Peak Hour
7:30 - 8:30

Peak Hour Factor
0.90

Total Pk Hr Voume
1,581



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Orange Ave		&	SR 46	
Date	July 16, 2013				
Time Period	7:00	to	9:00	**Trucks**	

GMB Project #: 11-016.33

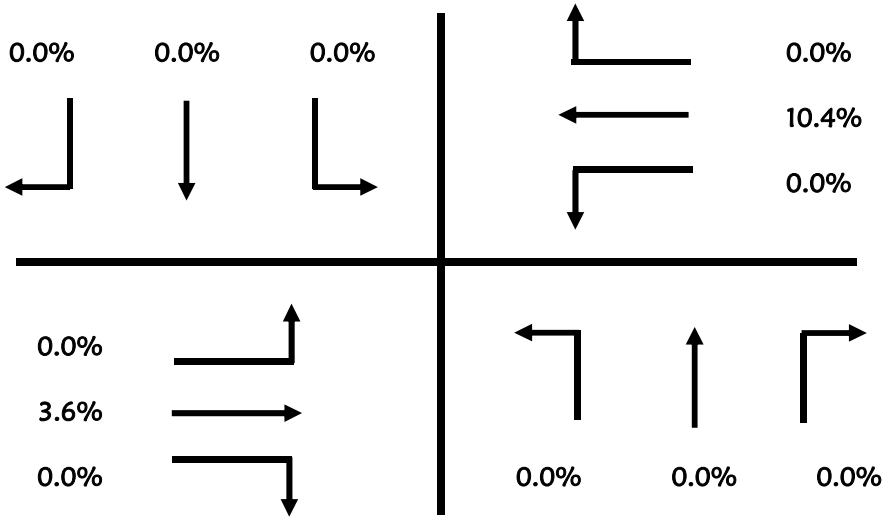
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	3	0	0	14	0
7:15 - 7:30	0	7	0	0	7	0
7:30 - 7:45	0	10	0	0	10	0
7:45 - 8:00	0	8	0	0	12	0
8:00 - 8:15	0	11	0	0	15	0
8:15 - 8:30	0	8	0	0	18	0
8:30 - 8:45	0	8	0	0	15	0
8:45 - 9:00	0	8	0	0	11	0

North / South
Orange Ave

East / West
SR 46

Peak Hour
7:30 - 8:30



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Orange Ave	&	SR 46
Date	July 16, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	2	0	2
16:15 - 16:30	0	0	0	2	0	0
16:30 - 16:45	0	0	0	1	0	0
16:45 - 17:00	0	0	0	2	0	1
17:00 - 17:15	0	0	0	1	0	0
17:15 - 17:30	0	0	0	2	0	2
17:30 - 17:45	0	0	0	0	0	2
17:45 - 18:00	0	0	1	1	0	1
	0	0	1	11	0	8

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	178	0	0	218	2
16:15 - 16:30	2	146	0	0	256	1
16:30 - 16:45	3	173	0	0	242	2
16:45 - 17:00	1	164	0	0	261	2
17:00 - 17:15	0	187	0	0	297	1
17:15 - 17:30	1	204	0	1	348	3
17:30 - 17:45	3	212	0	0	296	0
17:45 - 18:00	0	191	0	0	265	4
	10	1,455	0	1	2,183	15

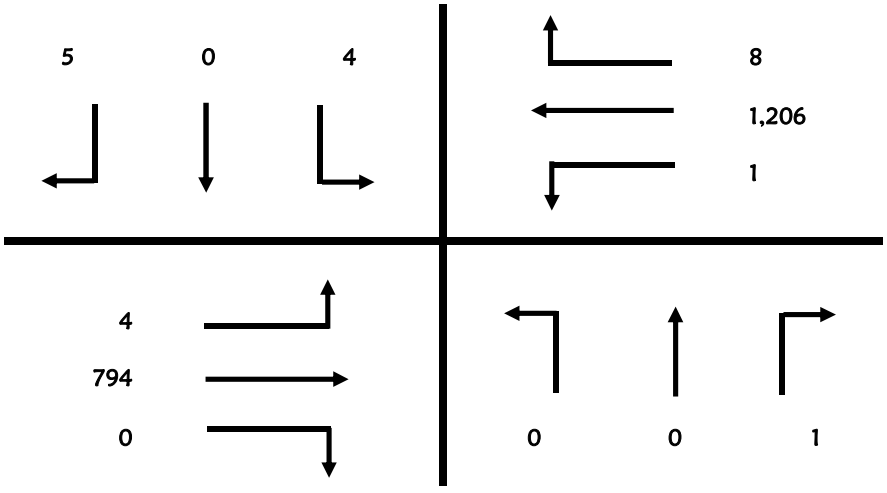
North / South
Orange Ave

East / West
SR 46

Peak Hour
17:00 - 18:00

Peak Hour Factor
0.90

Total Pk Hr Voume
2,023



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Orange Ave		&	SR 46	
Date	July 16, 2013				
Time Period	16:00	to	18:00	**Trucks**	

GMB Project #: 11-016.33

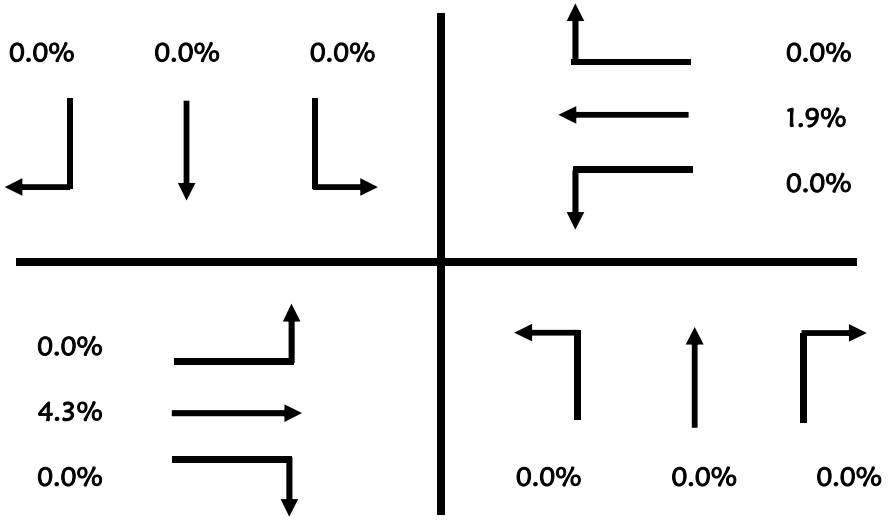
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	6	0	0	10	0
16:15 - 16:30	1	7	0	0	5	0
16:30 - 16:45	0	6	0	0	7	0
16:45 - 17:00	0	5	0	0	11	1
17:00 - 17:15	0	4	0	0	8	0
17:15 - 17:30	0	10	0	0	4	0
17:30 - 17:45	0	12	0	0	6	0
17:45 - 18:00	0	8	0	0	5	0

North / South
Orange Ave

East / West
SR 46

Peak Hour
17:00 - 18:00



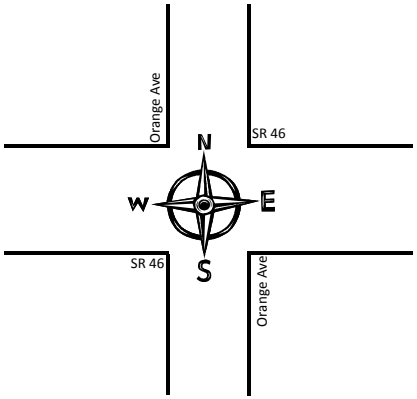
Pedestrian & Bicycle Summary

Project #: 11-016.33 **NB/SB:** Orange Ave

Date: 7/16/2013 **EB/WB:** SR 46

		Hour	7:00	8:00		16:00	17:00				
			1	2	3	4	5	6	7	8	
Eastbound	▶	Bike									0
		Ped									0
Westbound	◀	Bike	1				1				2
		Ped									0

Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	0



Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	0

		Hour	7:00	8:00		16:00	17:00				
			1	2	3	4	5	6	7	8	
Eastbound	▶	Bike	1	1							2
		Ped				1					1
Westbound	◀	Bike									0
		Ped				1					1

Hour

Intersection Sketch

*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date:

Project:

Name:

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Wayside Dr	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	3	0	0	0	0	0
7:15 - 7:30	6	0	1	0	0	0
7:30 - 7:45	1	0	1	0	0	0
7:45 - 8:00	2	0	0	0	0	0
8:00 - 8:15	1	0	0	0	0	0
8:15 - 8:30	3	0	1	0	0	0
8:30 - 8:45	1	0	1	0	0	0
8:45 - 9:00	1	0	0	0	0	0
	18	0	4	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	208	19	0	139	0
7:15 - 7:30	0	187	16	1	139	0
7:30 - 7:45	0	248	30	1	140	0
7:45 - 8:00	0	221	36	0	128	0
8:00 - 8:15	0	223	37	1	120	0
8:15 - 8:30	1	220	24	0	135	0
8:30 - 8:45	0	194	28	0	130	0
8:45 - 9:00	0	198	27	0	122	4
	1	1,699	217	3	1,053	4

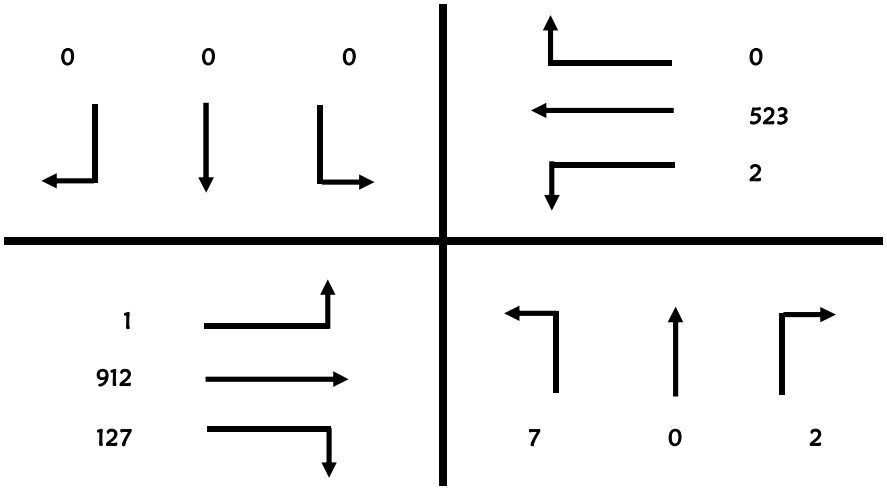
North / South
Wayside Dr

East / West
SR 46

Peak Hour
7:30 - 8:30

Peak Hour Factor
0.94

Total Pk Hr Voume
1,574



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Wayside Dr		&	SR 46	
Date	July 17, 2013				
Time Period	7:00	to	9:00	**Trucks**	

GMB Project #: 11-016.33

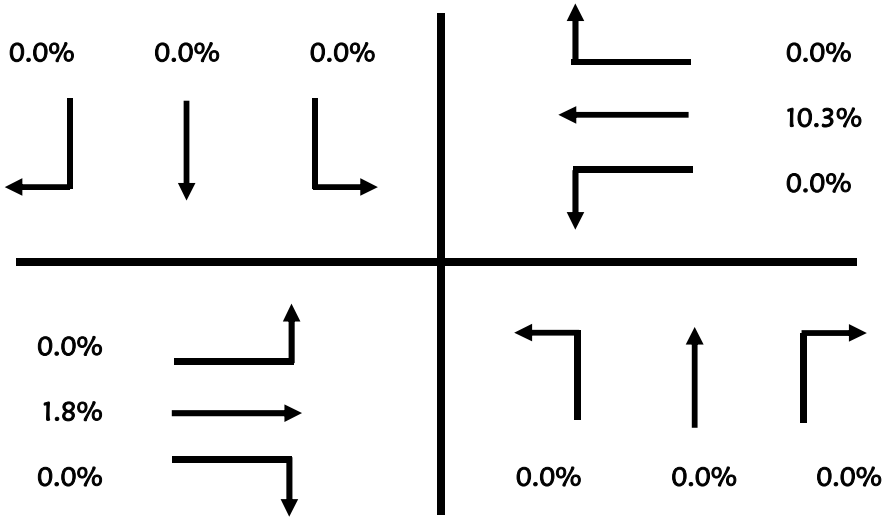
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	1	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	5	0	0	10	0
7:15 - 7:30	0	6	0	1	8	0
7:30 - 7:45	0	3	0	0	11	0
7:45 - 8:00	0	3	0	0	14	0
8:00 - 8:15	0	4	0	0	13	0
8:15 - 8:30	0	6	0	0	16	0
8:30 - 8:45	0	1	0	0	14	0
8:45 - 9:00	0	4	0	0	5	4

North / South
Wayside Dr

East / West
SR 46

Peak Hour
7:30 - 8:30



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Wayside Dr	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	2	0	0	0	0	0
16:15 - 16:30	2	0	1	0	0	0
16:30 - 16:45	2	0	0	0	0	0
16:45 - 17:00	2	0	0	0	0	0
17:00 - 17:15	2	0	1	0	0	0
17:15 - 17:30	1	0	0	0	0	0
17:30 - 17:45	7	0	0	0	0	0
17:45 - 18:00	6	0	1	0	0	0
	24	0	3	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	170	7	0	213	0
16:15 - 16:30	0	147	9	0	271	0
16:30 - 16:45	0	169	10	0	219	0
16:45 - 17:00	0	161	9	1	283	0
17:00 - 17:15	0	187	5	0	289	0
17:15 - 17:30	0	207	7	0	345	0
17:30 - 17:45	0	207	15	0	280	0
17:45 - 18:00	0	182	6	0	257	0
	0	1,430	68	1	2,157	0

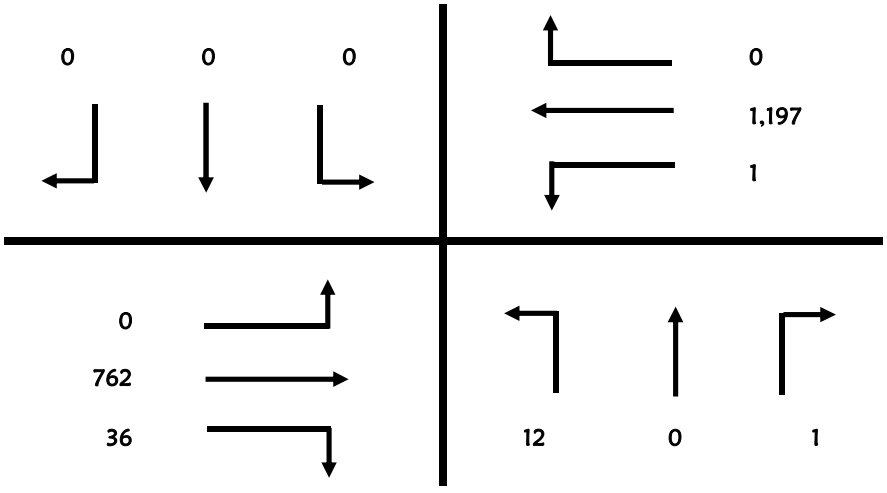
North / South
Wayside Dr

East / West
SR 46

Peak Hour
16:45 - 17:45

Peak Hour Factor
0.90

Total Pk Hr Voume
2,009



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Wayside Dr		&	SR 46	
Date	July 17, 2013				
Time Period	16:00	to	18:00	**Trucks**	

GMB Project #: 11-016.33

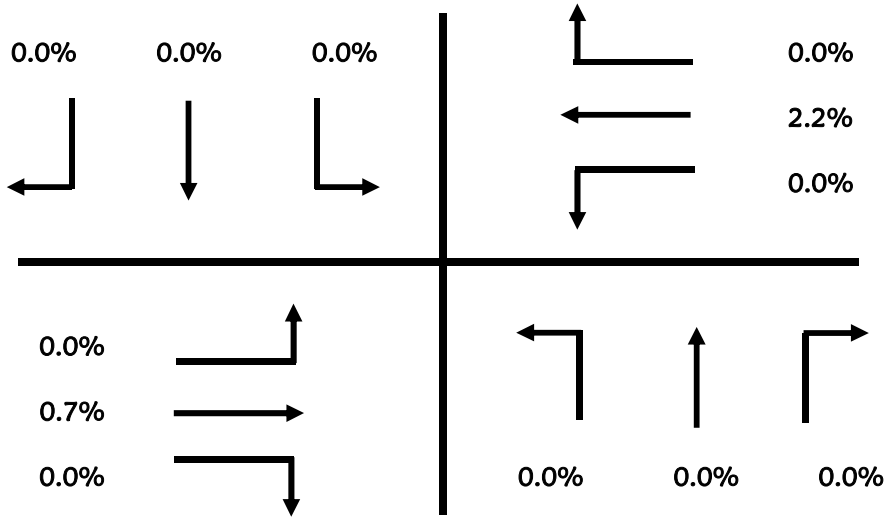
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	1	0	0	7	0
16:15 - 16:30	0	1	0	0	3	0
16:30 - 16:45	0	2	0	0	7	0
16:45 - 17:00	0	2	0	0	6	0
17:00 - 17:15	0	1	0	0	9	0
17:15 - 17:30	0	0	0	0	4	0
17:30 - 17:45	0	2	0	0	7	0
17:45 - 18:00	0	0	0	0	3	0

North / South
Wayside Dr

East / West
SR 46

Peak Hour
16:45 - 17:45



Pedestrian & Bicycle Summary

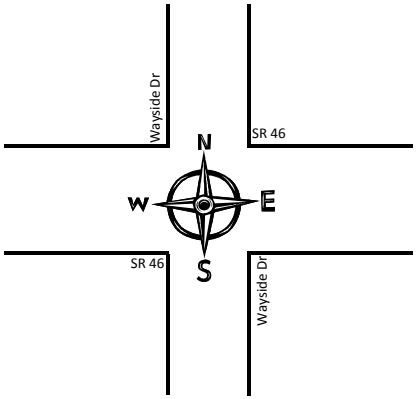
Project #: 11-016.33 **NB/SB:** Wayside Dr

Date: 7/17/2013 **EB/WB:** SR 46

Hour

	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike									0
Ped									0
Westbound ◀ Bike									0
Ped									0

Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	0

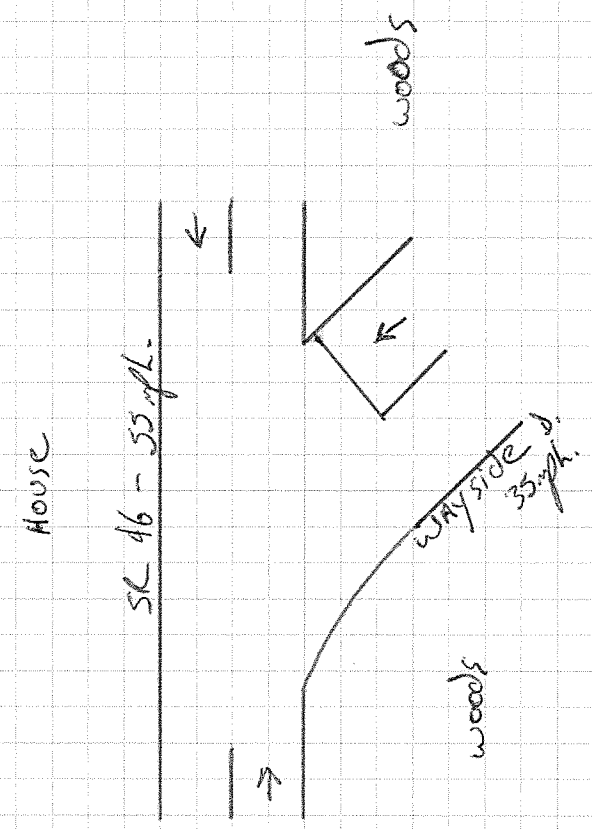


Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	0

	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike	1	1							2
Ped									0
Westbound ◀ Bike		1							1
Ped									0

Hour

Intersection Sketch



*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

#12 - SR 46 @ Wayside Dr.

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date: 7-18-13

Project: 11-016.33

Name: GAPC-104

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Center Rd	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	1
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	2	0	0	0
8:00 - 8:15	0	1	0	0	0	0
8:15 - 8:30	0	0	0	1	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	4	1	0	0
	0	1	6	2	0	1

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	189	0	0	116	0
7:15 - 7:30	0	252	0	0	144	1
7:30 - 7:45	0	224	0	1	111	0
7:45 - 8:00	0	241	0	1	146	0
8:00 - 8:15	1	197	0	1	133	0
8:15 - 8:30	0	224	0	0	126	1
8:30 - 8:45	0	193	0	0	116	0
8:45 - 9:00	0	178	6	0	116	0
	1	1,698	6	3	1,008	2

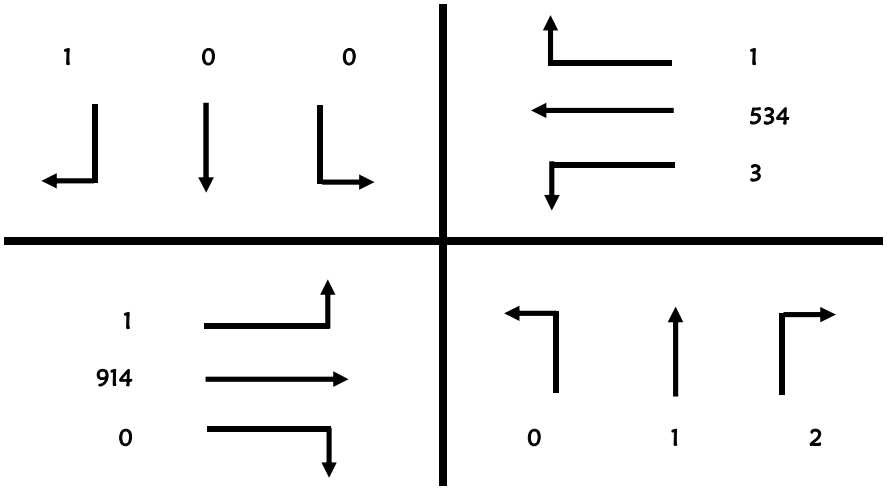
North / South
Center Rd

East / West
SR 46

Peak Hour
7:15 - 8:15

Peak Hour Factor
0.92

Total Pk Hr Voume
1,457



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Center Rd		&	SR 46	
Date	July 17, 2013				
Time Period	7:00	to	9:00	**Trucks**	

GMB Project #: 11-016.33

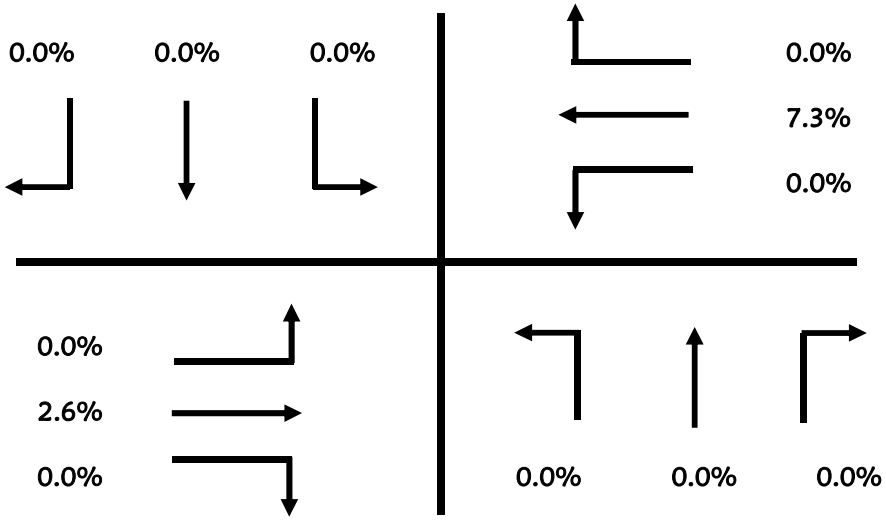
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	1	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	6	0	0	8	0
7:15 - 7:30	0	4	0	0	8	0
7:30 - 7:45	0	7	0	0	6	0
7:45 - 8:00	0	8	0	0	14	0
8:00 - 8:15	0	5	0	0	11	0
8:15 - 8:30	0	8	0	0	7	0
8:30 - 8:45	0	3	0	0	11	0
8:45 - 9:00	0	10	1	0	8	0

North / South
Center Rd

East / West
SR 46

Peak Hour
7:15 - 8:15



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Center Rd	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	1	0	0	0	0
16:15 - 16:30	1	0	0	0	0	1
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	1	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	1	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	1	4	0	2	0
	1	2	5	0	3	1

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	149	0	0	247	0
16:15 - 16:30	1	193	0	1	276	1
16:30 - 16:45	0	145	0	0	233	0
16:45 - 17:00	0	182	0	1	294	1
17:00 - 17:15	1	191	0	1	291	0
17:15 - 17:30	2	203	0	2	346	0
17:30 - 17:45	1	195	0	0	289	1
17:45 - 18:00	1	183	0	1	279	2
	6	1,441	0	6	2,255	5

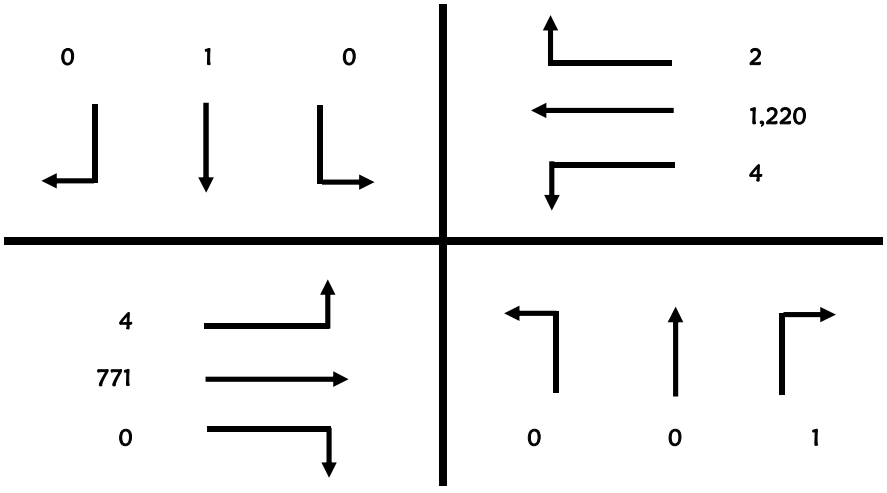
North / South
Center Rd

East / West
SR 46

Peak Hour
16:45 - 17:45

Peak Hour Factor
0.90

Total Pk Hr Voume
2,003



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Center Rd		&	SR 46	
Date	July 17, 2013				
Time Period	16:00	to	18:00	**Trucks**	

GMB Project #: 11-016.33

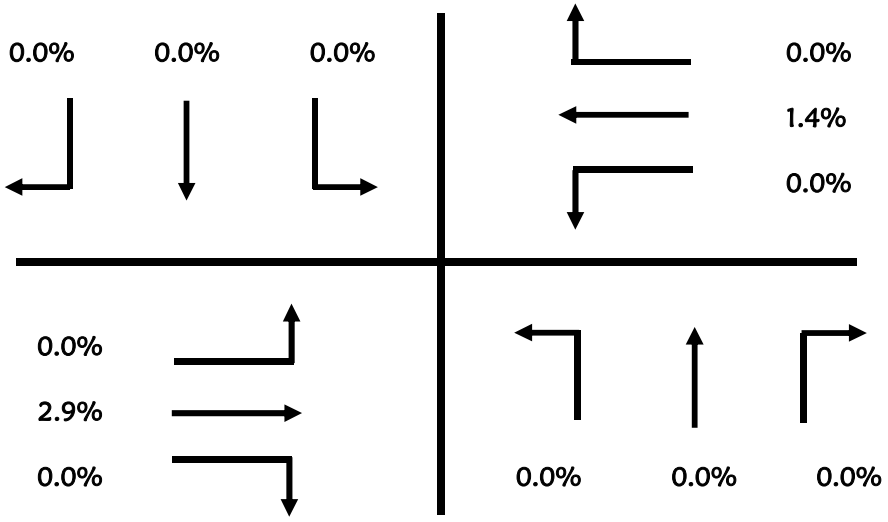
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	7	0	0	8	0
16:15 - 16:30	0	4	0	0	10	0
16:30 - 16:45	0	5	0	0	4	0
16:45 - 17:00	0	6	0	0	3	0
17:00 - 17:15	0	3	0	0	7	0
17:15 - 17:30	0	7	0	0	4	0
17:30 - 17:45	0	6	0	0	3	0
17:45 - 18:00	0	2	0	0	7	0

North / South
Center Rd

East / West
SR 46

Peak Hour
16:45 - 17:45



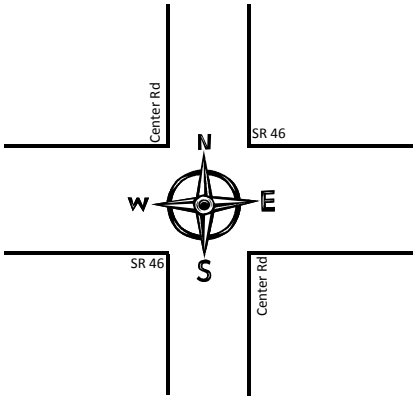
Pedestrian & Bicycle Summary

Project #: 11-016.33 **NB/SB:** Center Rd

Date: 7/17/2013 **EB/WB:** SR 46

Hour

		7:00	8:00		16:00	17:00				
		1	2	3	4	5	6	7	8	
Eastbound	▶ Bike				1					1
	Ped									0
Westbound	◀ Bike		1							1
	Ped									0



Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	0

Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00		1		
5 17:00				
6				
7				
8				
	0	1	0	0

		7:00	8:00		16:00	17:00				
		1	2	3	4	5	6	7	8	
Eastbound	▶ Bike									0
	Ped									0
Westbound	◀ Bike									0
	Ped									0

Hour

Intersection Sketch

*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date:

Project:

Name:

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Orange Bv	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	9	13	4	28	20	9
7:15 - 7:30	13	7	8	30	29	9
7:30 - 7:45	11	9	8	31	27	7
7:45 - 8:00	18	7	6	25	27	16
8:00 - 8:15	14	7	14	36	35	19
8:15 - 8:30	12	11	12	36	30	16
8:30 - 8:45	16	12	7	31	31	4
8:45 - 9:00	8	10	10	24	24	8
	101	76	69	241	223	88

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	8	158	5	8	105	7
7:15 - 7:30	14	201	12	12	112	6
7:30 - 7:45	18	186	12	13	86	3
7:45 - 8:00	16	203	7	16	109	8
8:00 - 8:15	17	157	8	18	112	8
8:15 - 8:30	18	189	12	13	85	3
8:30 - 8:45	10	166	13	15	89	9
8:45 - 9:00	14	142	8	18	93	9
	115	1,402	77	113	791	53

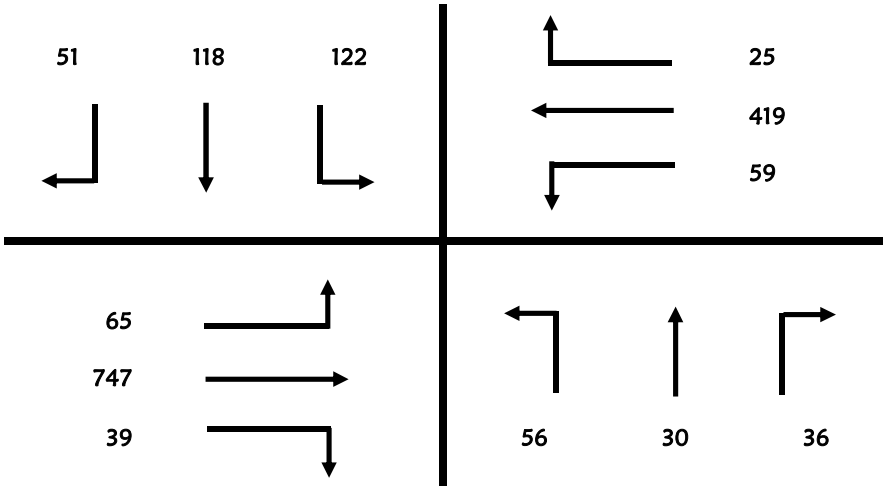
North / South
Orange Bv

East / West
SR 46

Peak Hour
7:15 - 8:15

Peak Hour Factor
0.97

Total Pk Hr Voume
1,767



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Orange Bv		&	SR 46	
Date	July 17, 2013				
Time Period	7:00	to	9:00	**Trucks**	

GMB Project #: 11-016.33

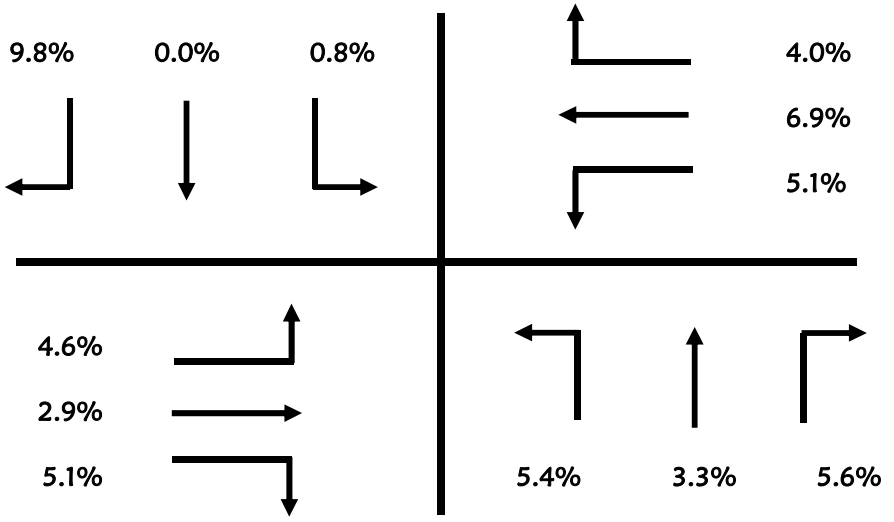
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	1	1	0	0
7:15 - 7:30	0	0	0	0	0	1
7:30 - 7:45	0	0	0	1	0	0
7:45 - 8:00	1	1	1	0	0	3
8:00 - 8:15	2	0	1	0	0	1
8:15 - 8:30	0	0	0	1	0	1
8:30 - 8:45	0	1	0	0	1	1
8:45 - 9:00	0	1	0	1	0	1

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	5	0	1	6	0
7:15 - 7:30	3	1	0	0	9	0
7:30 - 7:45	0	7	1	0	5	0
7:45 - 8:00	0	9	1	2	7	0
8:00 - 8:15	0	5	0	1	8	1
8:15 - 8:30	0	7	0	1	6	0
8:30 - 8:45	0	4	0	2	10	1
8:45 - 9:00	0	6	0	0	9	0

North / South
Orange Bv

East / West
SR 46

Peak Hour
7:15 - 8:15



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Orange Bv	&	SR 46
Date	July 17, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	32	18	10	21	12	15
16:15 - 16:30	21	15	10	21	10	18
16:30 - 16:45	37	18	6	24	18	14
16:45 - 17:00	26	11	14	22	7	24
17:00 - 17:15	39	26	10	21	14	12
17:15 - 17:30	36	15	12	17	9	16
17:30 - 17:45	53	26	11	22	17	18
17:45 - 18:00	32	26	11	16	12	14
	276	155	84	164	99	131

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	6	134	6	24	216	11
16:15 - 16:30	18	166	10	15	194	12
16:30 - 16:45	14	112	10	14	197	16
16:45 - 17:00	9	165	4	15	227	15
17:00 - 17:15	25	146	6	17	219	22
17:15 - 17:30	15	183	11	20	317	15
17:30 - 17:45	14	174	10	18	227	19
17:45 - 18:00	15	154	7	22	215	28
	116	1,234	64	145	1,812	138

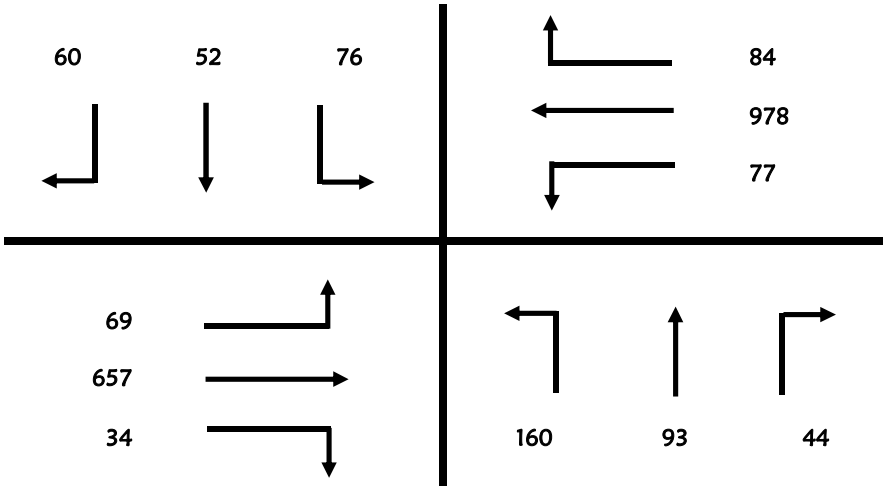
North / South
Orange Bv

East / West
SR 46

Peak Hour
17:00 - 18:00

Peak Hour Factor
0.90

Total Pk Hr Voume
2,384



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Orange Bv		&	SR 46	
Date	July 17, 2013				
Time Period	16:00	to	18:00	**Trucks**	

GMB Project #: 11-016.33

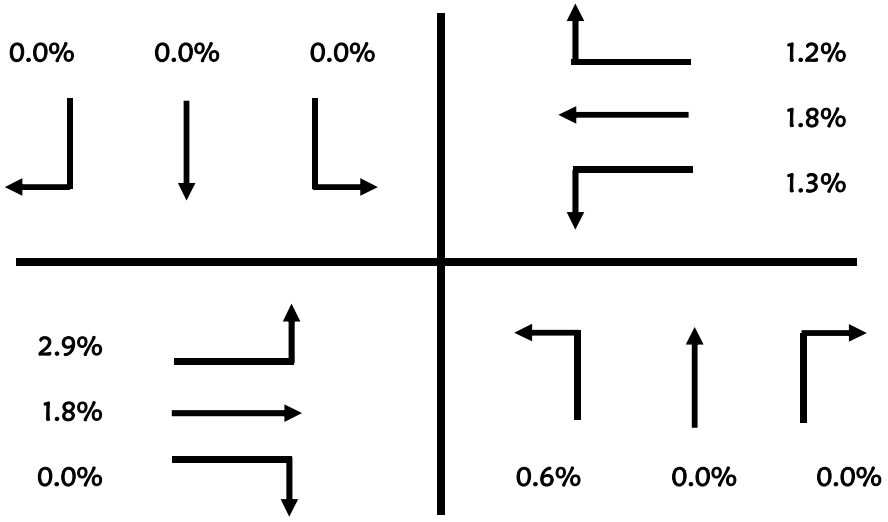
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	2	1	1	0	0	0
16:15 - 16:30	0	0	1	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	1	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	8	0	1	10	0
16:15 - 16:30	1	4	0	0	8	1
16:30 - 16:45	0	2	0	0	5	0
16:45 - 17:00	1	5	0	0	3	0
17:00 - 17:15	1	1	0	0	6	0
17:15 - 17:30	0	6	0	0	4	0
17:30 - 17:45	1	4	0	0	2	0
17:45 - 18:00	0	1	0	1	6	1

North / South
Orange Bv

East / West
SR 46

Peak Hour
17:00 - 18:00



Pedestrian & Bicycle Summary

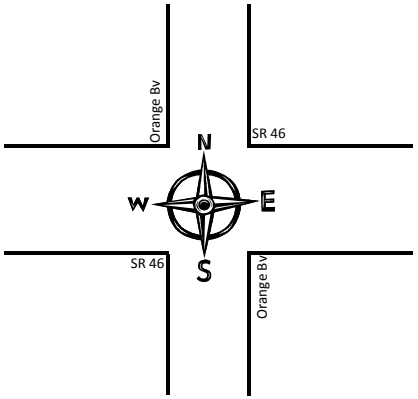
Project #: 11-016.33 **NB/SB:** Orange Bv

Date: 7/17/2013 **EB/WB:** SR 46

Hour

	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike									0
Ped									0
Westbound ◀ Bike		1							1
Ped									0

Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00		1		
6				
7				
8				
	0	1	0	0

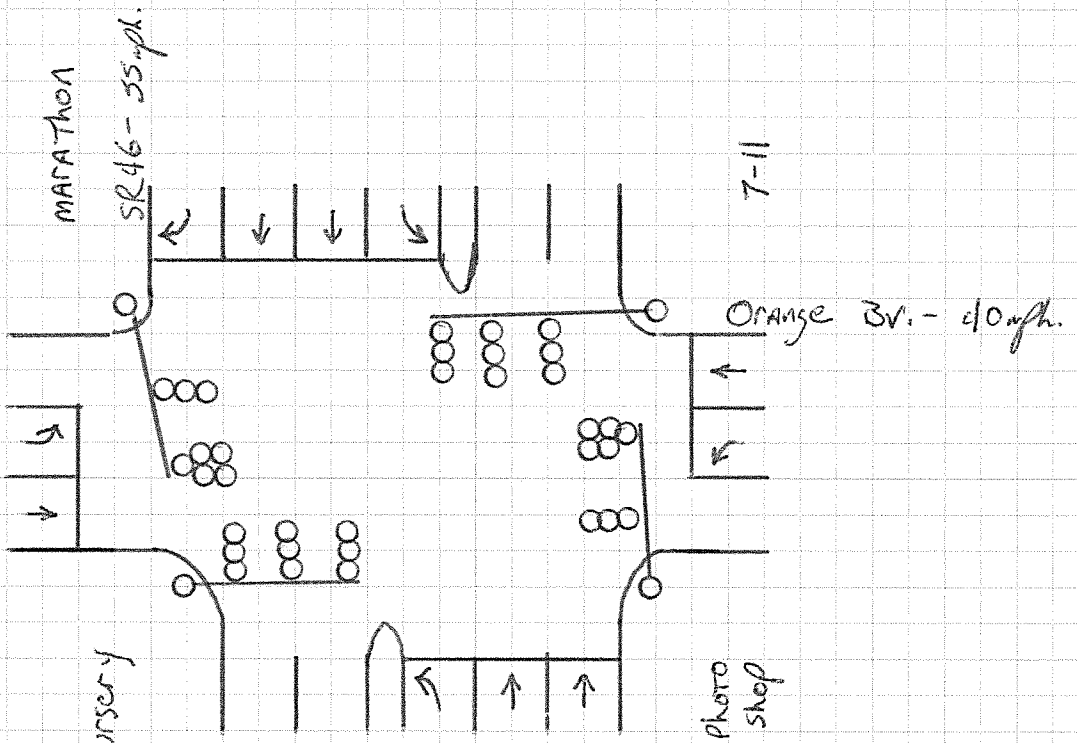


Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00			1	
2 8:00			1	1
3				
4 16:00				1
5 17:00				
6				
7				
8				
	0	0	2	2

	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike									0
Ped									0
Westbound ◀ Bike	1								1
Ped									0

Hour

Intersection Sketch



#14 - SR46 @ Orange Bv.

*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date: 7-17-13

Project: 11-016.33

Name: GARY C - 116

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Orange Bv	&	Wayside Dr
Date	July 17, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	1	30	2	4	32	0
7:15 - 7:30	0	30	1	4	40	0
7:30 - 7:45	0	27	3	3	46	2
7:45 - 8:00	3	37	8	8	39	0
8:00 - 8:15	1	35	2	4	56	1
8:15 - 8:30	1	42	6	3	42	0
8:30 - 8:45	2	41	4	4	52	3
8:45 - 9:00	3	39	8	4	40	3
	11	281	34	34	347	9

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	1	4	14	3	1	5
7:15 - 7:30	0	4	14	3	0	3
7:30 - 7:45	0	10	20	1	1	1
7:45 - 8:00	0	15	33	2	3	1
8:00 - 8:15	1	2	26	3	5	2
8:15 - 8:30	0	5	21	3	0	7
8:30 - 8:45	0	14	18	5	1	7
8:45 - 9:00	1	11	25	5	3	3
	3	65	171	25	14	29

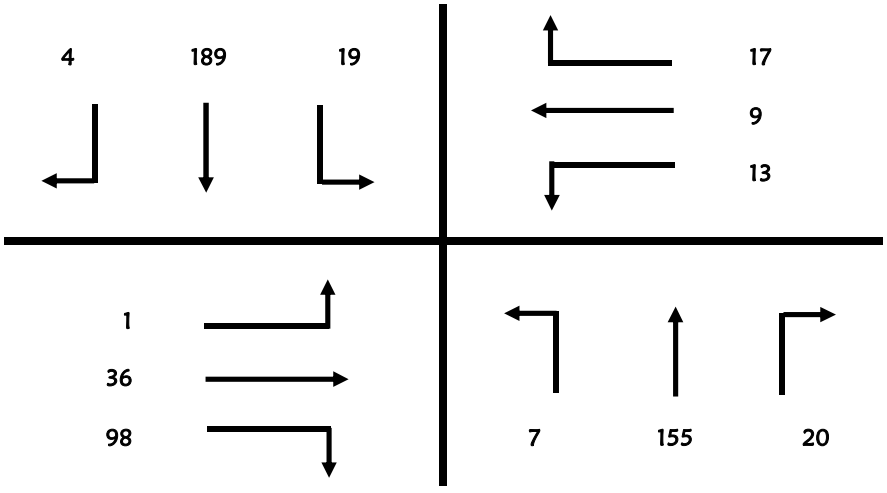
North / South
Orange Bv

East / West
Wayside Dr

Peak Hour
7:45 - 8:45

Peak Hour Factor
0.94

Total Pk Hr Voume
568



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Orange Bv		&	Wayside Dr	
Date	July 17, 2013				
Time Period	7:00	to	9:00	**Trucks**	

GMB Project #: 11-016.33

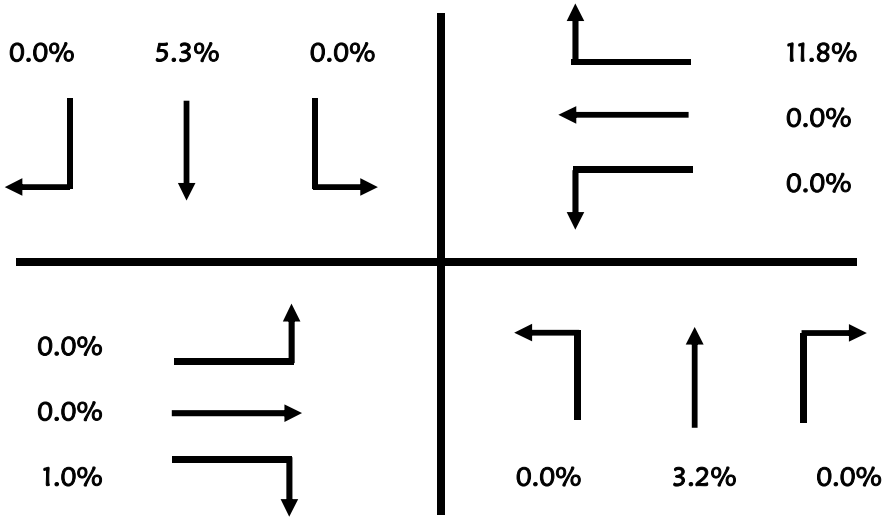
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	1	0	0	2	0
7:30 - 7:45	0	0	0	0	1	0
7:45 - 8:00	0	2	0	0	2	0
8:00 - 8:15	0	2	0	0	4	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	1	0	0	4	0
8:45 - 9:00	0	0	0	0	2	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	1
8:30 - 8:45	0	0	1	0	0	1
8:45 - 9:00	0	0	0	0	0	0

North / South
Orange Bv

East / West
Wayside Dr

Peak Hour
7:45 - 8:45



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Orange Bv	&	Wayside Dr
Date	July 17, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	5	63	2	2	48	0
16:15 - 16:30	1	53	6	3	38	0
16:30 - 16:45	2	61	2	3	35	1
16:45 - 17:00	4	64	10	4	32	0
17:00 - 17:15	1	71	4	0	36	0
17:15 - 17:30	3	72	10	2	39	0
17:30 - 17:45	3	83	8	3	50	1
17:45 - 18:00	5	69	1	8	37	1
	24	536	43	25	315	3

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	1	2	6	8	1	14
16:15 - 16:30	1	2	3	11	3	10
16:30 - 16:45	0	2	4	5	3	11
16:45 - 17:00	1	3	6	12	2	18
17:00 - 17:15	0	1	7	10	4	19
17:15 - 17:30	1	3	15	9	6	20
17:30 - 17:45	2	8	14	12	3	15
17:45 - 18:00	1	6	12	6	5	19
	7	27	67	73	27	126

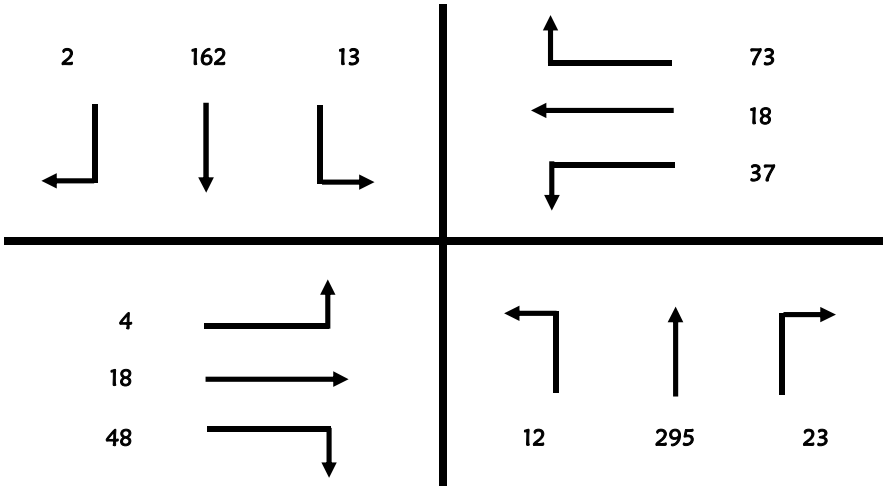
North / South
Orange Bv

East / West
Wayside Dr

Peak Hour
17:00 - 18:00

Peak Hour Factor
0.87

Total Pk Hr Voume
705



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Orange Bv		&	Wayside Dr	
Date	July 17, 2013				
Time Period	16:00	to	18:00	**Trucks**	

GMB Project #: 11-016.33

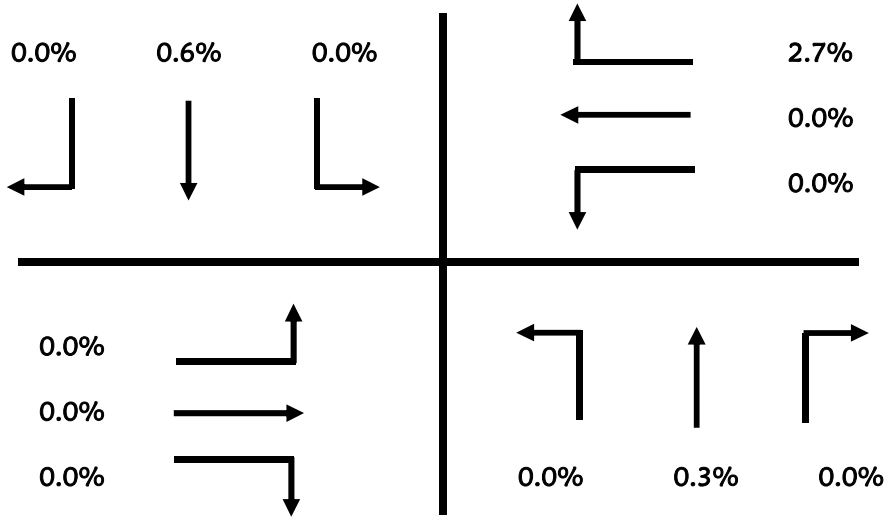
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	5	0	0	4	0
16:15 - 16:30	0	0	0	0	1	0
16:30 - 16:45	0	2	0	0	2	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	1	0	0	0	0
17:45 - 18:00	0	0	0	0	1	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	1
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	1
17:30 - 17:45	0	0	0	0	0	1
17:45 - 18:00	0	0	0	0	0	0

North / South
Orange Bv

East / West
Wayside Dr

Peak Hour
17:00 - 18:00



Pedestrian & Bicycle Summary

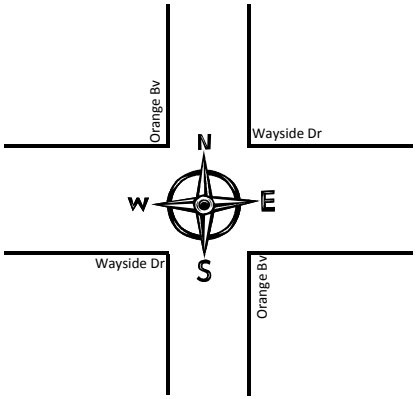
Project #: 11-016.33 **NB/SB:** Orange Bv

Date: 7/17/2013 **EB/WB:** Wayside Dr

Hour

	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike									0
Ped									0
Westbound ◀ Bike									0
Ped									0

Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00	1	1		
6				
7				
8				
	1	1	0	0



Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike	Hour
1	2		1	1	1 7:00
2			3		2 8:00
3				1	3
4				1	4 16:00
5					5 17:00
6					6
7					7
8					8
	2	0	4	3	

	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike									0
Ped									0
Westbound ◀ Bike									0
Ped									0

Hour

Intersection Sketch

#15 - WAYSIDE DR. @ ORANGE BV.

*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date: 7-17-13

Project: 11-016.33

Name: GAP C-122

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Orange Bv	&	Walden View
Date	July 17, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	1	33	0	0	47	1
7:15 - 7:30	2	32	0	0	58	1
7:30 - 7:45	3	25	0	0	64	1
7:45 - 8:00	1	45	0	0	68	0
8:00 - 8:15	2	32	1	0	84	2
8:15 - 8:30	0	41	2	0	69	4
8:30 - 8:45	7	42	0	0	70	2
8:45 - 9:00	9	57	5	3	64	1
	25	307	8	3	524	12

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	3	0	8	0	0	0
7:15 - 7:30	1	0	7	0	0	0
7:30 - 7:45	3	0	9	0	0	0
7:45 - 8:00	6	0	11	0	0	0
8:00 - 8:15	7	0	14	0	0	0
8:15 - 8:30	3	0	16	0	0	0
8:30 - 8:45	5	0	15	0	0	0
8:45 - 9:00	0	0	10	0	0	2
	28	0	90	0	0	2

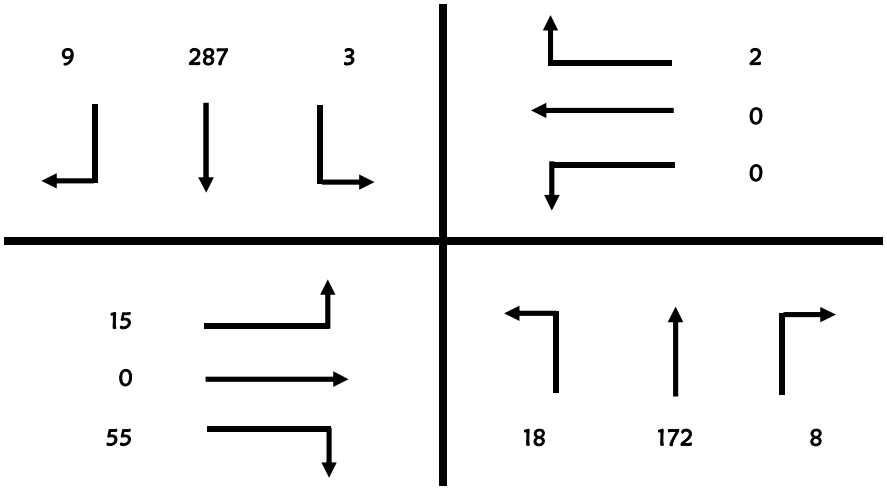
North / South
Orange Bv

East / West
Walden View

Peak Hour
8:00 - 9:00

Peak Hour Factor
0.94

Total Pk Hr Voume
569



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Orange Bv		&	Walden View	
Date	July 17, 2013				
Time Period	7:00	to	9:00	**Trucks**	

GMB Project #: 11-016.33

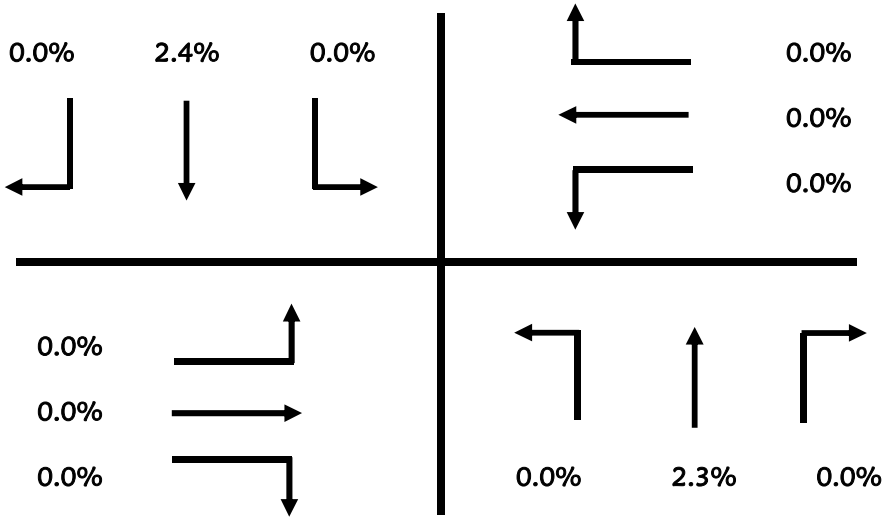
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	1	0	0	0	0
7:30 - 7:45	0	0	0	0	2	0
7:45 - 8:00	0	3	0	0	1	0
8:00 - 8:15	0	3	0	0	2	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	1	0	0	4	0
8:45 - 9:00	0	0	0	0	1	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

North / South
Orange Bv

East / West
Walden View

Peak Hour
8:00 - 9:00



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Orange Bv	&	Walden View
Date	July 17, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	7	62	0	0	55	2
16:15 - 16:30	9	62	0	0	50	4
16:30 - 16:45	14	65	0	0	45	2
16:45 - 17:00	14	65	0	1	42	3
17:00 - 17:15	13	70	0	0	55	4
17:15 - 17:30	16	75	0	0	56	8
17:30 - 17:45	10	87	0	0	67	7
17:45 - 18:00	24	75	0	0	45	8
	107	561	0	1	415	38

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	4	0	4	0	0	0
16:15 - 16:30	2	0	8	0	0	0
16:30 - 16:45	0	0	8	0	0	0
16:45 - 17:00	4	0	3	0	0	0
17:00 - 17:15	3	0	7	0	0	0
17:15 - 17:30	7	0	10	0	0	0
17:30 - 17:45	7	0	13	0	0	0
17:45 - 18:00	5	0	16	0	0	0
	32	0	69	0	0	0

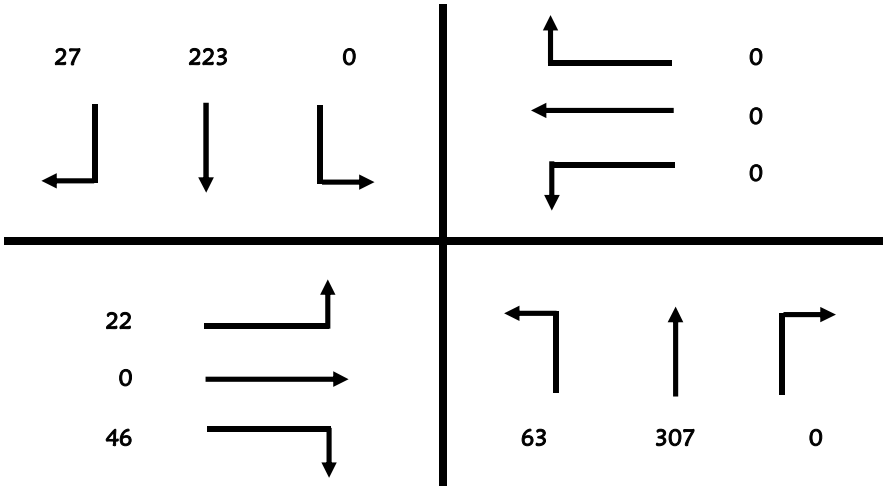
North / South
Orange Bv

East / West
Walden View

Peak Hour
17:00 - 18:00

Peak Hour Factor
0.90

Total Pk Hr Voume
688



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Orange Bv		&	Walden View	
Date	July 17, 2013				
Time Period	16:00	to	18:00	**Trucks**	

GMB Project #: 11-016.33

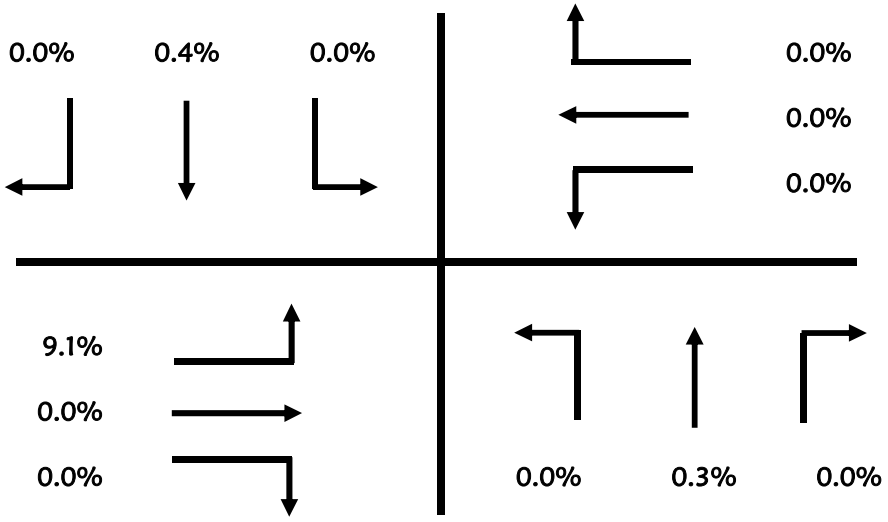
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	4	0	0	2	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	2	0	0	2	0
16:45 - 17:00	0	1	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	1	0	0	0	0
17:45 - 18:00	0	0	0	0	1	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	1	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	1	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	1	0	0	0	0	0

North / South
Orange Bv

East / West
Walden View

Peak Hour
17:00 - 18:00



Pedestrian & Bicycle Summary

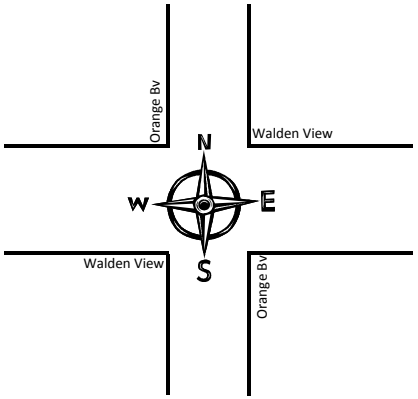
Project #: 11-016.33 **NB/SB:** Orange Bv

Date: 7/17/2013 **EB/WB:** Walden View

Hour

	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike					1				1
Ped		1							1
Westbound ◀ Bike									0
Ped		3							3

Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00			1	
6				
7				
8				
	0	0	1	0

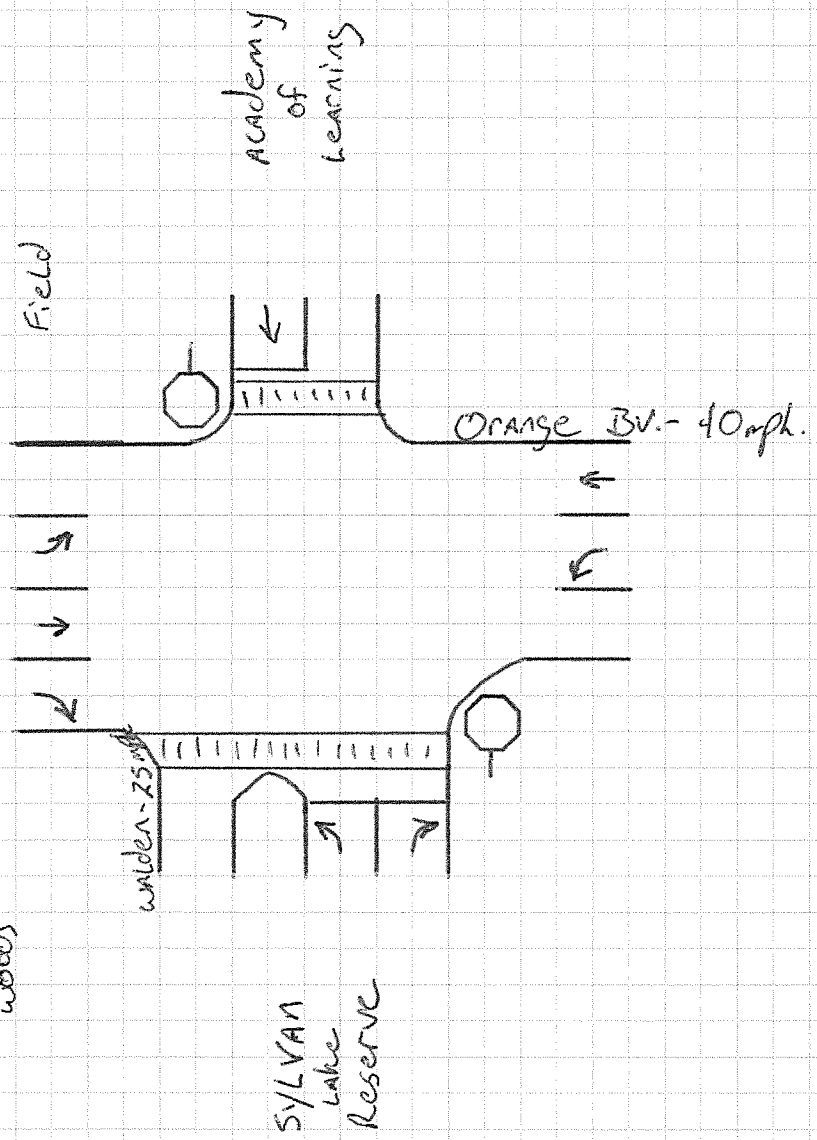


Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00	2		1	1
2 8:00			2	1
3				
4 16:00				1
5 17:00	1			
6				
7				
8				
	3	0	3	3

	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike									0
Ped									0
Westbound ◀ Bike									0
Ped									0

Hour

Intersection Sketch



*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

#16 - Walden View @ Orange Bv.

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date: 7-17-13

Project: 11-016.33

Name: GAC

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Capri Cove	&	Orange Ave
Date	July 18, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	2	0	1	0
7:15 - 7:30	0	0	0	1	0	0
7:30 - 7:45	0	0	2	0	0	0
7:45 - 8:00	0	0	1	0	0	0
8:00 - 8:15	0	0	1	0	0	0
8:15 - 8:30	0	0	2	0	0	0
8:30 - 8:45	0	0	2	0	0	0
8:45 - 9:00	0	0	1	0	0	0
	0	0	11	1	1	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	1	0	0	0
7:15 - 7:30	0	1	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	1	0
8:15 - 8:30	0	1	0	2	0	1
8:30 - 8:45	0	0	0	0	1	0
8:45 - 9:00	0	0	0	0	0	0
	0	2	1	2	2	1

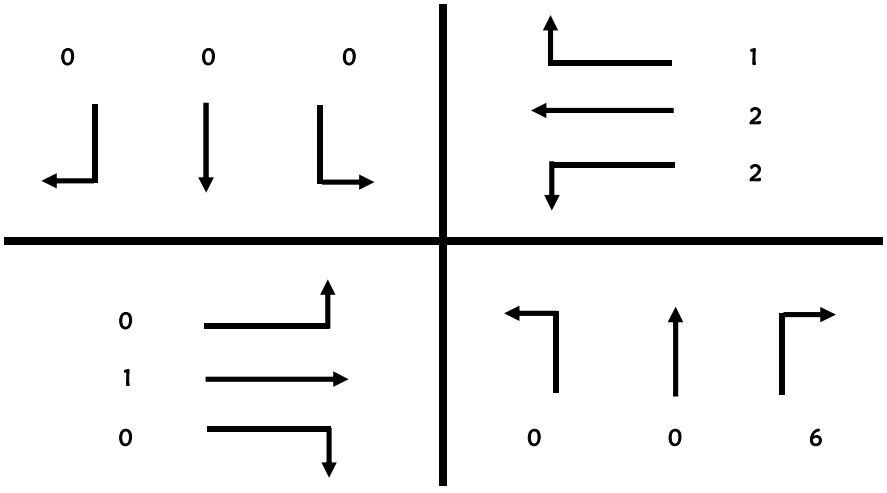
North / South
Capri Cove

East / West
Orange Ave

Peak Hour
7:45 - 8:45

Peak Hour Factor
0.50

Total Pk Hr Voume
12



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Capri Cove		&	Orange Ave	
Date	July 18, 2013				
Time Period	7:00	to	9:00	**Trucks**	

GMB Project #: 11-016.33

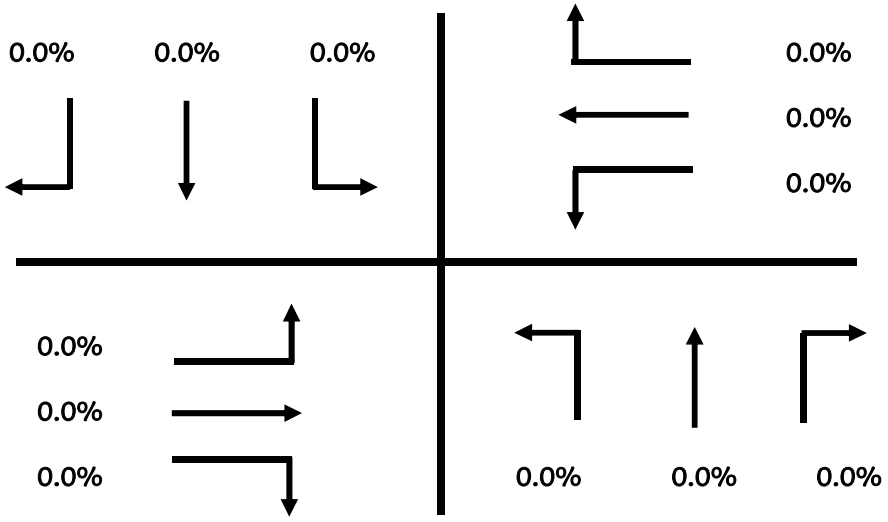
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	1	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	1	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

North / South
Capri Cove

East / West
Orange Ave

Peak Hour
7:45 - 8:45



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Capri Cove	&	Orange Ave
Date	July 18, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	1	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	1	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	1	0	0	0
17:45 - 18:00	0	0	2	0	0	0
	0	0	4	0	1	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	2	0	0	0	0
16:15 - 16:30	0	0	0	0	1	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	1	1	0
17:00 - 17:15	0	1	0	2	1	0
17:15 - 17:30	0	0	0	1	2	0
17:30 - 17:45	0	0	0	3	1	0
17:45 - 18:00	0	1	0	2	0	1
	0	4	0	9	6	1

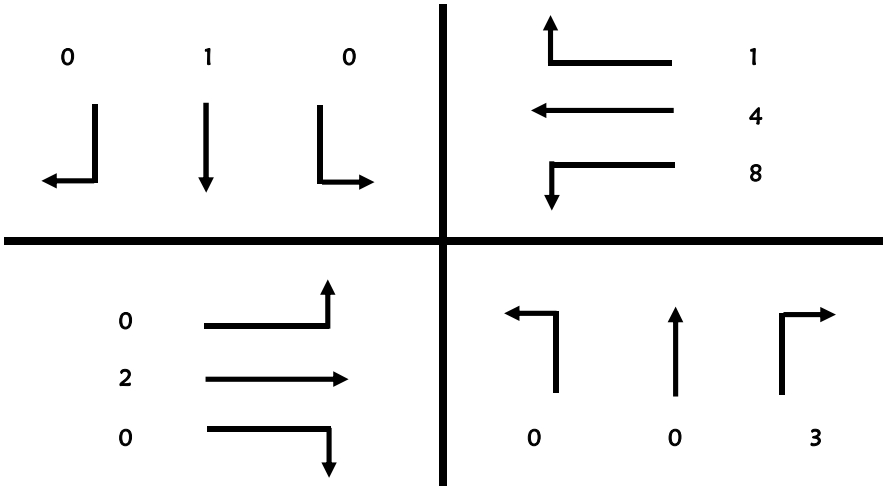
North / South
Capri Cove

East / West
Orange Ave

Peak Hour
17:00 - 18:00

Peak Hour Factor
0.79

Total Pk Hr Voume
19



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Capri Cove		&	Orange Ave	
Date	July 18, 2013				
Time Period	16:00	to	18:00	**Trucks**	

GMB Project #: 11-016.33

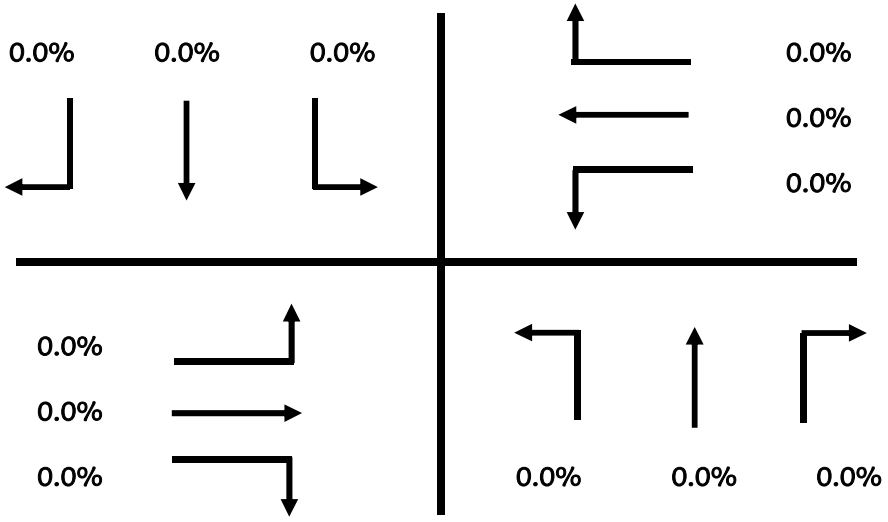
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

North / South
Capri Cove

East / West
Orange Ave

Peak Hour
17:00 - 18:00



Pedestrian & Bicycle Summary

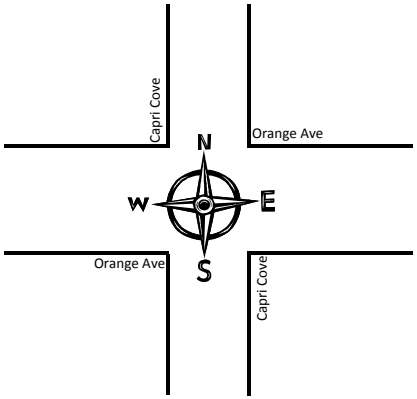
Project #: 11-016.33 **NB/SB:** Capri Cove *** NO PEDS**

Date: 7/18/2013 **EB/WB:** Orange Ave

Hour

		1	2	3	4	5	6	7	8	
Eastbound ▶	Bike									0
	Ped									0
Westbound ◀	Bike									0
	Ped									0

Hour	Southbound Ped ▼	Southbound Bike ▼	Northbound Ped ▼	Northbound Bike ▼
1				
2				
3				
4				
5				
6				
7				
8				
	0	0	0	0

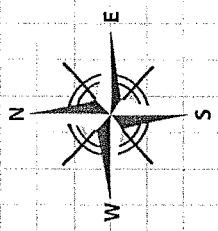


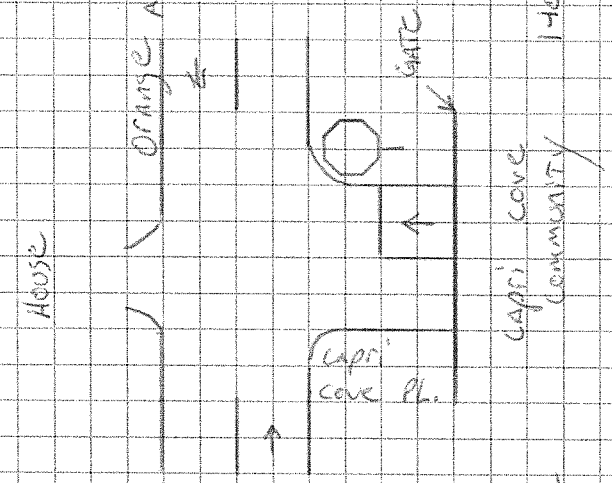
Hour	Southbound Ped ▼	Southbound Bike ▼	Northbound Ped ▼	Northbound Bike ▼
1				
2				
3				
4				
5				
6				
7				
8				
	0	0	0	0

		1	2	3	4	5	6	7	8	
Eastbound ▶	Bike									0
	Ped									0
Westbound ◀	Bike									0
	Ped									0

Hour

Intersection Sketch





*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

#17 - Capri Cove @ S. Orange Av.

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date: 7-18-13

Project: 11-016.01

Name: GAD/C-134

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Orange Ave	&	Wayside Dr
Date	July 18, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	3	0	0	14	0
7:15 - 7:30	0	3	0	0	16	0
7:30 - 7:45	0	4	0	0	33	0
7:45 - 8:00	0	1	0	0	38	0
8:00 - 8:15	1	2	0	0	33	0
8:15 - 8:30	2	1	0	0	34	1
8:30 - 8:45	0	3	0	0	26	0
8:45 - 9:00	1	3	0	0	33	0
	4	20	0	0	227	1

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	1	0	1	0	0	0
7:15 - 7:30	0	0	2	0	0	0
7:30 - 7:45	0	0	1	0	0	0
7:45 - 8:00	1	0	1	0	0	0
8:00 - 8:15	0	0	1	0	0	0
8:15 - 8:30	0	0	3	0	0	0
8:30 - 8:45	0	0	2	0	0	0
8:45 - 9:00	0	0	3	0	0	0
	2	0	14	0	0	0

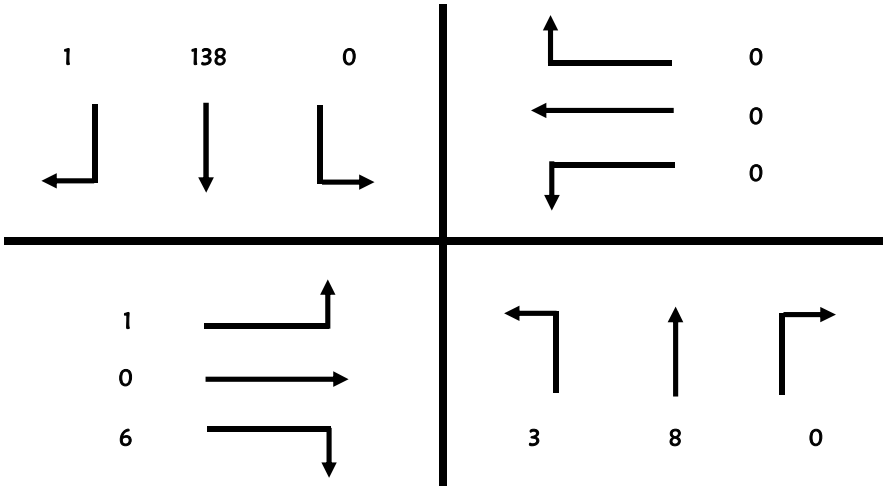
North / South
Orange Ave

East / West
Wayside Dr

Peak Hour
7:30 - 8:30

Peak Hour Factor
0.96

Total Pk Hr Voume
157



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Orange Ave		&	Wayside Dr	
Date	July 18, 2013				
Time Period	7:00	to	9:00	**Trucks**	

GMB Project #: 11-016.33

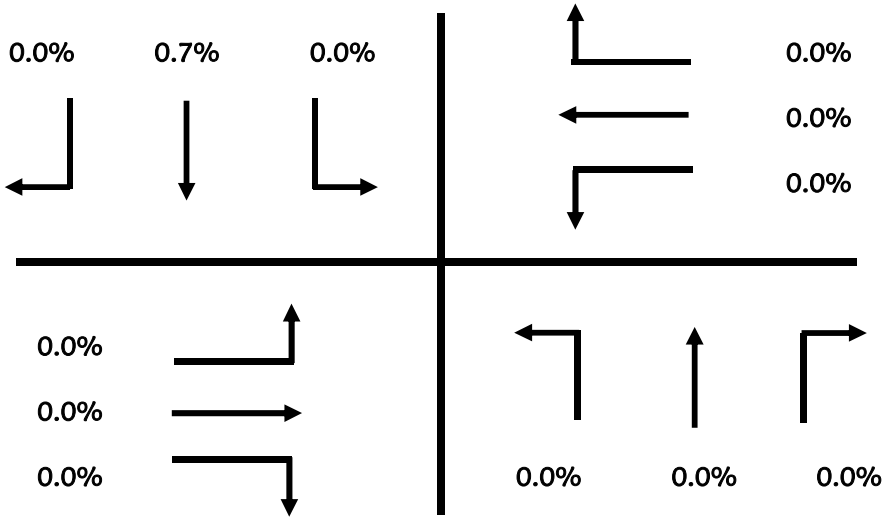
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	1	0
7:15 - 7:30	0	0	0	0	1	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	1	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	1	0
8:45 - 9:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	1	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

North / South
Orange Ave

East / West
Wayside Dr

Peak Hour
7:30 - 8:30



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Orange Ave	&	Wayside Dr
Date	July 18, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

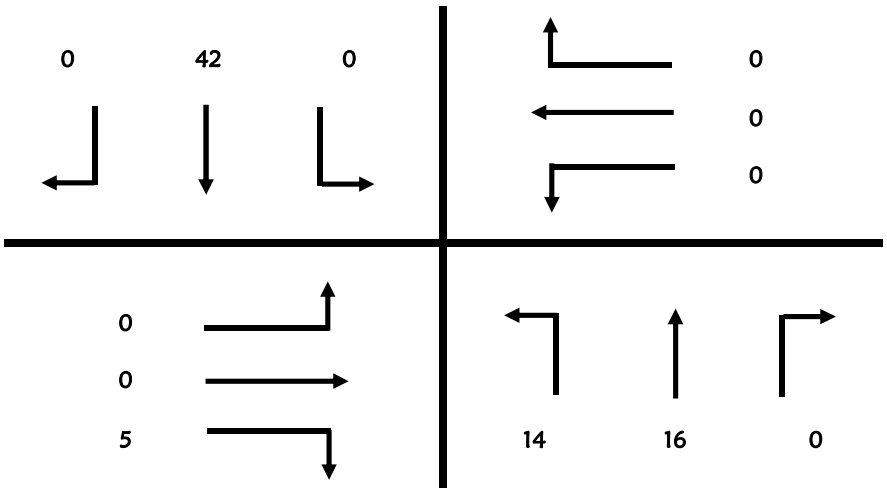
GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	5	0	0	6	0
16:15 - 16:30	0	2	0	0	10	0
16:30 - 16:45	1	3	0	0	11	0
16:45 - 17:00	2	1	0	0	9	0
17:00 - 17:15	4	3	0	0	11	0
17:15 - 17:30	3	7	0	0	12	0
17:30 - 17:45	4	2	0	0	14	0
17:45 - 18:00	3	4	0	0	5	0
	17	27	0	0	78	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	1	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	1	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	1	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	1	0	0	0
17:45 - 18:00	0	0	3	0	0	0
	0	0	7	0	0	0

North / South
Orange Ave

East / West
Wayside Dr



Peak Hour
17:00 - 18:00

Peak Hour Factor
0.88

Total Pk Hr Voume
77

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Orange Ave		&	Wayside Dr	
Date	July 18, 2013				
Time Period	16:00	to	18:00	**Trucks**	

GMB Project #: 11-016.33

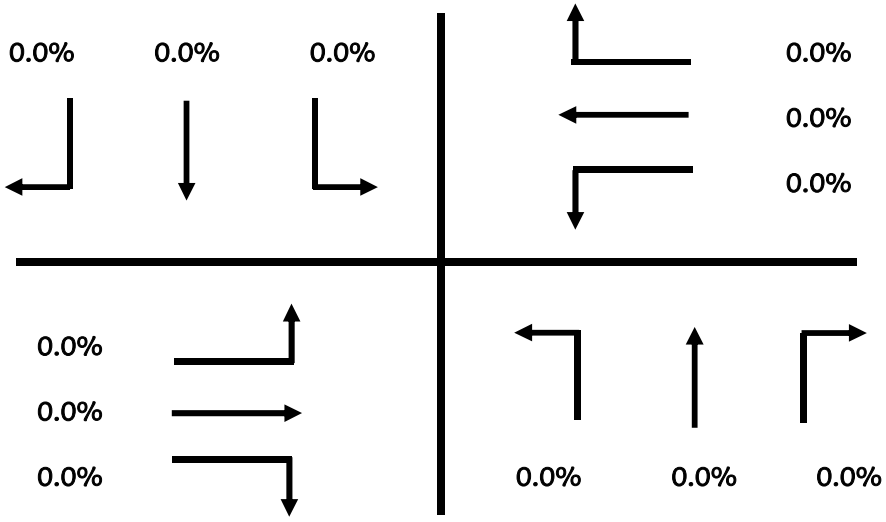
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

North / South
Orange Ave

East / West
Wayside Dr

Peak Hour
17:00 - 18:00



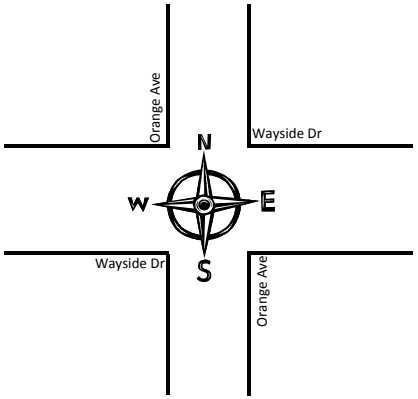
Pedestrian & Bicycle Summary

Project #: 11-016.33 **NB/SB:** Orange Ave

Date: 7/18/2013 **EB/WB:** Wayside Dr

Hour

	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike									0
Ped		1							1
Westbound ◀ Bike									0
Ped		2							2



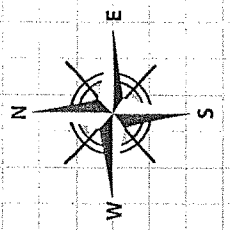
Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00		2		
2 8:00	2		1	
3				
4 16:00				
5 17:00				
6				
7				
8				
	2	2	1	0

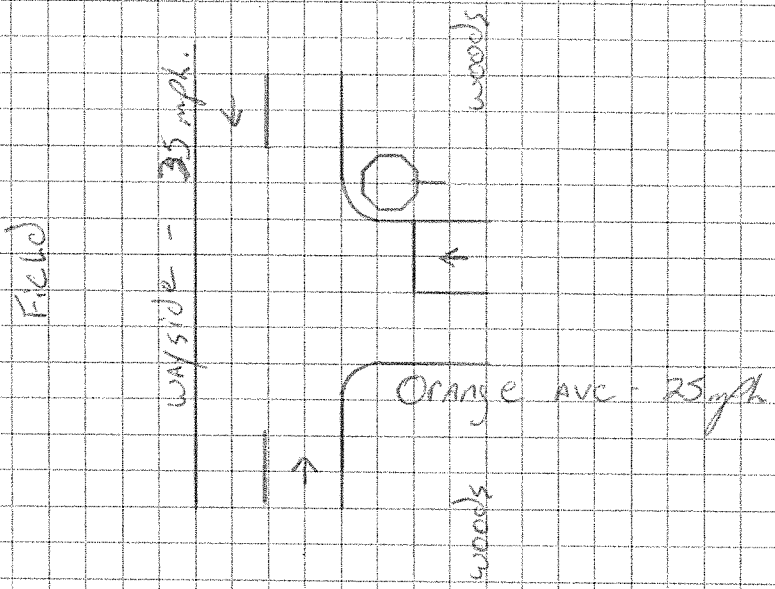
Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00			1	
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	1	0

		7:00	8:00		16:00	17:00				
		1	2	3	4	5	6	7	8	
Eastbound ▶	Bike									0
	Ped		1							1
Westbound ◀	Bike									0
	Ped									0

Hour

Intersection Sketch





*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

#18 - Wayside Dr. @ S. Orange Ave.

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date: 7-18-13

Project: 11-016.33

Name: Gary C-140

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	S Center Rd	&	Wayside Dr
Date	July 18, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	1
8:15 - 8:30	0	0	0	1	0	2
8:30 - 8:45	0	0	0	1	0	0
8:45 - 9:00	0	0	0	1	0	0
	0	0	0	3	0	3

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	13	0	0	2	1
7:15 - 7:30	0	17	0	0	3	0
7:30 - 7:45	0	33	0	0	4	0
7:45 - 8:00	0	38	0	0	0	2
8:00 - 8:15	0	33	0	0	1	1
8:15 - 8:30	1	34	0	0	1	0
8:30 - 8:45	0	24	0	0	2	0
8:45 - 9:00	0	32	0	0	3	0
	1	224	0	0	16	4

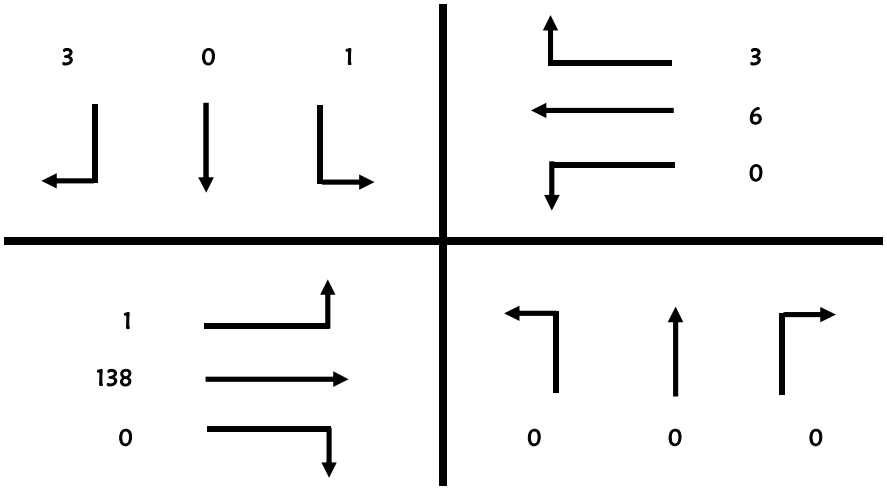
North / South
S Center Rd

East / West
Wayside Dr

Peak Hour
7:30 - 8:30

Peak Hour Factor
0.95

Total Pk Hr Voume
152



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	S Center Rd	&	Wayside Dr
Date	July 18, 2013		
Time Period	7:00 to 9:00		**Trucks**

GMB Project #: 11-016.33

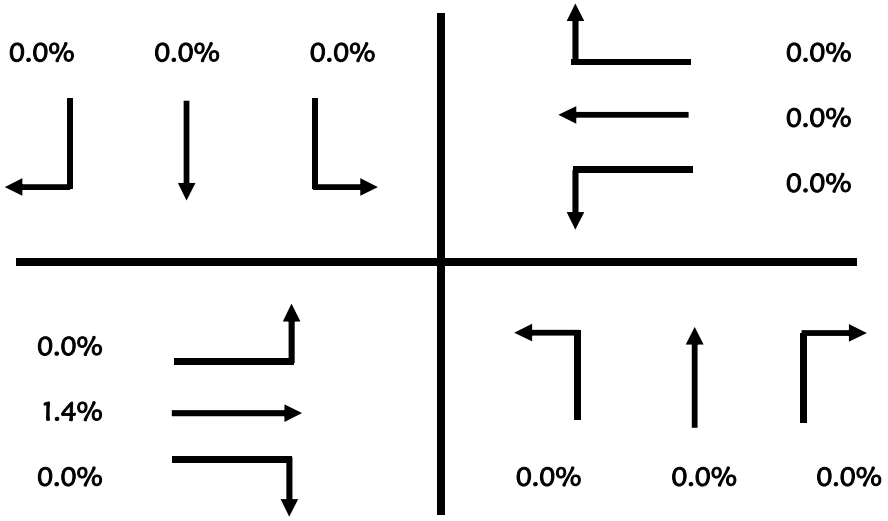
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	1	0	0
8:45 - 9:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	1	0	0	0	1
7:15 - 7:30	0	1	0	0	0	0
7:30 - 7:45	0	1	0	0	0	0
7:45 - 8:00	0	1	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

North / South
S Center Rd

East / West
Wayside Dr

Peak Hour
7:30 - 8:30



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	S Center Rd	&	Wayside Dr
Date	July 18, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	1	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	2	0	0
17:45 - 18:00	0	0	0	0	0	0
	0	0	0	3	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	6	0	0	6	0
16:15 - 16:30	0	10	0	0	2	0
16:30 - 16:45	0	11	0	0	2	0
16:45 - 17:00	0	7	0	0	0	1
17:00 - 17:15	0	11	0	0	2	0
17:15 - 17:30	1	12	0	0	5	2
17:30 - 17:45	0	12	0	0	2	0
17:45 - 18:00	0	5	0	0	3	0
	1	74	0	0	22	3

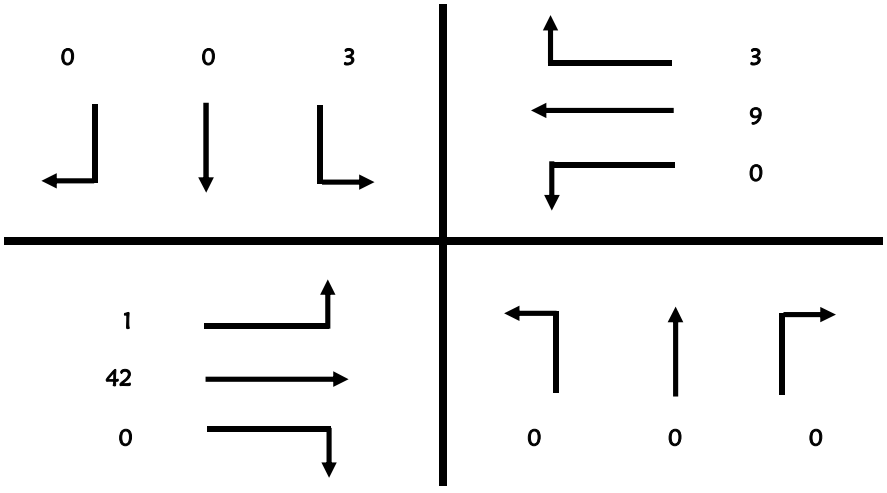
North / South
S Center Rd

East / West
Wayside Dr

Peak Hour
16:45 - 17:45

Peak Hour Factor
0.73

Total Pk Hr Voume
58



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	S Center Rd		&	Wayside Dr	
Date	July 18, 2013				
Time Period	16:00	to	18:00	**Trucks**	

GMB Project #: 11-016.33

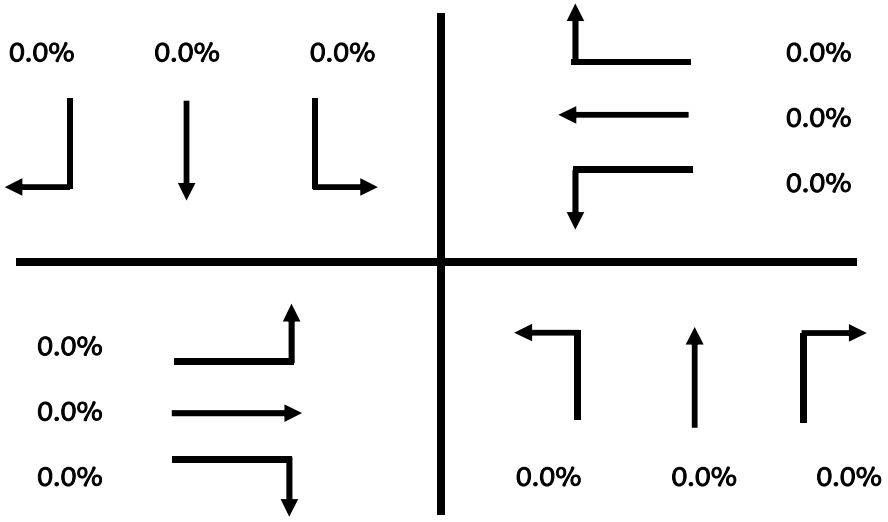
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

North / South
S Center Rd

East / West
Wayside Dr

Peak Hour
16:45 - 17:45



Pedestrian & Bicycle Summary

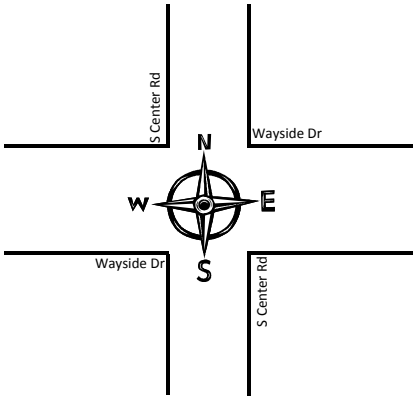
Project #: 11-016.33 **NB/SB:** S Center Rd

Date: 7/18/2013 **EB/WB:** Wayside Dr

Hour

	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike									0
Ped									0
Westbound ◀ Bike									0
Ped									0

Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	0



Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				2
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	2

	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike									0
Ped									0
Westbound ◀ Bike									0
Ped									0

Hour

Intersection Sketch

*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

#19 - Wayside Dr. @ S. Center Rd.

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date: 7-18-13

Project: 11-016.33

Name: Gary

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Wayside Dr	&	Forest Ave
Date	July 18, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

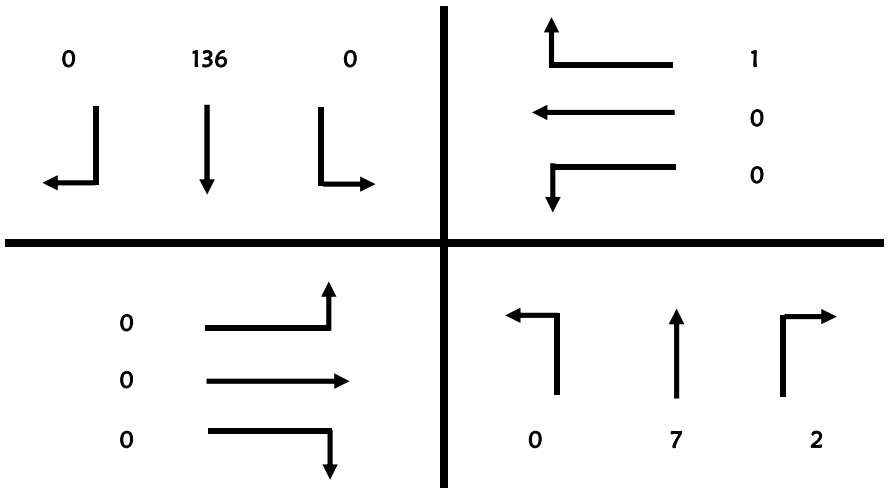
GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	2	0	0	14	0
7:15 - 7:30	0	3	0	0	15	0
7:30 - 7:45	0	3	0	0	32	0
7:45 - 8:00	0	0	0	0	37	0
8:00 - 8:15	0	1	1	0	36	0
8:15 - 8:30	0	3	1	0	31	0
8:30 - 8:45	0	2	0	0	26	0
8:45 - 9:00	0	3	0	0	31	0
	0	17	2	0	222	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	1	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	1
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0
	0	0	0	1	0	1

North / South
Wayside Dr

East / West
Forest Ave



Peak Hour
7:30 - 8:30

Peak Hour Factor
0.96

Total Pk Hr Voume
146

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Wayside Dr		&	Forest Ave	
Date	July 18, 2013				
Time Period	7:00	to	9:00	**Trucks**	

GMB Project #: 11-016.33

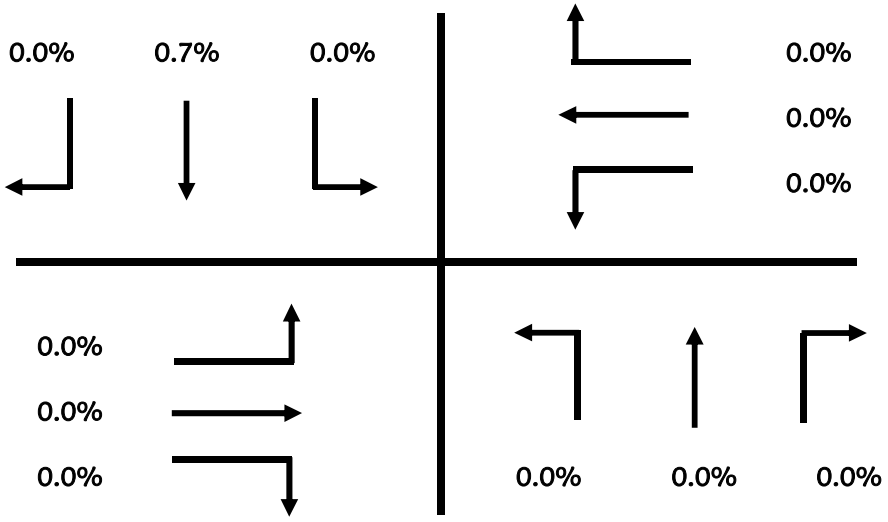
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	1	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	1	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	1	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

North / South
Wayside Dr

East / West
Forest Ave

Peak Hour
7:30 - 8:30



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Wayside Dr	&	Forest Ave
Date	July 18, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	1	5	0	0	7	0
16:15 - 16:30	0	1	0	0	10	0
16:30 - 16:45	0	3	0	0	11	0
16:45 - 17:00	0	0	0	0	9	0
17:00 - 17:15	0	1	0	0	10	0
17:15 - 17:30	0	5	0	0	12	0
17:30 - 17:45	0	2	0	0	12	0
17:45 - 18:00	0	3	1	0	6	0
	1	20	1	0	77	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	1	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0
	0	0	0	1	0	0

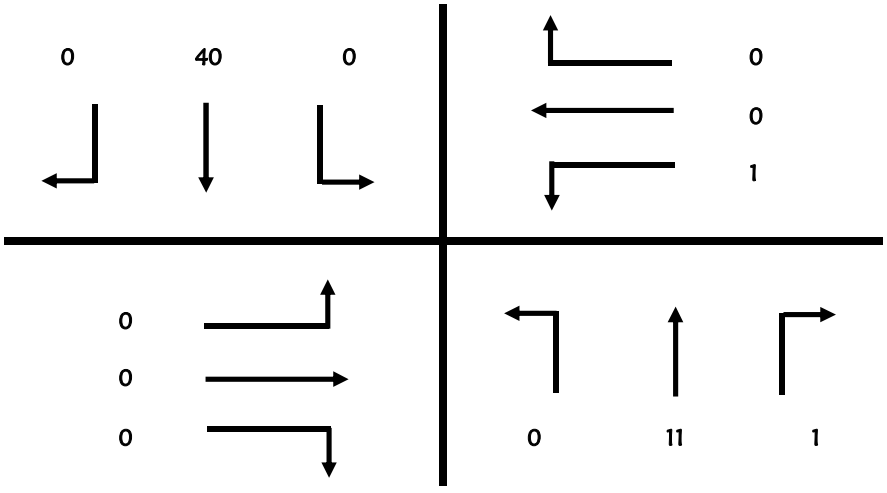
North / South
Wayside Dr

East / West
Forest Ave

Peak Hour
17:00 - 18:00

Peak Hour Factor
0.74

Total Pk Hr Voume
53



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Wayside Dr		&	Forest Ave	
Date	July 18, 2013				
Time Period	16:00	to	18:00	**Trucks**	

GMB Project #: 11-016.33

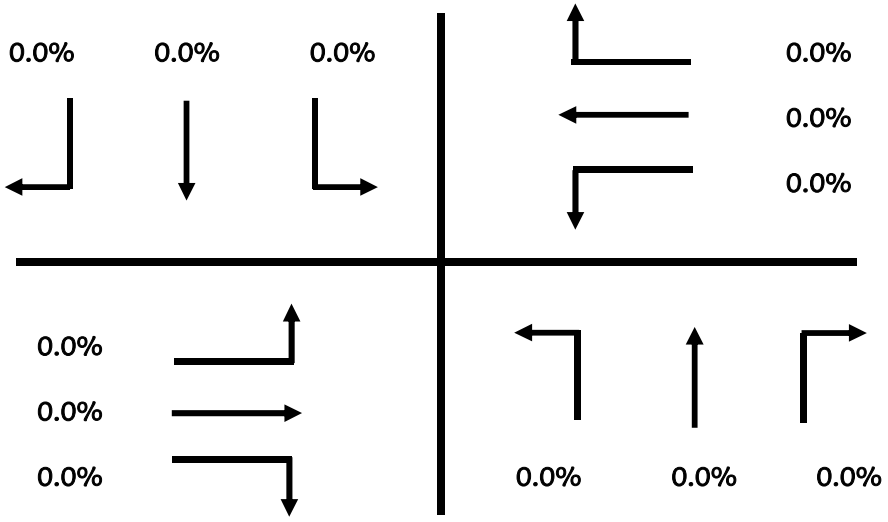
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

North / South
Wayside Dr

East / West
Forest Ave

Peak Hour
17:00 - 18:00



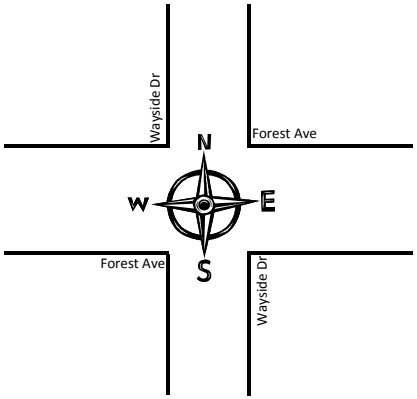
Pedestrian & Bicycle Summary

Project #: 11-016.33 **NB/SB:** Wayside Dr

Date: 7/18/2013 **EB/WB:** Forest Ave

		Hour								
		7:00	8:00		16:00	17:00				
		1	2	3	4	5	6	7	8	
Eastbound	▶ Bike									0
	Ped									0
Westbound	◀ Bike									0
	Ped									0

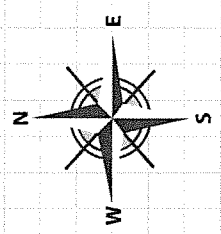
	Southbound		Northbound			Southbound		Northbound		
Hour	Ped	Bike	Ped	Bike		Ped	Bike	Ped	Bike	Hour
1 7:00										1 7:00
2 8:00										2 8:00
3										3
4 16:00	1		1							4 16:00
5 17:00										5 17:00
6										6
7										7
8										8
	1	0	1	0		0	0	0	0	

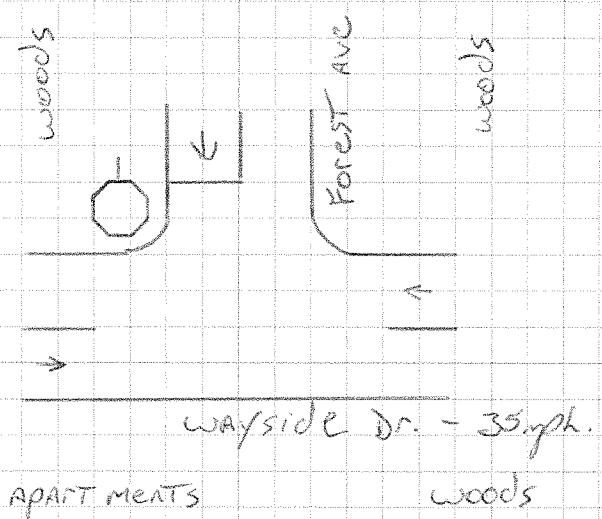


Eastbound	▶ Bike	2								2
	Ped									0
Westbound	◀ Bike									0
	Ped									0
		7:00	8:00		16:00	17:00				
		1	2	3	4	5	6	7	8	

Hour

Intersection Sketch





*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

20 - Wayside Dr. @ Forest Ave

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date: 7-18-13

Project: 11-016.33

Name: GAN

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	S Center Rd	&	Forest Ave
Date	July 18, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	1	0	0	0	1	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	1	0	0	1	0
8:00 - 8:15	0	0	0	0	1	0
8:15 - 8:30	0	0	0	0	1	0
8:30 - 8:45	0	2	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0
	1	3	0	0	4	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	1	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	1	0	0	0
	0	0	2	0	0	0

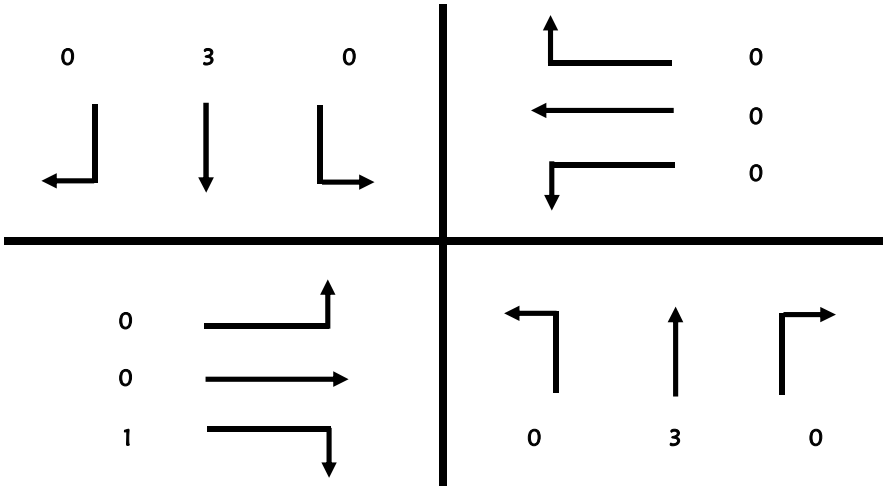
North / South
S Center Rd

East / West
Forest Ave

Peak Hour
7:45 - 8:45

Peak Hour Factor
0.88

Total Pk Hr Voume
7



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	S Center Rd		&	Forest Ave	
Date	July 18, 2013				
Time Period	7:00	to	9:00	**Trucks**	

GMB Project #: 11-016.33

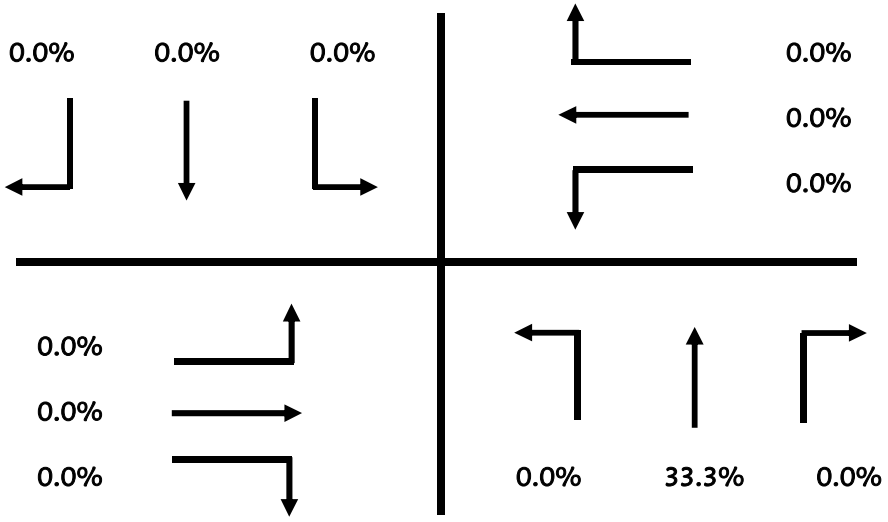
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	1	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	1	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

North / South
S Center Rd

East / West
Forest Ave

Peak Hour
7:45 - 8:45



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	S Center Rd	&	Forest Ave
Date	July 18, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	1	0
16:15 - 16:30	0	0	0	0	0	1
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	1	2
17:00 - 17:15	1	0	0	0	0	0
17:15 - 17:30	0	2	0	0	1	1
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0
	1	2	0	0	3	4

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	1	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	2	0	0	0
17:45 - 18:00	0	0	0	0	0	0
	1	0	2	0	0	0

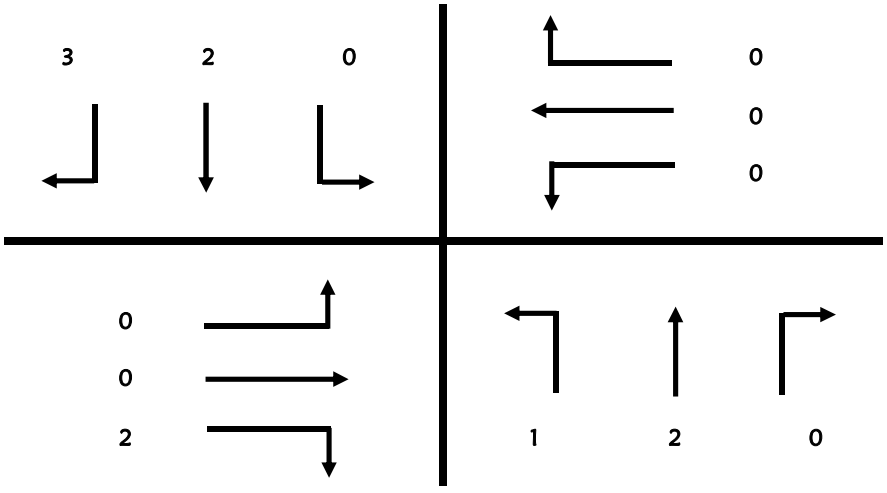
North / South
S Center Rd

East / West
Forest Ave

Peak Hour
16:45 - 17:45

Peak Hour Factor
0.63

Total Pk Hr Voume
10



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	S Center Rd		&	Forest Ave	
Date	July 18, 2013				
Time Period	16:00	to	18:00	**Trucks**	

GMB Project #: 11-016.33

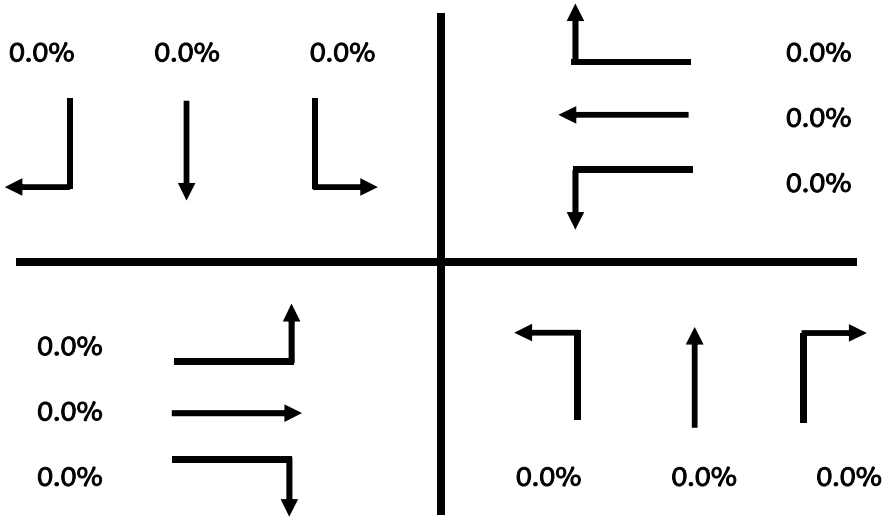
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

North / South
S Center Rd

East / West
Forest Ave

Peak Hour
16:45 - 17:45



Pedestrian & Bicycle Summary

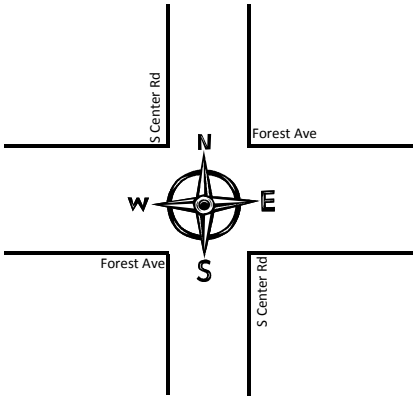
Project #: 11-016.33 **NB/SB:** S Center Rd *** NO PEDS**

Date: 7/18/2013 **EB/WB:** Forest Ave

Hour

		1	2	3	4	5	6	7	8	
Eastbound ▶	Bike									0
	Ped									0
Westbound ◀	Bike									0
	Ped									0

Hour	Southbound Ped ▼	Southbound Bike ▼	Northbound Ped ▼	Northbound Bike ▼
1				
2				
3				
4				
5				
6				
7				
8				
	0	0	0	0

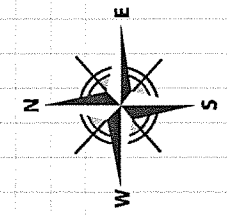


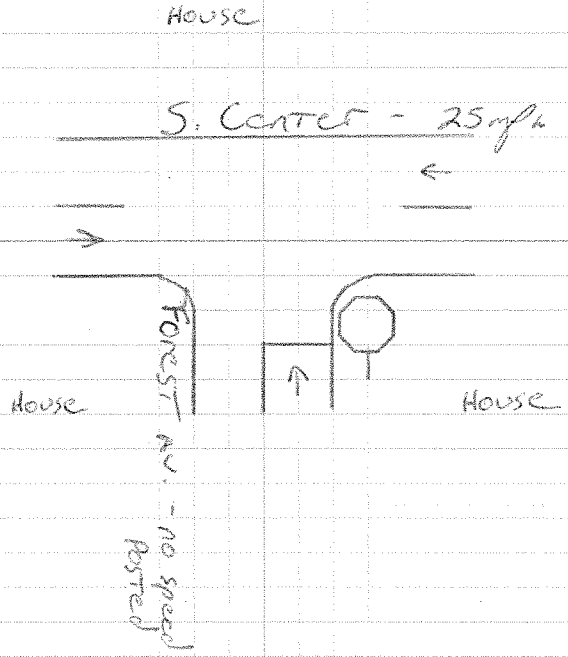
Hour	Southbound Ped ▼	Southbound Bike ▼	Northbound Ped ▼	Northbound Bike ▼
1				
2				
3				
4				
5				
6				
7				
8				
	0	0	0	0

		1	2	3	4	5	6	7	8	
Eastbound ▶	Bike									0
	Ped									0
Westbound ◀	Bike									0
	Ped									0

Hour

Intersection Sketch





*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

#21 – S. Center Rd. @ Forest Ave.

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date: 7-18-13

Project: 11-016.33

Name: GAP

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Lakeside Methodist Chrch Drivewa & Wayside Dr		
Date	July 18, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

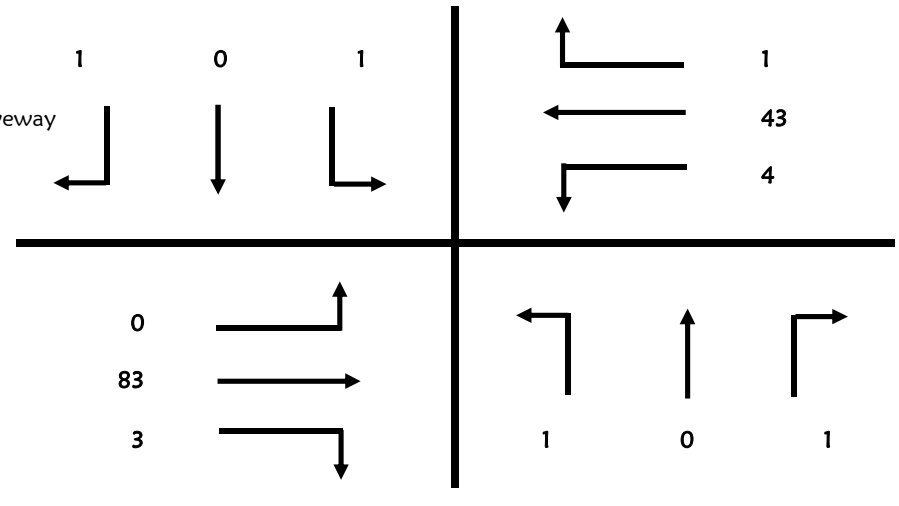
GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	1	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	1	0	0	0	0	1
7:45 - 8:00	0	0	1	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	1	0	0
8:30 - 8:45	0	0	0	0	0	1
8:45 - 9:00	1	0	1	0	0	0
	3	0	2	1	0	2

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	10	0	0	6	1
7:15 - 7:30	0	12	0	0	4	0
7:30 - 7:45	0	11	0	0	3	0
7:45 - 8:00	0	17	0	0	7	0
8:00 - 8:15	0	17	1	1	9	1
8:15 - 8:30	0	20	0	0	13	0
8:30 - 8:45	0	20	1	1	9	0
8:45 - 9:00	0	26	1	2	12	0
	0	133	3	4	63	2

North / South
Lakeside Methodist Chrch Driveway

East / West
Wayside Dr



Peak Hour
8:00 - 9:00

Peak Hour Factor
0.80

Total Pk Hr Voume
138

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Lakeside Methodist Chrch Drive\	&	Wayside Dr
Date	July 18, 2013		
Time Period	7:00 to 9:00		**Trucks**

GMB Project #: 11-016.33

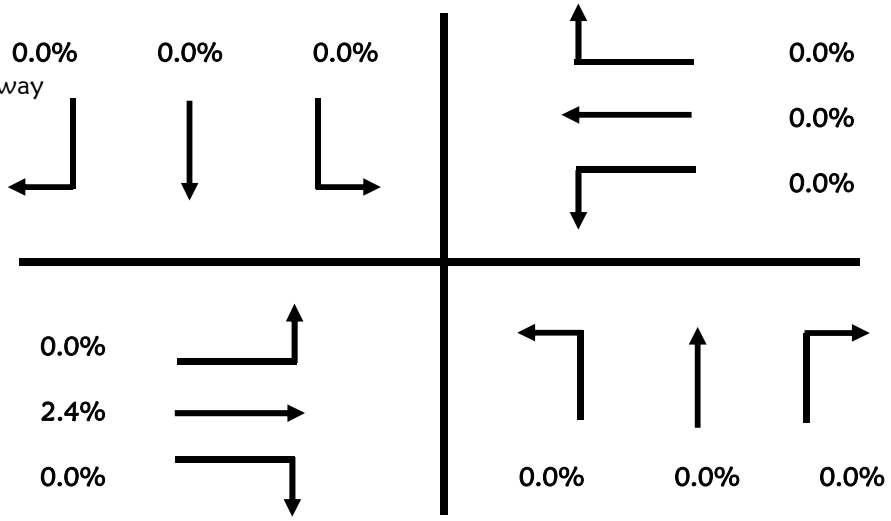
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	1
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	1	0	0	0	0
8:30 - 8:45	0	1	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

North / South
Lakeside Methodist Chrch Driveway

East / West
Wayside Dr

Peak Hour
8:00 - 9:00



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Lakeside Methodist Chrch Drivewa & Wayside Dr		
Date	July 18, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	1	0	0	0	0	0
16:15 - 16:30	0	0	1	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	1	0	0	0
17:00 - 17:15	0	0	1	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	1	0	2	0	0	0
	2	0	5	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	4	0	0	20	0
16:15 - 16:30	0	6	0	0	18	0
16:30 - 16:45	0	17	2	1	15	0
16:45 - 17:00	0	13	0	1	15	0
17:00 - 17:15	0	13	0	1	34	0
17:15 - 17:30	0	10	0	1	33	0
17:30 - 17:45	0	21	0	0	38	0
17:45 - 18:00	0	9	1	1	22	0
	0	93	3	5	195	0

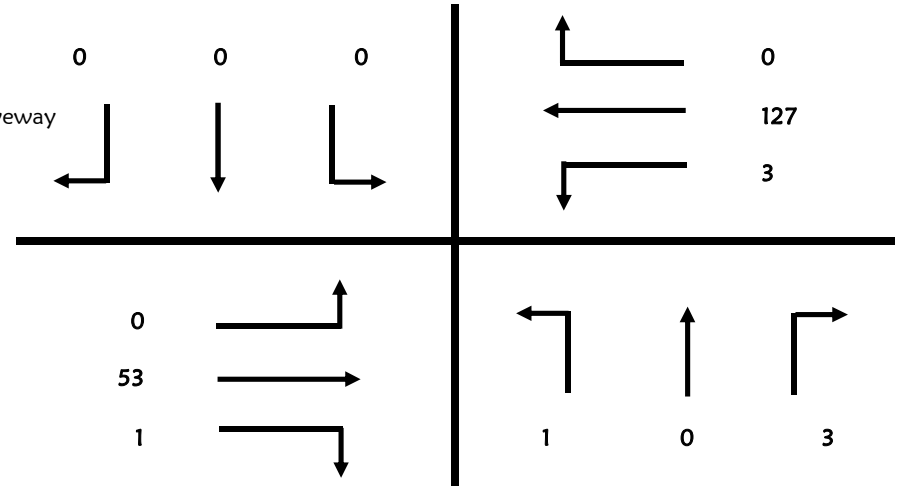
North / South
Lakeside Methodist Chrch Driveway

East / West
Wayside Dr

Peak Hour
17:00 - 18:00

Peak Hour Factor
0.80

Total Pk Hr Voume
188



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Lakeside Methodist Chrch Drive\	&	Wayside Dr
Date	July 18, 2013		
Time Period	16:00 to 18:00		**Trucks**

GMB Project #: 11-016.33

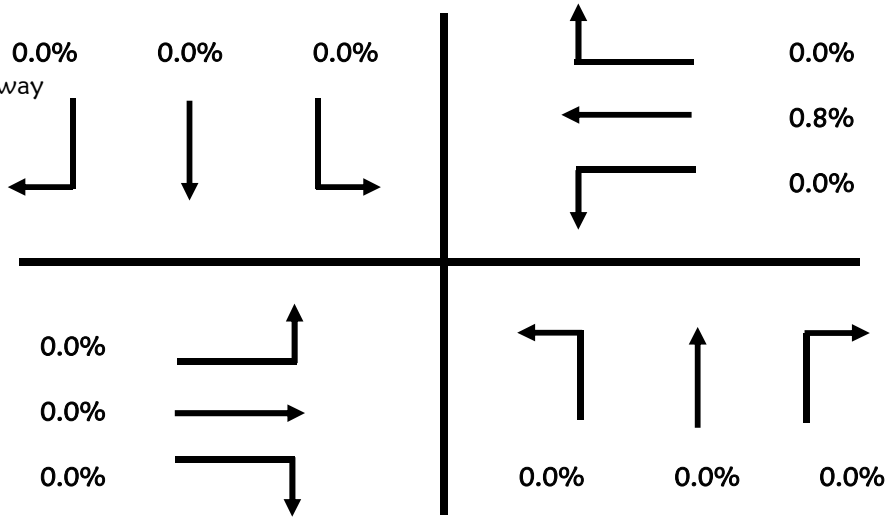
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	1	0	0	0	0
16:15 - 16:30	0	1	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	1	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

North / South
Lakeside Methodist Chrch Driveway

East / West
Wayside Dr

Peak Hour
17:00 - 18:00



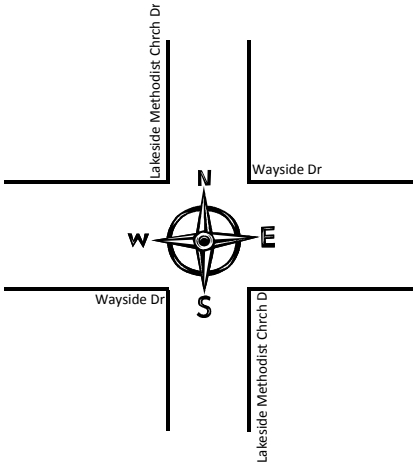
Pedestrian & Bicycle Summary

Project #: 11-016.33 **NB/SB:** Lakeside Methodist Chrch Driveway

Date: 7/18/2013 **EB/WB:** Wayside Dr

Hour

	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike									0
Ped									0
Westbound ◀ Bike	1	1							2
Ped									0



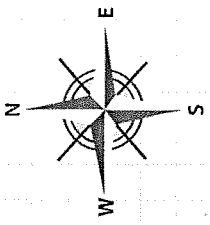
Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	0

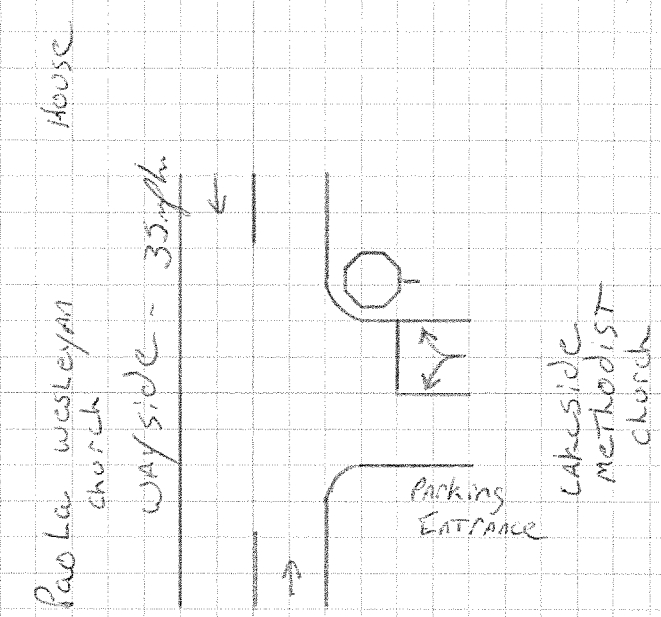
Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	0

	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike	2	1			2				5
Ped	1			1					2
Westbound ◀ Bike				2					2
Ped		4		1					5

Hour

Intersection Sketch





*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

#22 - Lake side Methodist @ Wayside

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date: 7-18-13

Project: 11-016.33

Name: GAC - 164

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Orange Bv	&	Lakeside Methodist Chrch Drivewa
Date	July 18, 2013		**All Vehicles**
Time Period	7:00 to 9:00		

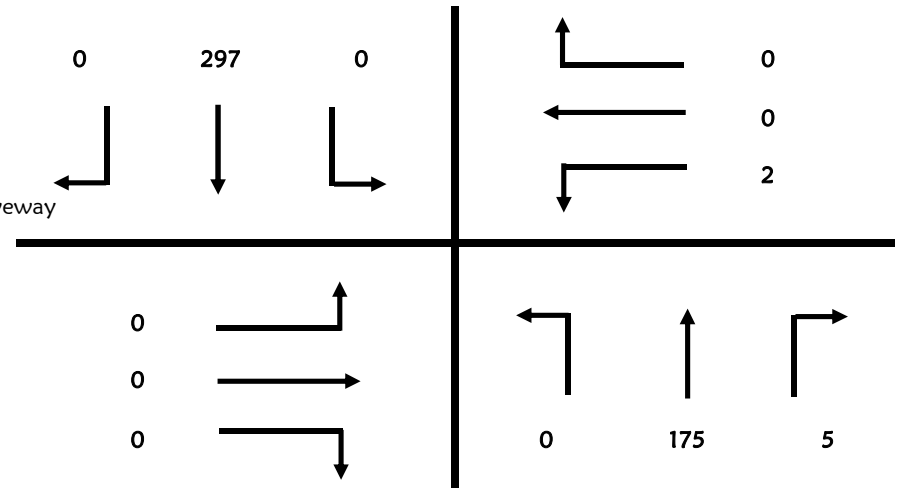
GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	25	0	1	44	0
7:15 - 7:30	0	37	1	0	54	0
7:30 - 7:45	0	42	0	0	79	0
7:45 - 8:00	0	49	1	0	79	0
8:00 - 8:15	0	39	1	0	63	0
8:15 - 8:30	0	45	3	0	76	0
8:30 - 8:45	1	41	0	0	54	0
8:45 - 9:00	0	43	2	1	61	0
	1	321	8	2	510	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	1	0	0
8:15 - 8:30	0	0	0	1	0	0
8:30 - 8:45	0	0	0	1	0	0
8:45 - 9:00	0	0	0	0	0	4
	0	0	0	3	0	4

North / South
Orange Bv

East / West
Lakeside Methodist Chrch Driveway



Peak Hour
7:30 - 8:30

Peak Hour Factor
0.93

Total Pk Hr Voume
479

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Orange Bv		&	Lakeside Methodist Chrch Drive	
Date	July 18, 2013				
Time Period	7:00	to	9:00	**Trucks**	

GMB Project #: 11-016.33

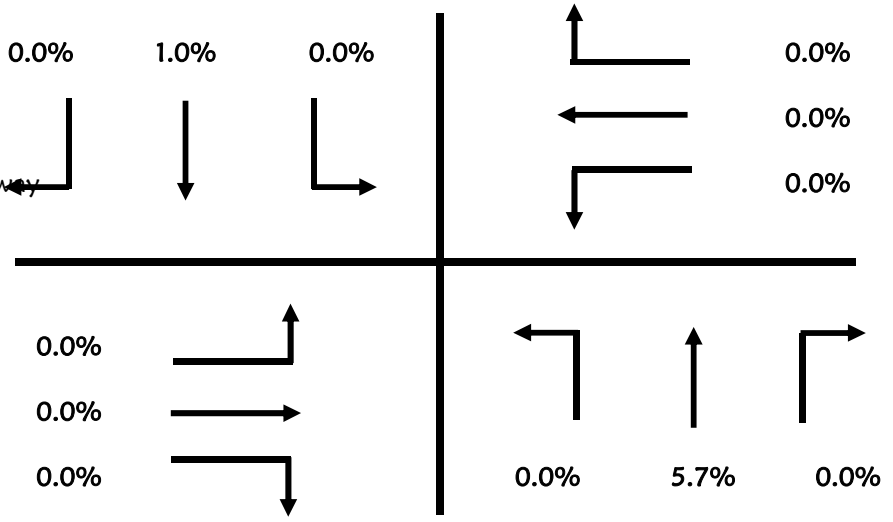
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	2	0
7:15 - 7:30	0	1	0	0	1	0
7:30 - 7:45	0	2	0	0	0	0
7:45 - 8:00	0	2	0	0	3	0
8:00 - 8:15	0	3	0	0	0	0
8:15 - 8:30	0	3	0	0	0	0
8:30 - 8:45	0	0	0	0	1	0
8:45 - 9:00	0	0	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0
7:30 - 7:45	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0

North / South
Orange Bv

East / West
Lakeside Methodist Chrch Driveway

Peak Hour
7:30 - 8:30



Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole	**City**	Sanford
Intersection	Orange Bv	&	Lakeside Methodist Chrch Drivewa
Date	July 18, 2013		**All Vehicles**
Time Period	16:00 to 18:00		

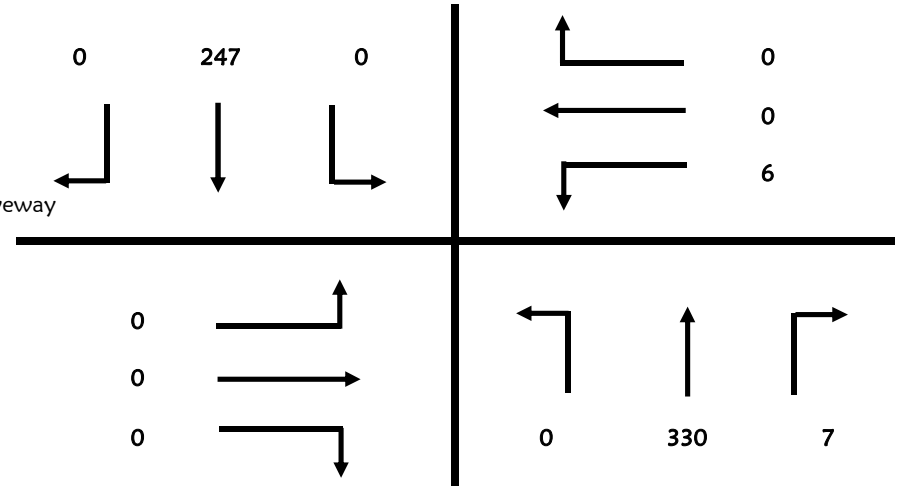
GMB Project #: 11-016.33

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	51	0	1	44	0
16:15 - 16:30	0	67	0	0	41	0
16:30 - 16:45	0	73	1	0	41	0
16:45 - 17:00	0	79	0	0	42	0
17:00 - 17:15	0	82	2	0	59	0
17:15 - 17:30	0	87	0	0	63	0
17:30 - 17:45	0	83	2	0	61	0
17:45 - 18:00	0	78	3	0	64	0
	0	600	8	1	415	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	1	0	0
16:45 - 17:00	0	0	0	1	0	0
17:00 - 17:15	0	0	0	1	0	0
17:15 - 17:30	0	0	0	2	0	0
17:30 - 17:45	0	0	0	2	0	0
17:45 - 18:00	0	0	0	1	0	0
	0	0	0	8	0	0

North / South
Orange Bv

East / West
Lakeside Methodist Chrch Driveway



Peak Hour
17:00 - 18:00

Peak Hour Factor
0.97

Total Pk Hr Voume
590

Roadway Count Summary

GMB Engineers & Planners, Inc.

County	Seminole		**City**	Sanford	
Intersection	Orange Bv		&	Lakeside Methodist Chrch Drive	
Date	July 18, 2013				
Time Period	16:00	to	18:00	**Trucks**	

GMB Project #: 11-016.33

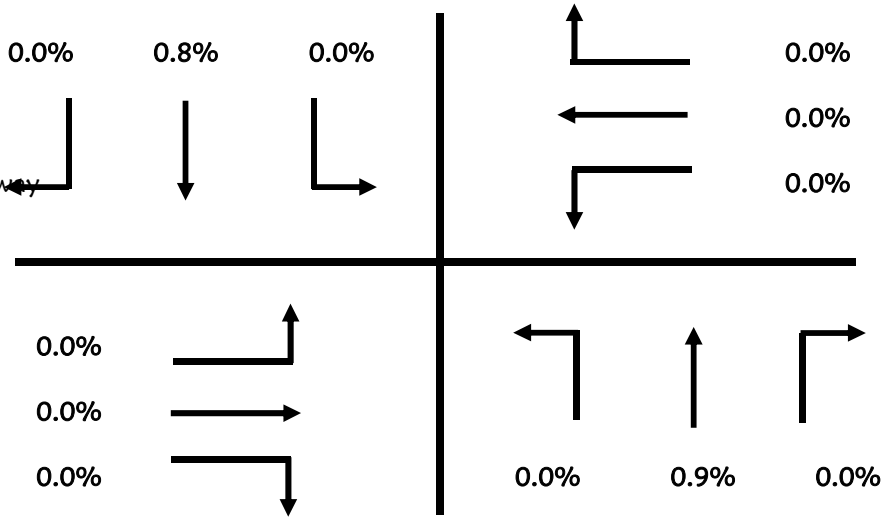
Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	3	0	0	0	0
16:15 - 16:30	0	1	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	2	0	0	1	0
17:00 - 17:15	0	1	0	0	2	0
17:15 - 17:30	0	1	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	1	0	0	0	0

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0

North / South
Orange Bv

East / West
Lakeside Methodist Chrch Driveway

Peak Hour
17:00 - 18:00



Pedestrian & Bicycle Summary

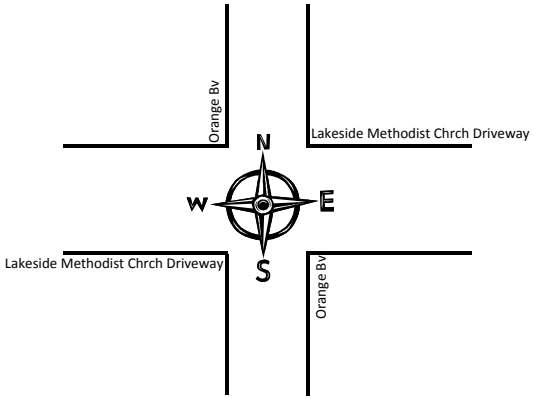
Project #: 11-016.33 **NB/SB:** Orange Bv

Date: 7/18/2013 **EB/WB:** Lakeside Methodist Chrch Driveway

Hour

	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike					1				1
Ped									0
Westbound ◀ Bike									0
Ped									0

Hour	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike
1 7:00				
2 8:00				
3				
4 16:00				
5 17:00				
6				
7				
8				
	0	0	0	0

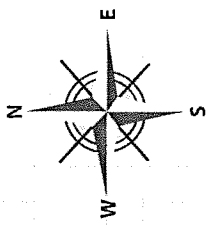


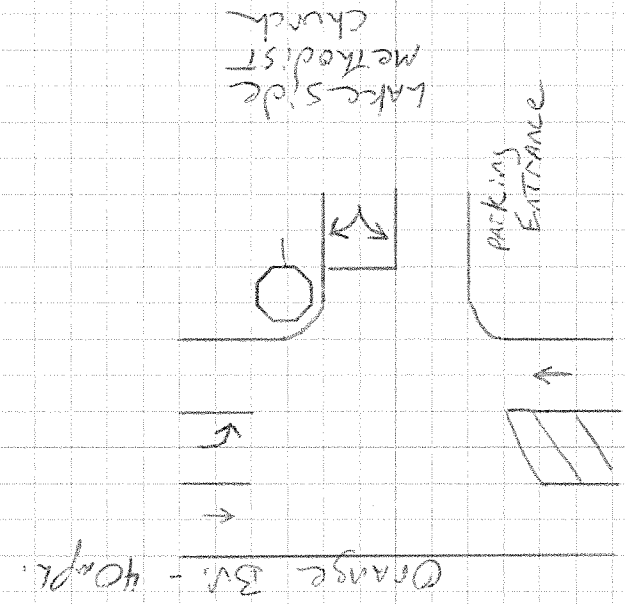
	Southbound Ped	Southbound Bike	Northbound Ped	Northbound Bike	Hour
1					1 7:00
2					2 8:00
3					3
4					4 16:00
5					5 17:00
6					6
7					7
8					8
	0	0	0	0	

	7:00	8:00		16:00	17:00				
	1	2	3	4	5	6	7	8	
Eastbound ▶ Bike		1			4				5
Ped									0
Westbound ◀ Bike					1				1
Ped		2							2

Hour

Intersection Sketch





*SPEED LIMITS MUST BE LISTED FOR FOR TRAFFIC ENTERING INTERSECTION

23 - Lakeside Methodist Church @ Orange Av.

GMB ENGINEERS & PLANNERS, INC.

Additional Notes & Observations:

Date: 7-18-13

Project: 11-016.33

Name: GAP C-170

Appendix D

FDOT Counts, Seasonal, and Axle Factors

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2012 HISTORICAL AADT REPORT

COUNTY: 77 - SEMINOLE

SITE: 0074 - ON SR-46, 0.180 MI. E OF LAKE CO (RVLP)

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2012	20200 C	E 10500	W 9700	9.00	52.80	7.30
2011	18700 C	E 9000	W 9700	9.00	52.60	8.50
2010	19600 C	E 9700	W 9900	8.82	51.95	8.80
2009	19700 C	E 9900	W 9800	8.69	51.56	10.00
2008	21000 C	E 10500	W 10500	8.73	52.75	11.50
2007	23000 C	E 11500	W 11500	9.09	52.41	11.50
2006	22000 C	E 11000	W 11000	9.00	52.16	10.00
2005	21000 C	E 10500	W 10500	9.10	52.10	4.80
2004	19200 C	E 9600	W 9600	9.00	52.50	10.30
2003	18600 C	E 9300	W 9300	8.80	54.00	8.40
2002	17800 C	E 8900	W 8900	8.70	54.40	9.80
2001	17700 C	E 8800	W 8900	8.90	54.00	9.90
2000	15800 F	E 8000	W 7800	9.30	56.80	10.70
1999	15400 C	E 7800	W 7600	9.20	54.40	8.00
1998	14900 C	E 7400	W 7500	9.00	54.10	6.10
1997	13600 C	E 6900	W 6700	8.90	55.20	8.80

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

2012 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
CATEGORY: 7700 SEMINOLE COUNTYWIDE

MOCF: 0.97

WEEK	DATES	SF	PSCF
1	01/01/2012 - 01/07/2012	1.00	1.03
2	01/08/2012 - 01/14/2012	1.01	1.04
3	01/15/2012 - 01/21/2012	1.02	1.05
4	01/22/2012 - 01/28/2012	1.01	1.04
5	01/29/2012 - 02/04/2012	1.00	1.03
* 6	02/05/2012 - 02/11/2012	0.98	1.01
* 7	02/12/2012 - 02/18/2012	0.97	1.00
* 8	02/19/2012 - 02/25/2012	0.97	1.00
* 9	02/26/2012 - 03/03/2012	0.97	1.00
*10	03/04/2012 - 03/10/2012	0.97	1.00
*11	03/11/2012 - 03/17/2012	0.97	1.00
*12	03/18/2012 - 03/24/2012	0.97	1.00
*13	03/25/2012 - 03/31/2012	0.97	1.00
*14	04/01/2012 - 04/07/2012	0.97	1.00
*15	04/08/2012 - 04/14/2012	0.97	1.00
*16	04/15/2012 - 04/21/2012	0.98	1.01
*17	04/22/2012 - 04/28/2012	0.98	1.01
*18	04/29/2012 - 05/05/2012	0.99	1.02
19	05/06/2012 - 05/12/2012	0.99	1.02
20	05/13/2012 - 05/19/2012	1.00	1.03
21	05/20/2012 - 05/26/2012	1.01	1.04
22	05/27/2012 - 06/02/2012	1.01	1.04
23	06/03/2012 - 06/09/2012	1.02	1.05
24	06/10/2012 - 06/16/2012	1.02	1.05
25	06/17/2012 - 06/23/2012	1.02	1.05
26	06/24/2012 - 06/30/2012	1.02	1.05
27	07/01/2012 - 07/07/2012	1.02	1.05
28	07/08/2012 - 07/14/2012	1.02	1.05
29	07/15/2012 - 07/21/2012	1.02	1.05
30	07/22/2012 - 07/28/2012	1.02	1.05
31	07/29/2012 - 08/04/2012	1.02	1.05
32	08/05/2012 - 08/11/2012	1.01	1.04
33	08/12/2012 - 08/18/2012	1.01	1.04
34	08/19/2012 - 08/25/2012	1.01	1.04
35	08/26/2012 - 09/01/2012	1.01	1.04
36	09/02/2012 - 09/08/2012	1.01	1.04
37	09/09/2012 - 09/15/2012	1.01	1.04
38	09/16/2012 - 09/22/2012	1.00	1.03
39	09/23/2012 - 09/29/2012	1.00	1.03
40	09/30/2012 - 10/06/2012	0.99	1.02
41	10/07/2012 - 10/13/2012	0.98	1.01
42	10/14/2012 - 10/20/2012	0.98	1.01
43	10/21/2012 - 10/27/2012	0.98	1.01
44	10/28/2012 - 11/03/2012	0.99	1.02
45	11/04/2012 - 11/10/2012	0.99	1.02
46	11/11/2012 - 11/17/2012	1.00	1.03
47	11/18/2012 - 11/24/2012	1.00	1.03
48	11/25/2012 - 12/01/2012	1.00	1.03
49	12/02/2012 - 12/08/2012	1.00	1.03
50	12/09/2012 - 12/15/2012	1.00	1.03
51	12/16/2012 - 12/22/2012	1.01	1.04
52	12/23/2012 - 12/29/2012	1.02	1.05
53	12/30/2012 - 12/31/2012	1.02	1.05

* PEAK SEASON

08-FEB-2013 12:30:03 830UPD [1,0,0,1] 5_7700_PKSEASON.TXT

2012 Weekly Axle Factor Category Report - Report Type: ALL

County: 77 - SEMINOLE

Week	Dates	7701 SEMINOLE RURAL	7702 SEMINOLE URBAN	7703 SR46,LAKE CO-US17/92	7704 I4
1	01/01/2012 - 01/07/2012	0.97	0.99	0.95	0.95
2	01/08/2012 - 01/14/2012	0.97	0.99	0.95	0.94
3	01/15/2012 - 01/21/2012	0.97	0.99	0.95	0.94
4	01/22/2012 - 01/28/2012	0.97	0.99	0.95	0.94
5	01/29/2012 - 02/04/2012	0.97	0.99	0.95	0.94
6	02/05/2012 - 02/11/2012	0.97	0.98	0.95	0.94
7	02/12/2012 - 02/18/2012	0.97	0.98	0.95	0.94
8	02/19/2012 - 02/25/2012	0.97	0.95	0.95	0.94
9	02/26/2012 - 03/03/2012	0.97	0.91	0.95	0.94
10	03/04/2012 - 03/10/2012	0.97	0.88	0.95	0.93
11	03/11/2012 - 03/17/2012	0.97	0.85	0.95	0.93
12	03/18/2012 - 03/24/2012	0.97	0.87	0.95	0.93
13	03/25/2012 - 03/31/2012	0.97	0.89	0.95	0.93
14	04/01/2012 - 04/07/2012	0.97	0.91	0.95	0.94
15	04/08/2012 - 04/14/2012	0.97	0.93	0.95	0.94
16	04/15/2012 - 04/21/2012	0.97	0.95	0.95	0.94
17	04/22/2012 - 04/28/2012	0.97	0.96	0.95	0.94
18	04/29/2012 - 05/05/2012	0.97	0.97	0.95	0.94
19	05/06/2012 - 05/12/2012	0.97	0.98	0.95	0.94
20	05/13/2012 - 05/19/2012	0.97	0.99	0.95	0.94
21	05/20/2012 - 05/26/2012	0.97	0.99	0.95	0.94
22	05/27/2012 - 06/02/2012	0.97	0.99	0.95	0.94
23	06/03/2012 - 06/09/2012	0.97	0.99	0.95	0.95
24	06/10/2012 - 06/16/2012	0.97	0.99	0.95	0.95
25	06/17/2012 - 06/23/2012	0.97	0.99	0.95	0.95
26	06/24/2012 - 06/30/2012	0.97	0.99	0.95	0.95
27	07/01/2012 - 07/07/2012	0.97	0.99	0.95	0.95
28	07/08/2012 - 07/14/2012	0.97	0.99	0.95	0.95
29	07/15/2012 - 07/21/2012	0.97	0.99	0.95	0.95
30	07/22/2012 - 07/28/2012	0.97	0.99	0.95	0.95
31	07/29/2012 - 08/04/2012	0.97	0.99	0.95	0.95
32	08/05/2012 - 08/11/2012	0.97	0.99	0.95	0.95
33	08/12/2012 - 08/18/2012	0.97	0.99	0.95	0.95
34	08/19/2012 - 08/25/2012	0.97	0.99	0.95	0.95
35	08/26/2012 - 09/01/2012	0.97	0.99	0.95	0.94
36	09/02/2012 - 09/08/2012	0.97	0.99	0.95	0.94
37	09/09/2012 - 09/15/2012	0.97	0.99	0.95	0.94
38	09/16/2012 - 09/22/2012	0.97	0.99	0.95	0.94
39	09/23/2012 - 09/29/2012	0.97	0.99	0.95	0.94
40	09/30/2012 - 10/06/2012	0.97	0.99	0.95	0.94
41	10/07/2012 - 10/13/2012	0.97	0.99	0.95	0.94
42	10/14/2012 - 10/20/2012	0.97	0.99	0.95	0.94
43	10/21/2012 - 10/27/2012	0.97	0.99	0.95	0.94
44	10/28/2012 - 11/03/2012	0.97	0.99	0.95	0.94
45	11/04/2012 - 11/10/2012	0.97	0.99	0.95	0.94
46	11/11/2012 - 11/17/2012	0.97	0.99	0.95	0.94
47	11/18/2012 - 11/24/2012	0.97	0.99	0.95	0.94
48	11/25/2012 - 12/01/2012	0.97	0.99	0.95	0.94
49	12/02/2012 - 12/08/2012	0.97	0.99	0.95	0.95
50	12/09/2012 - 12/15/2012	0.97	0.99	0.95	0.95
51	12/16/2012 - 12/22/2012	0.97	0.99	0.95	0.95
52	12/23/2012 - 12/29/2012	0.97	0.99	0.95	0.94
53	12/30/2012 - 12/31/2012	0.97	0.99	0.95	0.94

Appendix E

Signal Timings & SYNCHRO Intersection Analysis Outputs for Year 2013

Seminole County Traffic Engineering Timing Sheet - Intersection: SR 46 @ 01-Lngwd_Markham #1576

Name	SR 46		Lngwd-Mkm		SR 46		Lngwd-Mkm										IP_	010.055.114.020	Mask	255.255.255.0
Direction	WL	ET		ST		WT		NT									Host	10.46.101.167	Port #	5065
Channel #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Gtwy	10.55.114.254	Com ID #	1643
Phase/OL #	1	2	3	4	5	6	7	8	1	2	3	4	2	4	6	8	Ph Mode	STD8	Node #	1576
Type	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	OLP	OLP	OLP	OLP	PED	PED	PED	PED	Date	11-Jun-13	Done By	dmcginnis

Timing Plan 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Min Grn	6	17		8		17		8								
Passage	3	4		3		4		3								
Max 1	30	80		15		80		30								
Max 2	30	80		15		80		30								
Yel Clr	5	5		4.5		5		4.5								
Red Clr	2	2		2		2		2								
Walk																
Ped Clr																
Red Rvrt	2	2		2		2		2								
Added Initial																
Max Initial																
Max3 Limit																
Max3 Step																
Time B-4 Reduc																
Cars B-4 Reduc																
Time to Reduce																
Reduce By																
Min Gap																

Alt Timing Plan 1

Assign	1	2		4		6		8
Min Grn	6	17		8		17		8
Passage	3	4		3		4		3
Max 1	40	120		15		120		30
Max 2	40	120		15		120		30
Yel Clr	5	5		4.5		5		4.5
Red Clr	2	2		2		2		2
Walk								
Ped Clr								

Alt Timing Plan 2

Assign								
Min Grn								
Passage								
Max 1								
Max 2								
Yel Clr								
Red Clr								
Walk								
Ped Clr								

Alt Timing Plan 3

Assign								
Min Grn								
Passage								
Max 1								
Max 2								
Yel Clr								
Red Clr								
Walk								
Ped Clr								

Alt Timing Plan 4

Assign								
Min Grn								
Passage								
Max 1								
Max 2								
Yel Clr								
Red Clr								
Walk								
Ped Clr								

Alt Timing Plan 5

Assign								
Min Grn								
Passage								
Max 1								
Max 2								
Yel Clr								
Red Clr								
Walk								
Ped Clr								

Phase Options

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Phase On	On	On		On		On		On								
Min ®		On				On										
Max ®																
Ped ®																
Soft ®																
Lock Call		On				On										
Flash Ent				On				On								
Flash Exit		On				On										
Dual Entry		On		On		On		On								
Sim Gap		On				On										
Cond service																
Reservice																
Cnf Phase																

Alt Phase Opt 1

Assign								
Soft ®								
R-N-W								
Cond Serv								

Alt Phase Opt 2

Assign								
Soft ®								
R-N-W								
Cond Serv								

Alt Phase Opt 3

Assign								
Soft ®								
R-N-W								
Cond Serv								

	Type	Included Phase								Modifier Phase								Grn	Yel	Red
OL A=	1																			
OL B=	2																			
OL C=	3																			
OL D=	4																			
OL E=	5																			
OL F=	6																			
OL G=	7																			
OL H=	8																			
OL I=	9																			
OL J=	10																			
OL K=	11																			
OL L=	12																			
OL M=	13																			
OL N=	14																			
OL O=	15																			
OL P=	16																			

Coordination Programming

Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 1																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 2																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 3																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 4																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 5																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 6																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 7																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 8																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 9																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 10																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 11																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 12																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 13																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 14																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 15																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 16																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	

Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 17																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 18																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 19																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 20																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 21																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 22																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 23																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 24																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 25																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 26																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 27																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 28																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 29																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 30																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 31																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 32																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	

	Pattern Table					Alt Plans				Time of Day - Day Plans																
	C	O	SP	Seq	TM	OPT	Det	C.I.R.	Mx2	Day Plan 1						Day Of Week=	Sun									
Pattern #1										Evnt	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pattern #2										Hr																
Pattern #3										Min																
Pattern #4										Act	99															
Pattern #5										Day Plan 2						Day Of Week=		Mon								
Pattern #6										Evnt	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pattern #7										Hr		17	18													
Pattern #8										Min			30													
Pattern #9										Act	99	48	99													
Pattern #10										Day Plan 3						Day Of Week=			Tue							
Pattern #11										Evnt	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pattern #12										Hr		17	18													
Pattern #13										Min			30													
Pattern #14										Act	99	48	99													
Pattern #15										Day Plan 4						Day Of Week=				Wed						
Pattern #16										Evnt	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pattern #17										Hr		17	18													
Pattern #18										Min			30													
Pattern #19										Act	99	48	99													
Pattern #20										Day Plan 5						Day Of Week=					Thu					
Pattern #21										Evnt	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pattern #22										Hr		17	18													
Pattern #23										Min			30													
Pattern #24										Act	99	48	99													
Pattern #25										Day Plan 6						Day Of Week=						Fri				
Pattern #26										Evnt	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pattern #27										Hr		17	18													
Pattern #28										Min			30													
Pattern #29										Act	99	48	99													
Pattern #30										Day Plan 7						Day Of Week=							Sat			
Pattern #31										Evnt	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pattern #32										Hr																
Pattern #33										Min																
Pattern #34										Act	99															
Pattern #35										Day Plan 8						Day Of Week=										
Pattern #36										Evnt	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pattern #37										Hr																
Pattern #38										Min																
Pattern #39										Act																
Pattern #40										Day Plan 9						Day Of Week=										
Pattern #41										Evnt	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pattern #42										Hr																
Pattern #43										Min																
Pattern #44										Act																
Pattern #45										Day Plan 10						Day Of Week=										
Pattern #46										Evnt	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pattern #47										Hr																
Pattern #48				1	1					Min																
Act#99=P#254	Free			1		Act#100=P#255		Flash		Act																

	Det	Call	Swt	Dly	Lck	Src
Det#	1	1	2	2		
Det#	2	2				
Det#	3	2				
Det#	4	8		3		
Det#	5	4				
Det#	6	2				
Det#	7	6				
Det#	8	6				
Det#	9	4				
Det#	10	8		12		
Det#	11					
Det#	12					
Det#	13					
Det#	14					
Det#	15					
Det#	16					

Det	Call	Swt	Dly	Lck	Src
17	4		12		
18	4		12		
19	4		12		
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					

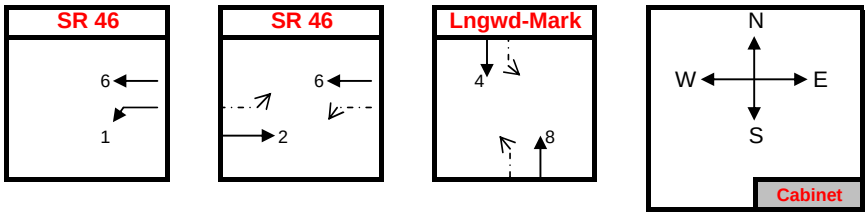
Det	Call	Swt	Dly	Lck	Src
33					
34					
35					
36					
37					
38					
39					
40					
41					1
42					2
43					3
44					4
45					5
46					6
47					7
48					8

Det	Call	Swt	Dly	Lck	Src
49					9
50					10
51					11
52					12
53					13
54					14
55					15
56					16
57					17
58					18
59					19
60					20
61					21
62					22
63					23
64					24

	Enbl	Track Phase				Trk Grn	Track Overlap			Dwell Phase								Min Dwl	Dwell Overlap				Exit Phase			
Pre Run 1																										
Pre Run 2																										
Pre Run 3	**ON**									**8**								**5**					**2**	**6**		
Pre Run 4																										
Pre Run 5	**ON**									**2**								**5**					**2**	**6**		
Pre Run 6	**ON**									**1**	**6**							**5**					**2**	**6**		

	I/O	Rslt	Inv1	I/O1	Op1	Fun1	Inv2	I/O2	Op2	Fun2	Inv3	I/O3	Op3	TmOp	Time	Purpose
Logic 1																
Logic 2																
Logic 3																
Logic 4																
Logic 5																
Logic 6																
Logic 7																
Logic 8																
Logic 9																
Logic 10																

Intersection Notes	T.O.D Notes
Intersection set up with concurrent sides. Video Det. Used on phase 4 due to gravel driveway.	Signal runs Free all of the time. Pattern 48 used during the weekday PM peak to add Max time to phases 1, 2 and 6 from 17:00 to 18:30.



Seq 1

Ring 1	**1**	**2**	3	**4**
Ring 2	5	**6**	7	**8**

Seminole County Traffic Engineering Timing Sheet - Intersection: SR 46 @ 02-Orange Ave #1857

Name	SR 46		Orange Ave		SR 46		Orange Ave										IP_	010.055.114.022	Mask	255.255.255.0
Direction	WL	ET	NL	ST	EL	WT	SL	NT									Host	10.46.101.167	Port #	5066
Channel #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Gtwy	10.55.114.254	Com ID #	1645
Phase/OL #	1	2	3	4	5	6	7	8	1	2	3	4	2	4	6	8	Ph Mode	STD8	Node #	1857
Type	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	OLP	OLP	OLP	OLP	PED	PED	PED	PED	Date	25-Apr-13	Done By	eprincipe

Timing Plan 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Min Grn	6	15	6	8	6	15	6	8								
Passage	3.5	5	3.5	3.5	3.5	5	3.5	3.5								
Max 1	25	75	25	35	25	75	25	35								
Max 2	25	75	25	35	25	75	25	35								
Yel Clr	5	5	4.5	4.5	5	5	4.5	4.5								
Red Clr	2	2	2	2	2	2	2	2								
Walk																
Ped Clr																
Red Rvrt	2	2	2	2	2	2	2	2								
Added Initial																
Max Initial																
Max3 Limit																
Max3 Step																
Time B-4 Reduc																
Cars B-4 Reduc																
Time to Reduce																
Reduce By																
Min Gap																

Alt Timing Plan 1

Assign	Min Grn	Passage	Max 1	Max 2	Yel Clr	Red Clr	Walk	Ped Clr

Alt Timing Plan 2

Assign	Min Grn	Passage	Max 1	Max 2	Yel Clr	Red Clr	Walk	Ped Clr

Alt Timing Plan 3

Assign	Min Grn	Passage	Max 1	Max 2	Yel Clr	Red Clr	Walk	Ped Clr

Alt Timing Plan 4

Assign	Min Grn	Passage	Max 1	Max 2	Yel Clr	Red Clr	Walk	Ped Clr

Alt Timing Plan 5

Assign	Min Grn	Passage	Max 1	Max 2	Yel Clr	Red Clr	Walk	Ped Clr

Phase Options

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Phase On	On	On	On	On	On	On	On	On								
Min ®		On				On										
Max ®																
Ped ®																
Soft ®																
Lock Call	On	On			On	On										
Flash Ent				On				On								
Flash Exit		On				On										
Dual Entry		On		On		On		On								
Sim Gap		On		On		On		On								
Cond service																
Reservice																
Cnf Phase																

Alt Phase Opt 1

Assign	Soft ®	R-N-W	Cond Serv

Alt Phase Opt 2

Assign	Soft ®	R-N-W	Cond Serv

Alt Phase Opt 3

Assign	Soft ®	R-N-W	Cond Serv

	Type	Included Phase	Modifier Phase	Grn	Yel	Red
OL A=	1					
OL B=	2					
OL C=	3					
OL D=	4					
OL E=	5					
OL F=	6					
OL G=	7					
OL H=	8					
OL I=	9					
OL J=	10					
OL K=	11					
OL L=	12					
OL M=	13					
OL N=	14					
OL O=	15					
OL P=	16					

Coordination Programming

Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=	61	9=	13=	R1=	100	Cycle
Split 1	**15**	**46**	**15**	**24**	**16**	**45**	**21**	**18**										5+6=	61	10=	14=	R2=	100	100
Coord Ph						**ON**												3+4=	39	11=	15=	R3=	NA	OfSt
Mode	**NON**	**MAX**	**NON**	**NON**	**NON**	**MAX**	**NON**	**NON**										7+8=	39	12=	16=	R4=	NA	1
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=	69	9=	13=	R1=	105	Cycle
Split 2	**15**	**54**	**18**	**18**	**15**	**54**	**18**	**18**										5+6=	69	10=	14=	R2=	105	105
Coord Ph		**ON**																3+4=	36	11=	15=	R3=	NA	OfSt
Mode	**NON**	**MAX**	**NON**	**NON**	**NON**	**MAX**	**NON**	**NON**										7+8=	36	12=	16=	R4=	NA	13
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=	82	9=	13=	R1=	120	Cycle
Split 3	**18**	**64**	**18**	**20**	**15**	**67**	**18**	**20**										5+6=	82	10=	14=	R2=	120	120
Coord Ph		**ON**																3+4=	38	11=	15=	R3=	NA	OfSt
Mode	**NON**	**MAX**	**NON**	**NON**	**NON**	**MAX**	**NON**	**NON**										7+8=	38	12=	16=	R4=	NA	18
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=	92	9=	13=	R1=	140	Cycle
Split 4	**17**	**75**	**26**	**22**	**17**	**75**	**17**	**31**										5+6=	92	10=	14=	R2=	140	140
Coord Ph						**ON**												3+4=	48	11=	15=	R3=	NA	OfSt
Mode	**NON**	**MAX**	**NON**	**NON**	**NON**	**MAX**	**NON**	**NON**										7+8=	48	12=	16=	R4=	NA	108
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=	92	9=	13=	R1=	140	Cycle
Split 5	**17**	**75**	**26**	**22**	**17**	**75**	**17**	**31**										5+6=	92	10=	14=	R2=	140	140
Coord Ph						**ON**												3+4=	48	11=	15=	R3=	NA	OfSt
Mode	**NON**	**MAX**	**NON**	**NON**	**NON**	**MAX**	**NON**	**NON**										7+8=	48	12=	16=	R4=	NA	108
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=		Cycle
Split 6																		5+6=		10=	14=	R2=		
Coord Ph																		3+4=		11=	15=	R3=	NA	OfSt
Mode																		7+8=		12=	16=	R4=	NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=		Cycle
Split 7																		5+6=		10=	14=	R2=		
Coord Ph																		3+4=		11=	15=	R3=	NA	OfSt
Mode																		7+8=		12=	16=	R4=	NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=		Cycle
Split 8																		5+6=		10=	14=	R2=		
Coord Ph																		3+4=		11=	15=	R3=	NA	OfSt
Mode																		7+8=		12=	16=	R4=	NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=		Cycle
Split 9																		5+6=		10=	14=	R2=		
Coord Ph																		3+4=		11=	15=	R3=	NA	OfSt
Mode																		7+8=		12=	16=	R4=	NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=		Cycle
Split 10																		5+6=		10=	14=	R2=		
Coord Ph																		3+4=		11=	15=	R3=	NA	OfSt
Mode																		7+8=		12=	16=	R4=	NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=		Cycle
Split 11																		5+6=		10=	14=	R2=		
Coord Ph																		3+4=		11=	15=	R3=	NA	OfSt
Mode																		7+8=		12=	16=	R4=	NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=		Cycle
Split 12																		5+6=		10=	14=	R2=		
Coord Ph																		3+4=		11=	15=	R3=	NA	OfSt
Mode																		7+8=		12=	16=	R4=	NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=		Cycle
Split 13																		5+6=		10=	14=	R2=		
Coord Ph																		3+4=		11=	15=	R3=	NA	OfSt
Mode																		7+8=		12=	16=	R4=	NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=		Cycle
Split 14																		5+6=		10=	14=	R2=		
Coord Ph																		3+4=		11=	15=	R3=	NA	OfSt
Mode																		7+8=		12=	16=	R4=	NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=		Cycle
Split 15																		5+6=		10=	14=	R2=		
Coord Ph																		3+4=		11=	15=	R3=	NA	OfSt
Mode																		7+8=		12=	16=	R4=	NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=		Cycle
Split 16																		5+6=		10=	14=	R2=		
Coord Ph																		3+4=		11=	15=	R3=	NA	OfSt
Mode																		7+8=		12=	16=	R4=	NA	

Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 17																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 18																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 19																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 20																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 21																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 22																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 23																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 24																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 25																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 26																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 27																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 28																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 29																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 30																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 31																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	
Phase	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	1+2=		9=	13=	R1=	Cycle
Split 32																		5+6=		10=	14=	R2=	
Coord Ph																		3+4=		11=	15=	R3= NA	OfSt
Mode																		7+8=		12=	16=	R4= NA	

Pattern Table

	C	O	SP	Seq	TM	OPT	Det	C.I.R.	Mx2
Pattern #1	100	1	1	2					
Pattern #2	105	13	2	3					
Pattern #3	120	18	3	3					
Pattern #4	140	108	4	2					
Pattern #5	140	108	5	2					
Pattern #6									
Pattern #7									
Pattern #8									
Pattern #9									
Pattern #10									
Pattern #11									
Pattern #12									
Pattern #13									
Pattern #14									
Pattern #15									
Pattern #16									
Pattern #17									
Pattern #18									
Pattern #19									
Pattern #20									
Pattern #21									
Pattern #22									
Pattern #23									
Pattern #24									
Pattern #25									
Pattern #26									
Pattern #27									
Pattern #28									
Pattern #29									
Pattern #30									
Pattern #31									
Pattern #32									
Pattern #33									
Pattern #34									
Pattern #35									
Pattern #36									
Pattern #37									
Pattern #38									
Pattern #39									
Pattern #40									
Pattern #41									
Pattern #42									
Pattern #43									
Pattern #44									
Pattern #45									
Pattern #46									
Pattern #47									
Pattern #48									
Act#99=P#254	Free			1	Act#100=P#255			Flash	

Alt Plans

Time of Day - Day Plans

	Day Plan 1	Day Of Week=	Sun						
	Evnt	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Hr																
	Min																
	Act	99															

	Day Plan 2	Day Of Week=	Mon						
	Evnt	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Hr		6	9	11	14	19	20									
	Min					30		30									
	Act	99	1	2	3	4	5	99									

	Day Plan 3	Day Of Week=	Tue						
	Evnt	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Hr		6	9	11	14	19	20									
	Min					30		30									
	Act	99	1	2	3	4	5	99									

	Day Plan 4	Day Of Week=	Wed						
	Evnt	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Hr		6	9	11	14	19	20									
	Min					30		30									
	Act	99	1	2	3	4	5	99									

	Day Plan 5	Day Of Week=	Thu						
	Evnt	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Hr		6	9	11	14	19	20									
	Min					30		30									
	Act	99	1	2	3	4	5	99									

	Day Plan 6	Day Of Week=	Fri						
	Evnt	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Hr		6	9	11	14	19	20									
	Min					30		30									
	Act	99	1	2	3	4	5	99									

	Day Plan 7	Day Of Week=	Sat						
	Evnt	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Hr																
	Min																
	Act	99															

	Day Plan 8	Day Of Week=							
	Evnt	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Hr																
	Min																
	Act																

	Day Plan 9	Day Of Week=							
	Evnt	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Hr																
	Min																
	Act																

	Day Plan 10	Day Of Week=							
	Evnt	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Hr																
	Min																
	Act																

Det

	Call	Swt	Dly	Lck	Src
Det# 1	1				
Det# 2	2				
Det# 3	2				
Det# 4	2				
Det# 5	2				
Det# 6	3	8			
Det# 7	4				
Det# 8	5				
Det# 9	6				
Det# 10	6				
Det# 11	6				
Det# 12	6				
Det# 13	7	4			
Det# 14	8				
Det# 15					
Det# 16					

Det

	Call	Swt	Dly	Lck	Src
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					

Det

	Call	Swt	Dly	Lck	Src
33					
34					
35					
36					
37					
38					
39					
40					
41					1
42					2
43					3
44					4
45					5
46					6
47					7
48					8

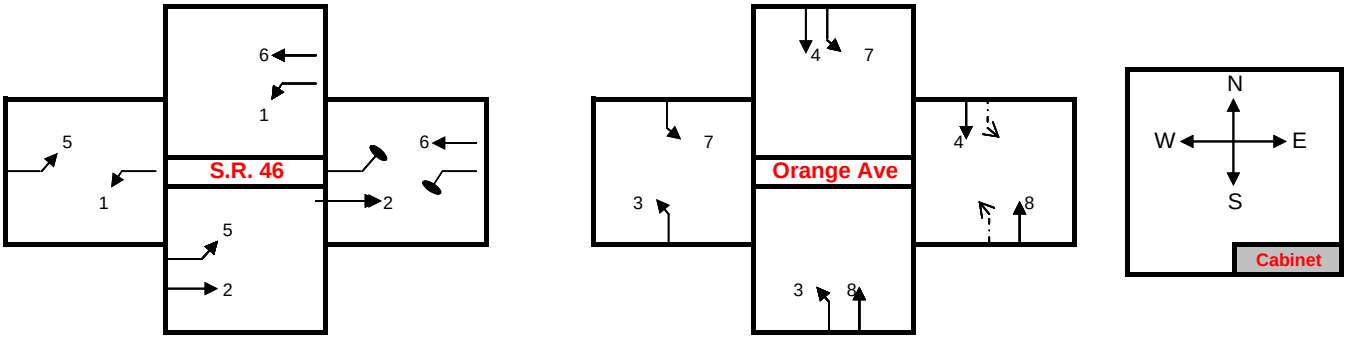
Det

	Call	Swt	Dly	Lck	Src
49					9
50					10
51					11
52					12
53					13
54					14
55					15
56					16
57					17
58					18
59					19
60					20
61					21
62					22
63					23
64					24

	Enbl	Track Phase				Trk Grn	Track Overlap				Dwell Phase								Min Dwl	Dwell Overlap				Exit Phase			
Pre Run 1																											
Pre Run 2																											
Pre Run 3																											
Pre Run 4																											
Pre Run 5																											
Pre Run 6	ON										1	6							5					2	6		

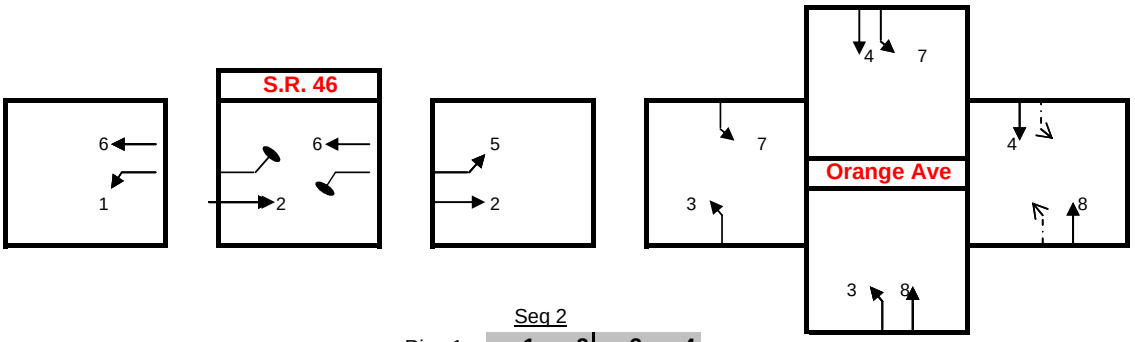
	I/O	Rslt	Inv1	I/O1	Op1	Fun1	Inv2	I/O2	Op2	Fun2	Inv3	I/O3	Op3	TmOp	Time	Purpose
Logic 1																
Logic 2																
Logic 3																
Logic 4																
Logic 5																
Logic 6																
Logic 7																
Logic 8																
Logic 9																
Logic 10																

Intersection Notes	T.O.D Notes
Intersection set up with concurrent sides. Mainstreet LT's are protected and Lock Det. Sidestreet LT's are 5-sections and are Det. Switched.	



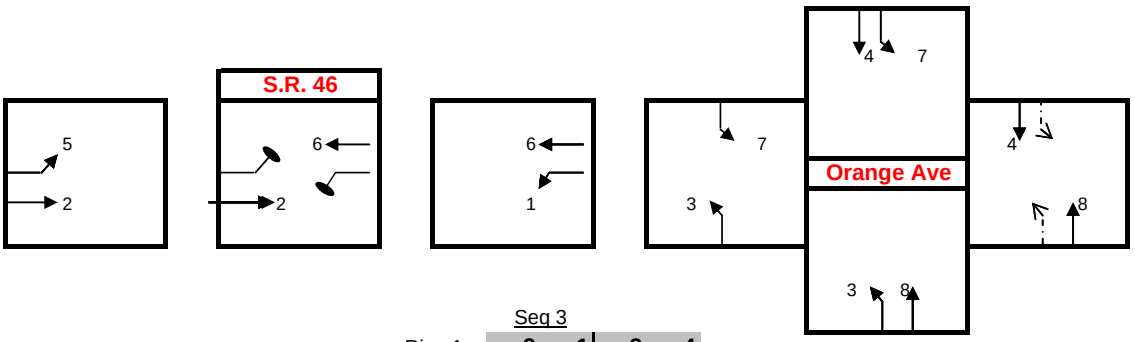
Seg 1

Ring 1	1	2	3	4
Ring 2	5	6	7	8



Seg 2

Ring 1	1	2	3	4
Ring 2	6	5	7	8



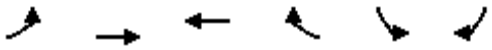
Seg 3

Ring 1	2	1	3	4
Ring 2	5	6	7	8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1122	0	8	604	0	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1220	0	9	657	0	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1220		1893	1220
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1220		1893	1220
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	95
cM capacity (veh/h)			579		77	222

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	1220	0	9	657	12
Volume Left	0	0	9	0	0
Volume Right	0	0	0	0	12
cSH	1700	1700	579	1700	222
Volume to Capacity	0.72	0.00	0.02	0.39	0.05
Queue Length 95th (ft)	0	0	1	0	4
Control Delay (s)	0.0	0.0	11.3	0.0	22.2
Lane LOS			B		C
Approach Delay (s)	0.0		0.1		22.2
Approach LOS					C

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	1	1132	609	5	10	3
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1230	662	5	11	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	667				1897	665
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	667				1897	665
tC, single (s)	4.1				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.7	3.3
p0 queue free %	100				84	99
cM capacity (veh/h)	932				68	464

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	1	1230	667	14
Volume Left	1	0	0	11
Volume Right	0	0	5	3
cSH	932	1700	1700	85
Volume to Capacity	0.00	0.72	0.39	0.17
Queue Length 95th (ft)	0	0	0	14
Control Delay (s)	8.9	0.0	0.0	55.6
Lane LOS	A			F
Approach Delay (s)	0.0		0.0	55.6
Approach LOS				F

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1140	2	6	611	3	32
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	1295	2	7	694	3	36
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1298		2003	1295
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1298		2003	1295
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		95	82
cM capacity (veh/h)			541		66	200

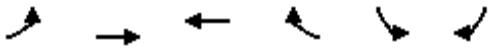
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	1295	2	7	694	40
Volume Left	0	0	7	0	3
Volume Right	0	2	0	0	36
cSH	1700	1700	541	1700	170
Volume to Capacity	0.76	0.00	0.01	0.41	0.23
Queue Length 95th (ft)	0	0	1	0	22
Control Delay (s)	0.0	0.0	11.7	0.0	32.5
Lane LOS			B		D
Approach Delay (s)	0.0		0.1		32.5
Approach LOS					D

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	984	186	7	554	1	63	0	49	1	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0			6.5	6.5		6.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.95	
Satd. Flow (prot)	1805	1827	1583	1805	1727			1752	1615		1805	
Flt Permitted	0.42	1.00	1.00	0.10	1.00			0.76	1.00		0.71	
Satd. Flow (perm)	803	1827	1583	194	1727			1397	1615		1349	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	2	1131	214	8	637	1	72	0	56	1	0	0
RTOR Reduction (vph)	0	0	40	0	0	0	0	0	51	0	0	0
Lane Group Flow (vph)	2	1131	174	8	638	0	0	72	5	0	1	0
Heavy Vehicles (%)	0%	4%	2%	0%	10%	0%	3%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	pm+pt			Perm		Perm	Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8		8	4		
Actuated Green, G (s)	77.5	77.5	77.5	85.6	85.6			9.2	9.2		9.2	
Effective Green, g (s)	77.5	77.5	77.5	85.6	85.6			9.2	9.2		9.2	
Actuated g/C Ratio	0.72	0.72	0.72	0.79	0.79			0.08	0.08		0.08	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0			6.5	6.5		6.5	
Vehicle Extension (s)	4.0	4.0	4.0	3.0	4.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	575	1307	1133	170	1365			119	137		115	
v/s Ratio Prot		c0.62		0.00	c0.37							
v/s Ratio Perm	0.00		0.11	0.04				c0.05	0.00		0.00	
v/c Ratio	0.00	0.87	0.15	0.05	0.47			0.61	0.03		0.01	
Uniform Delay, d1	4.4	11.5	4.9	15.1	3.8			47.8	45.5		45.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.0	6.4	0.1	0.1	0.3			8.4	0.1		0.0	
Delay (s)	4.4	17.9	5.0	15.2	4.1			56.2	45.6		45.4	
Level of Service	A	B	A	B	A			E	D		D	
Approach Delay (s)		15.9			4.3			51.6			45.4	
Approach LOS		B			A			D			D	

Intersection Summary			
HCM Average Control Delay	14.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	108.3	Sum of lost time (s)	20.5
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	2	1032	562	3	4	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	2	1110	604	3	4	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	608				1718	604
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	608				1718	604
tC, single (s)	4.1				7.1	6.2
tC, 2 stage (s)						
tF (s)	2.2				4.2	3.3
p0 queue free %	100				93	100
cM capacity (veh/h)	981				65	502

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	1112	604	3	4
Volume Left	2	0	0	4
Volume Right	0	0	3	0
cSH	981	1700	1700	65
Volume to Capacity	0.00	0.36	0.00	0.07
Queue Length 95th (ft)	0	0	0	5
Control Delay (s)	0.1	0.0	0.0	63.9
Lane LOS	A			F
Approach Delay (s)	0.1	0.0		63.9
Approach LOS				F

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1035	1	1	565	0	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	1137	1	1	621	0	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1138		1761	1138
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1138		1761	1138
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	97
cM capacity (veh/h)			621		94	248

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	1138	622	0	8
Volume Left	0	1	0	0
Volume Right	1	0	0	8
cSH	1700	621	1700	248
Volume to Capacity	0.67	0.00	0.00	0.03
Queue Length 95th (ft)	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	20.0
Lane LOS		A	A	C
Approach Delay (s)	0.0	0.0	20.0	
Approach LOS			C	

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1038	4	9	564	2	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1116	4	10	606	2	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1120		1742	1116
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1120		1742	1116
tC, single (s)			4.3		6.4	6.3
tC, 2 stage (s)						
tF (s)			2.4		3.5	3.4
p0 queue free %			98		98	96
cM capacity (veh/h)			555		95	243

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	1116	4	10	606	2	11
Volume Left	0	0	10	0	2	0
Volume Right	0	4	0	0	0	11
cSH	1700	1700	555	1700	95	243
Volume to Capacity	0.66	0.00	0.02	0.36	0.02	0.04
Queue Length 95th (ft)	0	0	1	0	2	3
Control Delay (s)	0.0	0.0	11.6	0.0	43.9	20.5
Lane LOS			B		E	C
Approach Delay (s)	0.0		0.2		24.4	
Approach LOS					C	

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	1035	13	15	569	4	31
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1125	14	16	618	4	34
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1139		1783	1132
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1139		1783	1132
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			97		95	86
cM capacity (veh/h)			595		88	250

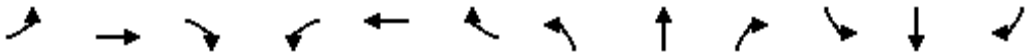
Direction, Lane #	EB 1	WB 1	WB 2	NE 1
Volume Total	1139	16	618	38
Volume Left	0	16	0	4
Volume Right	14	0	0	34
cSH	1700	595	1700	207
Volume to Capacity	0.67	0.03	0.36	0.18
Queue Length 95th (ft)	0	2	0	16
Control Delay (s)	0.0	11.2	0.0	26.3
Lane LOS		B		D
Approach Delay (s)	0.0	0.3		26.3
Approach LOS				D

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1066	0	0	584	0	3
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	1225	0	0	671	0	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1225		1897	1225
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1225		1897	1225
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	98
cM capacity (veh/h)			576		77	220

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	1225	671	3
Volume Left	0	0	0
Volume Right	0	0	3
cSH	1700	576	220
Volume to Capacity	0.72	0.00	0.02
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	21.6
Lane LOS			C
Approach Delay (s)	0.0	0.0	21.6
Approach LOS			C

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1069	0	1	584	0	0	0	4	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	1137	0	1	621	0	0	0	4	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	621			1137			1761	1761	1137	1765	1761	621
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	621			1137			1761	1761	1137	1765	1761	621
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	98	100	100	100
cM capacity (veh/h)	969			622			67	85	248	65	85	491

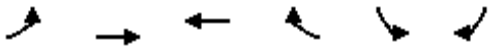
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1137	622	4	0
Volume Left	0	1	0	0
Volume Right	0	0	4	0
cSH	969	622	248	1700
Volume to Capacity	0.00	0.00	0.02	0.00
Queue Length 95th (ft)	0	0	1	0
Control Delay (s)	0.0	0.0	19.8	0.0
Lane LOS		A	C	A
Approach Delay (s)	0.0	0.0	19.8	0.0
Approach LOS			C	A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1046	8	2	563	4	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1137	9	2	612	4	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1146		1753	1137
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1146		1753	1137
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		95	94
cM capacity (veh/h)			617		95	248

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	1137	9	2	612	4	15
Volume Left	0	0	2	0	4	0
Volume Right	0	9	0	0	0	15
cSH	1700	1700	617	1700	95	248
Volume to Capacity	0.67	0.01	0.00	0.36	0.05	0.06
Queue Length 95th (ft)	0	0	0	0	4	5
Control Delay (s)	0.0	0.0	10.9	0.0	44.9	20.5
Lane LOS			B		E	C
Approach Delay (s)	0.0		0.0		25.9	
Approach LOS					D	

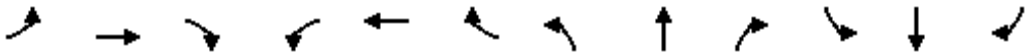
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	1040	546	1	1	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1156	607	1	1	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	608				1763	607
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	608				1763	607
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	980				94	500

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	1156	608	2
Volume Left	0	0	1
Volume Right	0	1	1
cSH	980	1700	158
Volume to Capacity	0.00	0.36	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	28.1
Lane LOS			D
Approach Delay (s)	0.0	0.0	28.1
Approach LOS			D

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	1037	0	0	542	4	1	0	1	6	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	1152	0	0	602	4	1	0	1	7	0	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	607			1152			1770	1768	1152	1767	1766	604
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	607			1152			1770	1768	1152	1767	1766	604
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			98	100	100	90	100	99
cM capacity (veh/h)	981			614			65	84	243	66	84	502

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1157	607	2	11
Volume Left	4	0	1	7
Volume Right	0	4	1	4
cSH	981	614	102	100
Volume to Capacity	0.00	0.00	0.02	0.11
Queue Length 95th (ft)	0	0	2	9
Control Delay (s)	0.2	0.0	40.9	45.2
Lane LOS	A		E	E
Approach Delay (s)	0.2	0.0	40.9	45.2
Approach LOS			E	E

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Volume (veh/h)	907	137	2	539	7	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	965	146	2	573	7	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1111		1615	1038
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1111		1615	1038
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		94	99
cM capacity (veh/h)			636		115	283

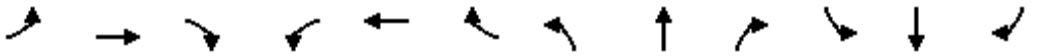
Direction, Lane #	EB 1	WB 1	NW 1
Volume Total	1111	576	10
Volume Left	0	2	7
Volume Right	146	0	2
cSH	1700	636	133
Volume to Capacity	0.65	0.00	0.07
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.0	0.1	34.3
Lane LOS		A	D
Approach Delay (s)	0.0	0.1	34.3
Approach LOS			D

Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization		66.1%	ICU Level of Service C
Analysis Period (min)		15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	908	0	3	540	1	0	1	2	0	0	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	987	0	3	587	1	0	1	2	0	0	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					818							
pX, platoon unblocked	0.94						0.94	0.94		0.94	0.94	0.94
vC, conflicting volume	588			987			1290	1584	987	1586	1583	294
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	423			987			1173	1487	987	1489	1486	108
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	99	99	100	100	100
cM capacity (veh/h)	1074			708			139	117	250	80	117	871

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	988	297	295	3	1
Volume Left	1	3	0	0	0
Volume Right	0	0	1	2	1
cSH	1074	708	1700	181	871
Volume to Capacity	0.00	0.00	0.17	0.02	0.00
Queue Length 95th (ft)	0	0	0	1	0
Control Delay (s)	0.0	0.2	0.0	25.2	9.1
Lane LOS	A	A		D	A
Approach Delay (s)	0.0	0.1		25.2	9.1
Approach LOS				D	A

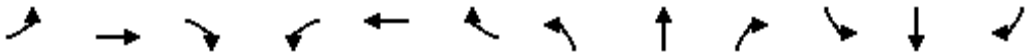
Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	58.6%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	747	39	59	419	25	56	30	36	122	118	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.92		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	3476		1719	3374	1553	1719	1668		1787	1760	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.65	1.00		0.47	1.00	
Satd. Flow (perm)	1719	3476		1719	3374	1553	1170	1668		875	1760	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	67	770	40	61	432	26	58	31	37	126	122	53
RTOR Reduction (vph)	0	3	0	0	0	14	0	34	0	0	16	0
Lane Group Flow (vph)	67	807	0	61	432	12	58	34	0	126	159	0
Heavy Vehicles (%)	5%	3%	5%	5%	7%	4%	5%	3%	6%	1%	0%	10%
Turn Type	Prot			Prot		Perm	pm+pt			pm+pt		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6	8			4		
Actuated Green, G (s)	7.2	45.5		6.8	45.1	45.1	15.8	9.2		25.6	14.1	
Effective Green, g (s)	7.2	45.5		6.8	45.1	45.1	15.8	9.2		25.6	14.1	
Actuated g/C Ratio	0.07	0.46		0.07	0.45	0.45	0.16	0.09		0.26	0.14	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.5	5.0		3.5	5.0	5.0	3.5	3.5		3.5	3.5	
Lane Grp Cap (vph)	124	1582		117	1522	700	221	153		329	248	
v/s Ratio Prot	0.04	c0.23		c0.04	0.13		0.02	0.02		c0.04	c0.09	
v/s Ratio Perm						0.01	0.02			0.05		
v/c Ratio	0.54	0.51		0.52	0.28	0.02	0.26	0.22		0.38	0.64	
Uniform Delay, d1	44.8	19.3		45.0	17.3	15.2	36.7	42.1		29.9	40.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.3	1.2		4.7	0.5	0.0	0.8	0.9		0.9	5.6	
Delay (s)	50.1	20.5		49.8	17.8	15.2	37.4	43.0		30.8	46.1	
Level of Service	D	C		D	B	B	D	D		C	D	
Approach Delay (s)		22.8			21.4			40.4			39.7	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	26.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	37	100	13	9	17	7	158	20	19	193	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)	1	39	106	14	10	18	7	168	21	20	205	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			7			8						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1302	
pX, platoon unblocked												
vC, conflicting volume	445	452	207	512	444	179	210			189		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	445	452	207	512	444	179	210			189		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2			2.2		
p0 queue free %	100	92	87	96	98	98	99			99		
cM capacity (veh/h)	501	496	835	384	502	839	1373			1397		

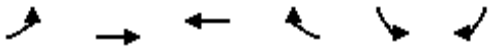
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	147	41	7	189	20	210
Volume Left	1	14	7	0	20	0
Volume Right	106	18	0	21	0	4
cSH	1153	766	1373	1700	1397	1700
Volume to Capacity	0.13	0.05	0.01	0.11	0.01	0.12
Queue Length 95th (ft)	11	4	0	0	1	0
Control Delay (s)	10.8	11.9	7.6	0.0	7.6	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	10.8	11.9	0.3		0.7	
Approach LOS	B	B				

Intersection Summary				
Average Delay	3.7			
Intersection Capacity Utilization	30.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	691	1	15	1156	2	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	751	1	16	1257	2	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			752		2040	751
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			752		2040	751
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		96	98
cM capacity (veh/h)			867		62	414

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	751	1	16	1257	9
Volume Left	0	0	16	0	2
Volume Right	0	1	0	0	7
cSH	1700	1700	867	1700	171
Volume to Capacity	0.44	0.00	0.02	0.74	0.05
Queue Length 95th (ft)	0	0	1	0	4
Control Delay (s)	0.0	0.0	9.2	0.0	27.2
Lane LOS			A		D
Approach Delay (s)	0.0		0.1		27.2
Approach LOS					D

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	7	690	1169	10	9	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	8	802	1359	12	10	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1371				2184	1365
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1371				2184	1365
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				79	99
cM capacity (veh/h)	507				50	182

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	8	802	1371	13
Volume Left	8	0	0	10
Volume Right	0	0	12	2
cSH	507	1700	1700	58
Volume to Capacity	0.02	0.47	0.81	0.22
Queue Length 95th (ft)	1	0	0	19
Control Delay (s)	12.2	0.0	0.0	84.0
Lane LOS	B			F
Approach Delay (s)	0.1		0.0	84.0
Approach LOS				F

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	696	3	44	1175	4	26
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	773	3	49	1306	4	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			777		2177	773
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			777		2177	773
tC, single (s)			4.1		6.4	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			94		91	92
cM capacity (veh/h)			840		49	383

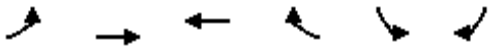
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	773	3	49	1306	33
Volume Left	0	0	49	0	4
Volume Right	0	3	0	0	29
cSH	1700	1700	840	1700	200
Volume to Capacity	0.45	0.00	0.06	0.77	0.17
Queue Length 95th (ft)	0	0	5	0	15
Control Delay (s)	0.0	0.0	9.6	0.0	26.6
Lane LOS			A		D
Approach Delay (s)	0.0		0.3		26.6
Approach LOS					D

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	642	80	50	1008	0	210	0	55	2	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0	7.0			6.5	6.5		6.5	
Lane Util. Factor		1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt		1.00	0.85	1.00	1.00			1.00	0.85		0.95	
Flt Protected		1.00	1.00	0.95	1.00			0.95	1.00		0.97	
Satd. Flow (prot)		1792	1599	1805	1845			1805	1615		1756	
Flt Permitted		1.00	1.00	0.24	1.00			0.76	1.00		0.85	
Satd. Flow (perm)		1792	1599	450	1845			1436	1615		1542	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	0	764	95	60	1200	0	250	0	65	2	0	1
RTOR Reduction (vph)	0	0	33	0	0	0	0	0	54	0	1	0
Lane Group Flow (vph)	0	764	62	60	1200	0	0	250	11	0	2	0
Heavy Vehicles (%)	0%	6%	1%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	pm+pt			Perm		Perm	Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8		8	4		
Actuated Green, G (s)		91.8	91.8	104.4	104.4			23.5	23.5		23.5	
Effective Green, g (s)		91.8	91.8	104.4	104.4			23.5	23.5		23.5	
Actuated g/C Ratio		0.65	0.65	0.74	0.74			0.17	0.17		0.17	
Clearance Time (s)		7.0	7.0	7.0	7.0			6.5	6.5		6.5	
Vehicle Extension (s)		4.0	4.0	3.0	4.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		1163	1038	386	1362			239	268		256	
v/s Ratio Prot		0.43		0.01	c0.65							
v/s Ratio Perm			0.04	0.11				c0.17	0.01		0.00	
v/c Ratio		0.66	0.06	0.16	0.88			1.05	0.04		0.01	
Uniform Delay, d1		15.2	9.1	10.2	13.9			59.0	49.5		49.2	
Progression Factor		1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		2.9	0.1	0.2	8.5			70.8	0.1		0.0	
Delay (s)		18.1	9.2	10.4	22.3			129.7	49.5		49.2	
Level of Service		B	A	B	C			F	D		D	
Approach Delay (s)		17.1			21.7			113.2			49.2	
Approach LOS		B			C			F			D	

Intersection Summary			
HCM Average Control Delay	32.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	141.4	Sum of lost time (s)	13.5
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	699	1058	0	2	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	777	1176	0	2	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1176				1952	1176
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1176				1952	1176
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				97	100
cM capacity (veh/h)	601				71	235

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	777	1176	0	2
Volume Left	0	0	0	2
Volume Right	0	0	0	0
cSH	601	1700	1700	71
Volume to Capacity	0.00	0.69	0.00	0.03
Queue Length 95th (ft)	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	57.0
Lane LOS				F
Approach Delay (s)	0.0	0.0		57.0
Approach LOS				F

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	698	3	6	1058	0	3
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	776	3	7	1176	0	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			779		1966	777
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			779		1966	777
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	99
cM capacity (veh/h)			847		69	400

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	779	1182	0	3
Volume Left	0	7	0	0
Volume Right	3	0	0	3
cSH	1700	847	1700	400
Volume to Capacity	0.46	0.01	0.00	0.01
Queue Length 95th (ft)	0	1	0	1
Control Delay (s)	0.0	0.3	0.0	14.1
Lane LOS		A	A	B
Approach Delay (s)	0.0	0.3	14.1	
Approach LOS			B	

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	701	0	7	1064	0	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	779	0	8	1182	0	16
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			779		1977	779
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			779		1977	779
tC, single (s)			4.1		6.4	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			99		100	96
cM capacity (veh/h)			847		68	377

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	779	0	8	1182	0	16
Volume Left	0	0	8	0	0	0
Volume Right	0	0	0	0	0	16
cSH	1700	1700	847	1700	1700	377
Volume to Capacity	0.46	0.00	0.01	0.70	0.00	0.04
Queue Length 95th (ft)	0	0	1	0	0	3
Control Delay (s)	0.0	0.0	9.3	0.0	0.0	14.9
Lane LOS			A		A	B
Approach Delay (s)	0.0		0.1		14.9	
Approach LOS					B	

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	708	7	50	1062	9	38
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	778	8	55	1167	10	42
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			786		2059	782
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			786		2059	782
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		83	89
cM capacity (veh/h)			842		57	398

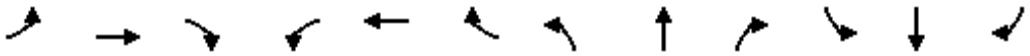
Direction, Lane #	EB 1	WB 1	WB 2	NE 1
Volume Total	786	55	1167	52
Volume Left	0	55	0	10
Volume Right	8	0	0	42
cSH	1700	842	1700	186
Volume to Capacity	0.46	0.07	0.69	0.28
Queue Length 95th (ft)	0	5	0	27
Control Delay (s)	0.0	9.6	0.0	31.6
Lane LOS		A		D
Approach Delay (s)	0.0	0.4		31.6
Approach LOS				D

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	741	5	5	1112	0	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	823	6	6	1236	0	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			829		2073	826
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			829		2073	826
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	99
cM capacity (veh/h)			811		60	375

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	829	1241	4
Volume Left	0	6	0
Volume Right	6	0	4
cSH	1700	811	375
Volume to Capacity	0.49	0.01	0.01
Queue Length 95th (ft)	0	1	1
Control Delay (s)	0.0	0.3	14.7
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	14.7
Approach LOS			B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	744	1	5	1116	0	1	0	4	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	855	1	6	1283	0	1	0	5	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1283			856			2150	2150	856	2155	2151	1283
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1283			856			2150	2150	856	2155	2151	1283
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			97	100	99	100	100	100
cM capacity (veh/h)	548			793			35	48	361	34	48	204

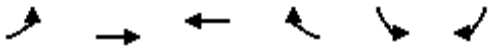
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	856	1289	6	0
Volume Left	0	6	1	0
Volume Right	1	0	5	0
cSH	548	793	126	1700
Volume to Capacity	0.00	0.01	0.05	0.00
Queue Length 95th (ft)	0	1	4	0
Control Delay (s)	0.0	0.3	34.8	0.0
Lane LOS		A	D	A
Approach Delay (s)	0.0	0.3	34.8	0.0
Approach LOS			D	A

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	72.7%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	764	5	11	1165	2	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	878	6	13	1339	2	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			884		2243	878
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			884		2243	878
tC, single (s)			4.2		6.9	6.2
tC, 2 stage (s)						
tF (s)			2.3		4.0	3.3
p0 queue free %			98		93	97
cM capacity (veh/h)			737		33	350

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	878	6	13	1339	2	11
Volume Left	0	0	13	0	2	0
Volume Right	0	6	0	0	0	11
cSH	1700	1700	737	1700	33	350
Volume to Capacity	0.52	0.00	0.02	0.79	0.07	0.03
Queue Length 95th (ft)	0	0	1	0	5	3
Control Delay (s)	0.0	0.0	10.0	0.0	123.0	15.6
Lane LOS			A		F	C
Approach Delay (s)	0.0		0.1		33.5	
Approach LOS					D	

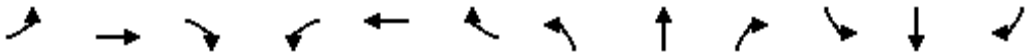
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	2	799	1221	12	3	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	868	1327	13	3	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1340				2207	1334
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1340				2207	1334
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				93	99
cM capacity (veh/h)	521				49	190

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	871	1340	4
Volume Left	2	0	3
Volume Right	0	13	1
cSH	521	1700	60
Volume to Capacity	0.00	0.79	0.07
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.1	0.0	69.1
Lane LOS	A		F
Approach Delay (s)	0.1	0.0	69.1
Approach LOS			F

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	798	0	1	1228	8	0	0	1	4	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	887	0	1	1364	9	0	0	1	4	0	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1373			887			2272	2271	887	2268	2267	1369
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1373			887			2272	2271	887	2268	2267	1369
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	100	100	85	100	97
cM capacity (veh/h)	506			772			28	40	346	29	41	181

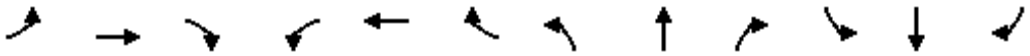
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	891	1374	1	10
Volume Left	4	1	0	4
Volume Right	0	9	1	6
cSH	506	772	346	54
Volume to Capacity	0.01	0.00	0.00	0.19
Queue Length 95th (ft)	1	0	0	15
Control Delay (s)	0.3	0.1	15.4	86.2
Lane LOS	A	A	C	F
Approach Delay (s)	0.3	0.1	15.4	86.2
Approach LOS			C	F

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Volume (veh/h)	763	40	1	1225	12	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	848	44	1	1361	13	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			892		2233	870
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			892		2233	870
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		72	100
cM capacity (veh/h)			768		47	354

Direction, Lane #	EB 1	WB 1	NW 1
Volume Total	892	1362	14
Volume Left	0	1	13
Volume Right	44	0	1
cSH	1700	768	51
Volume to Capacity	0.52	0.00	0.28
Queue Length 95th (ft)	0	0	24
Control Delay (s)	0.0	0.1	101.7
Lane LOS		A	F
Approach Delay (s)	0.0	0.1	101.7
Approach LOS			F

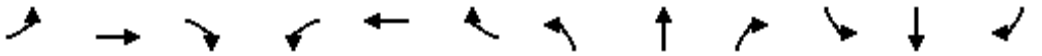
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	760	0	4	1226	2	0	0	2	0	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	844	0	4	1362	2	0	0	2	0	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					818							
pX, platoon unblocked	0.77						0.77	0.77		0.77	0.77	0.77
vC, conflicting volume	1364			844			1544	2227	844	2228	2226	682
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	882			844			1115	1999	844	2000	1997	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			100	100	99	100	98	100
cM capacity (veh/h)	599			801			124	46	311	27	46	843

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	849	686	683	2	1
Volume Left	4	4	0	0	0
Volume Right	0	0	2	2	0
cSH	599	801	1700	311	46
Volume to Capacity	0.01	0.01	0.40	0.01	0.02
Queue Length 95th (ft)	1	0	0	1	2
Control Delay (s)	0.2	0.1	0.0	16.7	84.5
Lane LOS	A	A		C	F
Approach Delay (s)	0.2	0.1		16.7	84.5
Approach LOS				C	F

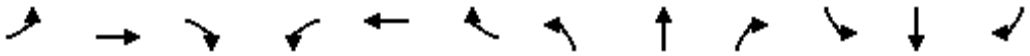
Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	53.2%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	670	35	79	1018	86	163	95	45	78	53	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.95		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	3516		1787	3539	1599	1787	1809		1805	1747	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.34	1.00		0.66	1.00	
Satd. Flow (perm)	1752	3516		1787	3539	1599	631	1809		1250	1747	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	78	744	39	88	1131	96	181	106	50	87	59	68
RTOR Reduction (vph)	0	2	0	0	0	46	0	13	0	0	30	0
Lane Group Flow (vph)	78	781	0	88	1131	50	181	143	0	87	97	0
Heavy Vehicles (%)	3%	2%	0%	1%	2%	1%	1%	0%	0%	0%	0%	0%
Turn Type	Prot			Prot		Perm	pm+pt			pm+pt		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6	8			4		
Actuated Green, G (s)	10.0	72.9		10.5	73.4	73.4	36.1	19.8		22.5	12.7	
Effective Green, g (s)	10.0	72.9		10.5	73.4	73.4	36.1	19.8		22.5	12.7	
Actuated g/C Ratio	0.07	0.52		0.08	0.52	0.52	0.26	0.14		0.16	0.09	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.5	5.0		3.5	5.0	5.0	3.5	3.5		3.5	3.5	
Lane Grp Cap (vph)	125	1831		134	1855	838	302	256		240	158	
v/s Ratio Prot	c0.04	0.22		0.05	c0.32		c0.07	0.08		0.03	0.06	
v/s Ratio Perm						0.03	c0.08			0.03		
v/c Ratio	0.62	0.43		0.66	0.61	0.06	0.60	0.56		0.36	0.61	
Uniform Delay, d1	63.2	20.7		63.0	23.3	16.4	43.3	56.0		51.8	61.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.8	0.7		11.5	1.5	0.1	3.4	2.9		1.1	7.2	
Delay (s)	72.9	21.4		74.5	24.8	16.5	46.7	58.9		52.9	68.5	
Level of Service	E	C		E	C	B	D	E		D	E	
Approach Delay (s)		26.1			27.5			52.3			62.2	
Approach LOS		C			C			D			E	

Intersection Summary			
HCM Average Control Delay	32.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	18	49	38	18	74	12	301	23	13	152	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	5	21	56	44	21	85	14	346	26	15	175	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			7			8						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1302	
pX, platoon unblocked												
vC, conflicting volume	632	606	176	630	594	359	177			372		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	632	606	176	630	594	359	177			372		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	95	94	88	95	88	99			99		
cM capacity (veh/h)	328	405	873	351	412	683	1411			1197		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	82	149	14	372	15	177
Volume Left	5	44	14	0	15	0
Volume Right	56	85	0	26	0	2
cSH	1262	860	1411	1700	1197	1700
Volume to Capacity	0.06	0.17	0.01	0.22	0.01	0.10
Queue Length 95th (ft)	5	16	1	0	1	0
Control Delay (s)	11.1	13.5	7.6	0.0	8.0	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	11.1	13.5	0.3		0.6	
Approach LOS	B	B				

Intersection Summary				
Average Delay	3.9			
Intersection Capacity Utilization	35.2%	ICU Level of Service		A
Analysis Period (min)	15			

Appendix F

2012 FDOT Quality/Level of Service Handbook Tables

TABLE 7

Generalized **Peak Hour Directional** Volumes for Florida's **Urbanized Areas**[1]

12/18/12

INTERRUPTED FLOW FACILITIES

STATE SIGNALIZED ARTERIALS

Class I (40 mph or higher posted speed limit)

Lanes	Median	B	C	D	E
1	Undivided	*	830	880	**
2	Divided	*	1,910	2,000	**
3	Divided	*	2,940	3,020	**
4	Divided	*	3,970	4,040	**

Class II (35 mph or slower posted speed limit)

Lanes	Median	B	C	D	E
1	Undivided	*	370	750	800
2	Divided	*	730	1,630	1,700
3	Divided	*	1,170	2,520	2,560
4	Divided	*	1,610	3,390	3,420

Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes by the indicated percent.)

Non-State Signalized Roadways - 10%

Median & Turn Lane Adjustments

Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors
1	Divided	Yes	No	+5%
1	Undivided	No	No	-20%
Multi	Undivided	Yes	No	-5%
Multi	Undivided	No	No	-25%
–	–	–	Yes	+ 5%

One-Way Facility Adjustment

Multiply the corresponding directional volumes in this table by 1.2

UNINTERRUPTED FLOW FACILITIES

FREEWAYS

Lanes	B	C	D	E
2	2,260	3,020	3,660	3,940
3	3,360	4,580	5,500	6,080
4	4,500	6,080	7,320	8,220
5	5,660	7,680	9,220	10,360
6	7,900	10,320	12,060	12,500

Freeway Adjustments

Auxiliary Lane	Ramp Metering
+ 1,000	+ 5%

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Median	B	C	D	E
1	Undivided	420	840	1,190	1,640
2	Divided	1,810	2,560	3,240	3,590
3	Divided	2,720	3,840	4,860	5,380

Uninterrupted Flow Highway Adjustments

Lanes	Median	Exclusive left lanes	Adjustment factors
1	Divided	Yes	+5%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

BICYCLE MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Paved Shoulder/Bicycle Lane Coverage	B	C	D	E
0-49%	*	150	390	1,000
50-84%	110	340	1,000	>1,000
85-100%	470	1,000	>1,000	**

PEDESTRIAN MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Sidewalk Coverage	B	C	D	E
0-49%	*	*	140	480
50-84%	*	80	440	800
85-100%	200	540	880	>1,000

BUS MODE (Scheduled Fixed Route)[3]

(Buses in peak hour in peak direction)

Sidewalk Coverage	B	C	D	E
0-84%	> 5	≥ 4	≥ 3	≥ 2
85-100%	> 4	≥ 3	≥ 2	≥ 1

[1] Values shown are presented as peak hour directional volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the Highway Capacity Manual and the Transit Capacity and Quality of Service Manual.

[2] Level of service for the bicycle and pedestrian modes in this table is based on number of motorized vehicles, not number of bicyclists or pedestrians using the facility.

[3] Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

* Cannot be achieved using table input value defaults.

** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:
Florida Department of Transportation
Systems Planning Office
www.dot.state.fl.us/planning/systems/sm/los/default.shtm

TABLE 7
(continued)

Generalized **Peak Hour Directional** Volumes for Florida's **Urbanized Areas**

12/18/12

INPUT VALUE ASSUMPTIONS	Uninterrupted Flow Facilities			Interrupted Flow Facilities					
				State Arterials				Class I	
	Freeways	Highways		Class I		Class II		Bicycle	Pedestrian
ROADWAY CHARACTERISTICS									
Area type (lu, u)	lu	u	u	u	u	u	u	u	u
Number of through lanes (both dir.)	4-12	2	4-6	2	4-8	2	4-8	4	4
Posted speed (mph)	70	50	50	45	50	30	30	45	45
Free flow speed (mph)	75	55	55	50	55	35	35	50	50
Auxiliary lanes (n,y)	n								
Median (n, nr, r)		n	r	n	r	n	r	r	r
Terrain (l,r)	l	l	l	l	l	l	l	l	l
% no passing zone		80							
Exclusive left turn lane impact (n, y)		[n]	y	y	y	y	y	y	y
Exclusive right turn lanes (n, y)				n	n	n	n	n	n
Facility length (mi)	4	5	5	2	2	1.9	1.8	2	2
Number of basic segments	4								
TRAFFIC CHARACTERISTICS									
Planning analysis hour factor (K)	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090
Directional distribution factor (D)	0.547	0.550	0.550	0.550	0.560	0.565	0.560	0.565	0.565
Peak hour factor (PHF)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Base saturation flow rate (pcphpl)		1,700	2,100	1,950	1,950	1,950	1,950	1,950	1,950
Heavy vehicle percent	4.0	2.0	2.0	1.0	1.0	1.0	1.0	2.5	2.0
Local adjustment factor	0.91	0.97	0.98						
% left turns				12	12	12	12	12	12
% right turns				12	12	12	12	12	12
CONTROL CHARACTERISTICS									
Number of signals				4	4	10	10	4	6
Arrival type (1-6)				3	3	4	4	4	4
Signal type (a, c, p)				c	c	c	c	c	c
Cycle length (C)				120	150	120	120	120	120
Effective green ratio (g/C)				0.44	0.45	0.44	0.44	0.44	0.44
MULTIMODAL CHARACTERISTICS									
Paved shoulder/bicycle lane (n, y)								n, 50%, y	n
Outside lane width (n, t, w)								t	t
Pavement condition (d, t, w)								t	
On-street parking (n, y)								n	n
Sidewalk (n, y)									n, 50%, y
Sidewalk/roadway separation (a, t, w)									t
Sidewalk protective barrier (n, y)									n

LEVEL OF SERVICE THRESHOLDS

Level of Service	Freeways	Highways		Arterials		Bicycle	Ped	Bus
	Density	Two-Lane %ffs	Multilane Density	Class I ats	Class II ats	Score	Score	Buses/hr.
B	≤ 17	> 83.3	≤ 17	> 31 mph	> 22 mph	≤ 2.75	≤ 2.75	≤ 6
C	≤ 24	> 75.0	≤ 24	> 23 mph	> 17 mph	≤ 3.50	≤ 3.50	≤ 4
D	≤ 31	> 66.7	≤ 31	> 18 mph	> 13 mph	≤ 4.25	≤ 4.25	< 3
E	≤ 39	> 58.3	≤ 35	> 15 mph	> 10 mph	≤ 5.00	≤ 5.00	< 2

% ffs = Percent free flow speed ats = Average travel speed

Appendix G

Programmed / Planned Improvement Documentation

Web Application

Office of Work Program and Budget Lisa Saliba - Director

Five Year Work Program

Selection Criteria	
District 05 (Updated: 8/11/2013-19:15:01) **Item Number:**238275-7	2014-2018 AD Lake County

Display current records in a Report Style
Display current records in an Excel Document

Project Summary

Transportation System: INTRASTATE STATE HIGHWAY District 05 - Lake County
Description: SR429/46(WEKIVA PKW)FROM W OF OLD MCDONALD RDTO E OF WEKIVA RIVER RD
Type of Work: NEW ROAD CONSTRUCTION View Scheduled Activities
Item Number: 238275-7 SIS
Length: 4.924

Project Detail

Fiscal Year:	2014	2015	2016	2017	2018
Highways/Preliminary Engineering					
Amount:	$15,000				
Highways/Right of Way					
Amount:		$210,000			
Highways/Environmental					
Amount:			$2,580,000		
Highways/Design Build					
Amount:				$231,941,200	
Highways/Construction Support					
Amount:				$16,107,992	
Item Total:	**$15,000**	**$210,000**	**$2,580,000**	**$248,049,192**	

This site is maintained by the Office of Work Program and Budget, located at 605 Suwannee Street, MS 21, Tallahassee, Florida 32399. For additional information please e-mail questions or comments to:
(Lisa Saliba: Lisa.Saliba@dot.state.fl.us or call 850-414-4622)
View Contact Information for Office of Work Program and Budget

Web Application

Office of Work Program and Budget Lisa Saliba - Director

Five Year Work Program

Selection Criteria	
District 05 (Updated: 8/11/2013-19:15:01) **Item Number:**240200-2	2014-2018 AD Seminole County

Display current records in a Report Style
Display current records in an Excel Document

Project Summary

Transportation System: INTRASTATE STATE HIGHWAY District 05 - Seminole County
Description: SR429/46(WEKIVA PKW)FROM E OF WEKIVA RIVER RDTO ORANGE BOULEVARD
Type of Work: NEW ROAD CONSTRUCTION View Scheduled Activities
Item Number: 240200-2 **SIS**
Length: 3.532

Project Detail

Fiscal Year:	**2014**	**2015**	**2016**	**2017**	**2018**
Highways/Preliminary Engineering					
Amount:	$30,000				
Highways/Right of Way					
Amount:		$30,810,000	$25,000,000		
Highways/Construction					
Amount:					$126,583,417
Highways/Construction Support					
Amount:					$10,753,289
Item Total:	**$30,000**	**$30,810,000**	**$25,000,000**		**$137,336,706**

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View Contact Information for Office of Work Program and Budget

Application Home: Work Program
Office Home: Office of Work Program and Budget

Florida Department of Transportation
Consistent, Predictable, Repeatable

Florida Department of
TRANSPORTATION

Web Application

Office of Work Program and Budget Lisa Saliba - Director

Five Year Work Program

Selection Criteria	
District 05 (Updated: 8/11/2013-19:15:01) **Item Number:**240200-4	2014-2018 AD Seminole County

Display current records in a Report Style
Display current records in an Excel Document

Project Summary

Transportation System: INTRASTATE STATE HIGHWAY District 05 - Seminole County
Description: SR 429 (WEKIVA PKWY)FROM ORANGE BOULEVARD TO W OF I-4 (SR 400)
Type of Work: NEW ROAD CONSTRUCTION View Scheduled Activities
Item Number: 240200-4 SIS
Length: 2.636

Project Detail

Fiscal Year:	**2014**	**2015**	**2016**	**2017**	**2018**
Highways/Preliminary Engineering					
Amount:	$23,013				
Highways/Right of Way					
Amount:		$13,125,000			
Highways/Environmental					
Amount:			$840,000		
Item Total:	**$23,013**	**$13,125,000**	**$840,000**		

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View Contact Information for Office of Work Program and Budget

Application Home: Work Program
Office Home: Office of Work Program and Budget

Florida Department of Transportation
Consistent, Predictable, Repeatable

TABLE 4

EXPRESSWAYS/TOLL ROADWAYS IMPROVEMENTS BY PLAN YEAR

No.	Agency	Project Name (Programmed)	Improvements	Year to be Added
1	Osceola County	Southport Connector (Southport Rd to SR 91/Florida's Turnpike)	New 6 Lane Toll	2020
2	Osceola County	Southport Connector (SR 91/Florida's Turnpike to Canoe Creek Rd)	New 6 Lane Toll	2020
3	Osceola County	Osceola Pkwy (SR 417/Southern Connector to SR 535/Vineland Rd)	Widen 4-6	2025
4	Osceola County	Osceola Pkwy (SR 535/Vineland Rd to John Young Pkwy)	Widen 4-6	2025
5	Fla Turnpike	SR 91/Florida's Turnpike (Southport Connector to US 192/St. Cloud)	Widen 4-6	2030
6	Fla Turnpike	SR 91/Florida's Turnpike (US 192/St. Cloud to US 441/Orange Blossom Tr)	Widen 4-8	2030
7	Fla Turnpike	SR 91/Florida's Turnpike @ SR 417/Greeneway	New Interchange	2030
8	Fla Turnpike	SR 91/Florida's Turnpike @ SR 482/Sand Lake Rd	New Interchange	2030
9	OOCEA	SR 408/East-West Expwy (SR 91/Florida's Turnpike to SR 50/W Colonial Dr Ramps)	Widen 4-6	2030
10	OOCEA	SR 408/East-West Expwy (John Young Pkwy to I-4)	Widen 6-8	2030
11	OOCEA	SR 408/East-West Expwy (I-4 to Anderson St)	Widen 6-8	2030
12	OOCEA	SR 408/East-West Expwy (Anderson St to Conway Rd)	Widen 10-12	2030
13	OOCEA	SR 408/East-West Expwy (Conway Rd to Goldenrod Rd)	Widen 8-10	2030
14	OOCEA	SR 417/Greeneway (SR 536/World Center Dr to SR 91/Florida's Turnpike)	Widen 4-6	2030
15	OOCEA	SR 417/Greeneway (SR 91/Florida's Turnpike to SR 528/BeachLine Expwy)	Widen 4-6	2030
16	OOCEA	SR 417/Greeneway (SR 528/BeachLine Expwy to Curry Ford)	Widen 6-8	2030
17	OOCEA	SR 417/Greeneway (Curry Ford to SR 408/East-West Expwy)	Widen 4-6	2030
18	OOCEA	SR 417/Greeneway (SR 408/East-West Expwy to SR 50/Colonial Dr)	Widen 4-6	2015
19	OOCEA	SR 417/Greeneway (SR 408/East-West Expwy to SR 50/Colonial Dr)	Widen 6-8	2030
20	OOCEA	SR 417/Greeneway (SR 50/Colonial Dr to University Boulevard)	Widen 6-8	2030
21	OOCEA	SR 417/Greeneway (University Blvd to SR 426/Aloma Ave)	Widen 4-6	2015
22	OOCEA	SR 417/Greeneway (University Blvd to SR 426/Aloma Ave)	Widen 6-8	2030
23	Fla Turnpike	SR 417/Seminole Expwy (SR 426/Aloma Ave to I-4)	Widen 4-6	2030
24	OOCEA	SR 429/Wekiva Pkwy (SR 414/John Land Apopka Expwy to US 441/Orange Blossom Tr)	New 4 Lane Toll	2020
25	OOCEA	SR 429/Wekiva Pkwy (US 441/Orange Blossom Tr to Lake County Line)	New 4 Lane Toll	2020
26	OOCEA	SR 429/Wekiva Pkwy (Lake County Line to I-4)	New 6 Lane Toll	2020
27	OOCEA	SR 429/Western Beltway (Seidel Rd to SR 91/Florida's Turnpike)	Widen 4-6	2030
28	OOCEA	SR 429/Western Beltway (SR 91/Florida's Turnpike to West Rd/Clarcona-Ocoee Rd)	Widen 4-6	2030
29	Fla Turnpike	SR 528/BeachLine Expwy (I-4 to John Young Pkwy)	Widen 4-6	2020
30	Fla Turnpike	SR 528/BeachLine Expwy (I-4 to John Young Pkwy)	Widen 6-8	2030
31	Fla Turnpike	SR 528/BeachLine Expwy (John Young Pkwy to SR 91/Florida's Turnpike)	Widen 4-6	2020
32	OOCEA	SR 528/BeachLine Expwy (Tradeport Rd to SR 436/Semoran Blvd)	Widen 6-8	2030
33	OOCEA	SR 528/BeachLine Expwy (SR 436/Semoran Blvd to Goldenrod Rd)	Widen 6-8	2030
34	OOCEA	SR 528/BeachLine Expwy (BeachLine Mainline Toll Plaza to McKelly Rd)	Widen 4-6	2020

Source:
Osceola County. OOCEA, and Florida's Turnpike Enterprise.

TRANSPORTATION 2035 LAKE~SUMTER MPO
TABLE 5 COST FEASIBLE PLAN PROJECTS
AMENDMENT 1 (APPROVED JUNE 27, 2012)

Street	From	To	County	Miles	Project Scope	Project Costs (YOE$)
ROADWAYS						*(in millions)*
State Strategic Intermodal System (SIS) Corridors						
Clermont Interchange	SR 50/US 27		Lake	1.00	New Interchange (urban)	$ 80.1
US 27/SR 25	Lake Louisa Road	Boggy Marsh Road	Lake	4.38	State Widen Road (4 to 6 lanes)	$ 0.4
SR 93/I-75 Villages Interchange*	I-75/C-466		Sumter	1.00	New Interchange (Mainline)	$ 29.6
Wekiva Parkway	West of US 441	Seminole County Line	Lake	11.77	Various	$ 303.6
SR 46 Segment 3A	*East of Pond Road*	*East of Round Lake Road*	*Lake*	*2.08*	*State Widen Road (2 to 6 Lanes)*	*$ 11.0*
SR 46/US 441 Segment 3B	*West of US 441*	*East of Pond Road*	*Lake*	*0.47*	*State Widen SR 46 (2 to 6 Lanes) and US 441 (4 to 6 Lanes) Interchange SB to WB Flyover Ramp*	*$ 32.0*
SR 429 Segment 4B	*Orange County Line*	*West of Old McDonald Road*	*Lake*	*2.50*	*State New 4 Lane Road*	*$ 52.6*
CR 46A Realignment Segment 5	*SR 46*	*North of Arundel Way*	*Lake*	*1.80*	*New 2 Lane Road*	*$ 10.0*
SR 429/SR46 Segment 6	*West of Old McDonald Road*	*East of Wekiva River Road*	*Lake*	*4.92*	*State New 4 Lane Road*	*$ 198.0*
Unfunded SIS Needs						
*Monarch Ranch Interchange**	*I-75/C-514*		*Sumter*	*1.00*	*New Interchange (Mainline)*	$ 29.6
US 27 / SR 25	*CR 561 East*	*CR 561A West*	*Lake*	*2.14*	*State Widen Road (4 to 6 lanes)*	$ 25.1
US 27/SR 25	*Lake Louisa Road*	*Boggy Marsh Road*	*Lake*	*4.38*	*State Widen Road (4 to 6 lanes)*	$ 45.5
SR 93/I-75	*Hernando County Line*	*SR 91/Florida's Turnpike*	*Sumter*	*21.83*	*Widen Freeway (4 to 6 lanes)*	$ 115.3
Florida's Turnpike Enterprise						
Minneola Interchange	SR 91/Florida's Turnpike/Turkey Farm Road		Lake	1.00	New Interchange (Mainline)	$ 29.6
C-468 Interchange	SR 91/Florida's Turnpike/C-468		Sumter	1.00	New Interchange (Mainline)	$ 29.6
Unfunded Turnpike Needs						
SR 91/Florida's Turnpike	*Minneola Interchange*	*Orange County Line*	*Lake*	*5.76*	*Widen Freeway (6 to 8 lanes)*	$ 42.3
SR 91/Florida's Turnpike	*Sumter County Line*	*Minneola Interchange*	*Lake*	*18.00*	*Widen Freeway (4 to 6 lanes)*	$ 132.1
SR 91/Florida's Turnpike	*I-75*	*Sumter County Line*	*Sumter*	*10.67*	*Widen Freeway (4 to 6 lanes)*	$ 78.3
Orlando Orange County Expressway Authority (OOCEA)						
Wekiva Pkwy (SR 429 / SR 46)	East of Round Lake Road	Orange County Line	Lake	1.2	New 4 Lane Limited Access Expressways	$ 14.2
State Roads / Other Arterials						
US 27/US 441	Lake Ella Road	MLK JR Boulevard	Lake	3.24	State Widen Road (4 to 6 lanes)	$ 33.7
US 27/US 441	Avenida Central	Lake Ella Road	Lake	4.18	State Widen Road (4 to 6 lanes)	$ 61.0
US 441/SR 500	Perkins Street	SR 44	Lake	1.36	State Widen Road (4 to 6 lanes)	$ 12.4
SR 48	I-75	C-475	Sumter	1.84	State Widen Road (2 to 4 Lanes)	$ 14.3
SR 44*	Orange Avenue	US 441	Lake	1.66	State Widen Road (2 to 4 Lanes) with Frontage	$ 9.5
SR 50 / SR 33	CR 565 (Villa City Road)	CR 565 (Montevista)	Lake	1.89	New 4 Lane Road	$ 21.2
US 441	SR 44	SR 46	Lake	2.50	State Widen Road (4 to 6 lanes)	$ 43.0
SR 19	CR 561	CR 48	Lake	4.77	State Widen Road (2 to 4 Lanes)	$ 138.2
SR 19	*CR 561*	*CR 448*	*Lake*	*1.45*	*State Widen Road (2 to 4 Lanes)*	*$ 18.7*
SR 19	*CR 448*	*Bridge*	*Lake*	*1.74*	*State Widen Road (2 to 4 Lanes)*	*$ 20.8*
SR 19	*Bridge*	*Bridge*	*Lake*	*0.63*	*New 4 Lane Bridge*	*$ 88.3*
SR 19	*Bridge*	*CR 48*	*Lake*	*0.80*	*State Widen Road (2 to 4 Lanes)*	*$ 10.3*
US 301/SR 35	SR 91/Florida's Turnpike	C-468	Sumter	2.74	State Widen Road (2 to 4 Lanes)	$ 37.6
US 301/SR 35	C-468	C-470 west	Sumter	4.30	State Widen Road (2 to 4 Lanes)	$ 58.9
SR 44 / US 27			Lake	0.25	Upgrade Intersection (turn lanes)	$ 0.7
SR 19	CR 455	CR 48	Lake	3.93	Turn Lanes / Safety Improvement	$ 28.9
Unfunded State Road / Other Arterial Needs						
SR 19	*SR 50*	*CR 478*	*Lake*	*1.92*	*State Widen Road (2 to 4 Lanes)*	$ 28.4
SR 19	*CR 478*	*US 27 / SR 25*	*Lake*	*4.73*	*State Widen Road (2 to 4 Lanes)*	$ 69.8
SR 19	*US 27 / SR 25*	*CR 455*	*Lake*	*2.73*	*State Widen Road (2 to 4 Lanes)*	$ 40.2

** Developer funding percentage of total cost (Local funding is 50% or less)*

Appendix H

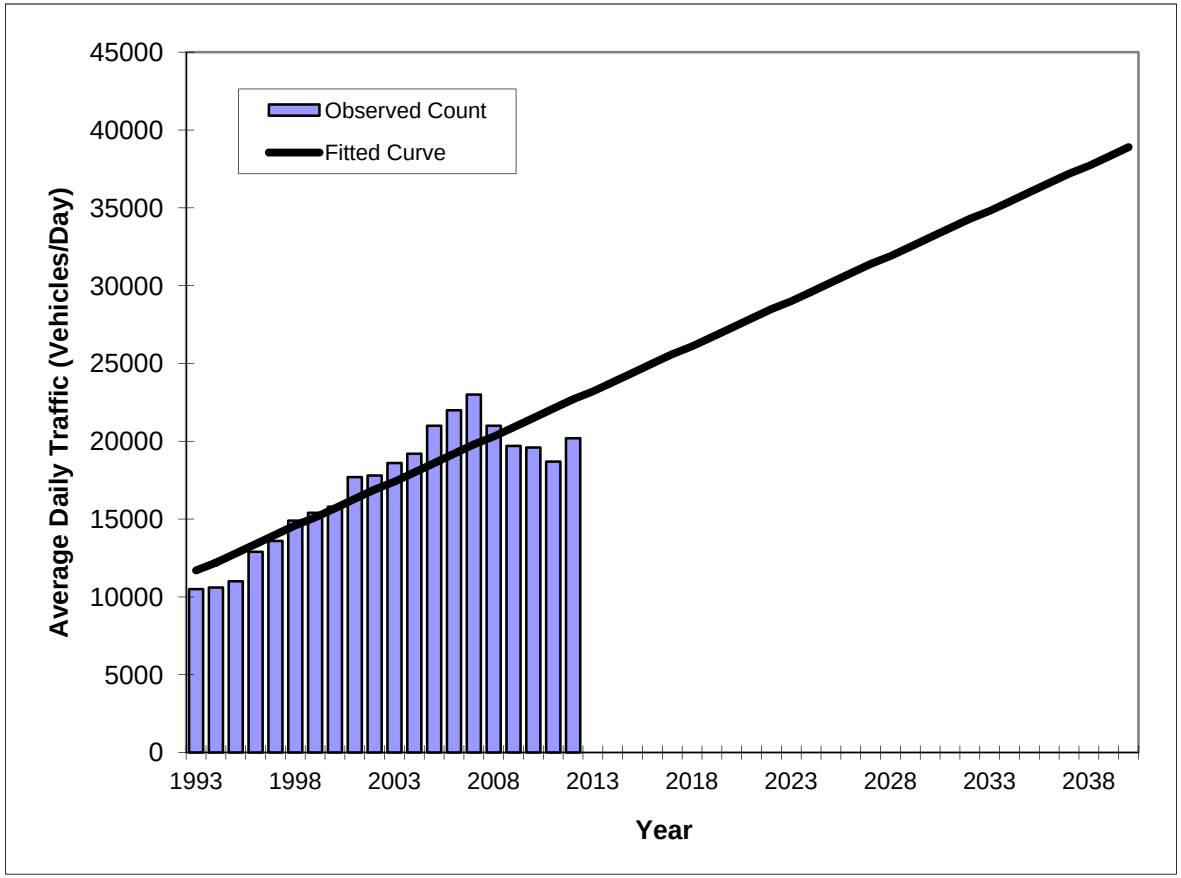
Trend Analysis Summary Sheets and BEBR Population Projections

Traffic Trends - V3.0

SR 46 -- SR 46 East of the Wekiva River

FIN#	240200-2
Location	1

County:	Seminole (77)
Station #:	0074
Highway:	SR 46



Year	Traffic (ADT/AADT) Count*	Trend**
1993	10500	11700
1994	10600	12200
1995	11000	12800
1996	12900	13400
1997	13600	14000
1998	14900	14600
1999	15400	15100
2000	15800	15700
2001	17700	16300
2002	17800	16900
2003	18600	17400
2004	19200	18000
2005	21000	18600
2006	22000	19200
2007	23000	19800
2008	21000	20300
2009	19700	20900
2010	19600	21500
2011	18700	22100
2012	20200	22700
2020 Opening Year Trend		
2020	N/A	27300
2030 Mid-Year Trend		
2030	N/A	33100
2040 Design Year Trend		
2040	N/A	38900
TRANPLAN Forecasts/Trends		

** Annual Trend Increase:	580
Trend R-squared:	78.68%
Trend Annual Historic Growth Rate:	4.95%
Trend Growth Rate (2012 to Design Year):	2.55%
Printed:	9-Aug-13

Straight Line Growth Option

*Axle-Adjusted

Projections of Florida Population by County, 2015–2040, with Estimates for 2012 (continued)

County and State	Estimates April 1, 2012	Projections, April 1 2015	2020	2025	2030	2035	2040
HOLMES	19,984						
Low		18,600	18,200	17,700	17,100	16,400	15,600
Medium		20,200	20,700	21,100	21,400	21,600	21,700
High		21,800	23,200	24,500	25,700	26,800	27,800
INDIAN RIVER	139,446						
Low		136,700	143,800	149,300	153,200	155,300	156,200
Medium		145,400	158,000	169,600	180,200	189,300	197,700
High		154,200	172,200	190,000	207,300	223,400	239,200
JACKSON	49,847						
Low		47,000	45,600	44,300	42,900	41,600	40,100
Medium		50,000	50,200	50,300	50,500	50,700	50,800
High		53,000	54,700	56,400	58,100	59,800	61,500
JEFFERSON	14,478						
Low		13,500	13,400	13,100	12,800	12,300	11,900
Medium		14,700	15,200	15,600	16,000	16,200	16,500
High		15,900	17,000	18,100	19,200	20,100	21,100
LAFAYETTE	8,663						
Low		8,100	8,200	8,200	8,100	8,000	7,800
Medium		8,800	9,300	9,700	10,100	10,500	10,800
High		9,600	10,400	11,300	12,200	13,000	13,800
LAKE	299,677						
Low		299,700	322,900	340,400	351,900	357,300	358,500
Medium		318,800	358,800	395,800	429,200	458,100	484,500
High		338,000	394,700	451,200	506,400	558,900	610,500
LEE	638,029						
Low		641,900	696,200	738,300	768,300	786,500	792,000
Medium		682,800	773,500	858,500	937,000	1,008,300	1,070,200
High		723,800	850,900	978,700	1,105,600	1,230,200	1,348,500
LEON	277,670						
Low		267,700	271,600	273,800	274,500	272,800	269,800
Medium		284,800	298,400	311,100	322,900	332,700	341,500
High		301,900	325,300	348,500	371,300	392,600	413,300
LEVY	40,339						
Low		39,200	40,400	41,500	42,400	43,200	43,900
Medium		41,700	44,400	47,100	49,900	52,700	55,500
High		44,200	48,400	52,800	57,400	62,200	67,200
LIBERTY	8,519						
Low		8,500	8,600	8,700	8,700	8,600	8,400
Medium		9,300	9,800	10,300	10,800	11,300	11,700
High		10,000	11,000	12,000	13,000	14,000	14,900
MADISON	19,227						
Low		17,800	17,100	16,400	15,700	15,000	14,300
Medium		19,300	19,400	19,500	19,600	19,700	19,800
High		20,800	21,700	22,700	23,600	24,500	25,400
MANATEE	330,302						
Low		324,000	341,300	354,700	363,800	368,900	371,100
Medium		344,700	375,000	403,100	428,000	449,900	469,800
High		365,400	408,800	451,500	492,200	530,900	568,500
MARION	332,989						
Low		329,000	346,300	358,800	366,700	369,700	368,100
Medium		350,000	384,700	417,200	447,200	474,000	497,500
High		371,000	423,200	475,600	527,700	578,200	626,800
MARTIN	147,203						
Low		142,900	146,500	148,800	149,800	149,500	148,300
Medium		152,000	161,000	169,100	176,200	182,300	187,800
High		161,100	175,500	189,400	202,700	215,100	227,200

Projections of Florida Population by County, 2015–2040, with Estimates for 2012 (continued)

County and State	Estimates April 1, 2012	Projections, April 1 2015	2020	2025	2030	2035	2040
SANTA ROSA	155,390						
Low		153,100	161,100	167,000	170,100	170,700	170,100
Medium		162,900	179,000	194,100	207,400	218,800	229,900
High		172,700	196,900	221,300	244,700	266,900	289,700
SARASOTA	383,664						
Low		372,000	384,200	392,600	397,200	398,200	395,700
Medium		395,800	422,200	446,200	467,300	485,600	500,800
High		419,500	460,200	499,700	537,400	573,100	606,000
SEMINOLE	428,104						
Low		413,700	423,500	429,700	432,000	430,600	426,800
Medium		440,100	465,400	488,300	508,200	525,100	540,300
High		466,500	507,200	546,900	584,400	619,700	653,700
SUMTER	100,198						
Low		102,200	116,600	125,300	130,400	132,000	130,900
Medium		111,100	132,500	152,900	171,600	188,600	204,500
High		120,000	148,400	180,400	212,700	245,200	278,200
SUWANNEE	43,796						
Low		42,400	43,800	44,700	45,300	45,400	45,200
Medium		45,100	48,100	50,800	53,200	55,300	57,200
High		47,900	52,400	56,900	61,200	65,300	69,200
TAYLOR	22,898						
Low		21,300	20,900	20,400	19,800	19,200	18,400
Medium		23,200	23,800	24,300	24,800	25,200	25,600
High		25,100	26,600	28,200	29,800	31,300	32,700
UNION	15,510						
Low		14,600	14,500	14,400	14,100	13,700	13,300
Medium		15,800	16,500	17,100	17,600	18,100	18,500
High		17,100	18,500	19,800	21,100	22,400	23,700
VOLUSIA	497,145						
Low		477,300	482,700	484,400	482,200	476,400	468,200
Medium		507,700	530,500	550,500	567,200	580,900	592,700
High		538,200	578,200	616,600	652,300	685,500	717,200
WAKULLA	30,771						
Low		30,200	31,400	32,200	32,600	32,700	32,400
Medium		32,100	34,800	37,400	39,800	41,900	43,800
High		34,000	38,300	42,700	47,000	51,100	55,100
WALTON	56,965						
Low		57,000	61,500	64,800	67,000	68,000	68,600
Medium		60,600	68,300	75,400	81,700	87,200	92,700
High		64,300	75,100	85,900	96,400	106,400	116,700
WASHINGTON	24,922						
Low		23,500	23,600	23,400	23,100	22,600	21,900
Medium		25,500	26,800	27,900	28,900	29,700	30,400
High		27,500	30,000	32,400	34,700	36,900	38,900
FLORIDA	19,074,434						
Low		19,316,800	20,063,600	20,846,200	21,640,600	22,322,500	22,921,300
Medium		19,750,600	21,141,300	22,434,000	23,601,100	24,639,500	25,583,200
High		20,297,000	22,106,300	23,924,300	25,659,400	27,305,800	28,899,800

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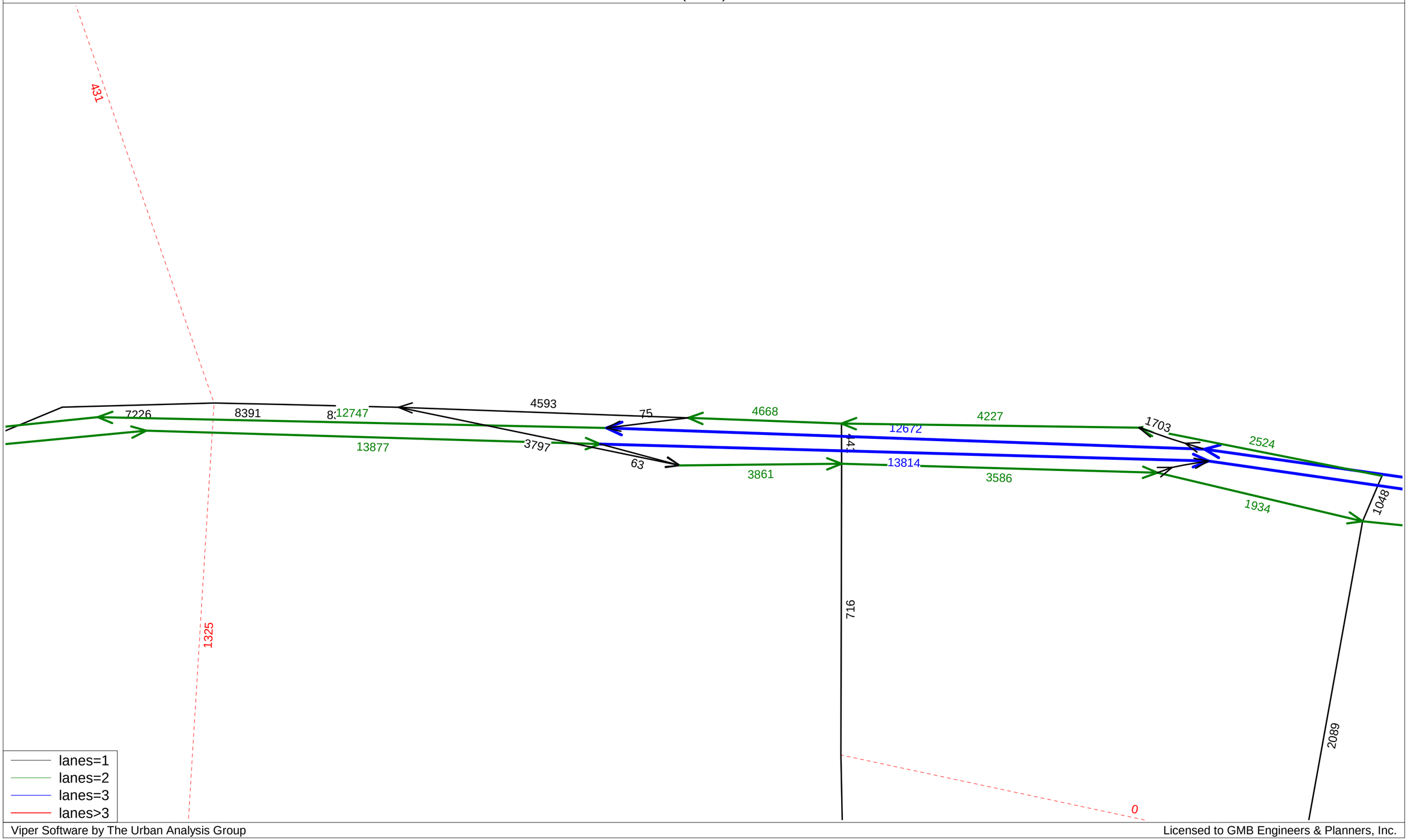
http://www.bebr.ufl.edu

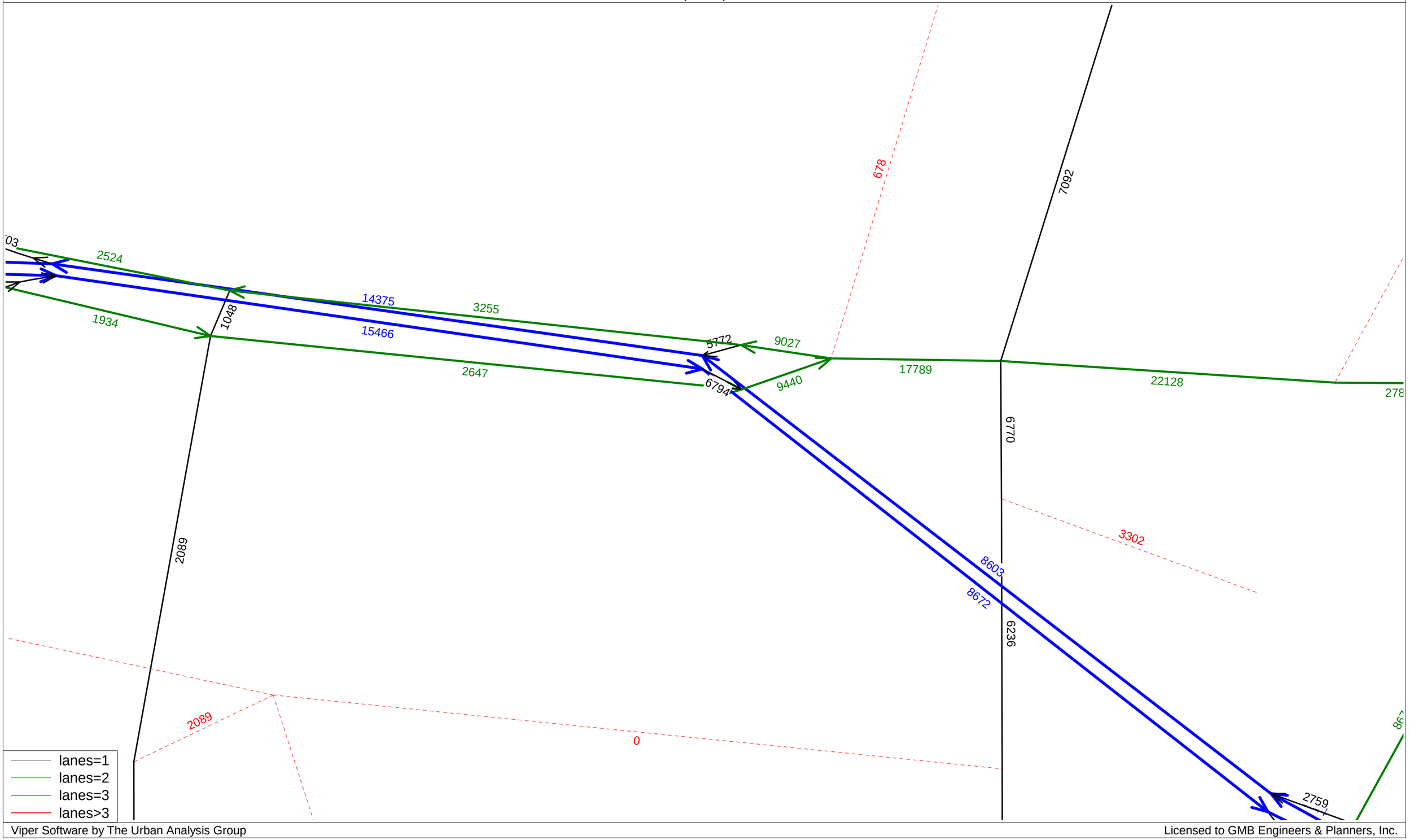
Appendix I

CFRPM Model Plots

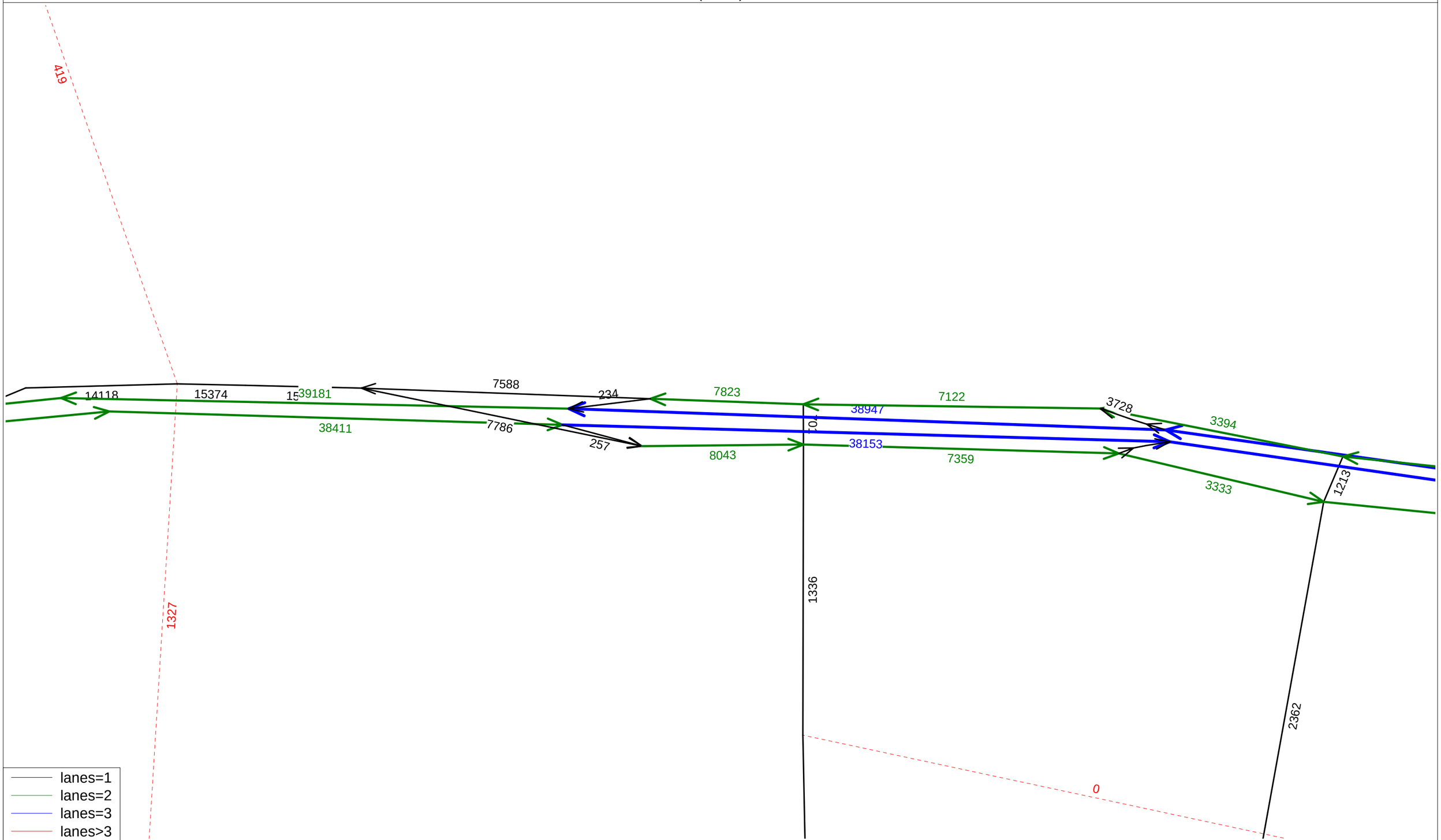
SR 429 (Wekiva Parkway - Section 7A) DTTM
YR 2013 CFRPM PSWADT
(1 of 2)



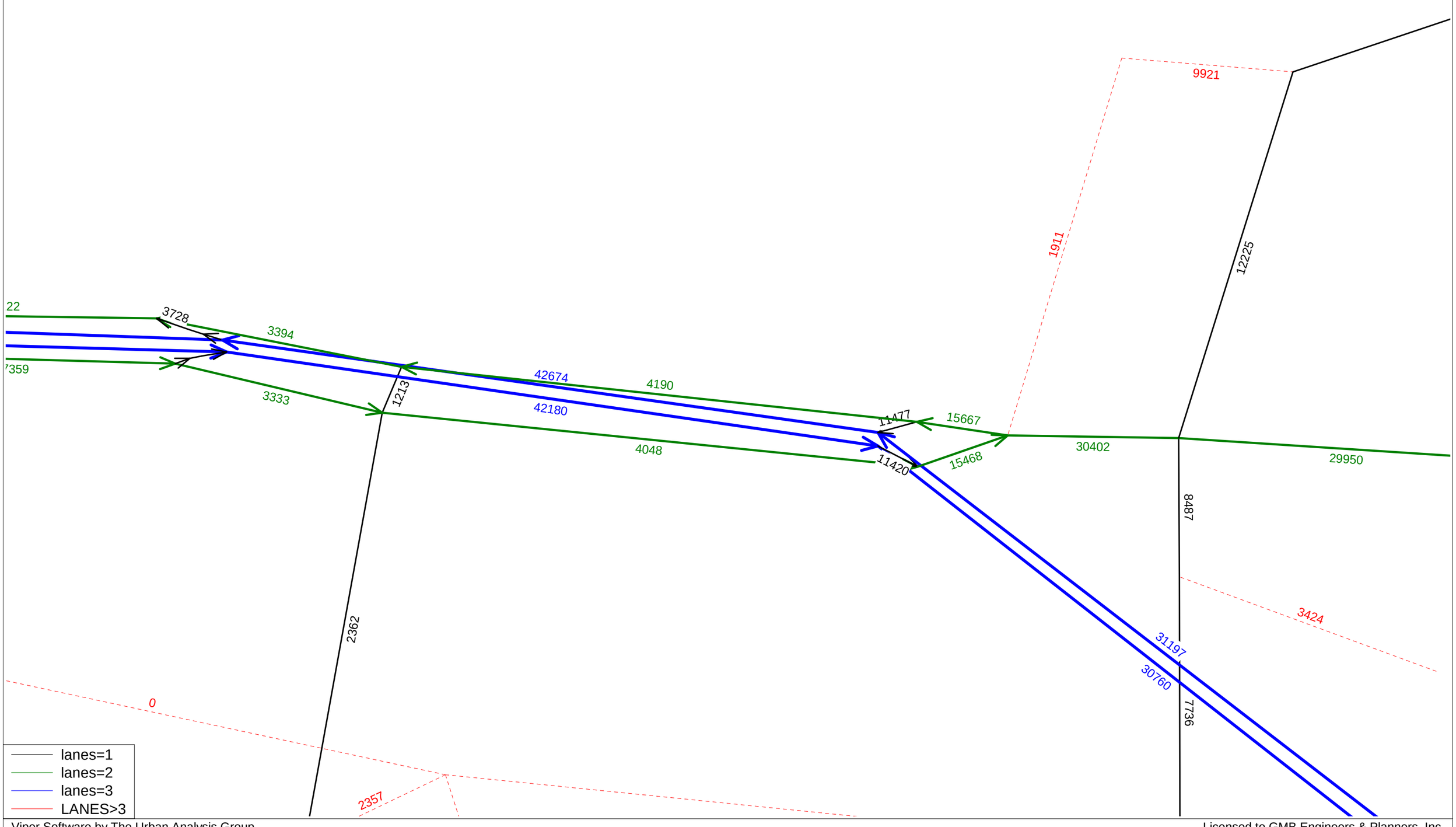
SR 429 (Wekiva Parkway - Section 7A) DTTM
YR 2013 CFRPM PSWADT
(2 of 2)



SR 429 (Wekiva Parkway - Section 7A) DTTM
YR 2040 CFRPM PSWADT
(1 of 2)



SR 429 (Wekiva Parkway - Section 7A) DTTM
YR 2040 CFRPM PSWADT
(2 of 2)



Appendix J

TURNS5 Sheets

TURNS5 ANALYSIS SHEET - INPUT

Analyst:	JT
Date:	13-Sep-13
Highway:	Wekiva Park Drive
Intersection:	River Oaks Feeder Road
From:	
To:	AM Build Alternative
County:	Lake

Is the Mainline Oriented North/South? Enter Yes or No: (●) Yes ( ) No

K Factors

Mainline	Sidestreet
9.00%	9.00%

D Factors

Mainline	
43.6%	Northbound (NB)
56.4%	Southbound (SB)
Sidestreet	
43.6%	Westbound (WB)
56.4%	Eastbound (EB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No: (●) Yes ( ) No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: (●) Linear ( ) Exponential ( ) Decaying

Side Street Growth Function: (●) Linear ( ) Exponential ( ) Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

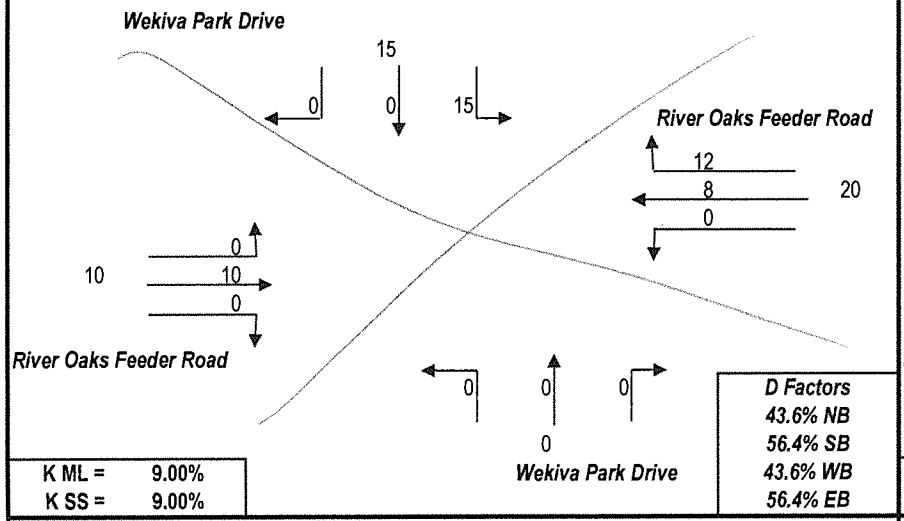
	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	250	540	300	0	1090
2040	450	990	550	0	1990

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**	
(EB LT)	*West-to-North*	50%	0	
(EB THRU)	*West-to-East*	50%	100	
(EB RT)	*West-to-South*	0%	0	
(WB LT)	*East-to-South*	0%	0	(must be done manually)
(WB THRU)	*East-to-West*	50%	55	
(WB RT)	*East-to-North*	50%	45	
(SB LT)	*North-to-East*	50%	95	
(SB THRU)	*North-to-South*	0%	0	
(SB RT)	*North-to-West*	50%	5	
(NB LT)	*South-to-West*	33%	0	
(NB THRU)	*South-to-North*	34%	0	
(NB RT)	*South-to-East*	33%	0	

Desired Closure: 0.01

PROJECT TRAFFIC FOR Wekiva Park Drive AT River Oaks Feeder Road: TO AM Build Alternative

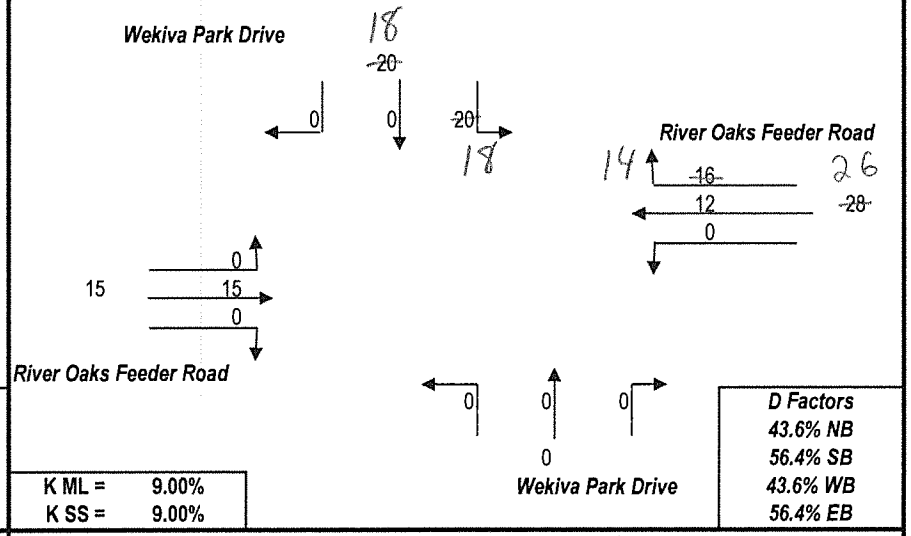
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% NB
56.4% SB
43.6% WB
56.4% EB

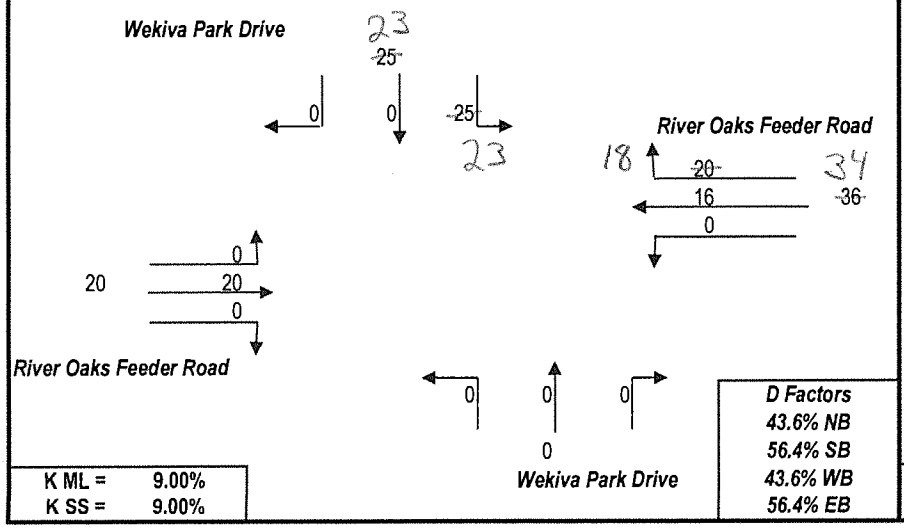
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% NB
56.4% SB
43.6% WB
56.4% EB

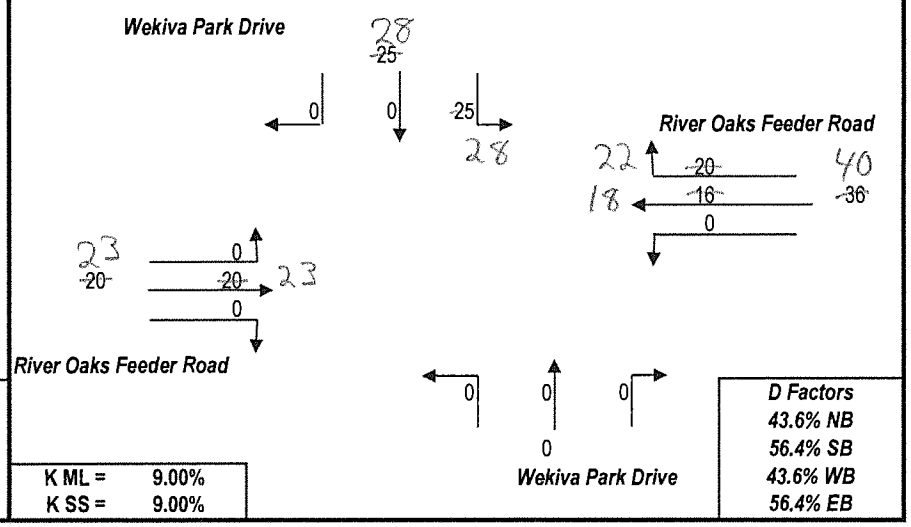
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% NB
56.4% SB
43.6% WB
56.4% EB

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% NB
56.4% SB
43.6% WB
56.4% EB

TURNS5 ANALYSIS SHEET - INPUT

Analyst: JT
Date: 13-Sep-13
Highway: Frontage Road
Intersection: sprey Hammock Trail/River Oaks Feeder Roa
From:
To: AM Build Alternative
County: Seminole

Is the Mainline Oriented North/South? (Enter Yes or No) ○ Yes ◉ No

K Factors

Mainline
9.00%
Sidestreet
9.00%

D Factors

Mainline	
43.6%	Westbound (WB)
56.4%	Eastbound (EB)
Sidestreet	
61.0%	Northbound (NB)
39.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) (Enter Yes or No) ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

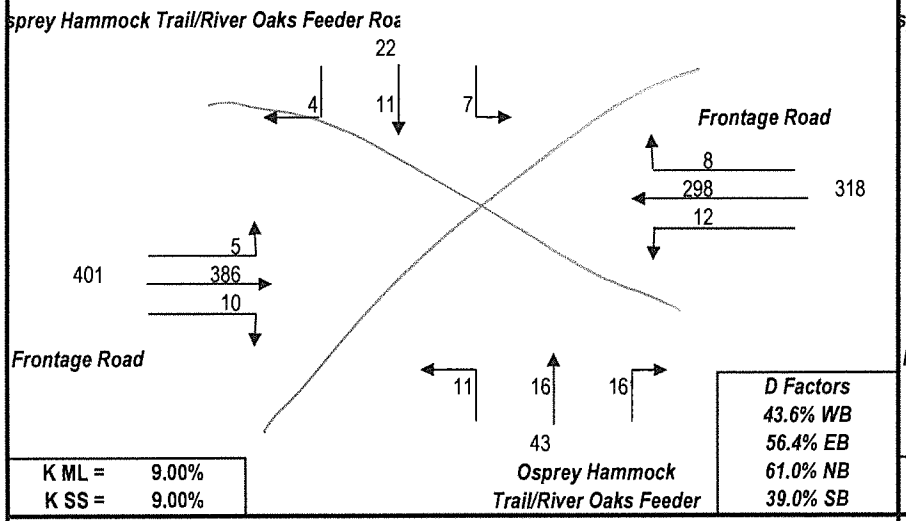
	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	7900	8100	550	850	17400
2040	14500	15000	1000	1600	32100

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**	
(EB LT)	*West-to-North*	0%	0	
(EB THRU)	*West-to-East*	95%	1140	
(EB RT)	*West-to-South*	5%	2	
(WB LT)	*East-to-South*	2%	6	(must be done manually)
(WB THRU)	*East-to-West*	98%	611	
(WB RT)	*East-to-North*	0%	0	
(SB LT)	*North-to-East*	34%	0	
(SB THRU)	*North-to-South*	3%	0	
(SB RT)	*North-to-West*	63%	0	
(NB LT)	*South-to-West*	64%	3	
(NB THRU)	*South-to-North*	1%	0	
(NB RT)	*South-to-East*	35%	32	

Desired Closure: 0.01

PROJECT TRAFFIC FOR Frontage Road AT Osprey Hammock Trail/River Oaks Feeder Road: TO AM Build Alternative

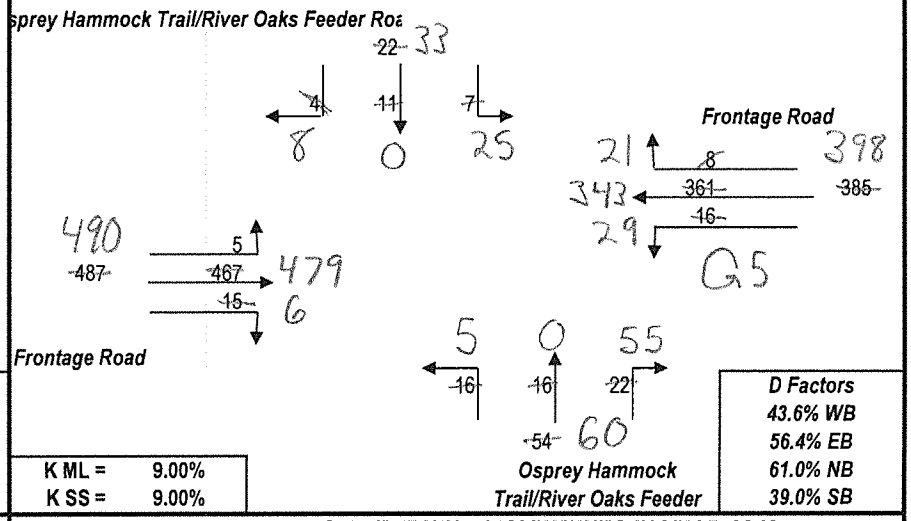
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

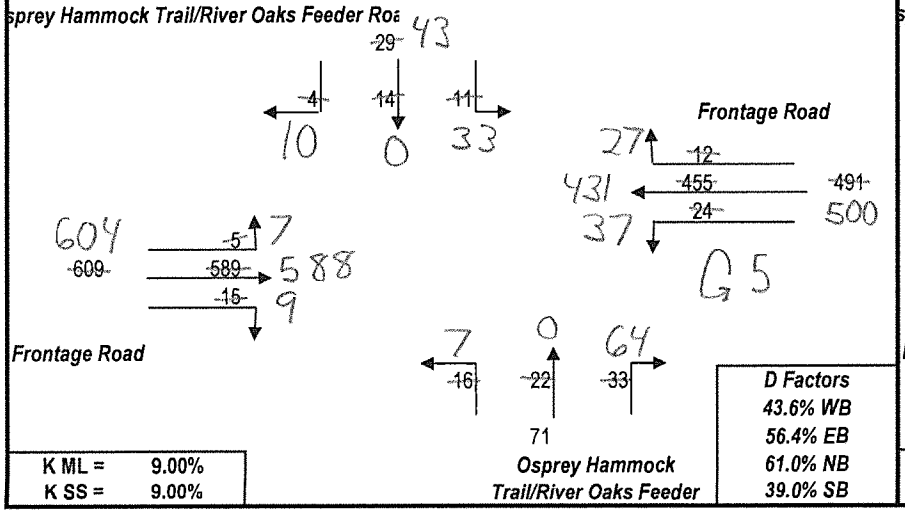
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

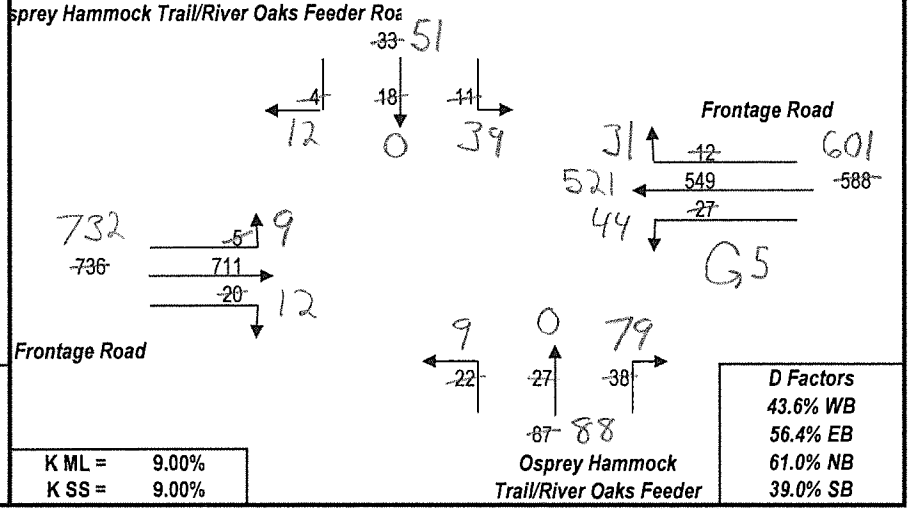
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

TURNS5 ANALYSIS SHEET - INPUT

Analyst:	JT
Date:	13-Sep-13
Highway:	Frontage Road
Intersection:	Longwood Markham Road
From:	
To:	AM Build Alternative
County:	Seminole

Is the Mainline Oriented North/South? (Enter Yes or No) ○ Yes ◉ No

K Factors

Mainline	Sidestreet
9.00%	9.00%

D Factors

Mainline	
43.6%	Westbound (WB)
56.4%	Eastbound (EB)
Sidestreet	
39.0%	Northbound (NB)
61.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) (Enter Yes or No) ◉ Yes ○ No

If "Yes" go to cell C47 — If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	8300	7600	0	3400	19300
2040	15500	14000	0	6400	35900

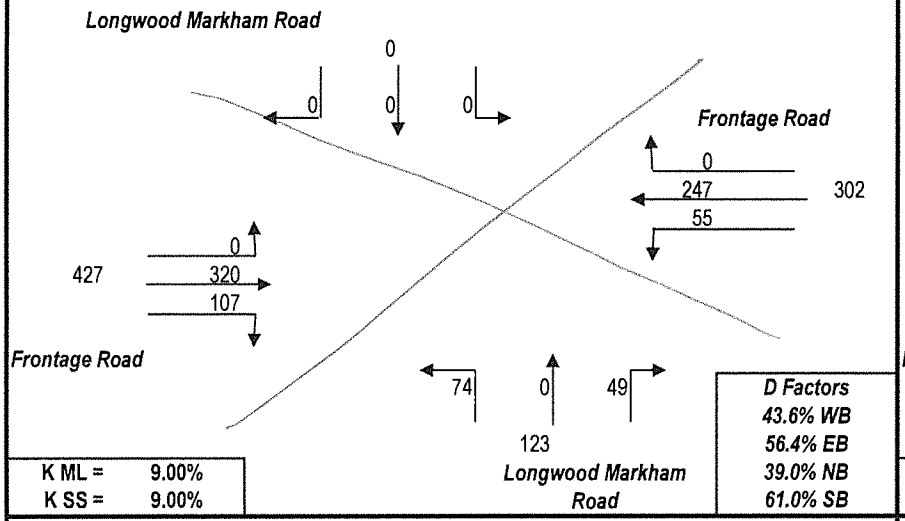
		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**
(EB LT)	*West-to-North*	0%	0
(EB THRU)	*West-to-East*	84%	984
(EB RT)	*West-to-South*	16%	186
(WB LT)	*East-to-South*	8%	7
(WB THRU)	*East-to-West*	92%	554
(WB RT)	*East-to-North*	0%	0
(SB LT)	*North-to-East*	30%	0
(SB THRU)	*North-to-South*	7%	0
(SB RT)	*North-to-West*	63%	0
(NB LT)	*South-to-West*	67%	63
(NB THRU)	*South-to-North*	1%	0
(NB RT)	*South-to-East*	32%	49

(must be done manually)

Desired Closure: 0.01

PROJECT TRAFFIC FOR Frontage Road AT Longwood Markham Road: TO AM Build Alternative

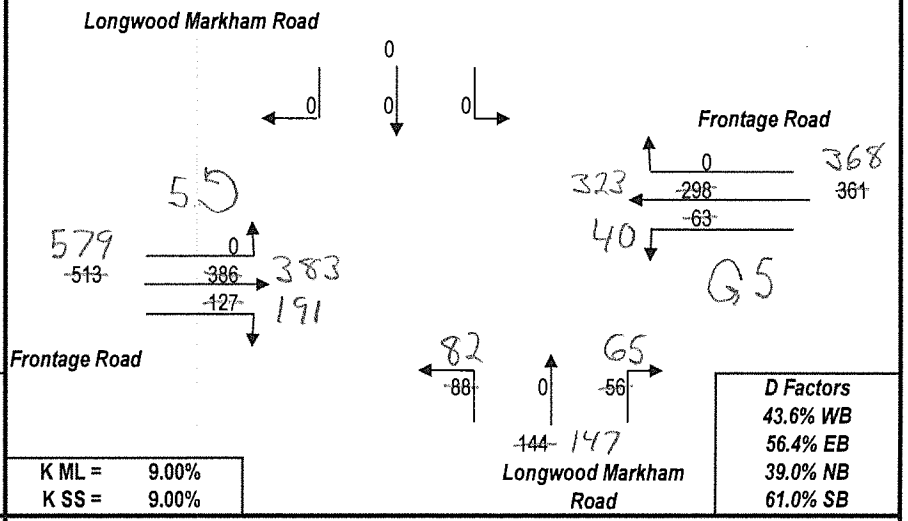
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



D Factors
43.6% WB
56.4% EB
39.0% NB
61.0% SB

K ML =	9.00%
K SS =	9.00%

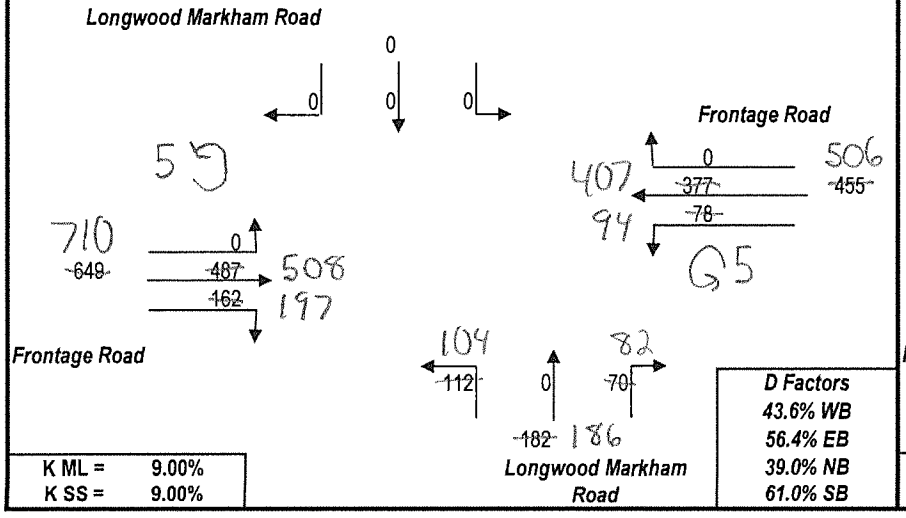
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



D Factors
43.6% WB
56.4% EB
39.0% NB
61.0% SB

K ML =	9.00%
K SS =	9.00%

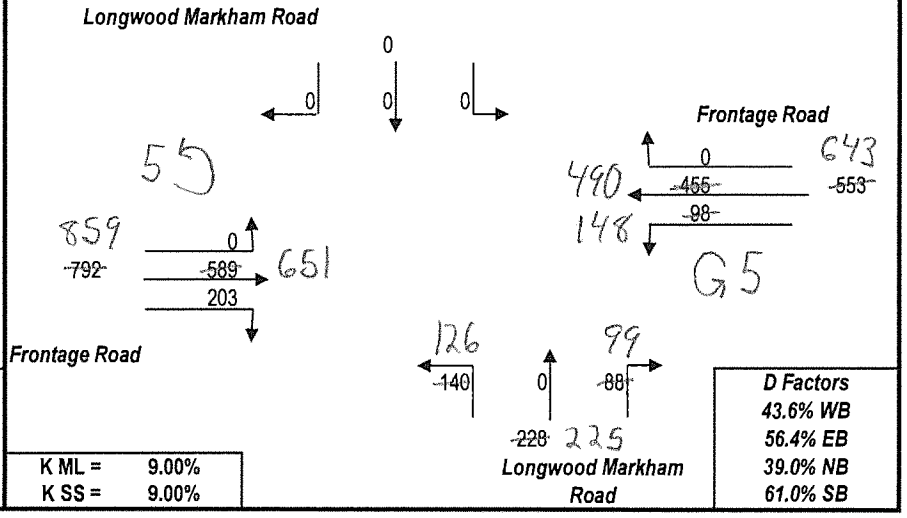
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



D Factors
43.6% WB
56.4% EB
39.0% NB
61.0% SB

K ML =	9.00%
K SS =	9.00%

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



D Factors
43.6% WB
56.4% EB
39.0% NB
61.0% SB

K ML =	9.00%
K SS =	9.00%

TURNS5 ANALYSIS SHEET - INPUT

Analyst:	JT
Date:	13-Sep-13
Highway:	Frontage Road
Intersection:	Yankee Lake Road
From:	
To:	AM Build Alternative
County:	Seminole

Is the Mainline Oriented North/South? Enter Yes or No: ○ Yes ◉ No

K Factors	Mainline
	9.00%
	Sidestreet
	9.00%

D Factors	*Mainline*	
	43.6%	Westbound (WB)
	56.4%	Eastbound (EB)
	Sidestreet	
	61.0%	Northbound (NB)
	39.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No: ◉ Yes ○ No

If "Yes" go to cell C47 — If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

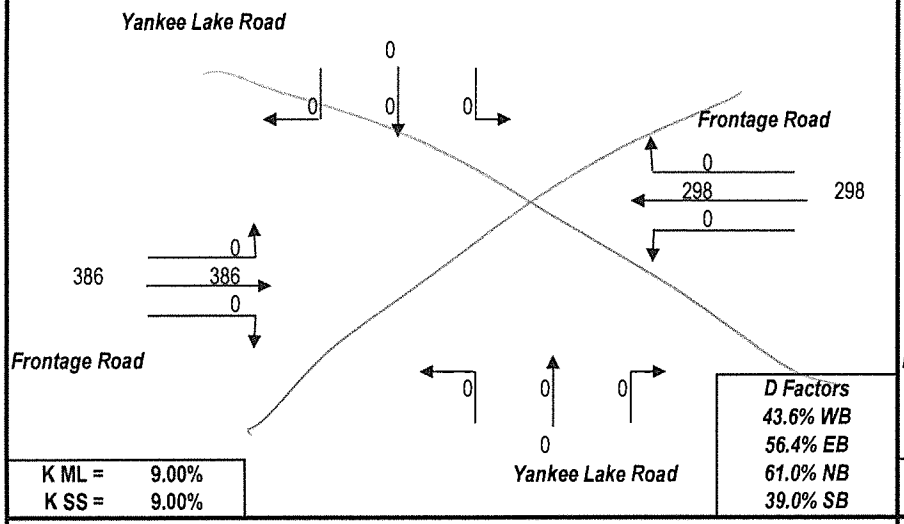
	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	7600	7600	100	0	15300
2040	14000	14000	200	0	28200

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**	
(EB LT)	*West-to-North*	0%	2	
(EB THRU)	*West-to-East*	100%	1032	
(EB RT)	*West-to-South*	0%	0	
(WB LT)	*East-to-South*	0%	0	(must be done manually)
(WB THRU)	*East-to-West*	100%	562	
(WB RT)	*East-to-North*	0%	3	
(SB LT)	*North-to-East*	35%	4	
(SB THRU)	*North-to-South*	1%	0	
(SB RT)	*North-to-West*	64%	0	
(NB LT)	*South-to-West*	64%	0	
(NB THRU)	*South-to-North*	1%	0	
(NB RT)	*South-to-East*	35%	0	

Desired Closure: 0.01

PROJECT TRAFFIC FOR Frontage Road AT Yankee Lake Road: TO AM Build Alternative

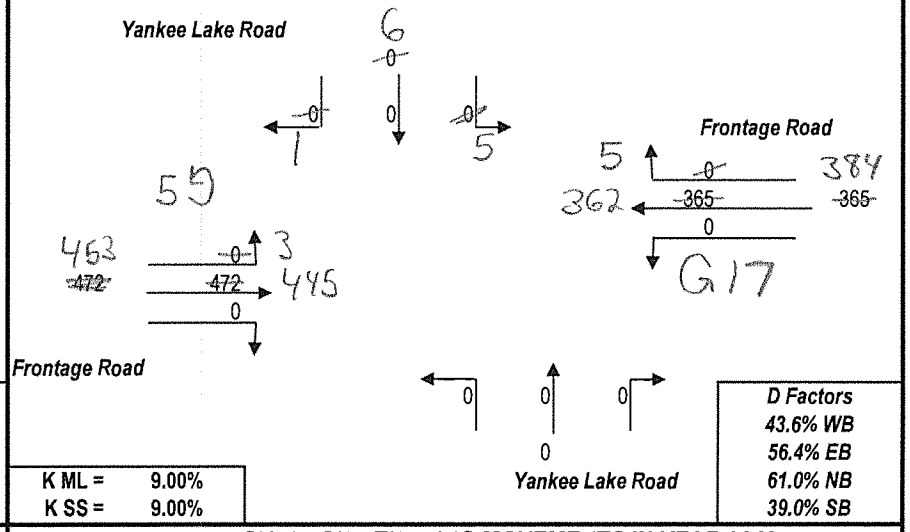
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

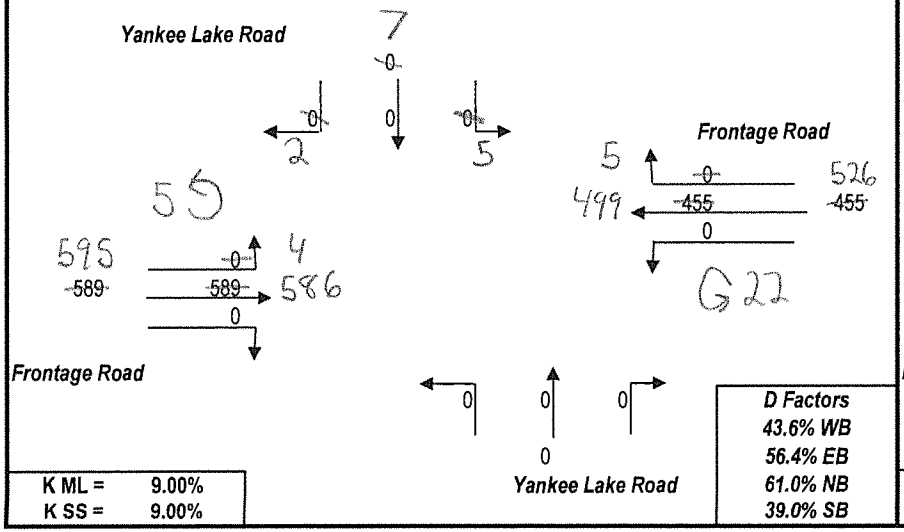
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

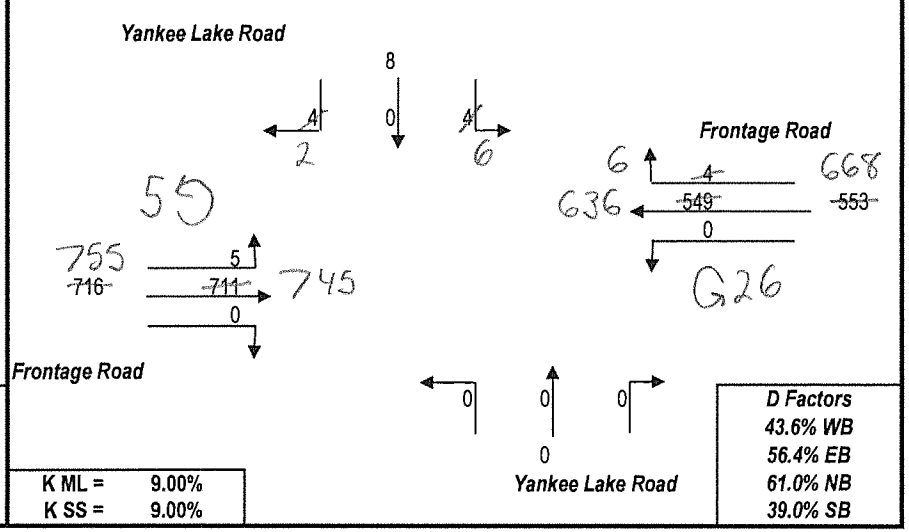
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

TURNS5 ANALYSIS SHEET - INPUT

Analyst: JT
Date: 13-Sep-13
Highway: Ross Lake Lane
Intersection: Frontage Road
From:
To: AM Build Alternative
County: Seminole

Is the Mainline Oriented North/South? Enter Yes or No — ○ Yes ◉ No

K Factors

Mainline	Sidestreet
9.00%	9.00%

D Factors

Mainline	
43.6%	Westbound (WB)
56.4%	Eastbound (EB)
Sidestreet	
61.0%	Northbound (NB)
39.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No — ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function — ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function — ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

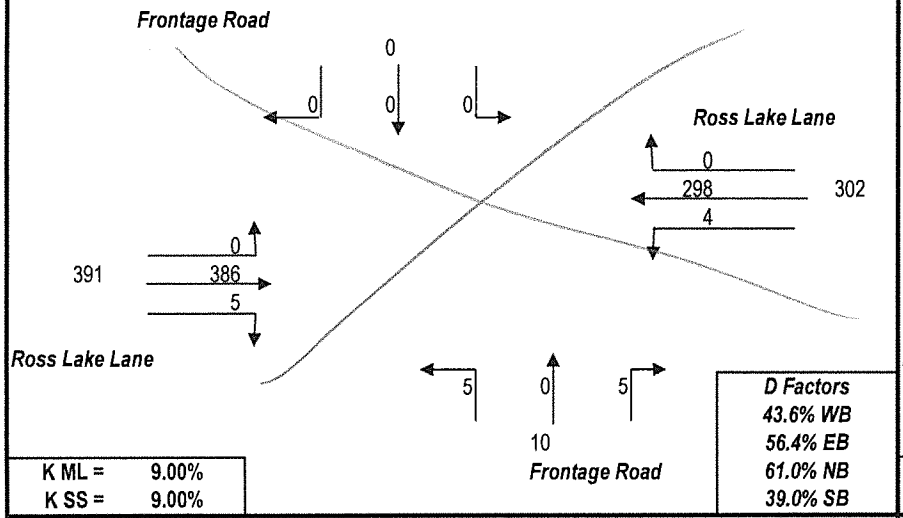
	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	7600	7700	0	150	15450
2040	14000	14100	0	300	28400

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**	
(EB LT)	*West-to-North*	0%	0	
(EB THRU)	*West-to-East*	99%	1035	
(EB RT)	*West-to-South*	1%	1	
(WB LT)	*East-to-South*	0%	1	(must be done manually)
(WB THRU)	*East-to-West*	100%	565	
(WB RT)	*East-to-North*	0%	0	
(SB LT)	*North-to-East*	35%	0	
(SB THRU)	*North-to-South*	1%	0	
(SB RT)	*North-to-West*	64%	0	
(NB LT)	*South-to-West*	64%	0	
(NB THRU)	*South-to-North*	1%	0	
(NB RT)	*South-to-East*	35%	7	

Desired Closure: 0.01

PROJECT TRAFFIC FOR Ross Lake Lane AT Frontage Road: TO AM Build Alternative

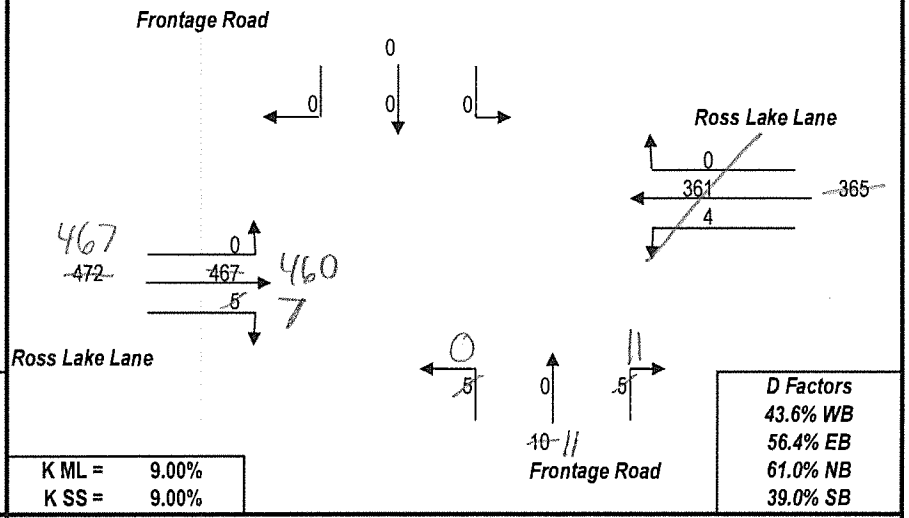
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

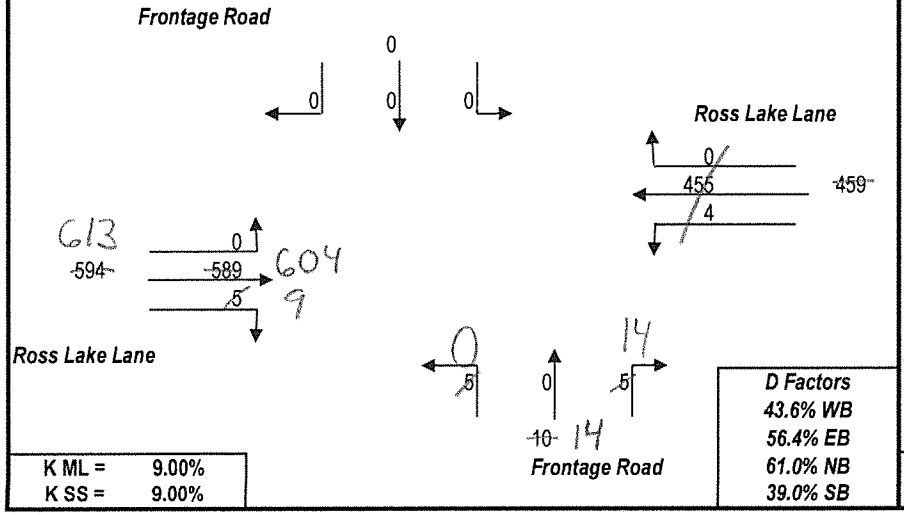
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

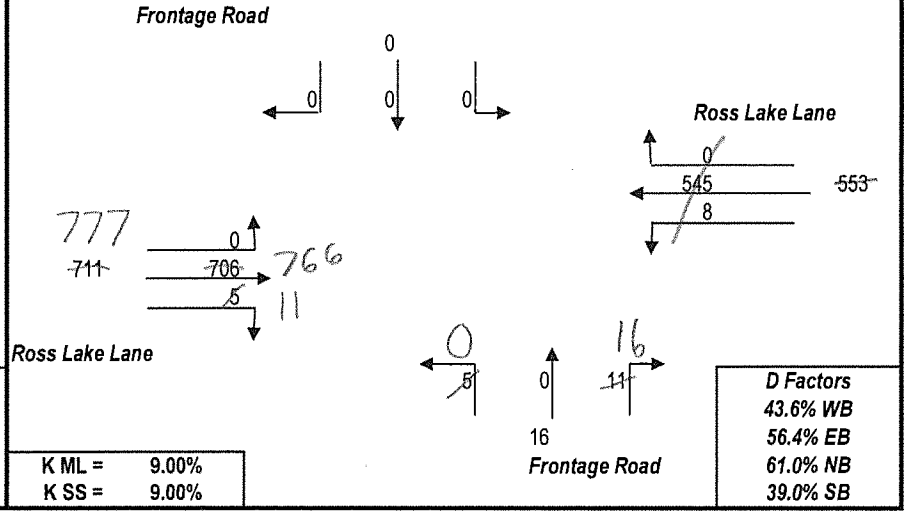
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

TURNS5 ANALYSIS SHEET - INPUT

Analyst:	JT
Date:	13-Sep-13
Highway:	Frontage Road
Intersection:	Bella Foresta Place
From:	
To:	AM Build Alternative
County:	Seminole

Is the Mainline Oriented North/South? Enter Yes or No: ○ Yes ◉ No

K Factors	Mainline
	9.00%
	Sidestreet
	9.00%

D Factors	*Mainline*	
	43.6%	Westbound (WB)
	56.4%	Eastbound (EB)
	Sidestreet	
	39.0%	Northbound (NB)
	61.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No: ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	3600	3600	0	300	7500
2040	5000	5000	0	550	10550

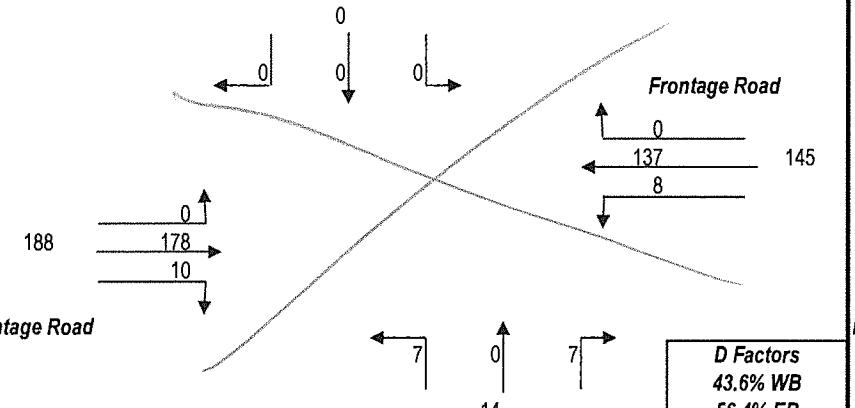
		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**
(EB LT)	*West-to-North*	0%	0
(EB THRU)	*West-to-East*	98%	1038
(EB RT)	*West-to-South*	2%	4
(WB LT)	*East-to-South*	1%	9
(WB THRU)	*East-to-West*	99%	564
(WB RT)	*East-to-North*	0%	0
(SB LT)	*North-to-East*	35%	0
(SB THRU)	*North-to-South*	1%	0
(SB RT)	*North-to-West*	64%	0
(NB LT)	*South-to-West*	64%	2
(NB THRU)	*South-to-North*	1%	0
(NB RT)	*South-to-East*	35%	10

(must be done manually)

Desired Closure: 0.01

PROJECT TRAFFIC FOR Frontage Road AT Bella Foresta Place: TO AM Build Alternative

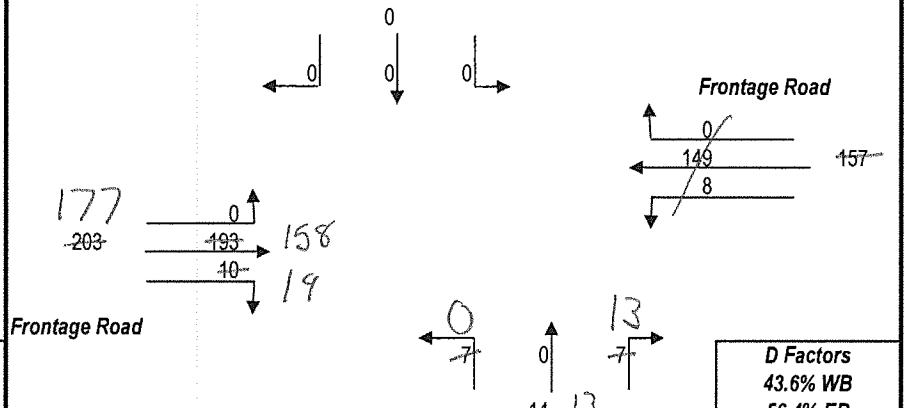
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
39.0% NB
61.0% SB

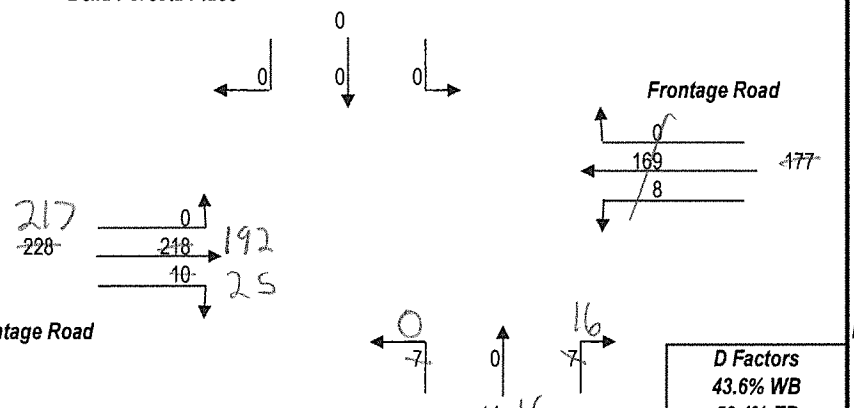
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
39.0% NB
61.0% SB

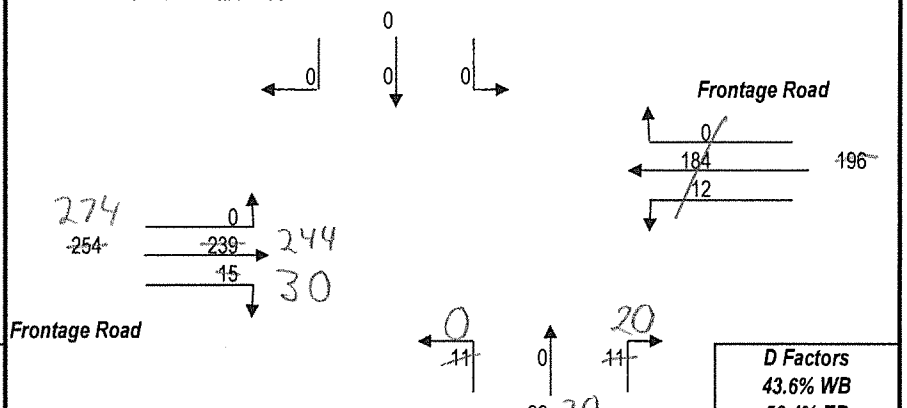
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
39.0% NB
61.0% SB

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
39.0% NB
61.0% SB

TURNS5 ANALYSIS SHEET - INPUT

Analyst: JT
Date: 13-Sep-13
Highway: Frontage Road
Intersection: Lake Markham Road
From:
To: AM Build Alternative
County: Seminole

Is the Mainline Oriented North/South? (Enter Yes or No) ○ Yes ◉ No

K Factors

Mainline	Sidestreet
9.00%	9.00%

D Factors

Mainline	
43.6%	Westbound (WB)
56.4%	Eastbound (EB)
Sidestreet	
61.0%	Northbound (NB)
39.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) (Enter Yes or No) ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

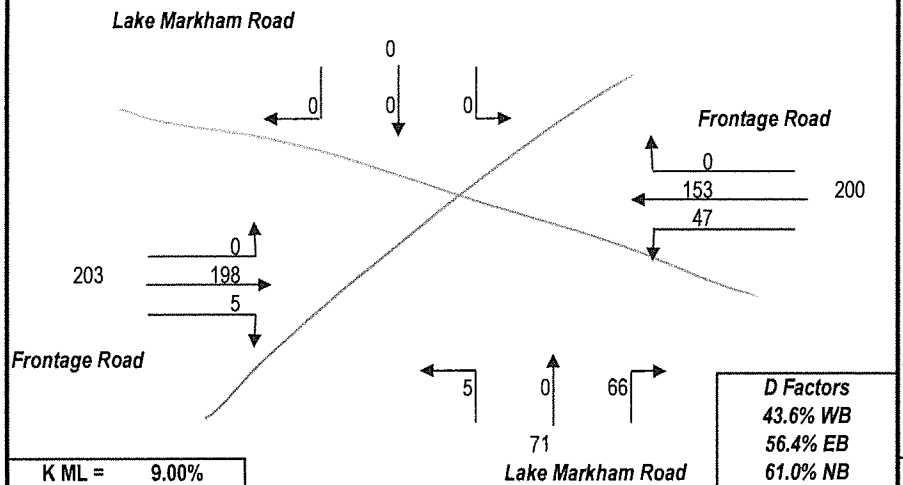
	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	3900	5000	0	1200	10100
2040	5550	7200	0	2300	15050

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**	
(EB LT)	*West-to-North*	0%	0	
(EB THRU)	*West-to-East*	95%	1035	
(EB RT)	*West-to-South*	5%	13	
(WB LT)	*East-to-South*	3%	15	(must be done manually)
(WB THRU)	*East-to-West*	97%	569	
(WB RT)	*East-to-North*	0%	0	
(SB LT)	*North-to-East*	35%	0	
(SB THRU)	*North-to-South*	3%	0	
(SB RT)	*North-to-West*	62%	0	
(NB LT)	*South-to-West*	64%	4	
(NB THRU)	*South-to-North*	1%	0	
(NB RT)	*South-to-East*	35%	31	

Desired Closure: 0.01

PROJECT TRAFFIC FOR Frontage Road AT Lake Markham Road: TO AM Build Alternative

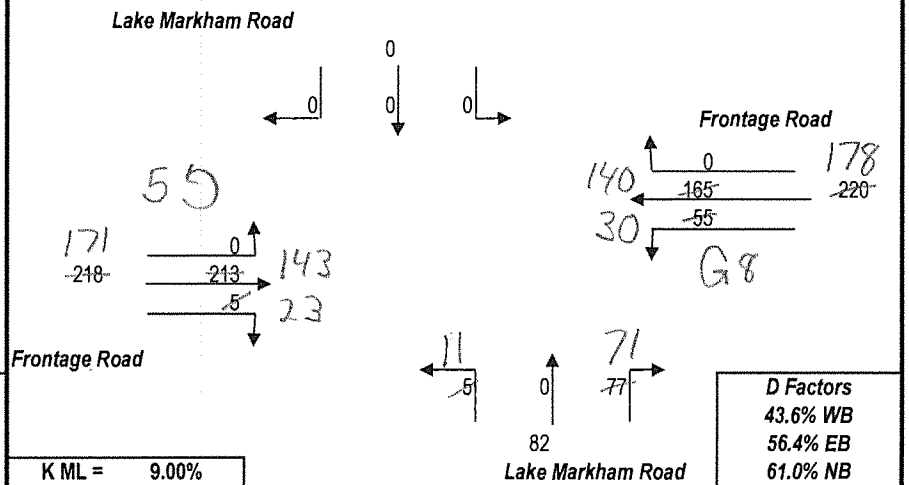
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

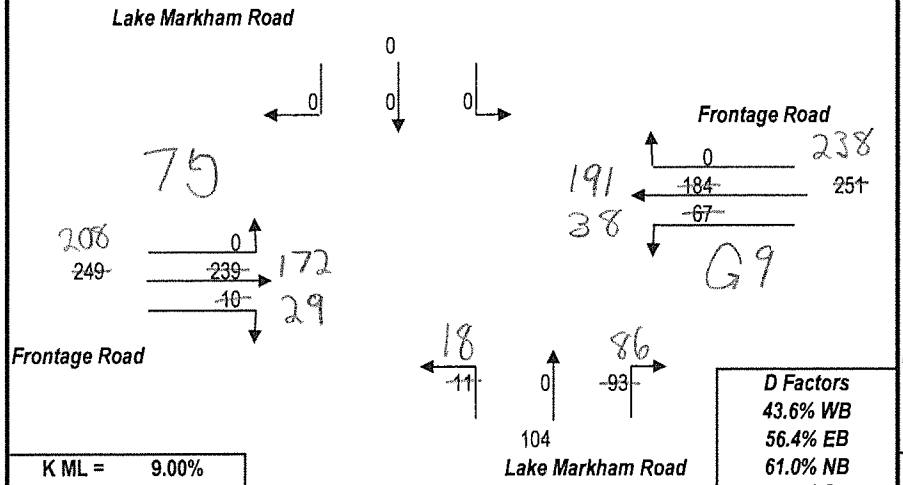
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

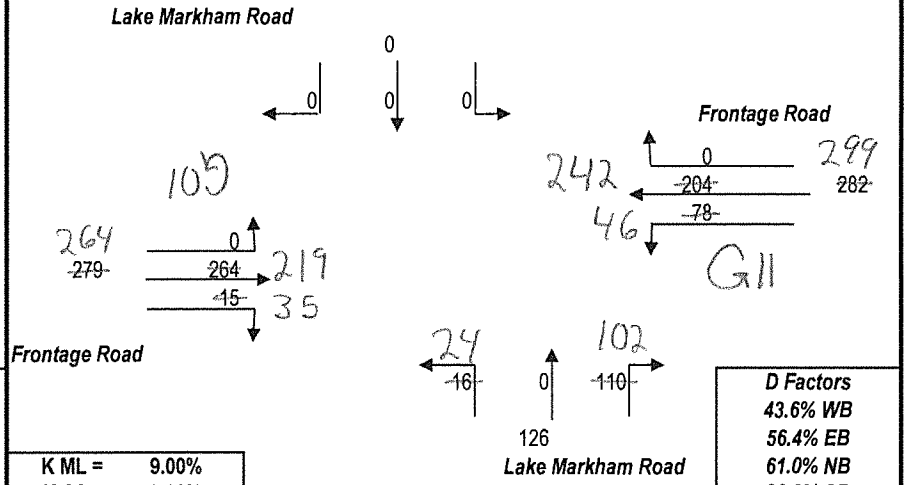
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

TURNS5 ANALYSIS SHEET - INPUT

Analyst: JT
Date: 13-Sep-13
Highway: Frontage Road
Intersection: Maureen Drive
From:
To: AM Build Alternative
County: Seminole

Is the Mainline Oriented North/South? Enter Yes or No: ○ Yes ◉ No

K Factors

Mainline
9.00%
Sidestreet
9.00%

D Factors

Mainline	
43.6%	Westbound (WB)
56.4%	Eastbound (EB)
Sidestreet	
61.0%	Northbound (NB)
39.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No: ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	5700	5700	0	150	11550
2040	7200	7200	0	300	14700

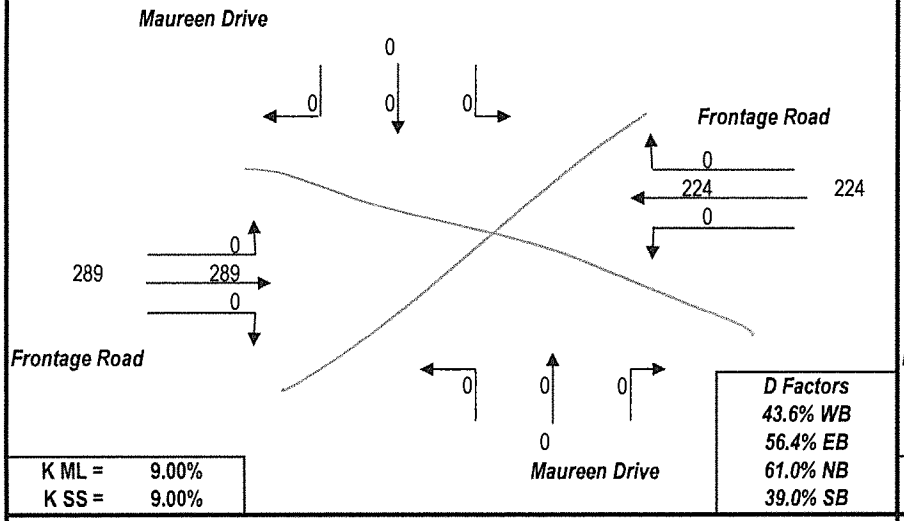
		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**
(EB LT)	*West-to-North*	0%	0
(EB THRU)	*West-to-East*	100%	1066
(EB RT)	*West-to-South*	0%	0
(WB LT)	*East-to-South*	0%	0
(WB THRU)	*East-to-West*	100%	584
(WB RT)	*East-to-North*	0%	0
(SB LT)	*North-to-East*	35%	0
(SB THRU)	*North-to-South*	1%	0
(SB RT)	*North-to-West*	64%	0
(NB LT)	*South-to-West*	64%	0
(NB THRU)	*South-to-North*	1%	0
(NB RT)	*South-to-East*	35%	3

(must be done manually)

Desired Closure: 0.01

PROJECT TRAFFIC FOR Frontage Road AT Maureen Drive: TO AM Build Alternative

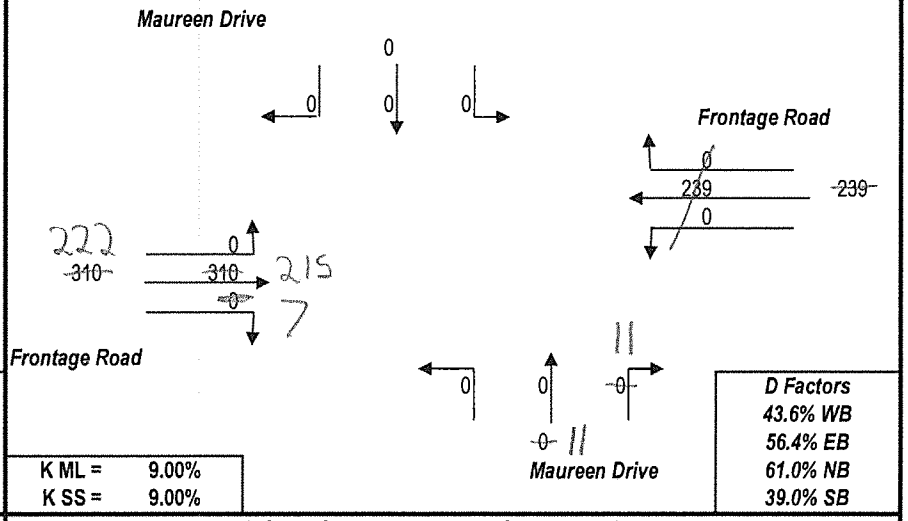
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

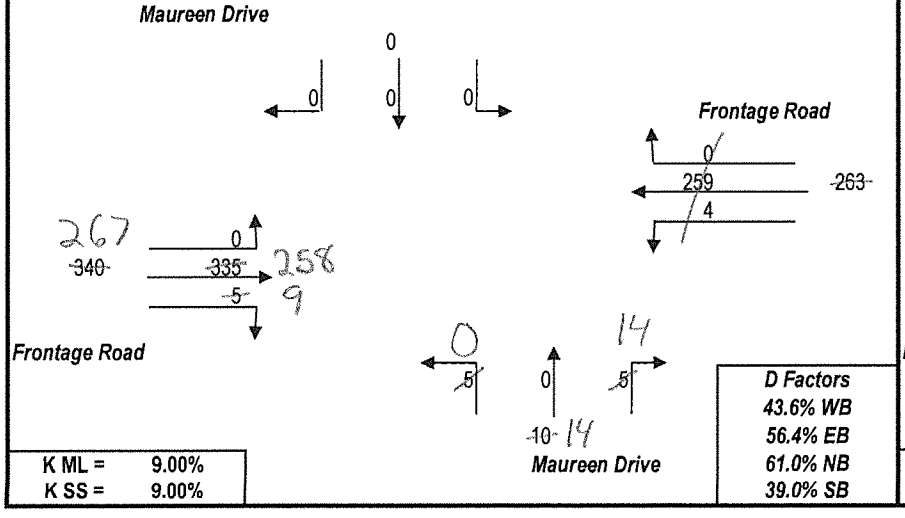
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

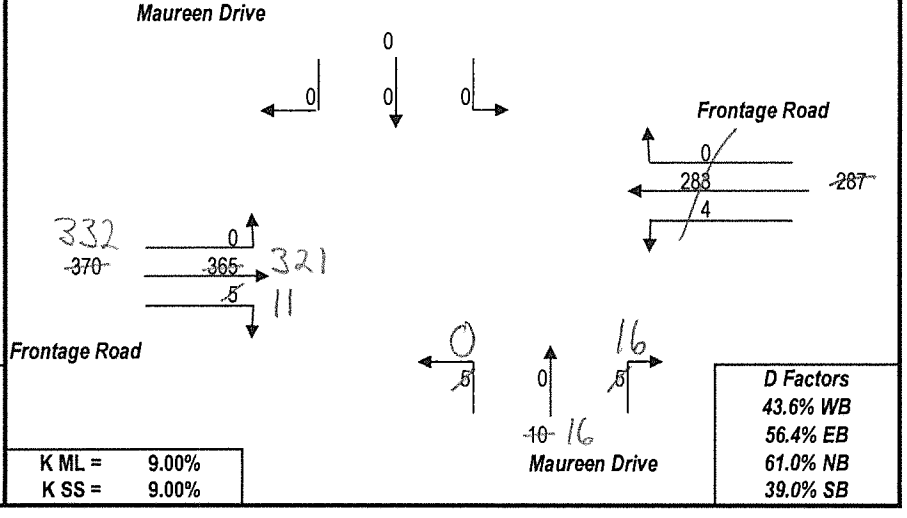
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

TURNS5 ANALYSIS SHEET - INPUT

Analyst:	JT
Date:	13-Sep-13
Highway:	Frontage Road
Intersection:	Glade Road
From:	
To:	AM Build Alternative
County:	Seminole

Is the Mainline Oriented North/South? Enter Yes or No: ○ Yes ◉ No

K Factors	Mainline
	9.00%
	Sidestreet
	9.00%

D Factors	*Mainline*	
	43.6%	Westbound (WB)
	56.4%	Eastbound (EB)
	Sidestreet	
	61.0%	Northbound (NB)
	39.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No: ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

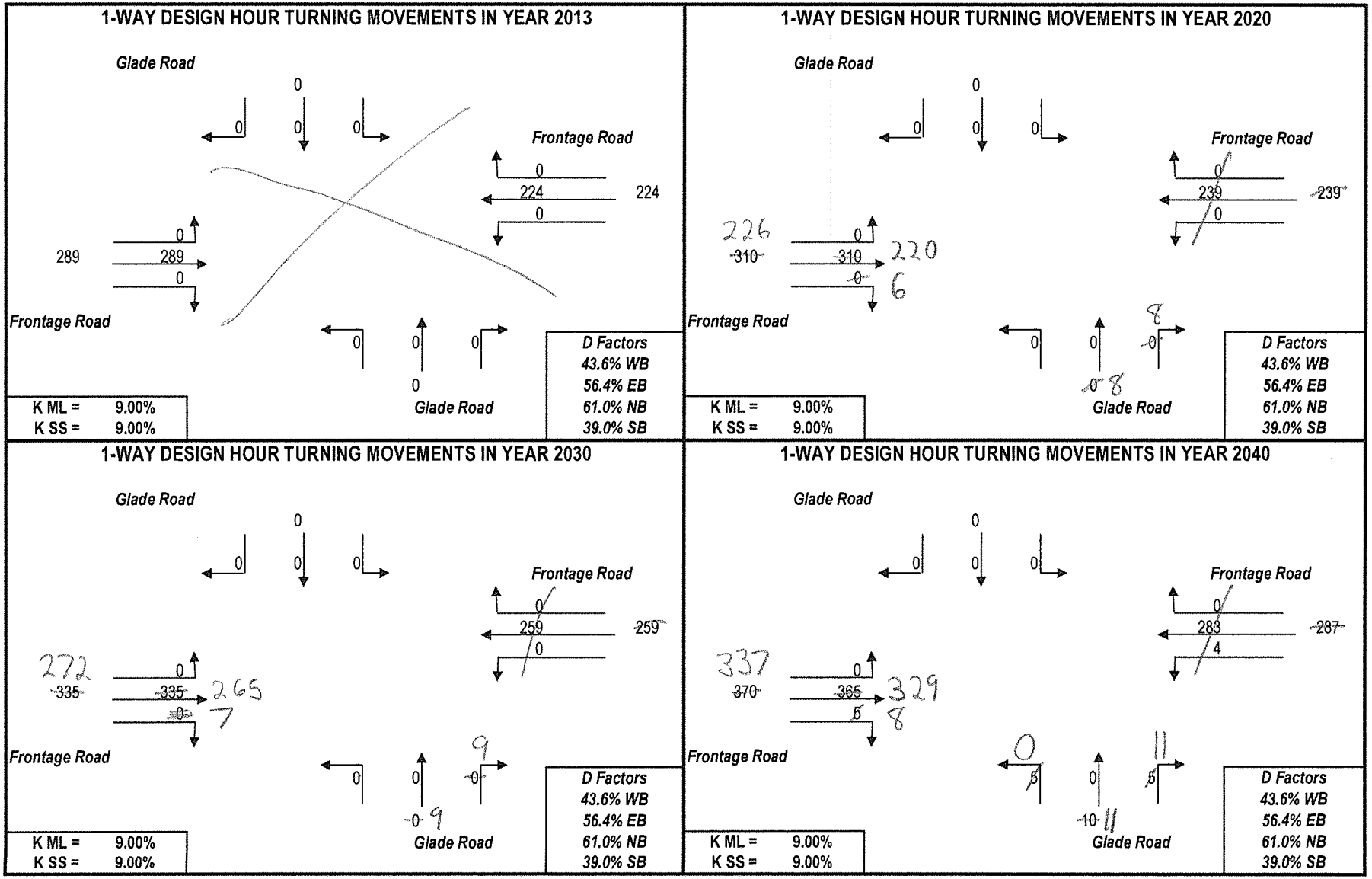
	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	5700	5700	0	100	11500
2040	7200	7200	0	200	14600

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**
(EB LT)	*West-to-North*	0%	0
(EB THRU)	*West-to-East*	100%	1069
(EB RT)	*West-to-South*	0%	0
(WB LT)	*East-to-South*	0%	1
(WB THRU)	*East-to-West*	100%	584
(WB RT)	*East-to-North*	0%	0
(SB LT)	*North-to-East*	35%	0
(SB THRU)	*North-to-South*	1%	0
(SB RT)	*North-to-West*	64%	0
(NB LT)	*South-to-West*	64%	0
(NB THRU)	*South-to-North*	1%	0
(NB RT)	*South-to-East*	35%	4

(must be done manually)

Desired Closure: 0.01

PROJECT TRAFFIC FOR Frontage Road AT Glade Road: TO AM Build Alternative



TURNS5 ANALYSIS SHEET - INPUT

Analyst:	JT
Date:	13-Sep-13
Highway:	Frontage Road
Intersection:	Glade View Drive
From:	
To:	AM Build Alternative
County:	Seminole

Is the Mainline Oriented North/South? Enter Yes or No: ○ Yes ◉ No

K Factors	Mainline
	9.00%
	Sidestreet
	9.00%

D Factors	*Mainline*	
	43.6%	Westbound (WB)
	56.4%	Eastbound (EB)
	Sidestreet	
	61.0%	Northbound (NB)
	39.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No: ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

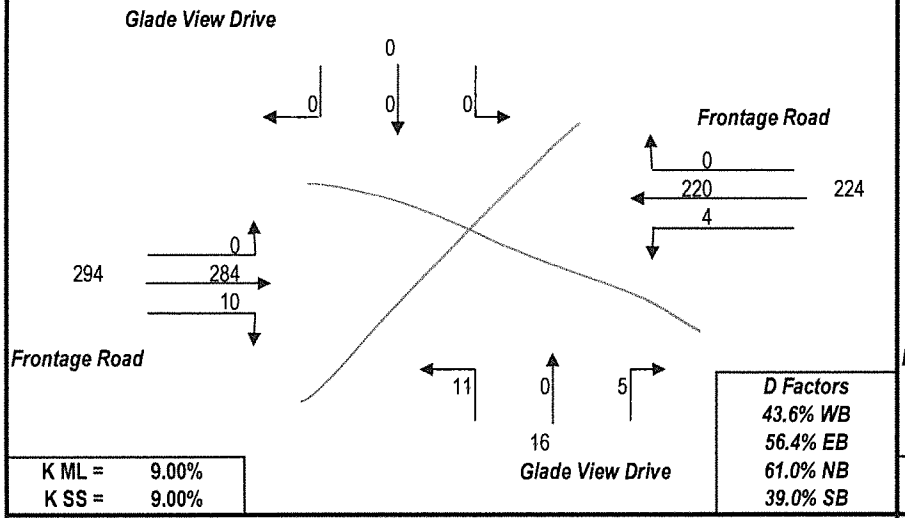
	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	5700	5700	0	300	11700
2040	7200	7200	0	550	14950

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**	
(EB LT)	*West-to-North*	0%	0	
(EB THRU)	*West-to-East*	97%	1046	
(EB RT)	*West-to-South*	3%	8	
(WB LT)	*East-to-South*	1%	2	(must be done manually)
(WB THRU)	*East-to-West*	99%	563	
(WB RT)	*East-to-North*	0%	0	
(SB LT)	*North-to-East*	34%	0	
(SB THRU)	*North-to-South*	2%	0	
(SB RT)	*North-to-West*	64%	0	
(NB LT)	*South-to-West*	65%	4	
(NB THRU)	*South-to-North*	1%	0	
(NB RT)	*South-to-East*	34%	14	

Desired Closure: 0.01

PROJECT TRAFFIC FOR Frontage Road AT Glade View Drive : TO AM Build Alternative

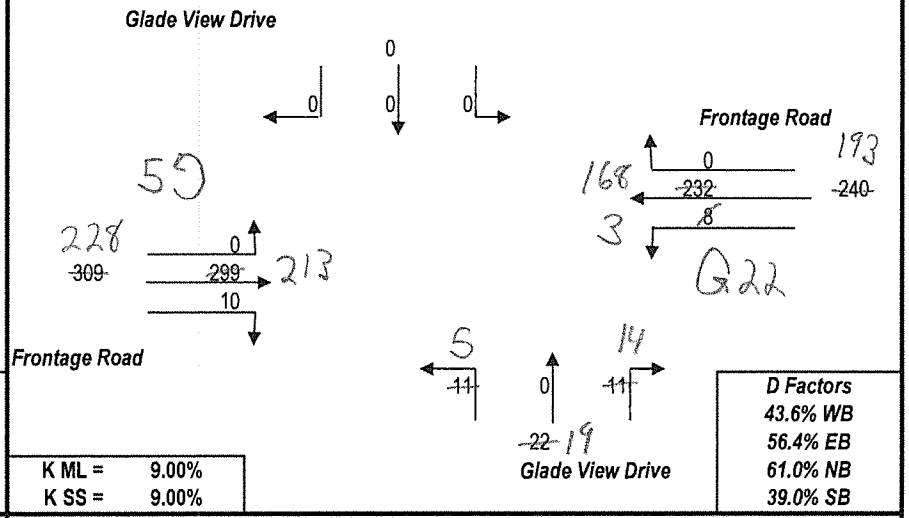
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

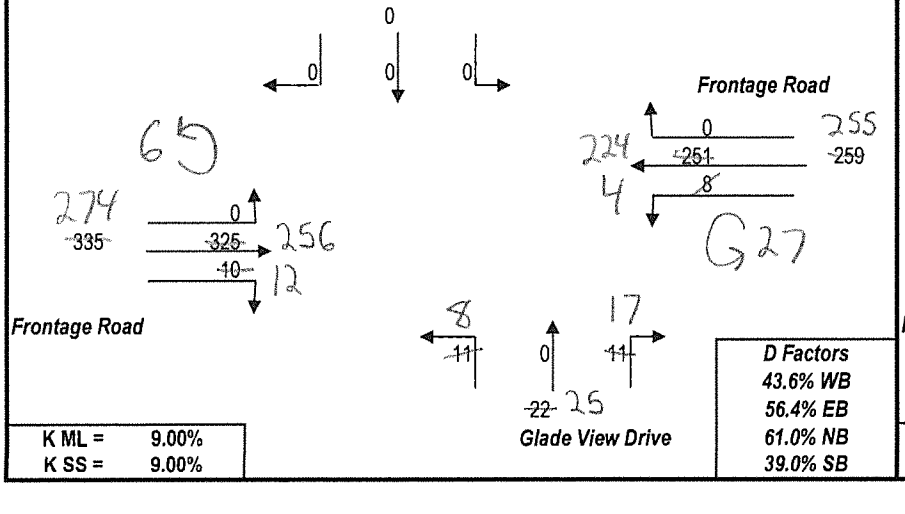
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

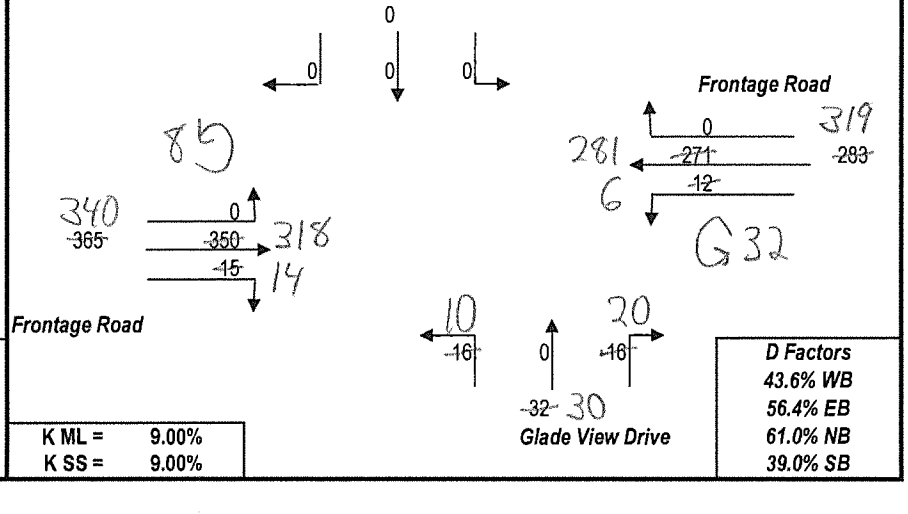
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
61.0% NB
39.0% SB

TURNS5 ANALYSIS SHEET - INPUT

Analyst: JT
Date: 13-Sep-13
Highway: Frontage Road
Intersection: Twelve Oaks Place
From:
To: AM Build Alternative
County: Seminole

Is the Mainline Oriented North/South? Enter Yes or No: ○ Yes ◉ No

K Factors

Mainline	Sidestreet
9.00%	9.00%

D Factors

Mainline	
43.6%	Westbound (WB)
56.4%	Eastbound (EB)
Sidestreet	
39.0%	Northbound (NB)
61.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No: ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

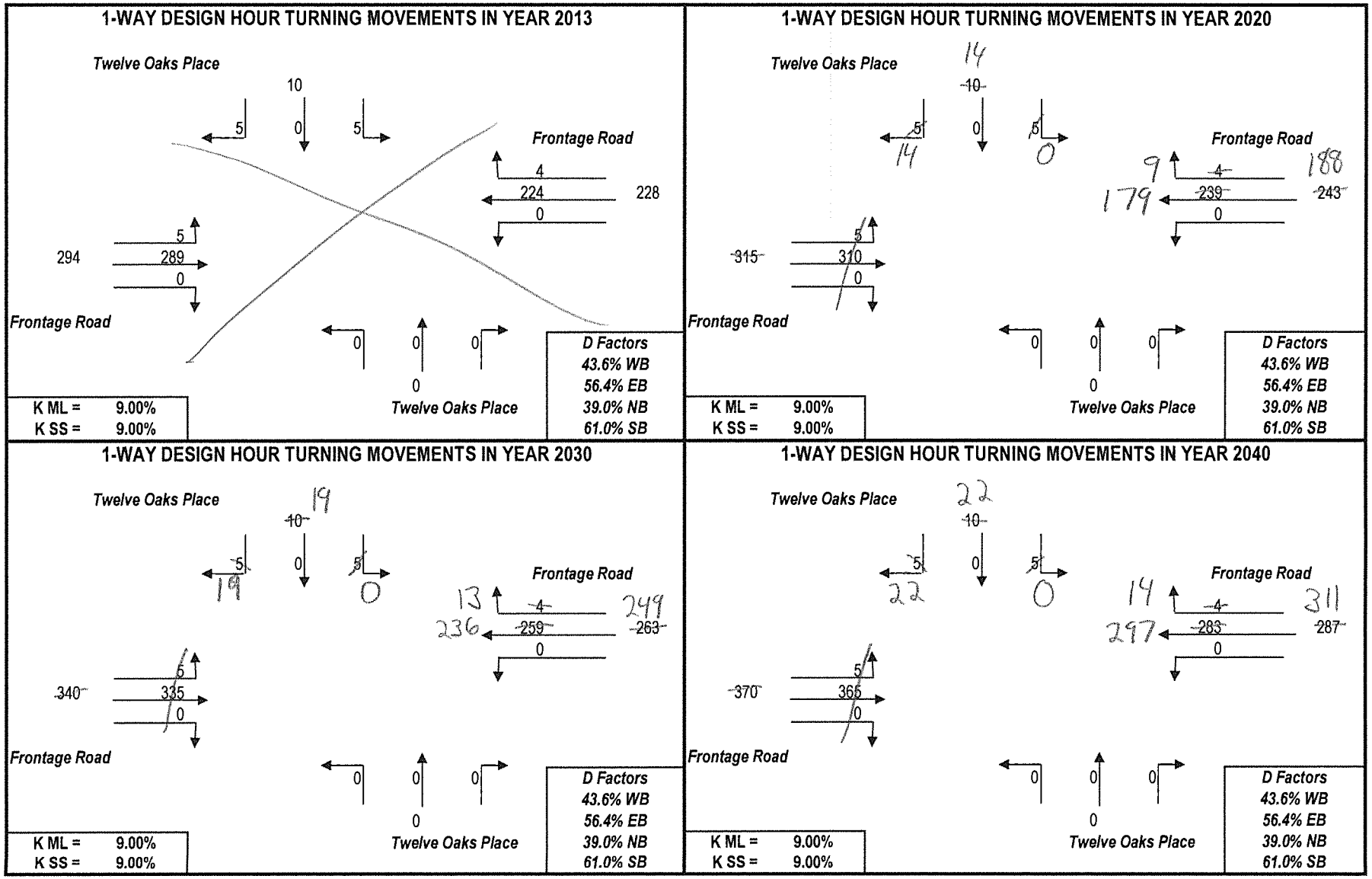
Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	5700	5700	200	0	11600
2040	7200	7200	400	0	14800

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**	
(EB LT)	*West-to-North*	0%	0	
(EB THRU)	*West-to-East*	100%	1040	
(EB RT)	*West-to-South*	0%	0	
(WB LT)	*East-to-South*	0%	0	(must be done manually)
(WB THRU)	*East-to-West*	100%	546	
(WB RT)	*East-to-North*	0%	1	
(SB LT)	*North-to-East*	34%	1	
(SB THRU)	*North-to-South*	1%	0	
(SB RT)	*North-to-West*	65%	1	
(NB LT)	*South-to-West*	65%	0	
(NB THRU)	*South-to-North*	1%	0	
(NB RT)	*South-to-East*	34%	0	

Desired Closure: 0.01

PROJECT TRAFFIC FOR Frontage Road AT Twelve Oaks Place: TO AM Build Alternative



TURNS5 ANALYSIS SHEET - INPUT

Analyst: JT
Date: 13-Sep-13
Highway: SR 46
Intersection: Orange Avenue
From:
To: AM Build Alternative
County: Seminole

Is the Mainline Oriented North/South? Enter Yes or No: ○ Yes ◉ No

K Factors

Mainline	Sidestreet
9.00%	9.00%

D Factors

Mainline	
43.6%	Westbound (WB)
56.4%	Eastbound (EB)
Sidestreet	
39.0%	Northbound (NB)
61.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No: ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

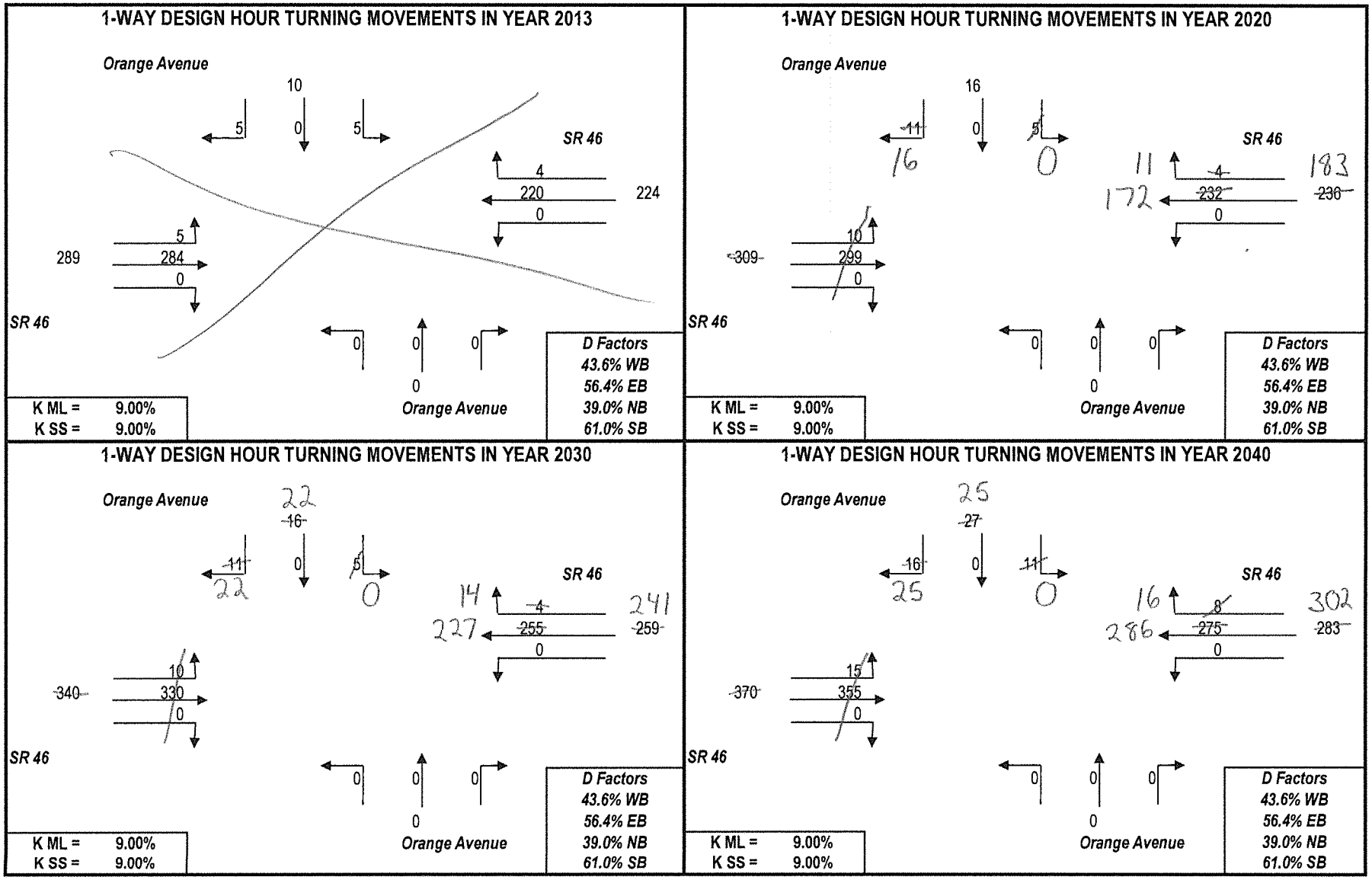
Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	5700	5700	250	0	11650
2040	7200	7200	450	0	14850

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**	
(EB LT)	*West-to-North*	1%	4	
(EB THRU)	*West-to-East*	99%	1037	
(EB RT)	*West-to-South*	0%	0	
(WB LT)	*East-to-South*	0%	0	(must be done manually)
(WB THRU)	*East-to-West*	100%	542	
(WB RT)	*East-to-North*	0%	4	
(SB LT)	*North-to-East*	34%	6	
(SB THRU)	*North-to-South*	1%	0	
(SB RT)	*North-to-West*	65%	4	
(NB LT)	*South-to-West*	65%	0	
(NB THRU)	*South-to-North*	1%	0	
(NB RT)	*South-to-East*	34%	0	

Desired Closure: 0.01

PROJECT TRAFFIC FOR SR 46 AT Orange Avenue: TO AM Build Alternative



TURNS5 ANALYSIS SHEET - INPUT

Analyst: JT
Date: 13-Sep-13
Highway: SR 46
Intersection: Center Road
From:
To: AM Build Alternative
County: Seminole

Is the Mainline Oriented North/South? Enter Yes or No — ○ Yes ◉ No

K Factors	Mainline
	9.00%
	Sidestreet
	9.00%

D Factors	*Mainline*	
	43.6%	Westbound (WB)
	56.4%	Eastbound (EB)
	Sidestreet	
	39.0%	Northbound (NB)
	61.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No — ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function — ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function — ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	17500	17500	100	100	35200
2040	29500	29500	200	200	59400

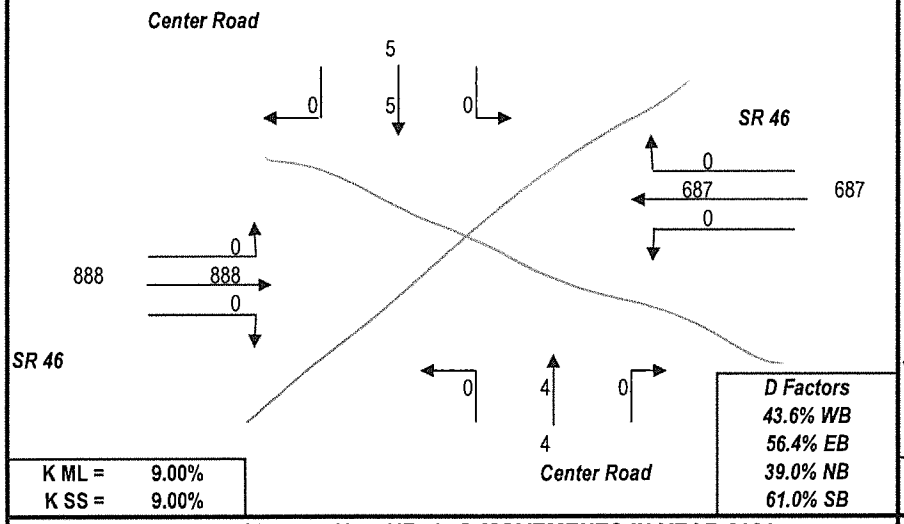
		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**
(EB LT)	*West-to-North*	0%	1
(EB THRU)	*West-to-East*	100%	908
(EB RT)	*West-to-South*	0%	0
(WB LT)	*East-to-South*	0%	3
(WB THRU)	*East-to-West*	100%	540
(WB RT)	*East-to-North*	0%	1
(SB LT)	*North-to-East*	37%	0
(SB THRU)	*North-to-South*	1%	0
(SB RT)	*North-to-West*	62%	1
(NB LT)	*South-to-West*	62%	0
(NB THRU)	*South-to-North*	1%	1
(NB RT)	*South-to-East*	37%	2

(must be done manually)

Desired Closure: 0.01

PROJECT TRAFFIC FOR SR 46 AT Center Road: TO AM Build Alternative

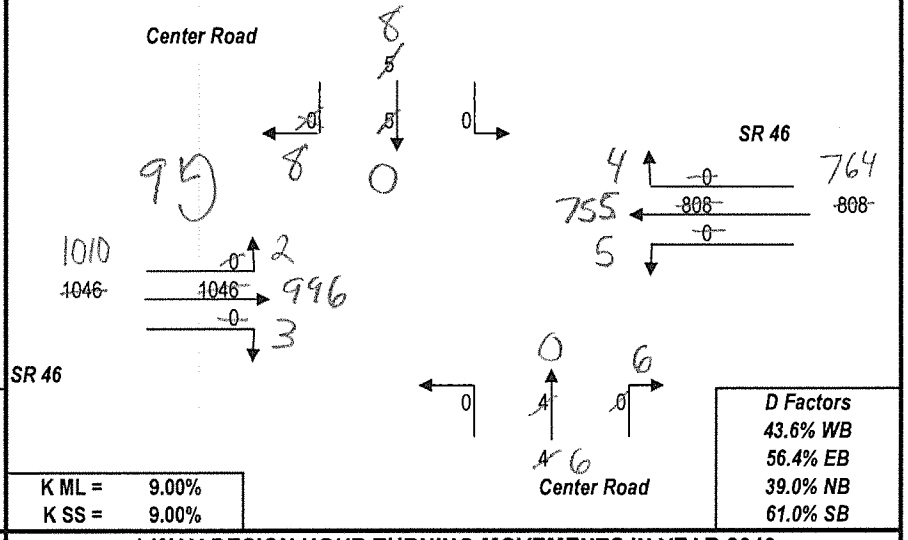
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
39.0% NB
61.0% SB

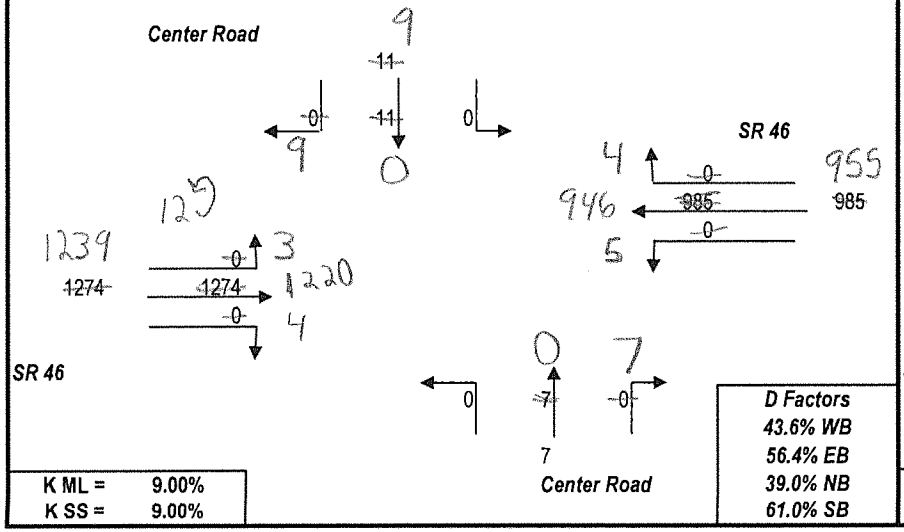
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
39.0% NB
61.0% SB

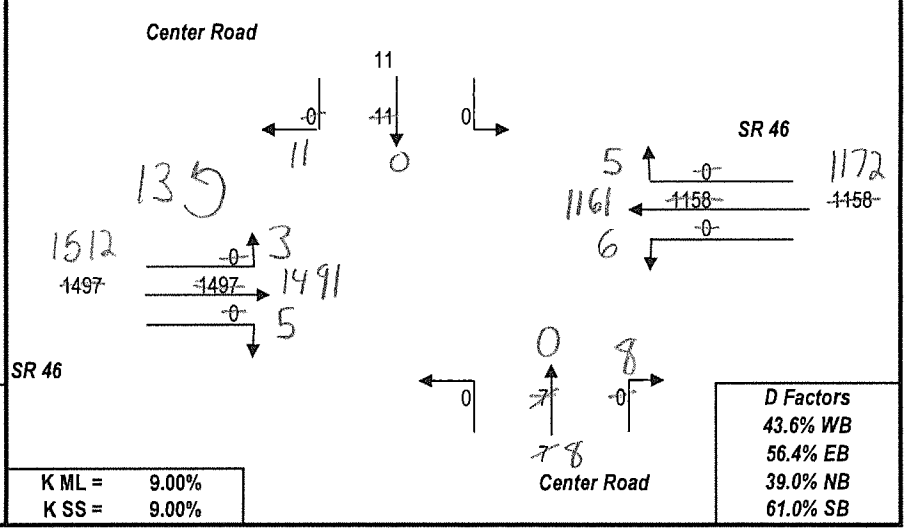
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
39.0% NB
61.0% SB

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



K ML =	9.00%
K SS =	9.00%

D Factors
43.6% WB
56.4% EB
39.0% NB
61.0% SB

TURNS5 ANALYSIS SHEET - INPUT

Analyst: JT
Date: 13-Sep-13
Highway: SR 46
Intersection: Orange Boulevard
From:
To: AM Build Alternative
County: Seminole

Is the Mainline Oriented North/South? Enter Yes or No: ○ Yes ◉ No

K Factors	Mainline
	9.00%
	Sidestreet
	9.00%

D Factors	*Mainline*	
	43.6%	Westbound (WB)
	56.4%	Eastbound (EB)
	Sidestreet	
	39.0%	Northbound (NB)
	61.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No: ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

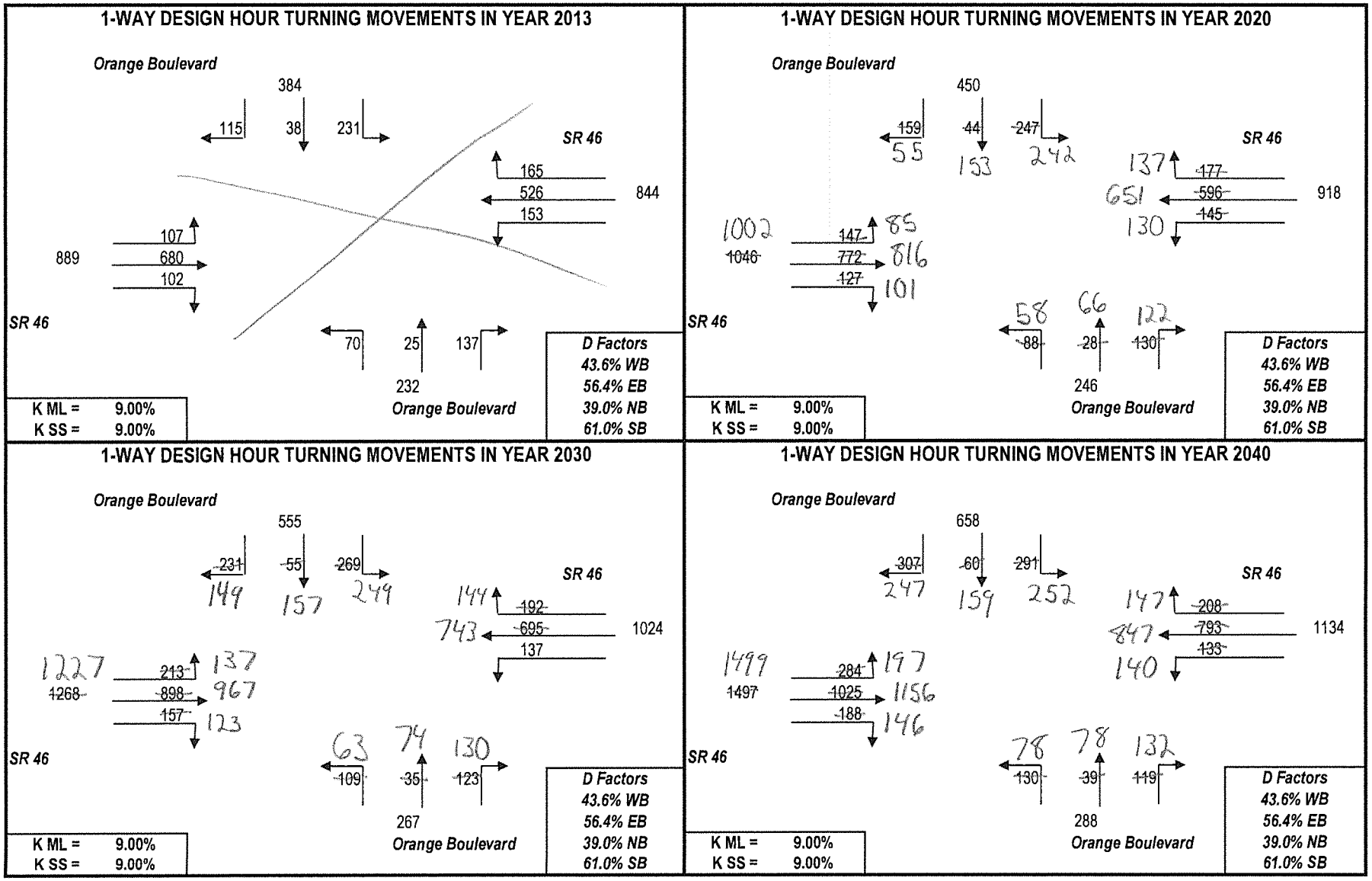
	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	17500	21500	6900	6600	52500
2040	29500	29000	12000	8200	78700

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**
(EB LT)	*West-to-North*	31%	65
(EB THRU)	*West-to-East*	56%	747
(EB RT)	*West-to-South*	13%	39
(WB LT)	*East-to-South*	9%	59
(WB THRU)	*East-to-West*	69%	419
(WB RT)	*East-to-North*	22%	25
(SB LT)	*North-to-East*	34%	112
(SB THRU)	*North-to-South*	9%	118
(SB RT)	*North-to-West*	57%	51
(NB LT)	*South-to-West*	52%	56
(NB THRU)	*South-to-North*	18%	30
(NB RT)	*South-to-East*	30%	36

(must be done manually)

Desired Closure: 0.01

PROJECT TRAFFIC FOR SR 46 AT Orange Boulevard: TO AM Build Alternative



TURNS5 ANALYSIS SHEET - INPUT

Analyst: JT
Date: 13-Sep-13
Highway: Orange Boulevard
Intersection: Wayside Drive
From:
To: AM Build Alternative
County: Seminole

Is the Mainline Oriented North/South? (Enter Yes or No) (•) Yes ( ) No

K Factors

Mainline
9.00%
Sidestreet
9.00%

D Factors

Mainline	
39.0%	Northbound (NB)
61.0%	Southbound (SB)
Sidestreet	
39.0%	Westbound (WB)
61.0%	Eastbound (EB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) (Enter Yes or No) (•) Yes ( ) No

If "Yes" go to cell C47 — If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: (•) Linear ( ) Exponential ( ) Decaying

Side Street Growth Function: (•) Linear ( ) Exponential ( ) Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

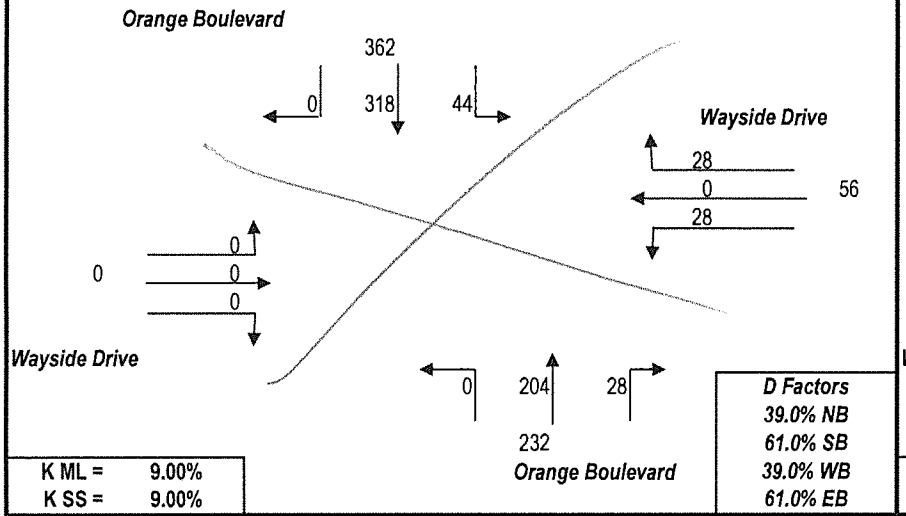
	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	0	1600	6600	6600	14800
2040	0	3000	8200	8200	19400

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**	
(EB LT)	*West-to-North*	49%	1	
(EB THRU)	*West-to-East*	9%	37	
(EB RT)	*West-to-South*	42%	100	
(WB LT)	*East-to-South*	34%	13	(must be done manually)
(WB THRU)	*East-to-West*	26%	9	
(WB RT)	*East-to-North*	40%	17	
(SB LT)	*North-to-East*	10%	19	
(SB THRU)	*North-to-South*	52%	193	
(SB RT)	*North-to-West*	38%	4	
(NB LT)	*South-to-West*	35%	7	
(NB THRU)	*South-to-North*	56%	158	
(NB RT)	*South-to-East*	9%	20	

Desired Closure: 0.01

PROJECT TRAFFIC FOR Orange Boulevard AT Wayside Drive: TO AM Build Alternative

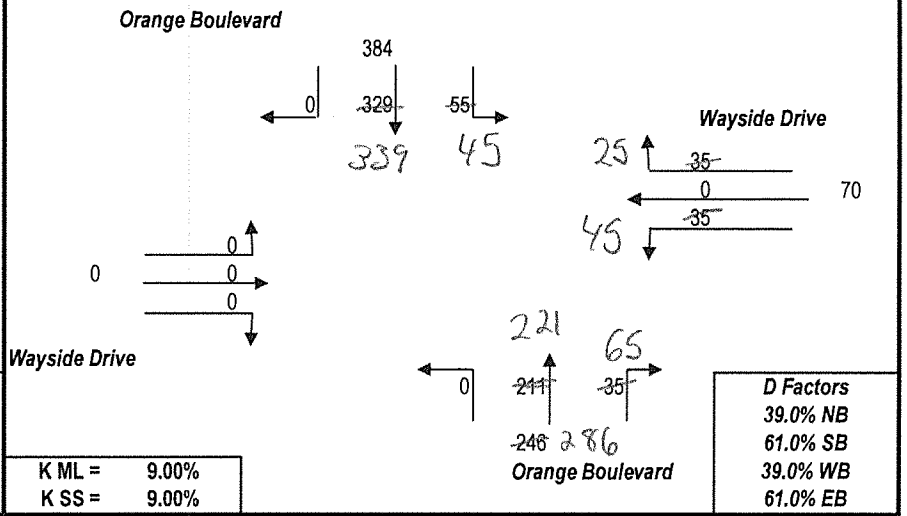
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



K ML =	9.00%
K SS =	9.00%

D Factors
39.0% NB
61.0% SB
39.0% WB
61.0% EB

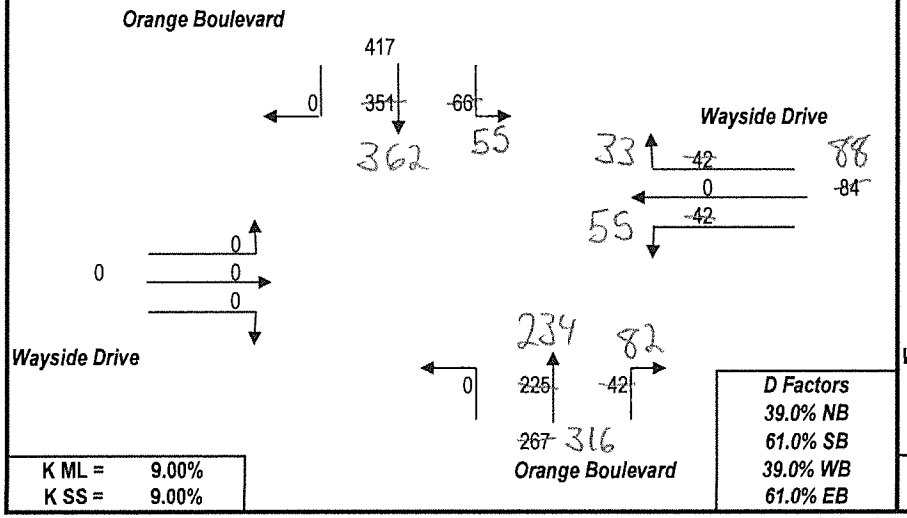
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



K ML =	9.00%
K SS =	9.00%

D Factors
39.0% NB
61.0% SB
39.0% WB
61.0% EB

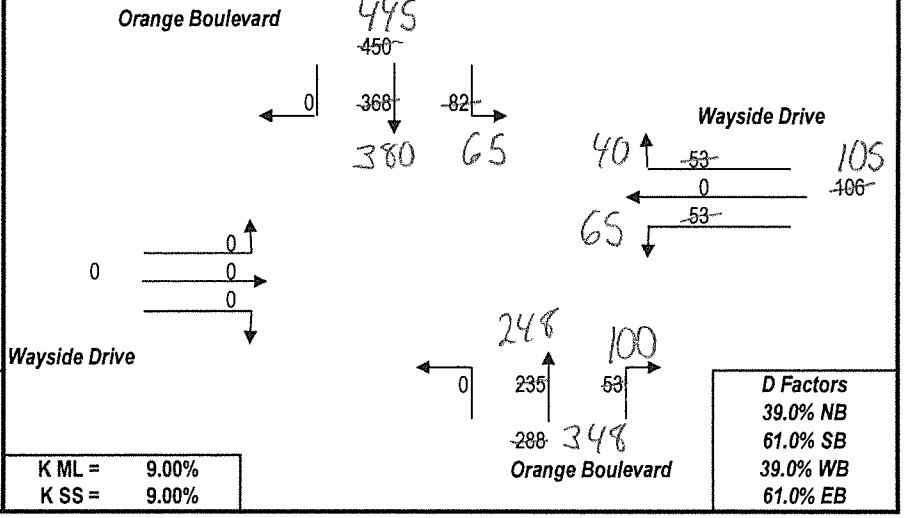
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



K ML =	9.00%
K SS =	9.00%

D Factors
39.0% NB
61.0% SB
39.0% WB
61.0% EB

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



K ML =	9.00%
K SS =	9.00%

D Factors
39.0% NB
61.0% SB
39.0% WB
61.0% EB

TURNS5 ANALYSIS SHEET - INPUT

Analyst: JT
Date: 13-Sep-13
Highway: Wekiva Park Drive
Intersection: River Oaks Feeder Road
From:
To: PM Build Alternative
County: Lake

Is the Mainline Oriented North/South? (Enter Yes or No) (◉ Yes) (○ No)

K Factors

Mainline
9.00%
Sidestreet
9.00%

D Factors

Mainline	
56.4%	Northbound (NB)
43.6%	Southbound (SB)
Sidestreet	
56.4%	Westbound (WB)
43.6%	Eastbound (EB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) (Enter Yes or No) (◉ Yes) (○ No)

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: (◉ Linear) (○ Exponential) (○ Decaying)

Side Street Growth Function: (◉ Linear) (○ Exponential) (○ Decaying)

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

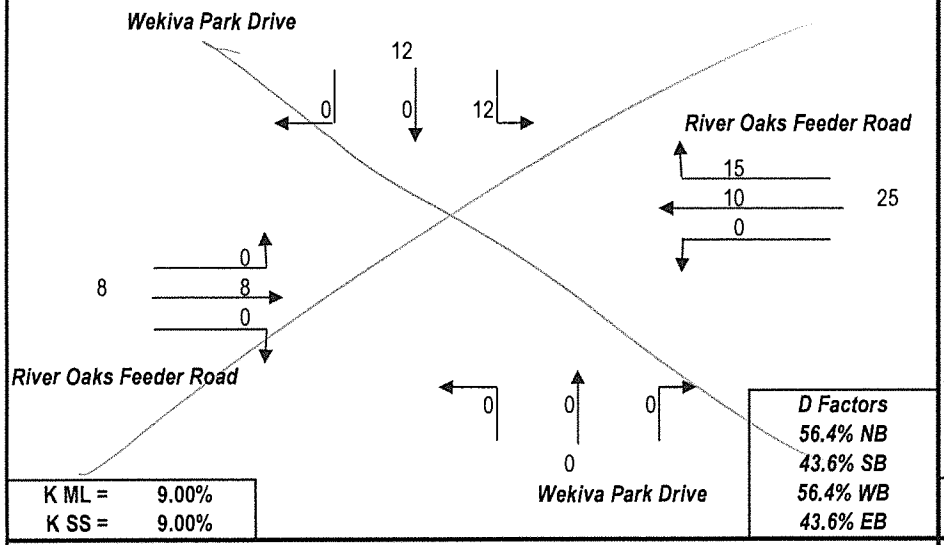
	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	250	540	300	0	1090
2040	450	990	550	0	1990

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**	
(EB LT)	*West-to-North*	50%	0	
(EB THRU)	*West-to-East*	50%	100	
(EB RT)	*West-to-South*	0%	0	
(WB LT)	*East-to-South*	0%	0	(must be done manually)
(WB THRU)	*East-to-West*	50%	55	
(WB RT)	*East-to-North*	50%	45	
(SB LT)	*North-to-East*	50%	95	
(SB THRU)	*North-to-South*	0%	0	
(SB RT)	*North-to-West*	50%	5	
(NB LT)	*South-to-West*	33%	0	
(NB THRU)	*South-to-North*	34%	0	
(NB RT)	*South-to-East*	33%	0	

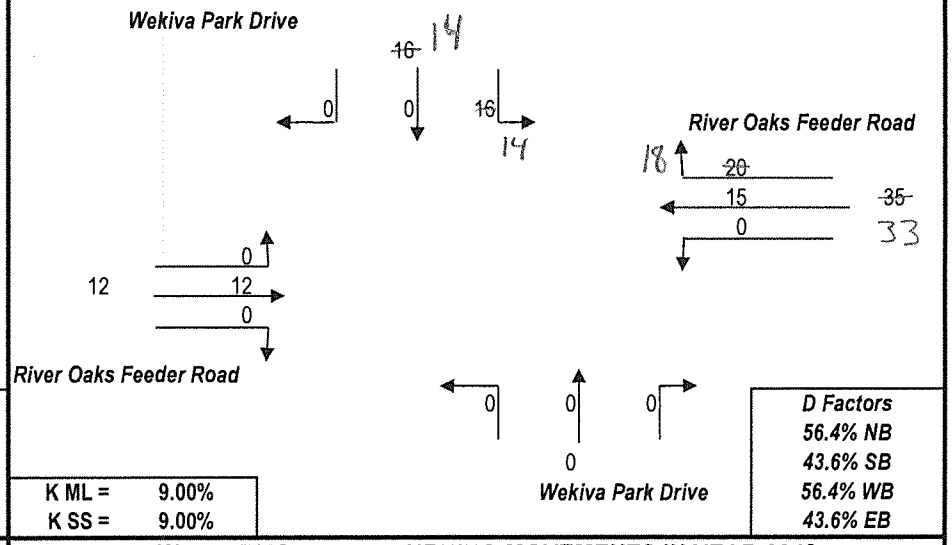
Desired Closure: 0.01

PROJECT TRAFFIC FOR Wekiva Park Drive AT River Oaks Feeder Road: TO PM Build Alternative

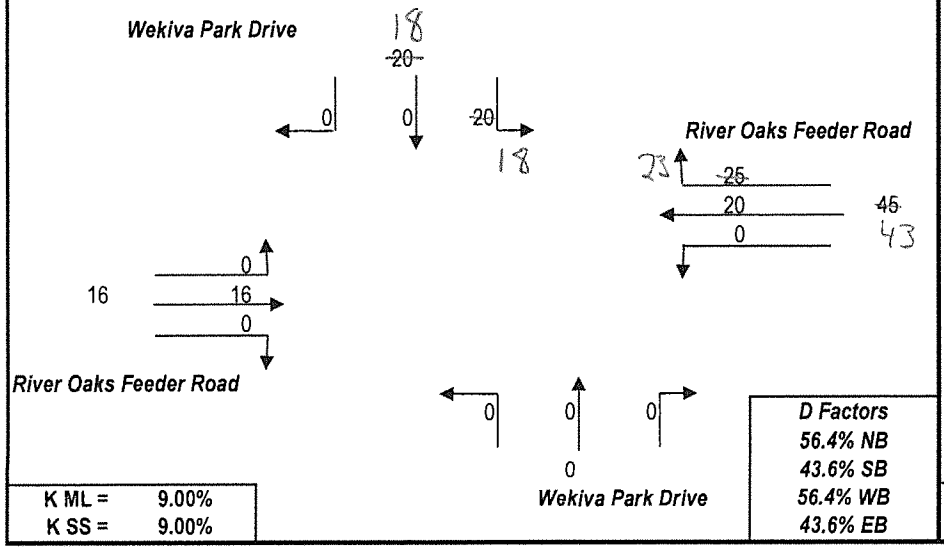
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



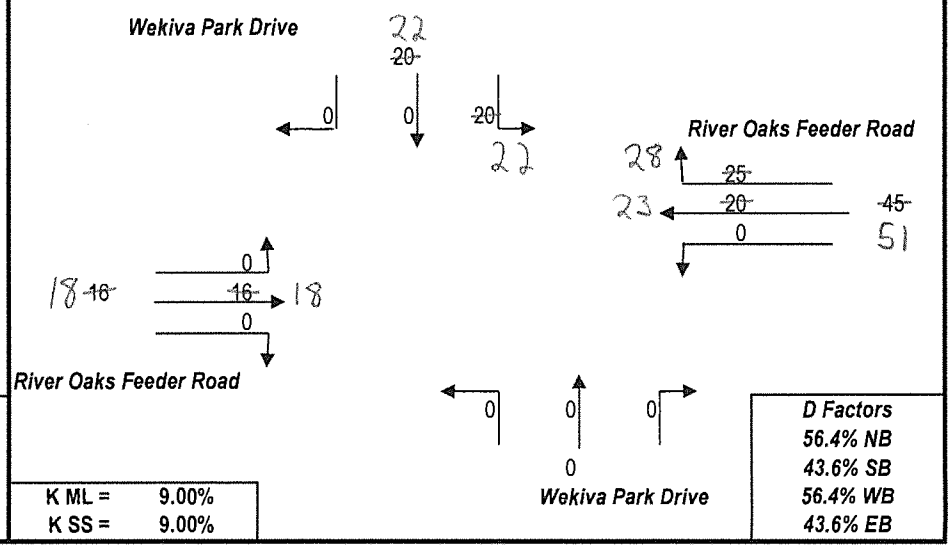
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



TURNS5 ANALYSIS SHEET - INPUT

Analyst: JT
Date: 13-Sep-13
Highway: Frontage Road
Intersection: sprey Hammock Trail/River Oaks Feeder Roa
From:
To: PM Build Alternative
County: Seminole

Is the Mainline Oriented North/South? Enter Yes or No: ○ Yes ◉ No

K Factors

Mainline
9.00%
Sidestreet
9.00%

D Factors

Mainline	
56.4%	Westbound (WB)
43.6%	Eastbound (EB)
Sidestreet	
39.0%	Northbound (NB)
61.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No: ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

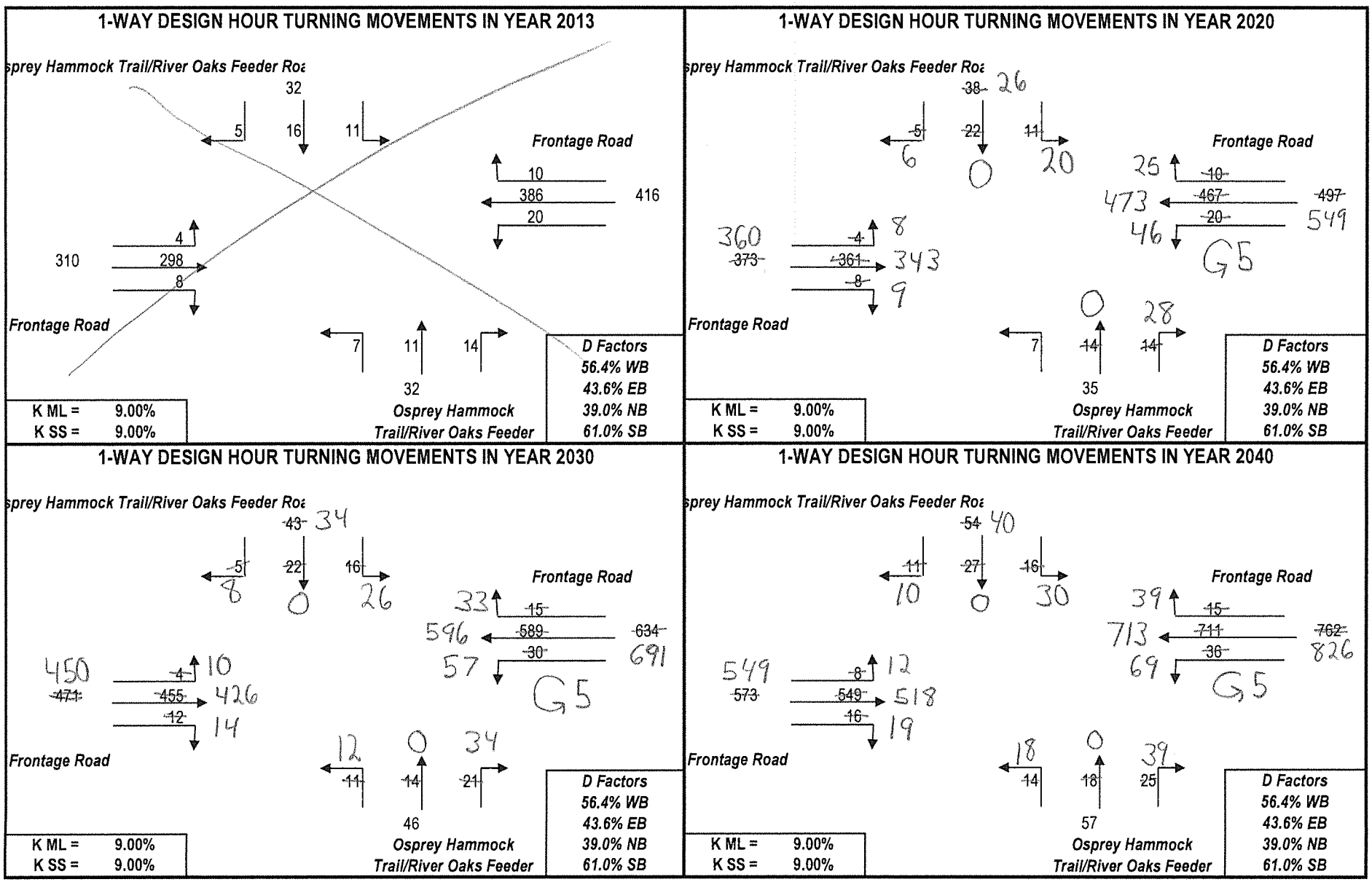
Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	7900	8100	550	850	17400
2040	14500	15000	1000	1600	32100

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**	
(EB LT)	*West-to-North*	0%	0	
(EB THRU)	*West-to-East*	98%	696	
(EB RT)	*West-to-South*	2%	3	
(WB LT)	*East-to-South*	4%	44	(must be done manually)
(WB THRU)	*East-to-West*	96%	1175	
(WB RT)	*East-to-North*	0%	0	
(SB LT)	*North-to-East*	62%	0	
(SB THRU)	*North-to-South*	3%	0	
(SB RT)	*North-to-West*	35%	0	
(NB LT)	*South-to-West*	36%	4	
(NB THRU)	*South-to-North*	1%	0	
(NB RT)	*South-to-East*	63%	26	

Desired Closure: 0.01

PROJECT TRAFFIC FOR Frontage Road AT Osprey Hammock Trail/River Oaks Feeder Road: TO PM Build Alternative



TURNS5 ANALYSIS SHEET - INPUT

Analyst:	JT
Date:	13-Sep-13
Highway:	Frontage Road
Intersection:	Longwood Markham Road
From:	
To:	PM Build Alternative
County:	Seminole

Is the Mainline Oriented North/South? — Enter Yes or No: ○ Yes ◉ No

K Factors	Mainline
	9.00%
	Sidestreet
	9.00%

D Factors	*Mainline*	
	56.4%	Westbound (WB)
	43.6%	Eastbound (EB)
	Sidestreet	
	61.0%	Northbound (NB)
	39.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) — Enter Yes or No: ◉ Yes ○ No

If "Yes" go to cell C47 — If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

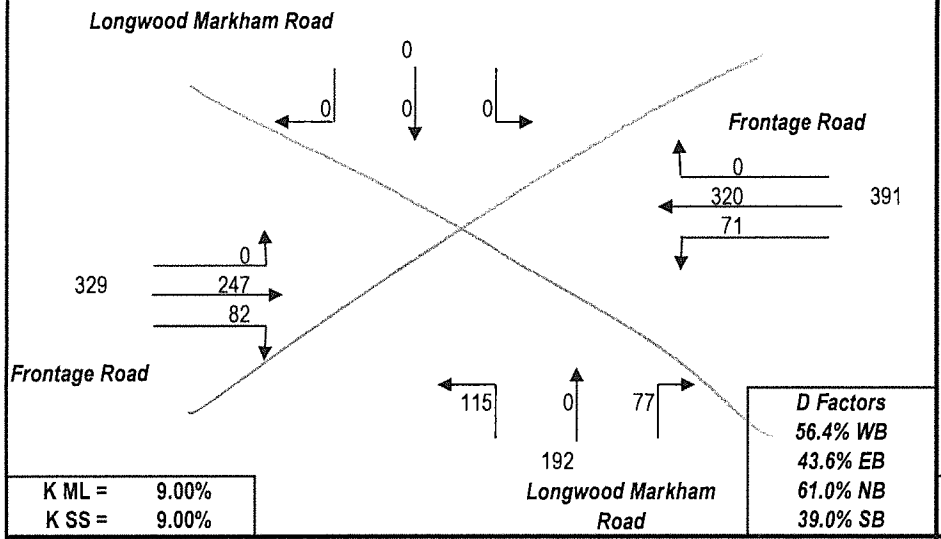
	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	8300	7600	0	3400	19300
2040	15500	14000	0	6400	35900

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**	
(EB LT)	*West-to-North*	0%	0	
(EB THRU)	*West-to-East*	80%	642	
(EB RT)	*West-to-South*	20%	80	
(WB LT)	*East-to-South*	26%	50	(must be done manually)
(WB THRU)	*East-to-West*	74%	1008	
(WB RT)	*East-to-North*	0%	0	
(SB LT)	*North-to-East*	51%	0	
(SB THRU)	*North-to-South*	14%	0	
(SB RT)	*North-to-West*	35%	0	
(NB LT)	*South-to-West*	40%	210	
(NB THRU)	*South-to-North*	1%	0	
(NB RT)	*South-to-East*	59%	55	

Desired Closure: 0.01

PROJECT TRAFFIC FOR Frontage Road AT Longwood Markham Road: TO PM Build Alternative

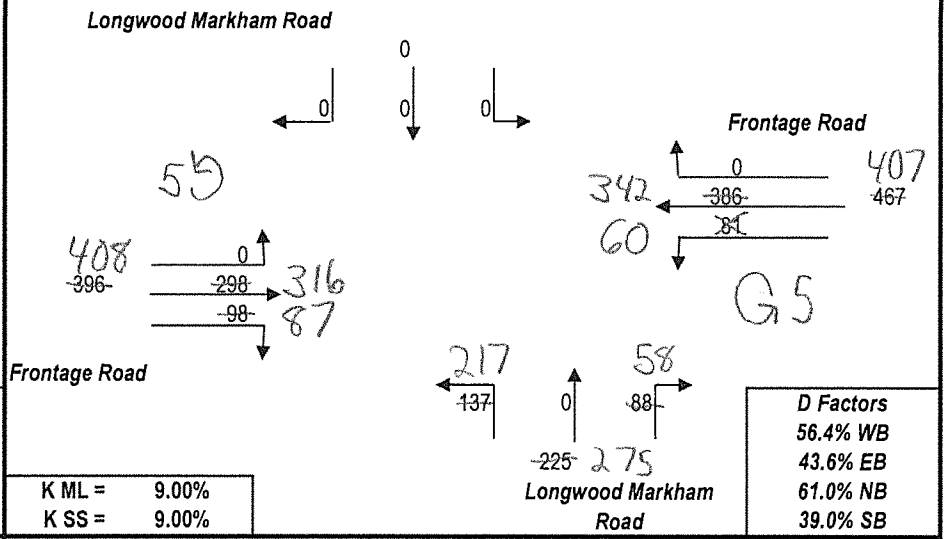
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



K ML =	9.00%
K SS =	9.00%

D Factors	
56.4%	WB
43.6%	EB
61.0%	NB
39.0%	SB

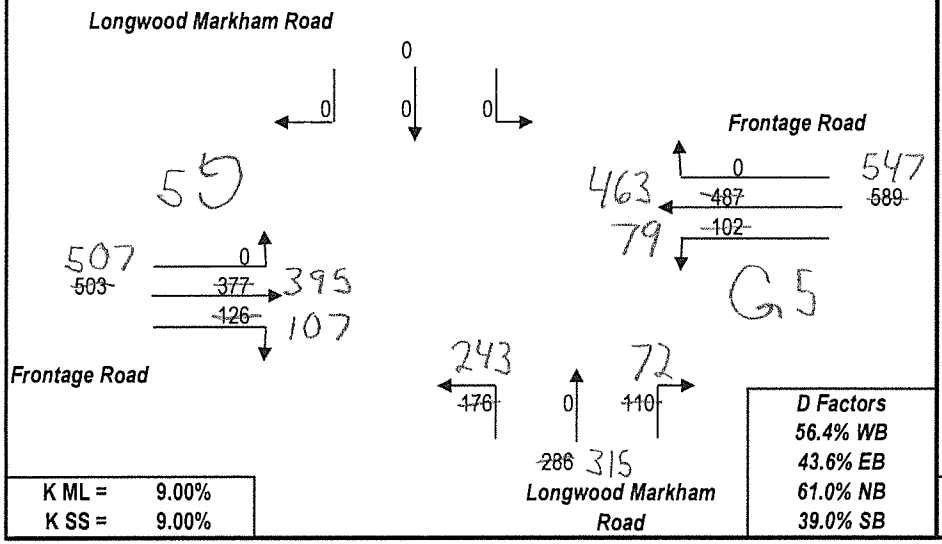
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



K ML =	9.00%
K SS =	9.00%

D Factors	
56.4%	WB
43.6%	EB
61.0%	NB
39.0%	SB

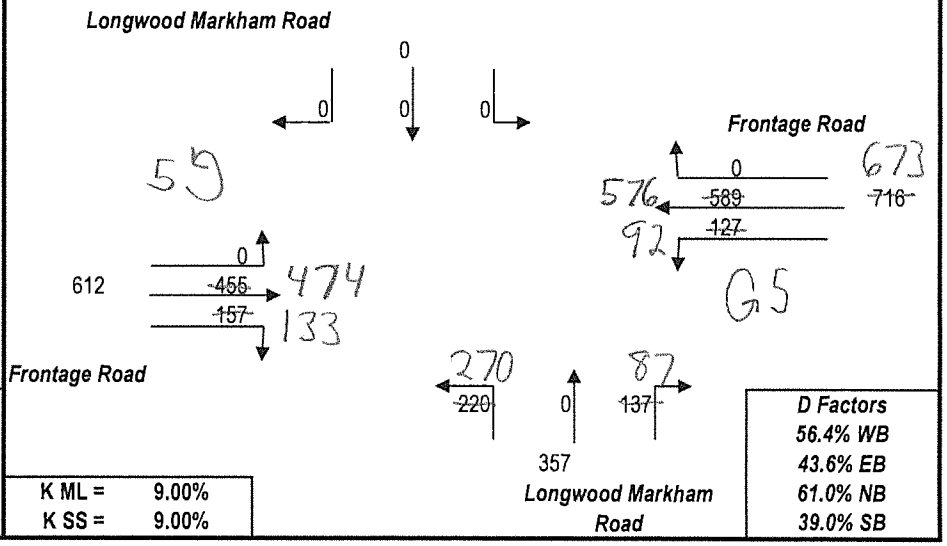
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



K ML =	9.00%
K SS =	9.00%

D Factors	
56.4%	WB
43.6%	EB
61.0%	NB
39.0%	SB

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



K ML =	9.00%
K SS =	9.00%

D Factors	
56.4%	WB
43.6%	EB
61.0%	NB
39.0%	SB

TURNS5 ANALYSIS SHEET - INPUT

Analyst:	JT
Date:	13-Sep-13
Highway:	Frontage Road
Intersection:	Yankee Lake Road
From:	
To:	PM Build Alternative
County:	Seminole

Is the Mainline Oriented North/South? Enter Yes or No — ○ Yes ◉ No

K Factors	Mainline
	9.00%
	Sidestreet
	9.00%

D Factors	*Mainline*	
	56.4%	Westbound (WB)
	43.6%	Eastbound (EB)
	Sidestreet	
	39.0%	Northbound (NB)
	61.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No — ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function — ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function — ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

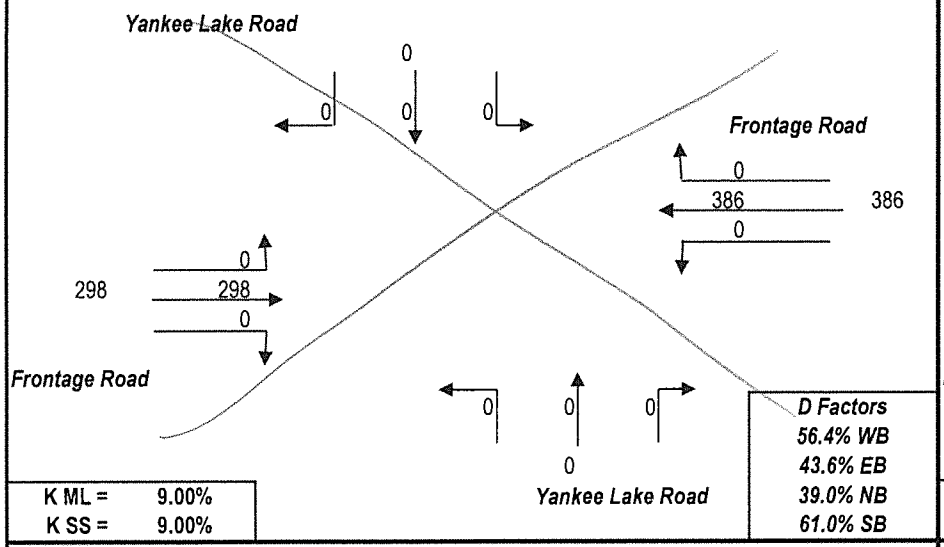
	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	7600	7600	100	0	15300
2040	14000	14000	200	0	28200

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**	
(EB LT)	*West-to-North*	0%	0	
(EB THRU)	*West-to-East*	100%	699	
(EB RT)	*West-to-South*	0%	0	
(WB LT)	*East-to-South*	0%	0	(must be done manually)
(WB THRU)	*East-to-West*	100%	1058	
(WB RT)	*East-to-North*	0%	0	
(SB LT)	*North-to-East*	60%	2	
(SB THRU)	*North-to-South*	1%	0	
(SB RT)	*North-to-West*	39%	0	
(NB LT)	*South-to-West*	39%	0	
(NB THRU)	*South-to-North*	1%	0	
(NB RT)	*South-to-East*	60%	0	

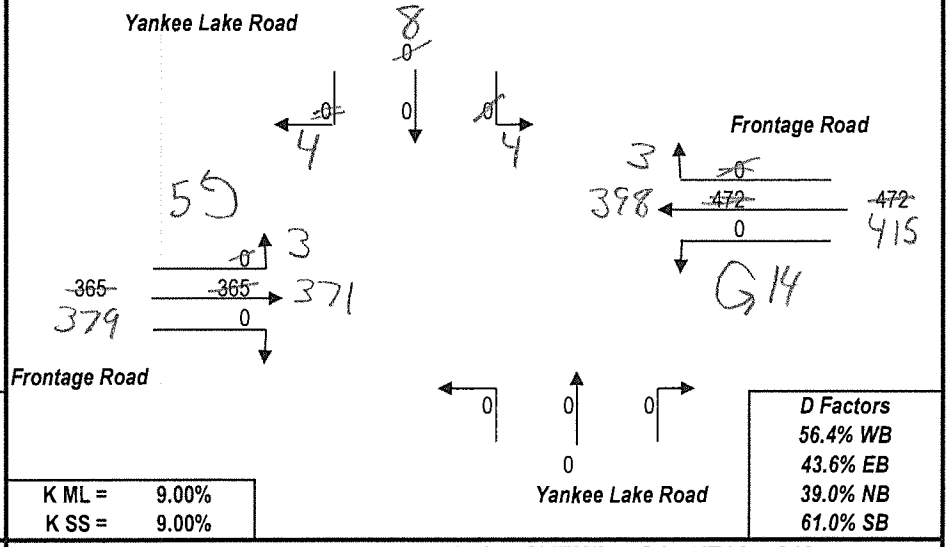
Desired Closure: 0.01

PROJECT TRAFFIC FOR Frontage Road AT Yankee Lake Road: TO PM Build Alternative

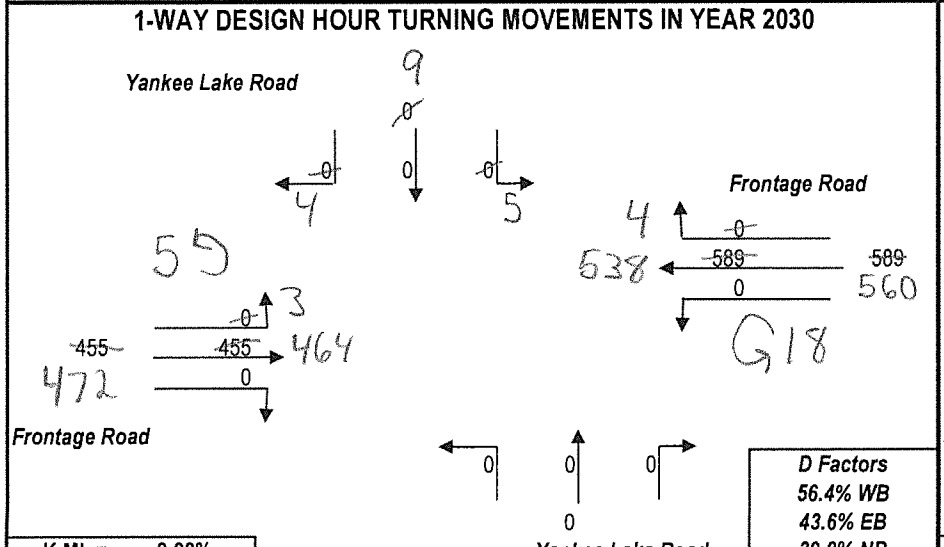
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



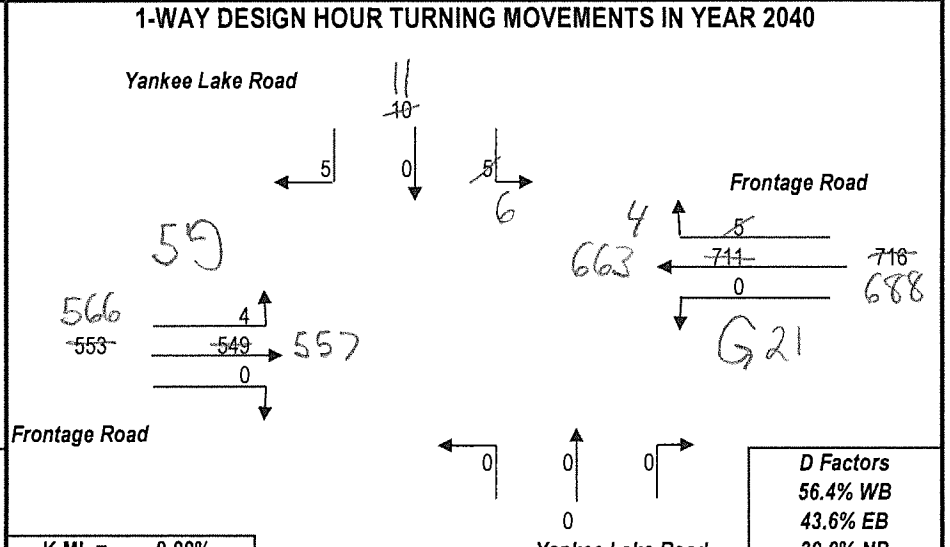
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



TURNS5 ANALYSIS SHEET - INPUT

Analyst:	JT
Date:	13-Sep-13
Highway:	Frontage Road
Intersection:	Ross Lake Lane
From:	
To:	PM Build Alternative
County:	Seminole

Is the Mainline Oriented North/South? — Enter Yes or No: ○ Yes ◉ No

K Factors	Mainline
	9.00%
	Sidestreet
	9.00%

D Factors	*Mainline*	
	56.4%	Westbound (WB)
	43.6%	Eastbound (EB)
	Sidestreet	
	39.0%	Northbound (NB)
	61.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) — Enter Yes or No: ◉ Yes ○ No

If "Yes" go to cell C47 — If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

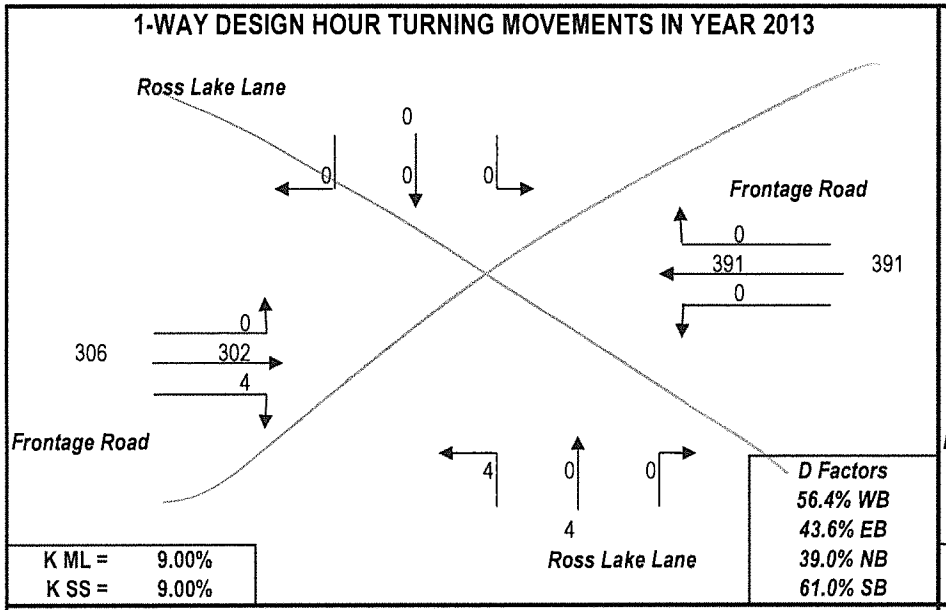
	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	7700	7600	0	150	15450
2040	14100	14000	0	300	28400

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**	
(EB LT)	*West-to-North*	0%	0	
(EB THRU)	*West-to-East*	100%	698	
(EB RT)	*West-to-South*	0%	3	
(WB LT)	*East-to-South*	0%	6	(must be done manually)
(WB THRU)	*East-to-West*	100%	1058	
(WB RT)	*East-to-North*	0%	0	
(SB LT)	*North-to-East*	60%	0	
(SB THRU)	*North-to-South*	1%	0	
(SB RT)	*North-to-West*	39%	0	
(NB LT)	*South-to-West*	39%	0	
(NB THRU)	*South-to-North*	1%	0	
(NB RT)	*South-to-East*	60%	3	

Desired Closure: 0.01

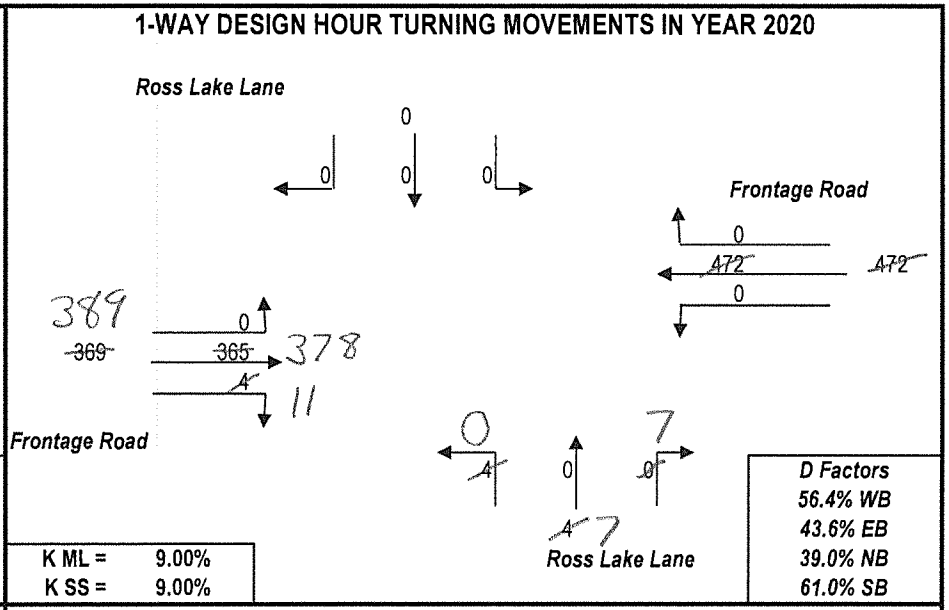
PROJECT TRAFFIC FOR Frontage Road AT Ross Lake Lane: TO PM Build Alternative

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



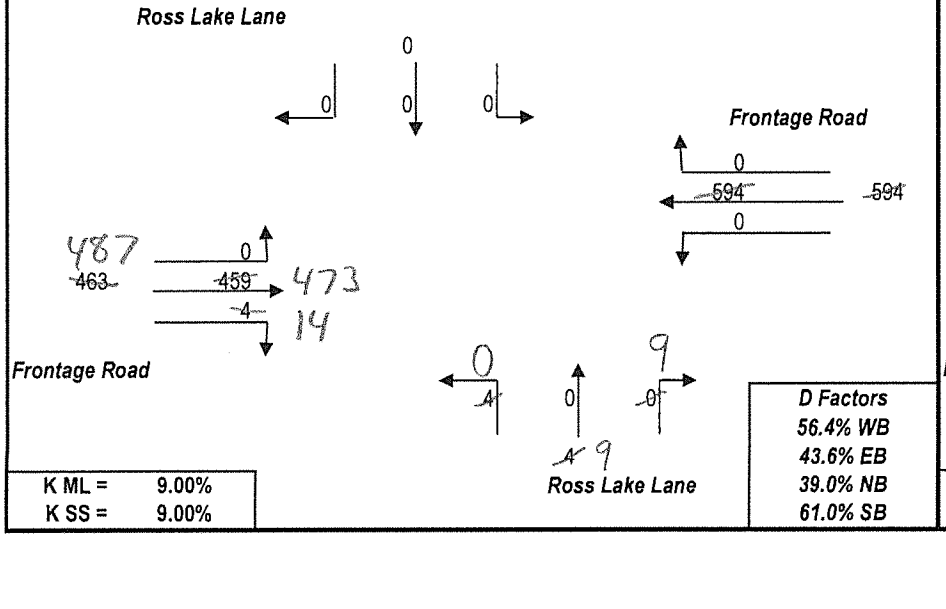
K ML = 9.00%
K SS = 9.00%

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



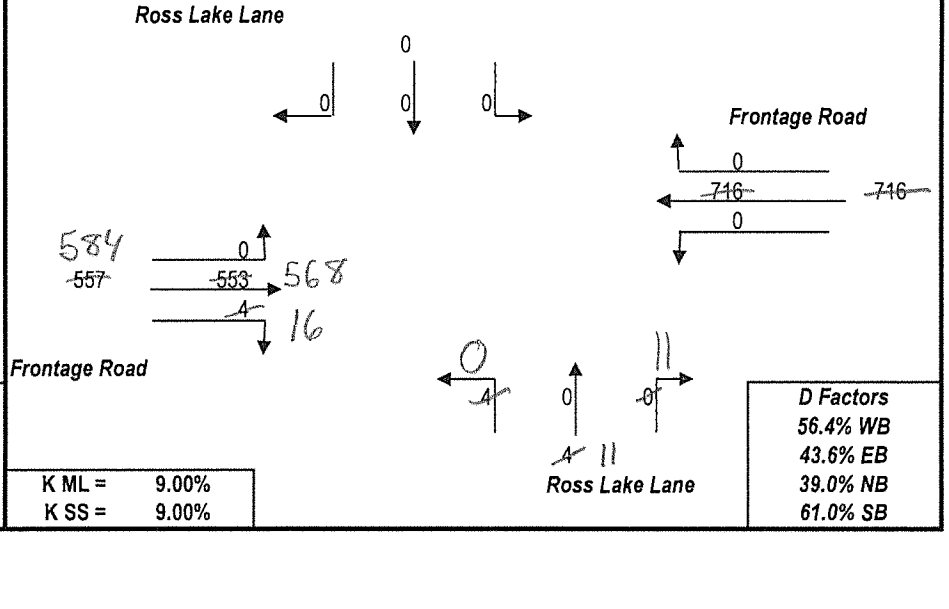
K ML = 9.00%
K SS = 9.00%

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



K ML = 9.00%
K SS = 9.00%

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



K ML = 9.00%
K SS = 9.00%

TURNS5 ANALYSIS SHEET - INPUT

Analyst:	JT
Date:	13-Sep-13
Highway:	Frontage Road
Intersection:	Bella Foresta Place
From:	
To:	PM Build Alternative
County:	Seminole

Is the Mainline Oriented North/South? Enter Yes or No: ○ Yes ◉ No

K Factors

Mainline	Sidestreet
9.00%	9.00%

D Factors

Mainline	
56.4%	Westbound (WB)
43.6%	Eastbound (EB)
Sidestreet	
61.0%	Northbound (NB)
39.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No: ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

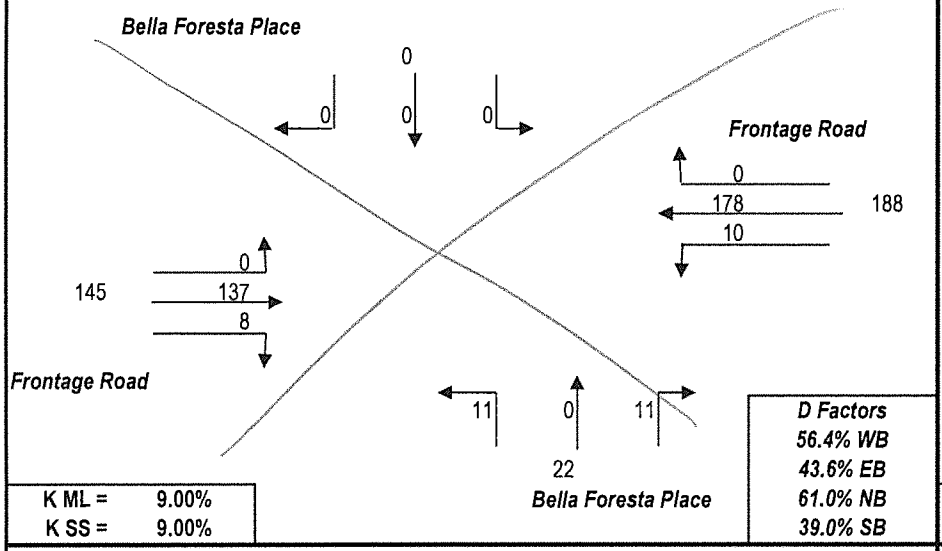
	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	3600	3600	0	300	7500
2040	5000	5000	0	550	10550

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**	
(EB LT)	*West-to-North*	0%	0	
(EB THRU)	*West-to-East*	99%	701	
(EB RT)	*West-to-South*	1%	0	
(WB LT)	*East-to-South*	1%	7	(must be done manually)
(WB THRU)	*East-to-West*	99%	1064	
(WB RT)	*East-to-North*	0%	0	
(SB LT)	*North-to-East*	59%	0	
(SB THRU)	*North-to-South*	2%	0	
(SB RT)	*North-to-West*	39%	0	
(NB LT)	*South-to-West*	39%	0	
(NB THRU)	*South-to-North*	1%	0	
(NB RT)	*South-to-East*	60%	14	

Desired Closure: 0.01

PROJECT TRAFFIC FOR Frontage Road AT Bella Foresta Place: TO PM Build Alternative

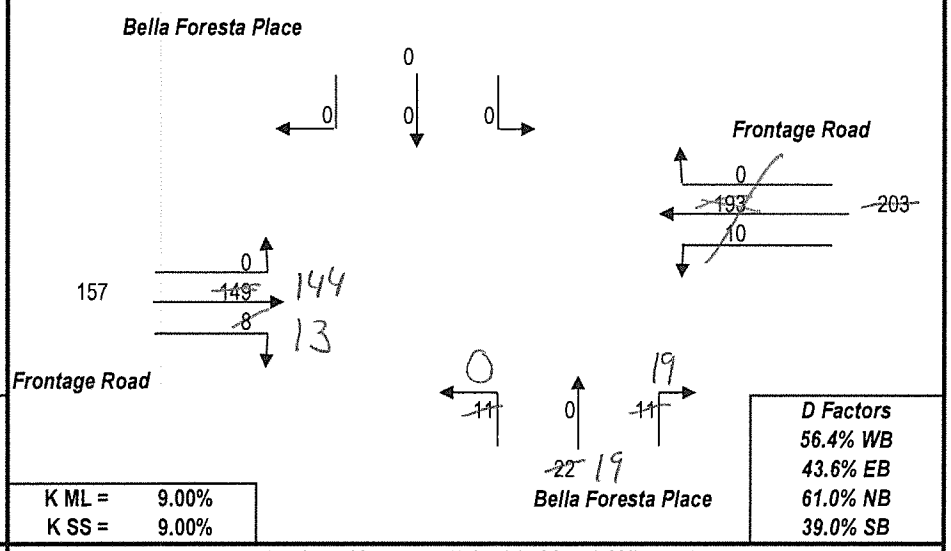
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
61.0% NB
39.0% SB

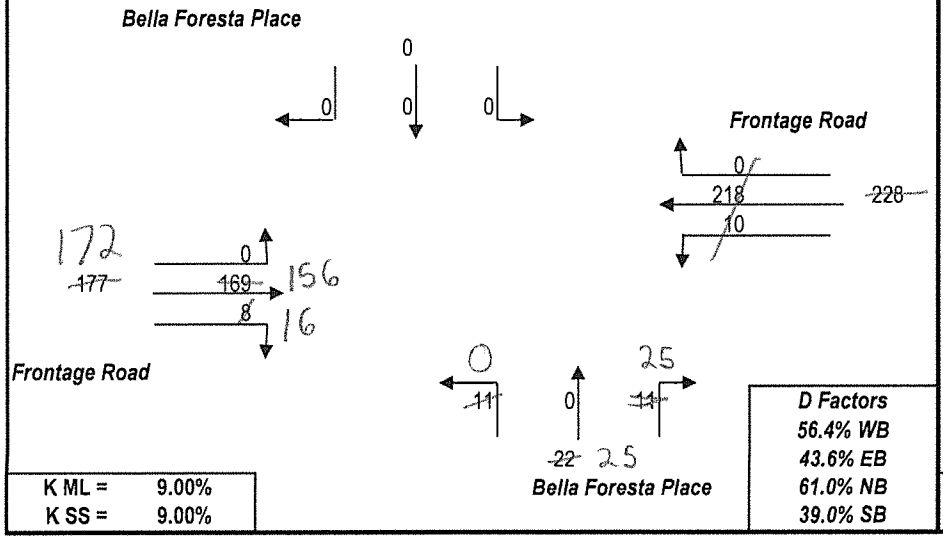
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
61.0% NB
39.0% SB

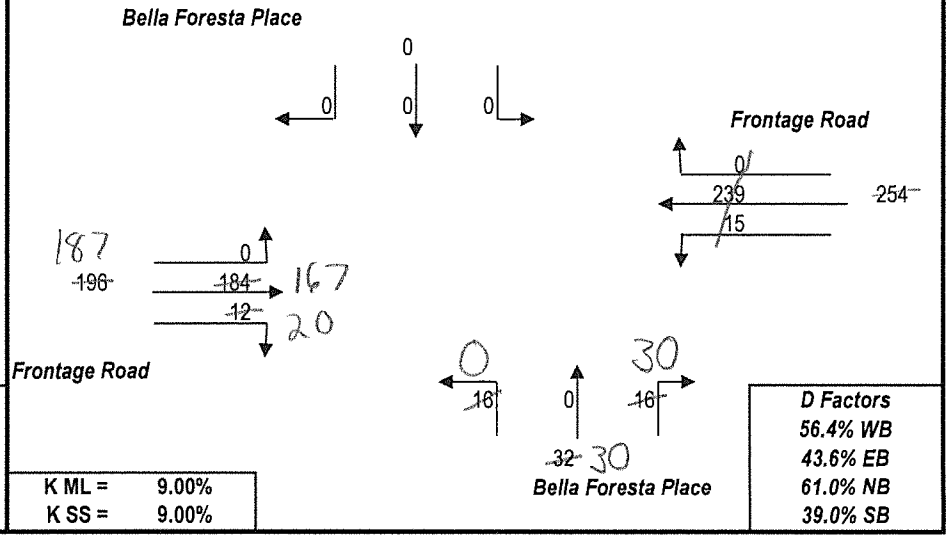
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
61.0% NB
39.0% SB

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
61.0% NB
39.0% SB

TURNS5 ANALYSIS SHEET - INPUT

Analyst: JT
Date: 13-Sep-13
Highway: Frontage Road
Intersection: Lake Markham Road
From:
To: PM Build Alternative
County: Seminole

Is the Mainline Oriented North/South? Enter Yes or No: ○ Yes ◉ No

K Factors

Mainline
9.00%
Sidestreet
9.00%

D Factors

Mainline	
56.4%	Westbound (WB)
43.6%	Eastbound (EB)
Sidestreet	
39.0%	Northbound (NB)
61.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No: ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

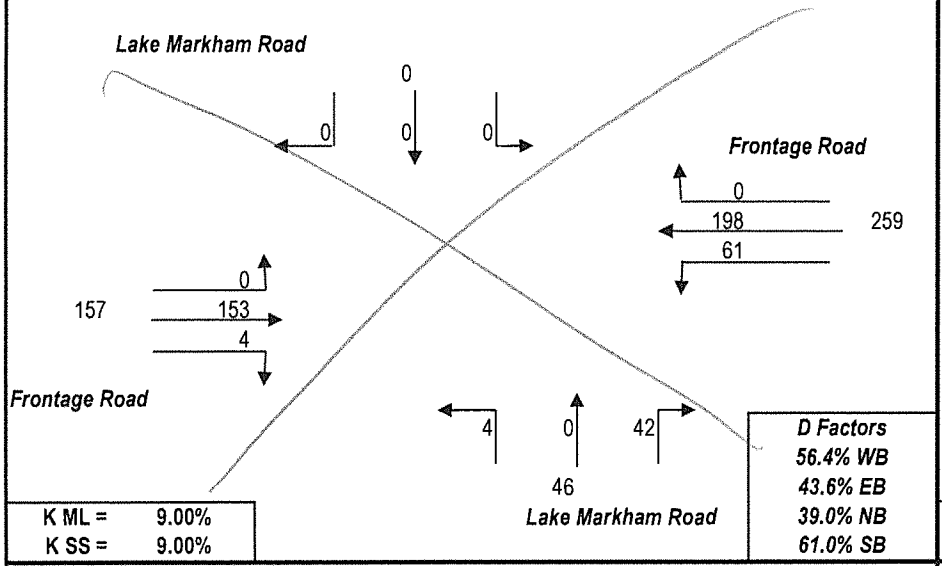
	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	3900	5000	0	1200	10100
2040	5550	7200	0	2300	15050

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**	
(EB LT)	*West-to-North*	0%	0	
(EB THRU)	*West-to-East*	96%	708	
(EB RT)	*West-to-South*	4%	7	
(WB LT)	*East-to-South*	6%	50	(must be done manually)
(WB THRU)	*East-to-West*	94%	1062	
(WB RT)	*East-to-North*	0%	0	
(SB LT)	*North-to-East*	59%	0	
(SB THRU)	*North-to-South*	3%	0	
(SB RT)	*North-to-West*	38%	0	
(NB LT)	*South-to-West*	39%	9	
(NB THRU)	*South-to-North*	1%	0	
(NB RT)	*South-to-East*	60%	38	

Desired Closure: 0.01

PROJECT TRAFFIC FOR Frontage Road AT Lake Markham Road: TO PM Build Alternative

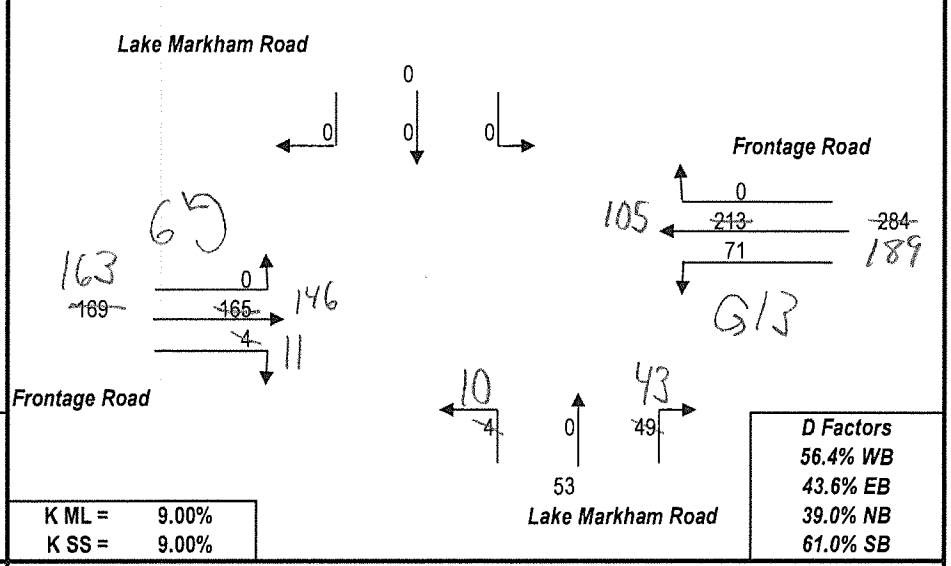
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



D Factors
56.4% WB
43.6% EB
39.0% NB
61.0% SB

K ML =	9.00%
K SS =	9.00%

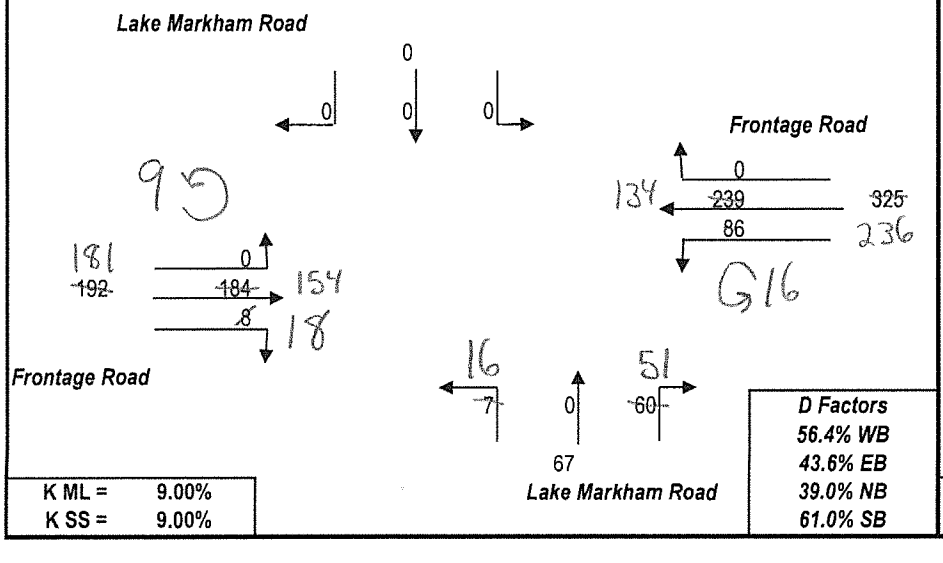
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



D Factors
56.4% WB
43.6% EB
39.0% NB
61.0% SB

K ML =	9.00%
K SS =	9.00%

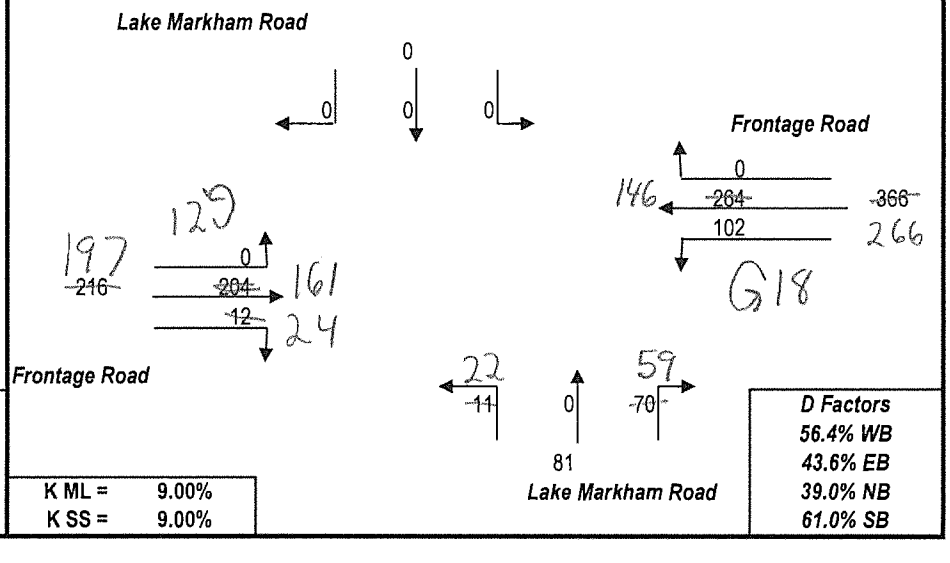
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



D Factors
56.4% WB
43.6% EB
39.0% NB
61.0% SB

K ML =	9.00%
K SS =	9.00%

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



D Factors
56.4% WB
43.6% EB
39.0% NB
61.0% SB

K ML =	9.00%
K SS =	9.00%

TURNS5 ANALYSIS SHEET - INPUT

Analyst: JT
Date: 13-Sep-13
Highway: Frontage Road
Intersection: Maureen Drive
From:
To: PM Build Alternative
County: Seminole

Is the Mainline Oriented North/South? Enter Yes or No: ○ Yes ◉ No

K Factors

Mainline
9.00%
Sidestreet
9.00%

D Factors

Mainline	
56.4%	Westbound (WB)
43.6%	Eastbound (EB)
Sidestreet	
39.0%	Northbound (NB)
61.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No: ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

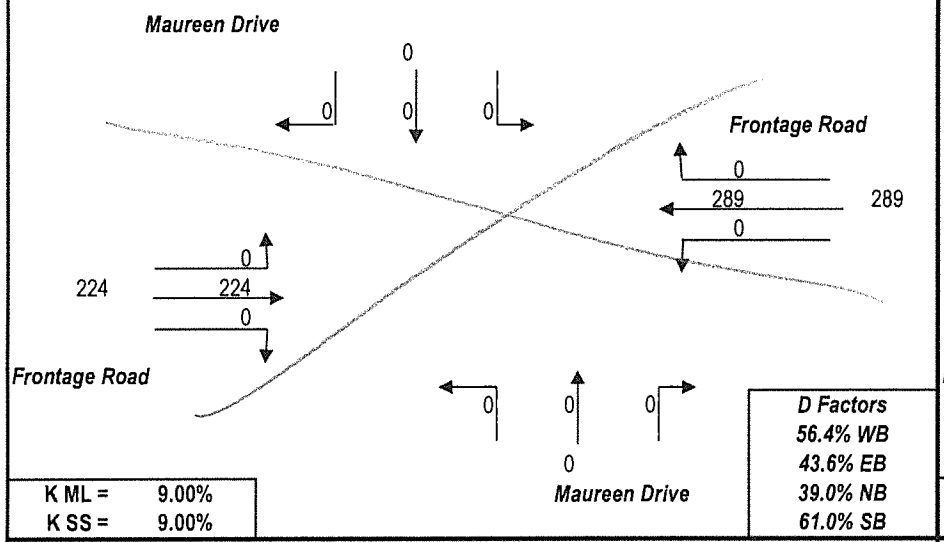
	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	5700	5700	0	150	11550
2040	7200	7200	0	300	14700

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**	
(EB LT)	*West-to-North*	0%	0	
(EB THRU)	*West-to-East*	100%	741	
(EB RT)	*West-to-South*	0%	5	
(WB LT)	*East-to-South*	0%	5	(must be done manually)
(WB THRU)	*East-to-West*	100%	1112	
(WB RT)	*East-to-North*	0%	0	
(SB LT)	*North-to-East*	59%	0	
(SB THRU)	*North-to-South*	2%	0	
(SB RT)	*North-to-West*	39%	0	
(NB LT)	*South-to-West*	40%	0	
(NB THRU)	*South-to-North*	1%	0	
(NB RT)	*South-to-East*	59%	4	

Desired Closure: 0.01

PROJECT TRAFFIC FOR Frontage Road AT Maureen Drive: TO PM Build Alternative

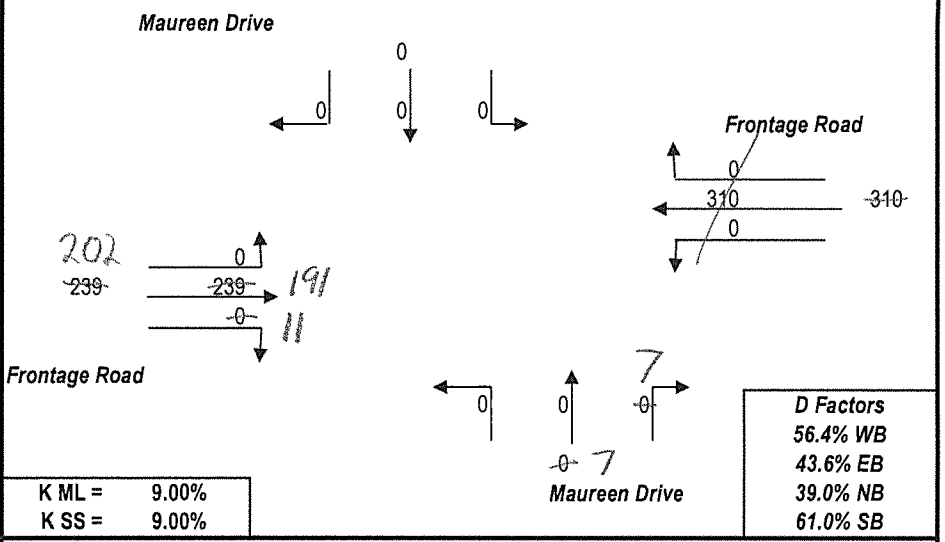
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
39.0% NB
61.0% SB

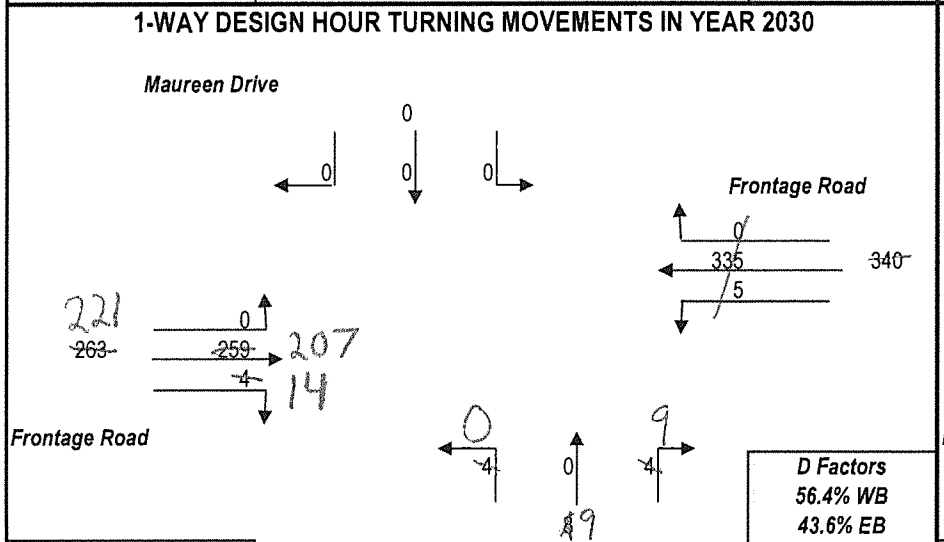
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
39.0% NB
61.0% SB

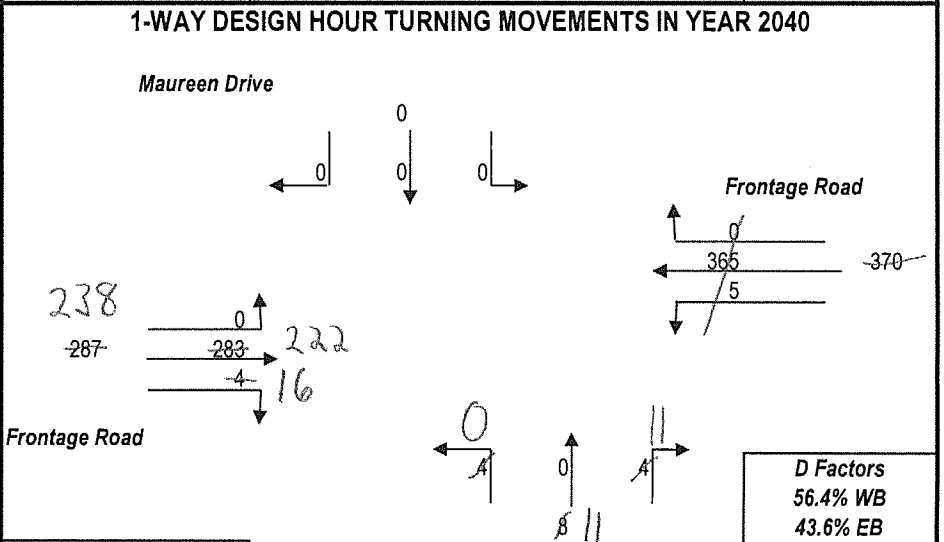
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
39.0% NB
61.0% SB

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
39.0% NB
61.0% SB

TURNS5 ANALYSIS SHEET - INPUT

Analyst: JT
Date: 13-Sep-13
Highway: Frontage Road
Intersection: Glade Road
From:
To: PM Build Alternative
County: Seminole

Is the Mainline Oriented North/South? Enter Yes or No: ○ Yes ◉ No

K Factors

Mainline	Sidestreet
9.00%	9.00%

D Factors

Mainline	
56.4%	Westbound (WB)
43.6%	Eastbound (EB)
Sidestreet	
39.0%	Northbound (NB)
61.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No: ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

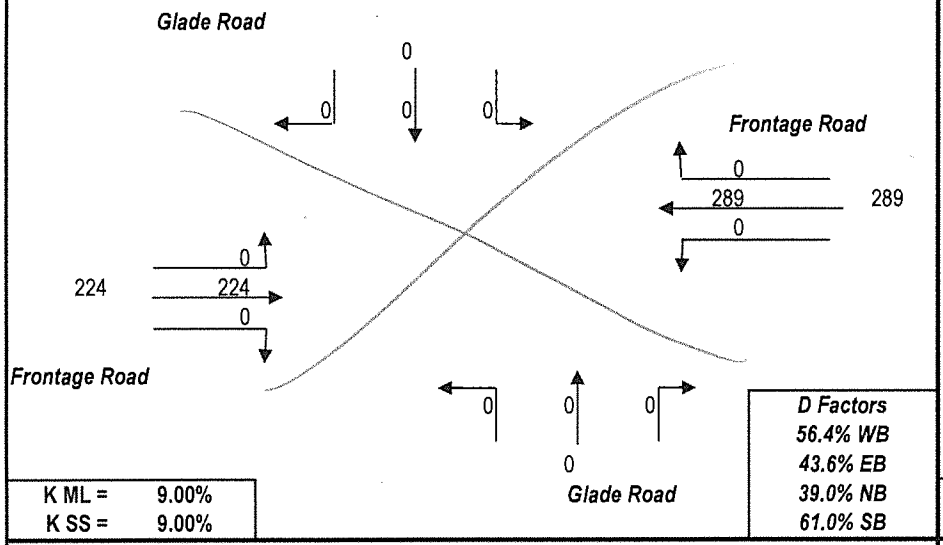
	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	5700	5700	0	100	11500
2040	7200	7200	0	200	14600

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**	
(EB LT)	*West-to-North*	0%	0	
(EB THRU)	*West-to-East*	100%	744	
(EB RT)	*West-to-South*	0%	1	
(WB LT)	*East-to-South*	0%	5	(must be done manually)
(WB THRU)	*East-to-West*	100%	1116	
(WB RT)	*East-to-North*	0%	0	
(SB LT)	*North-to-East*	59%	0	
(SB THRU)	*North-to-South*	2%	0	
(SB RT)	*North-to-West*	39%	0	
(NB LT)	*South-to-West*	39%	1	
(NB THRU)	*South-to-North*	1%	0	
(NB RT)	*South-to-East*	60%	4	

Desired Closure: 0.01

PROJECT TRAFFIC FOR Frontage Road AT Glade Road: TO PM Build Alternative

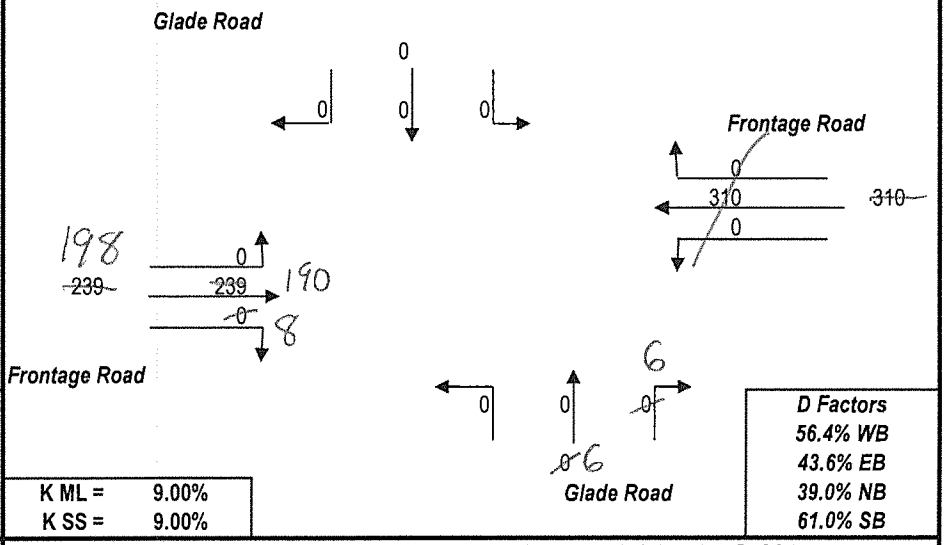
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
39.0% NB
61.0% SB

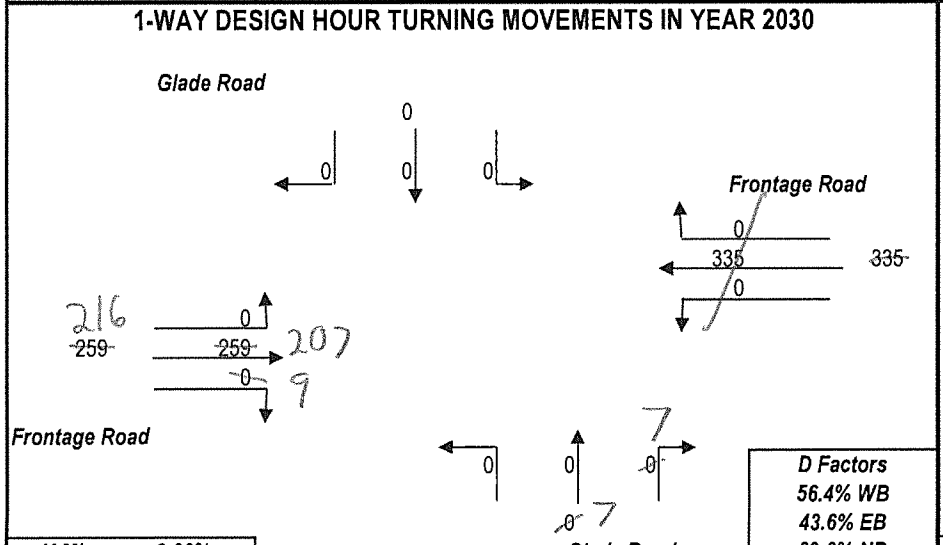
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
39.0% NB
61.0% SB

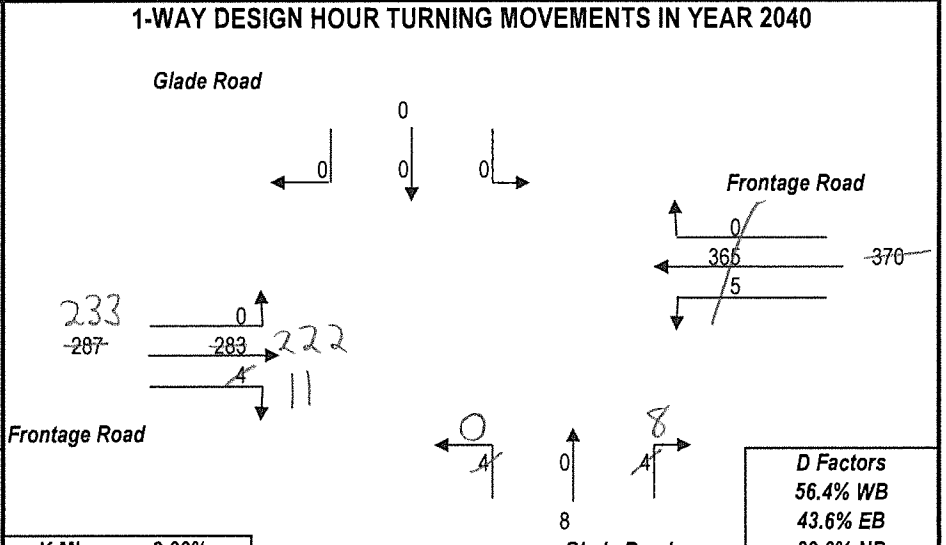
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
39.0% NB
61.0% SB

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
39.0% NB
61.0% SB

TURNS5 ANALYSIS SHEET - INPUT

Analyst: JT
Date: 13-Sep-13
Highway: Frontage Road
Intersection: Glade View Drive
From:
To: PM Build Alternative
County: Seminole

Is the Mainline Oriented North/South? Enter Yes or No: ○ Yes ◉ No

K Factors

Mainline
9.00%
Sidestreet
9.00%

D Factors

Mainline	
56.4%	Westbound (WB)
43.6%	Eastbound (EB)
Sidestreet	
39.0%	Northbound (NB)
61.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No: ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

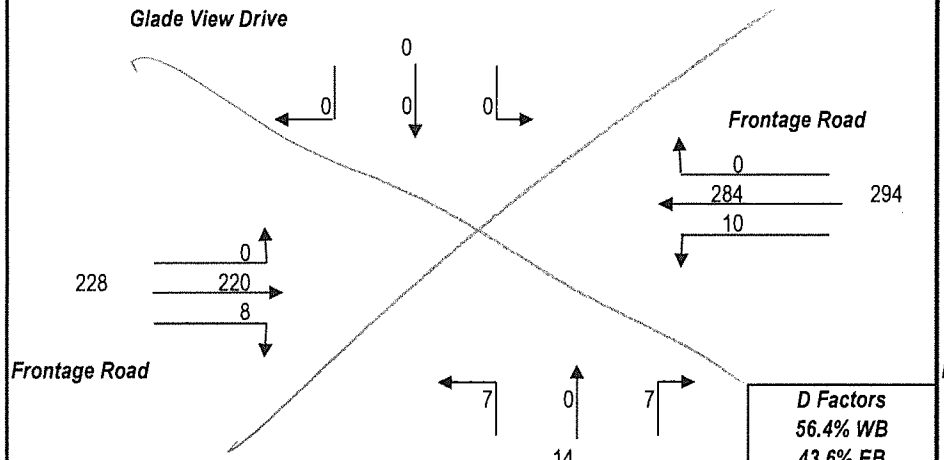
	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	5700	5700	0	300	11700
2040	7200	7200	0	550	14950

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**	
(EB LT)	*West-to-North*	0%	0	
(EB THRU)	*West-to-East*	99%	764	
(EB RT)	*West-to-South*	1%	5	
(WB LT)	*East-to-South*	1%	11	(must be done manually)
(WB THRU)	*East-to-West*	99%	1165	
(WB RT)	*East-to-North*	0%	0	
(SB LT)	*North-to-East*	60%	0	
(SB THRU)	*North-to-South*	1%	0	
(SB RT)	*North-to-West*	39%	0	
(NB LT)	*South-to-West*	39%	2	
(NB THRU)	*South-to-North*	1%	0	
(NB RT)	*South-to-East*	60%	10	

Desired Closure: 0.01

PROJECT TRAFFIC FOR Frontage Road AT Glade View Drive : TO PM Build Alternative

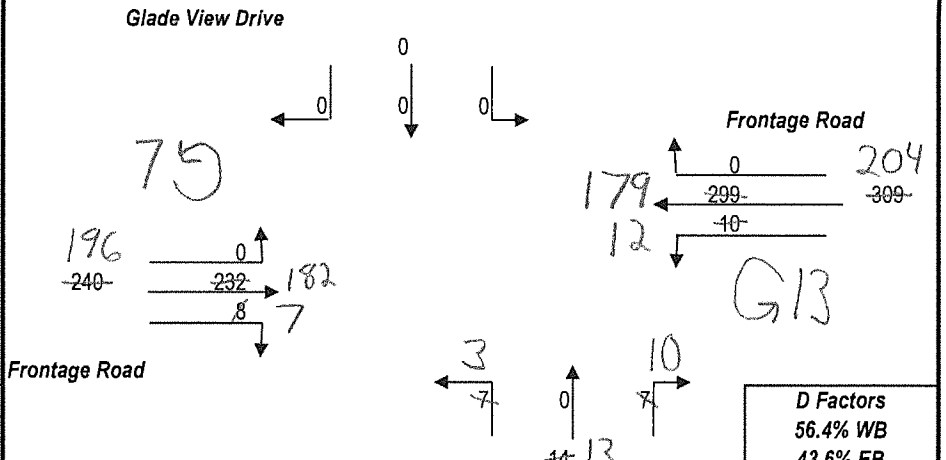
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
39.0% NB
61.0% SB

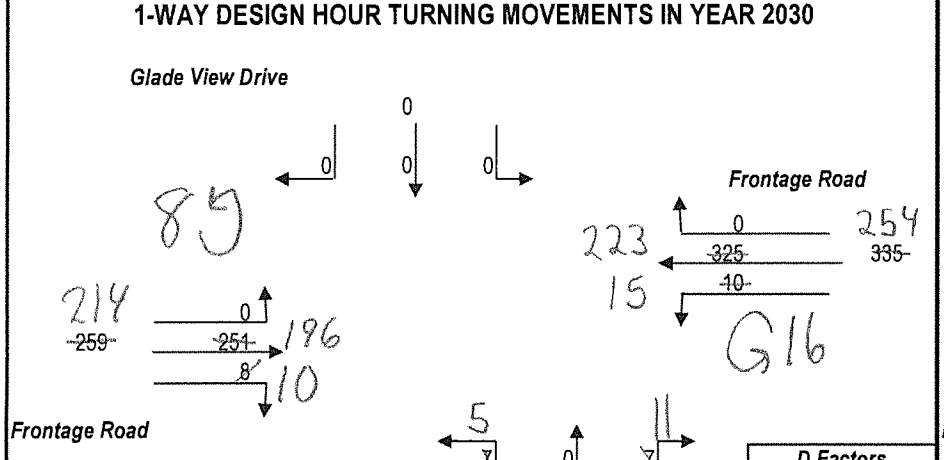
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
39.0% NB
61.0% SB

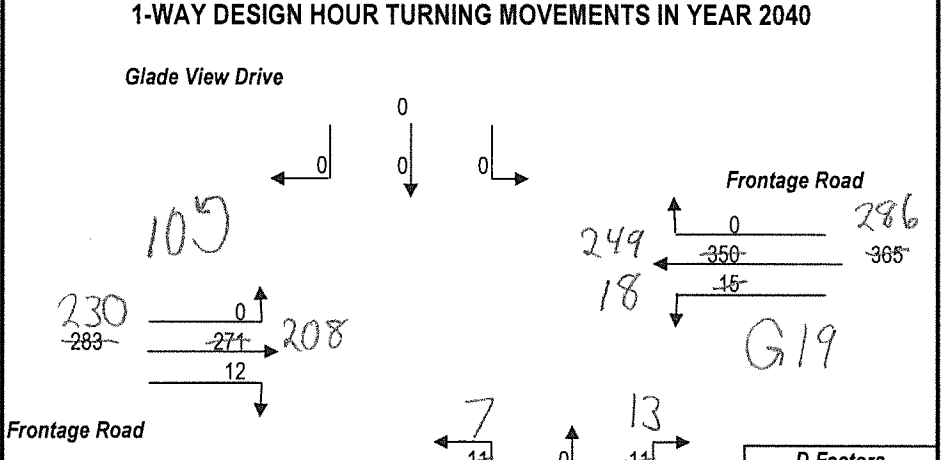
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
39.0% NB
61.0% SB

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
39.0% NB
61.0% SB

TURNS5 ANALYSIS SHEET - INPUT

Analyst: JT
Date: 13-Sep-13
Highway: Frontage Road
Intersection: Twelve Oaks Place
From:
To: PM Build Alternative
County: Seminole

Is the Mainline Oriented North/South? Enter Yes or No: ○ Yes ◉ No

K Factors

Mainline
9.00%
Sidestreet
9.00%

D Factors

Mainline	
56.4%	Westbound (WB)
43.6%	Eastbound (EB)
Sidestreet	
61.0%	Northbound (NB)
39.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No: ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

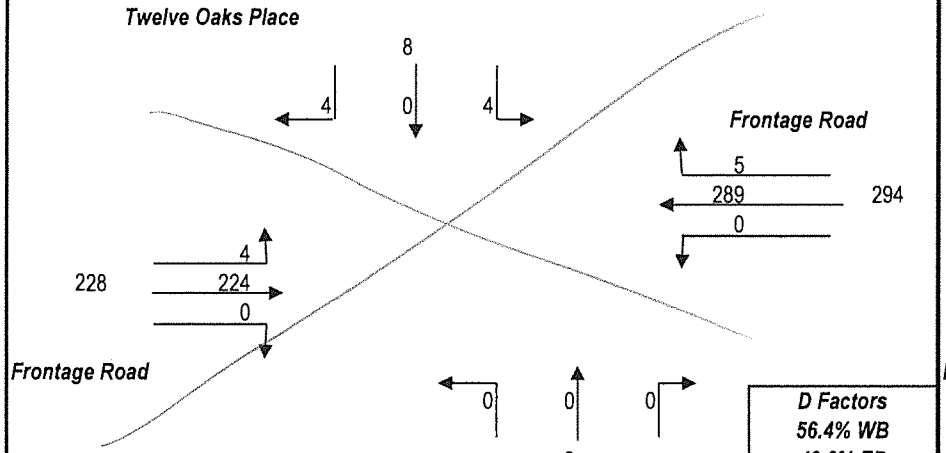
	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	5700	5700	200	0	11600
2040	7200	7200	400	0	14800

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**	
(EB LT)	*West-to-North*	0%	2	
(EB THRU)	*West-to-East*	100%	799	
(EB RT)	*West-to-South*	0%	0	
(WB LT)	*East-to-South*	0%	0	(must be done manually)
(WB THRU)	*East-to-West*	100%	1221	
(WB RT)	*East-to-North*	0%	12	
(SB LT)	*North-to-East*	60%	3	
(SB THRU)	*North-to-South*	1%	0	
(SB RT)	*North-to-West*	39%	1	
(NB LT)	*South-to-West*	39%	0	
(NB THRU)	*South-to-North*	1%	0	
(NB RT)	*South-to-East*	60%	0	

Desired Closure: 0.01

PROJECT TRAFFIC FOR Frontage Road AT Twelve Oaks Place: TO PM Build Alternative

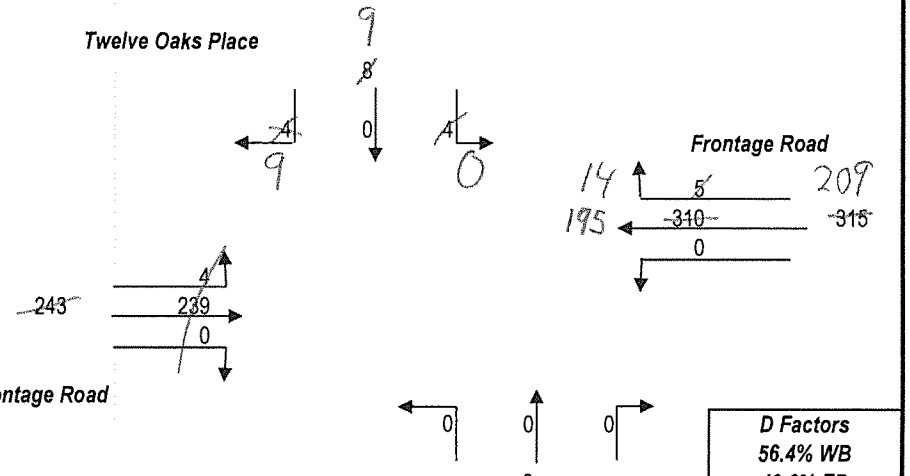
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
61.0% NB
39.0% SB

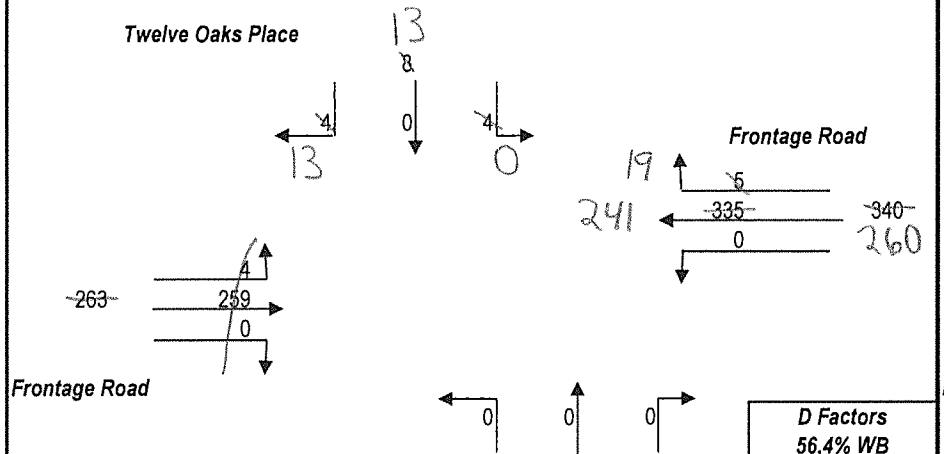
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
61.0% NB
39.0% SB

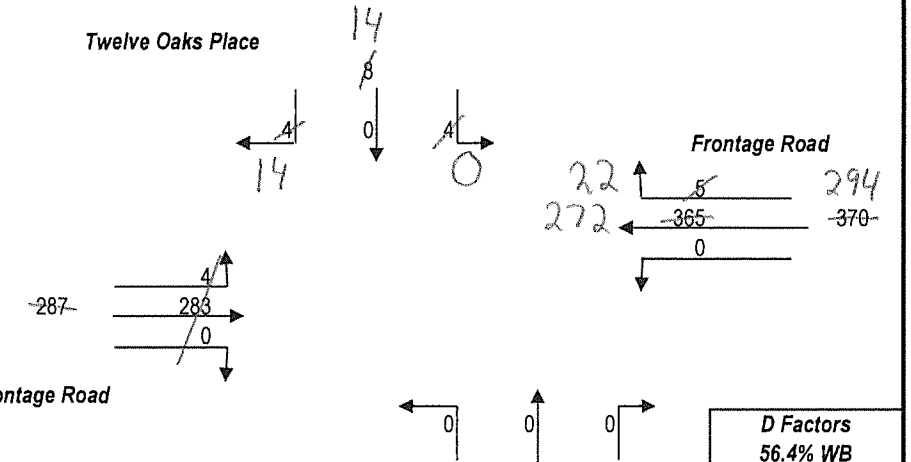
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
61.0% NB
39.0% SB

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
61.0% NB
39.0% SB

TURNS5 ANALYSIS SHEET - INPUT

Analyst: JT
Date: 13-Sep-13
Highway: SR 46
Intersection: Orange Avenue
From:
To: PM Build Alternative
County: Seminole

Is the Mainline Oriented North/South? Enter Yes or No: ○ Yes ◉ No

K Factors	Mainline
	9.00%
	Sidestreet
	9.00%

D Factors	*Mainline*	
	56.4%	Westbound (WB)
	43.6%	Eastbound (EB)
	Sidestreet	
	61.0%	Northbound (NB)
	39.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No: ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	5700	5700	250	0	11650
2040	7200	7200	450	0	14850

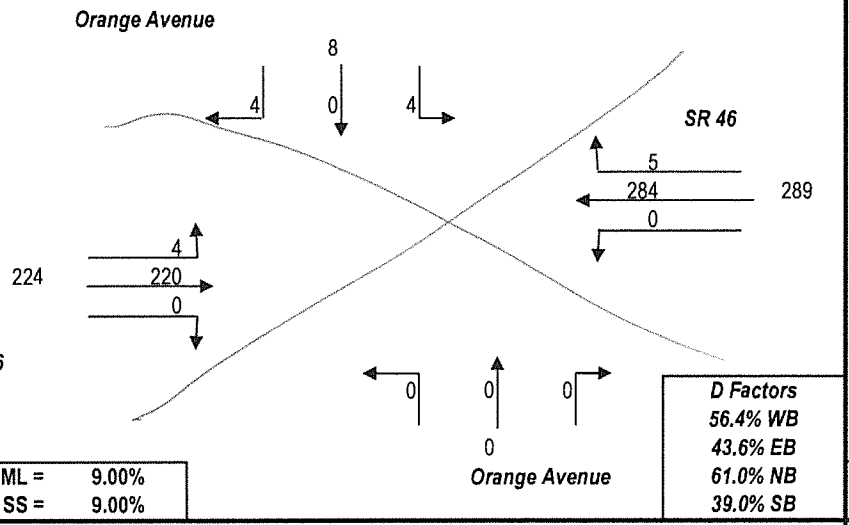
		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**
(EB LT)	*West-to-North*	0%	4
(EB THRU)	*West-to-East*	100%	798
(EB RT)	*West-to-South*	0%	0
(WB LT)	*East-to-South*	0%	0
(WB THRU)	*East-to-West*	99%	1228
(WB RT)	*East-to-North*	1%	8
(SB LT)	*North-to-East*	60%	4
(SB THRU)	*North-to-South*	1%	0
(SB RT)	*North-to-West*	39%	5
(NB LT)	*South-to-West*	39%	0
(NB THRU)	*South-to-North*	1%	0
(NB RT)	*South-to-East*	60%	0

(must be done manually)

Desired Closure: 0.01

PROJECT TRAFFIC FOR SR 46 AT Orange Avenue: TO PM Build Alternative

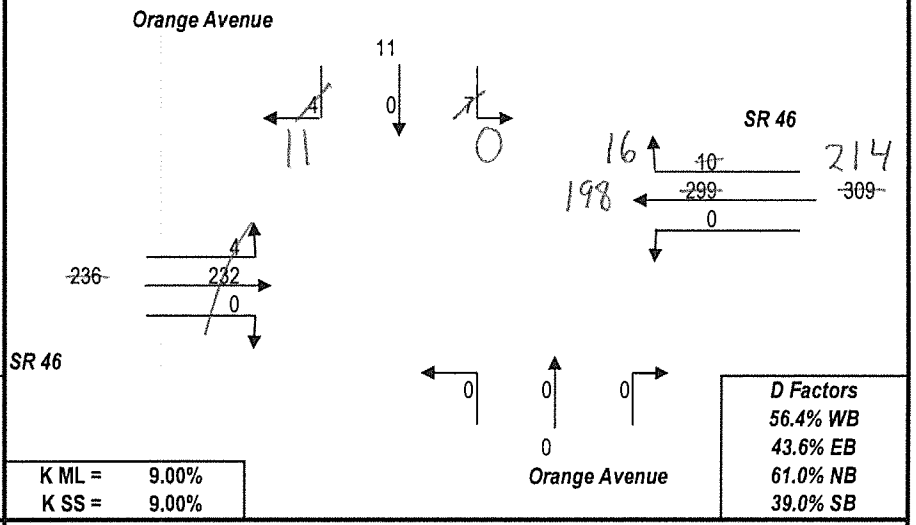
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
61.0% NB
39.0% SB

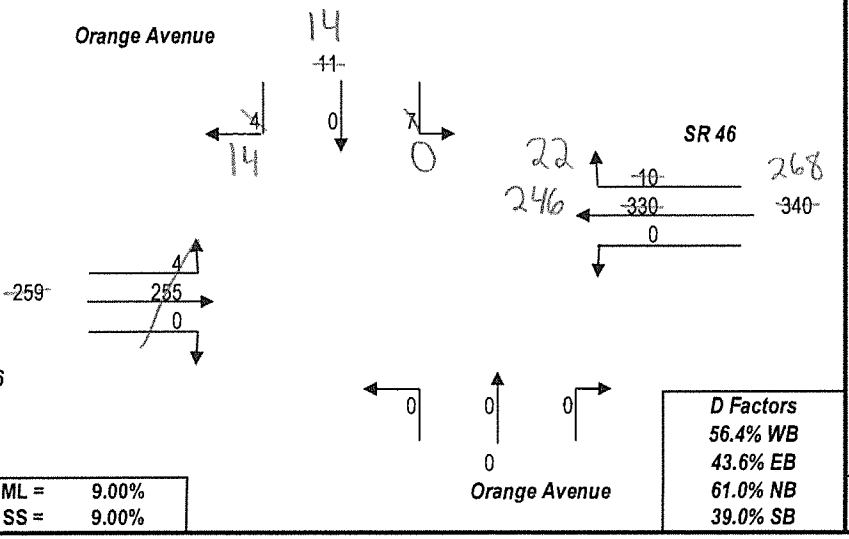
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
61.0% NB
39.0% SB

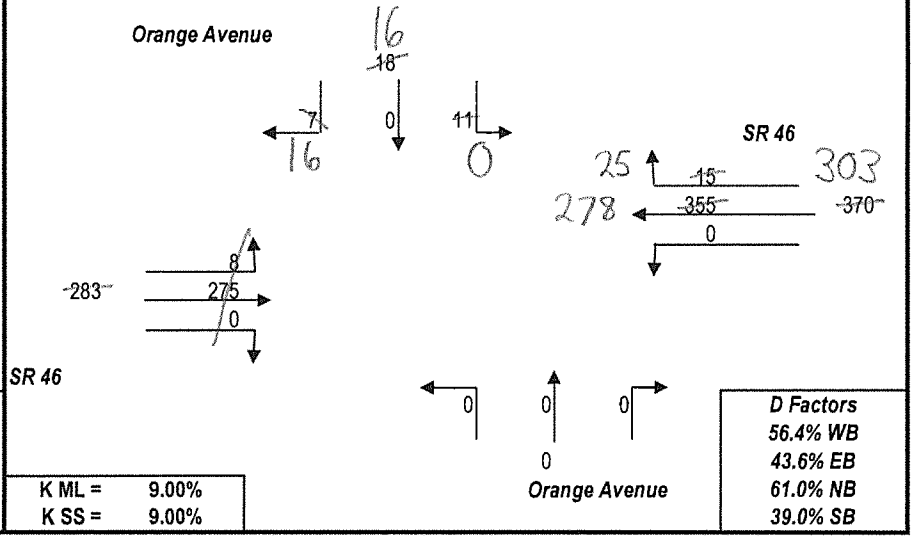
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
61.0% NB
39.0% SB

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
61.0% NB
39.0% SB

TURNS5 ANALYSIS SHEET - INPUT

Analyst:	JT
Date:	13-Sep-13
Highway:	SR 46
Intersection:	Center Road
From:	
To:	PM Build Alternative
County:	Seminole

Is the Mainline Oriented North/South? Enter Yes or No — ○ Yes ◉ No

K Factors

Mainline
9.00%
Sidestreet
9.00%

D Factors

Mainline	
56.4%	Westbound (WB)
43.6%	Eastbound (EB)
Sidestreet	
61.0%	Northbound (NB)
39.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No — ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function — ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function — ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

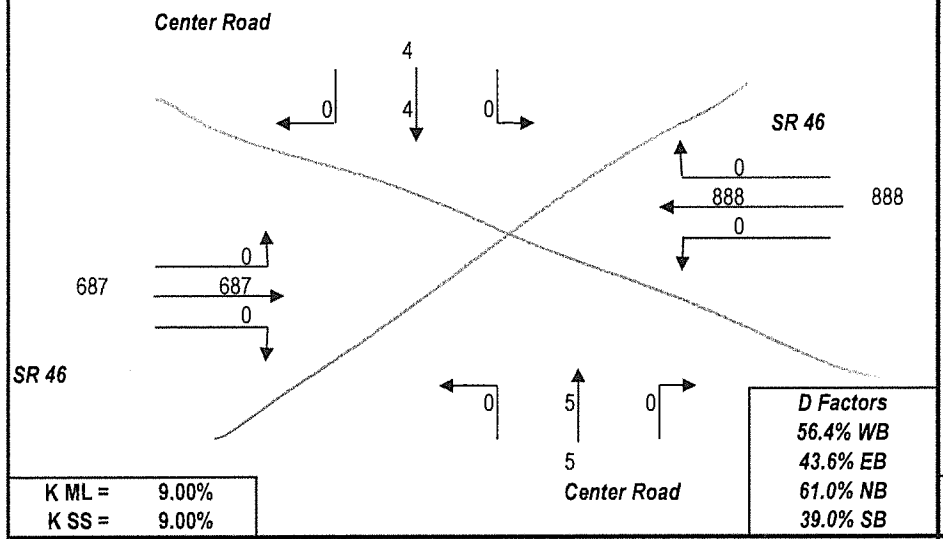
	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	17500	17500	100	100	35200
2040	29500	29500	200	200	59400

		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**	
(EB LT)	*West-to-North*	0%	4	
(EB THRU)	*West-to-East*	100%	760	
(EB RT)	*West-to-South*	0%	0	
(WB LT)	*East-to-South*	0%	4	(must be done manually)
(WB THRU)	*East-to-West*	100%	1226	
(WB RT)	*East-to-North*	0%	2	
(SB LT)	*North-to-East*	61%	0	
(SB THRU)	*North-to-South*	1%	1	
(SB RT)	*North-to-West*	38%	0	
(NB LT)	*South-to-West*	38%	0	
(NB THRU)	*South-to-North*	1%	0	
(NB RT)	*South-to-East*	61%	2	

Desired Closure: 0.01

PROJECT TRAFFIC FOR SR 46 AT Center Road: TO PM Build Alternative

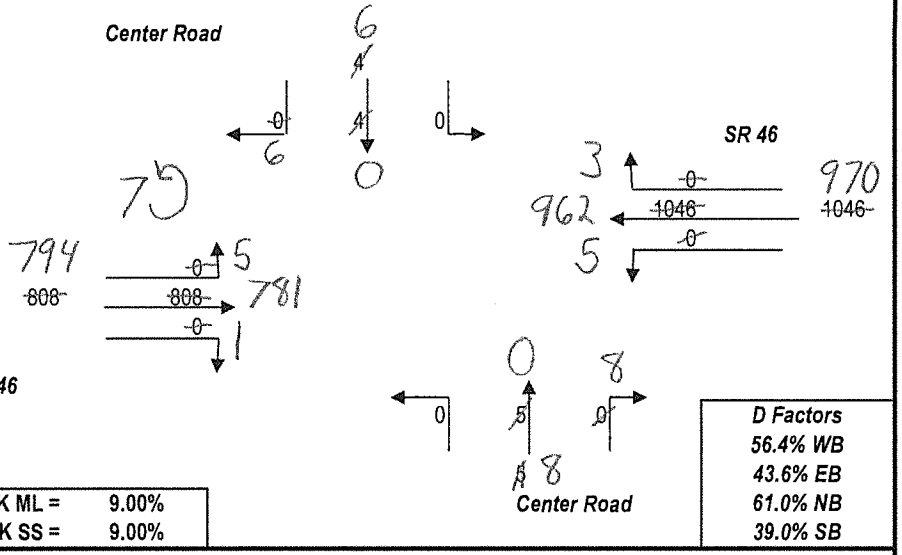
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
61.0% NB
39.0% SB

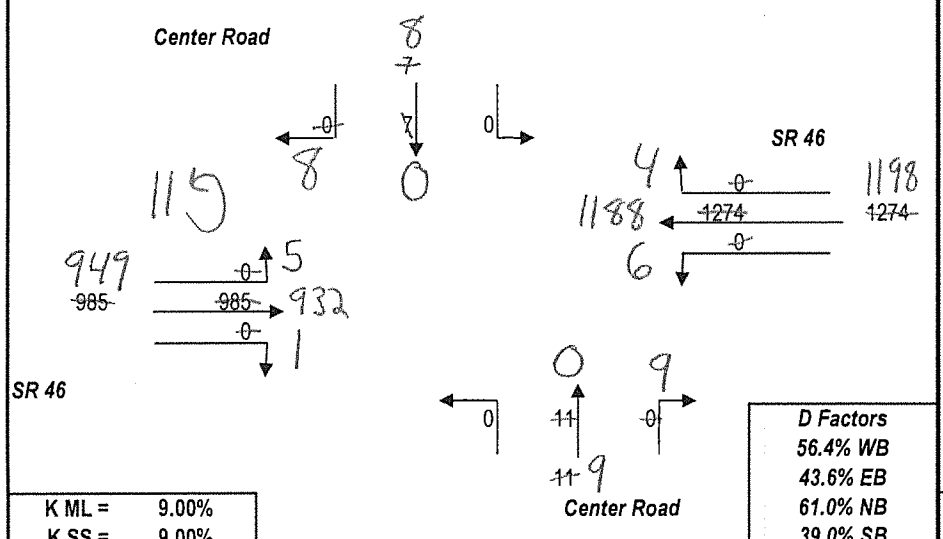
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
61.0% NB
39.0% SB

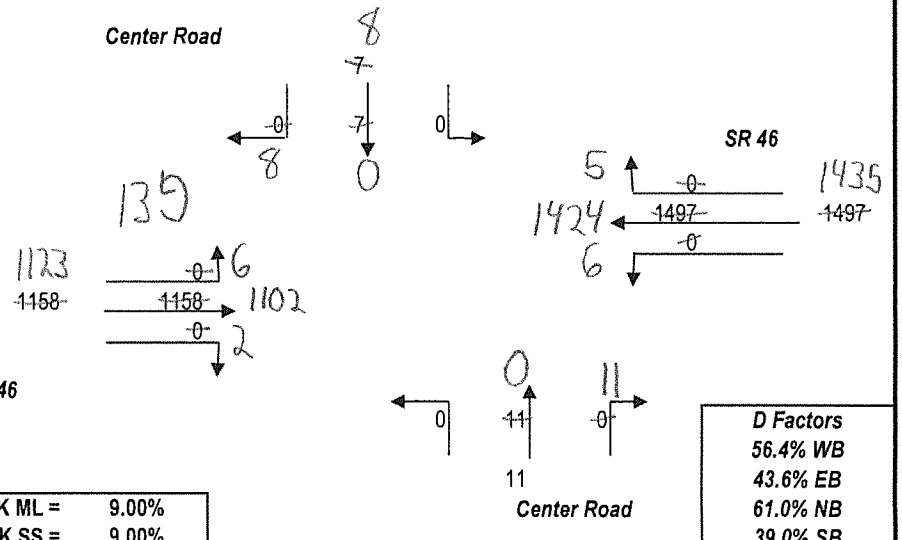
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
61.0% NB
39.0% SB

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
61.0% NB
39.0% SB

TURNS5 ANALYSIS SHEET - INPUT

Analyst: JT
Date: 13-Sep-13
Highway: SR 46
Intersection: Orange Boulevard
From:
To: PM Build Alternative
County: Seminole

Is the Mainline Oriented North/South? Enter Yes or No: ○ Yes ◉ No

K Factors

Mainline
9.00%
Sidestreet
9.00%

D Factors

Mainline	
56.4%	Westbound (WB)
43.6%	Eastbound (EB)
Sidestreet	
61.0%	Northbound (NB)
39.0%	Southbound (SB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) Enter Yes or No: ◉ Yes ○ No

If "Yes" go to cell C47 If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: ◉ Linear ○ Exponential ○ Decaying

Side Street Growth Function: ◉ Linear ○ Exponential ○ Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	17500	21500	6900	6600	52500
2040	29500	29000	12000	8200	78700

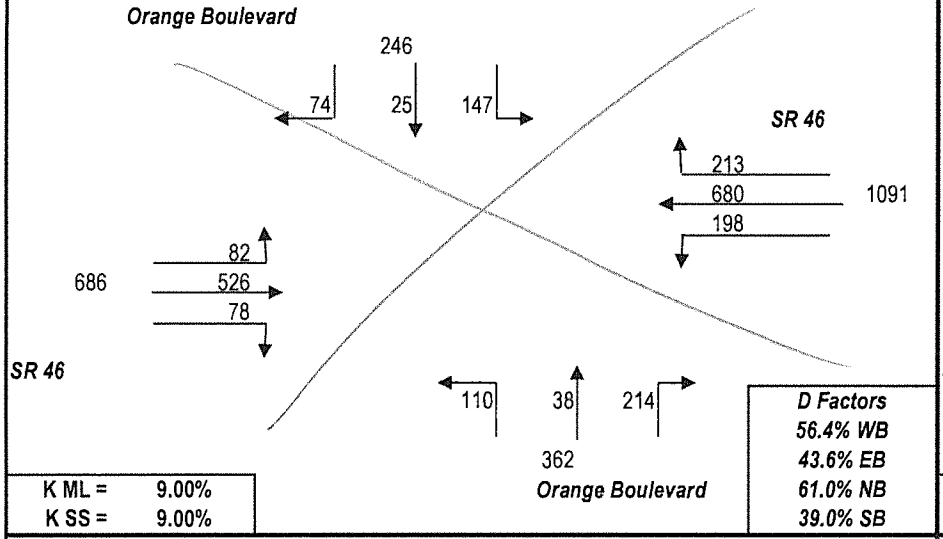
		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**
(EB LT)	*West-to-North*	11%	70
(EB THRU)	*West-to-East*	71%	670
(EB RT)	*West-to-South*	18%	35
(WB LT)	*East-to-South*	23%	79
(WB THRU)	*East-to-West*	62%	1018
(WB RT)	*East-to-North*	15%	86
(SB LT)	*North-to-East*	52%	78
(SB THRU)	*North-to-South*	14%	53
(SB RT)	*North-to-West*	34%	61
(NB LT)	*South-to-West*	36%	163
(NB THRU)	*South-to-North*	9%	95
(NB RT)	*South-to-East*	55%	45

(must be done manually)

Desired Closure: 0.01

PROJECT TRAFFIC FOR SR 46 AT Orange Boulevard: TO PM Build Alternative

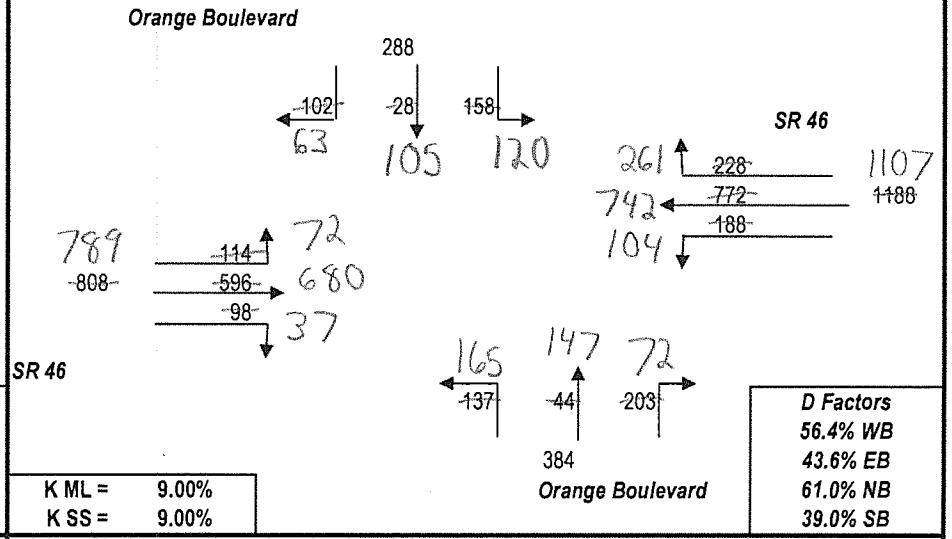
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
61.0% NB
39.0% SB

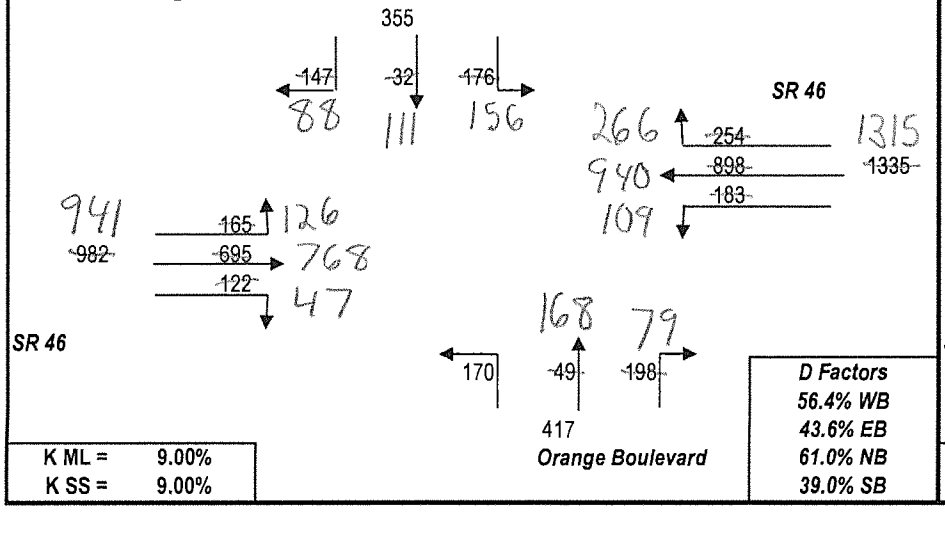
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
61.0% NB
39.0% SB

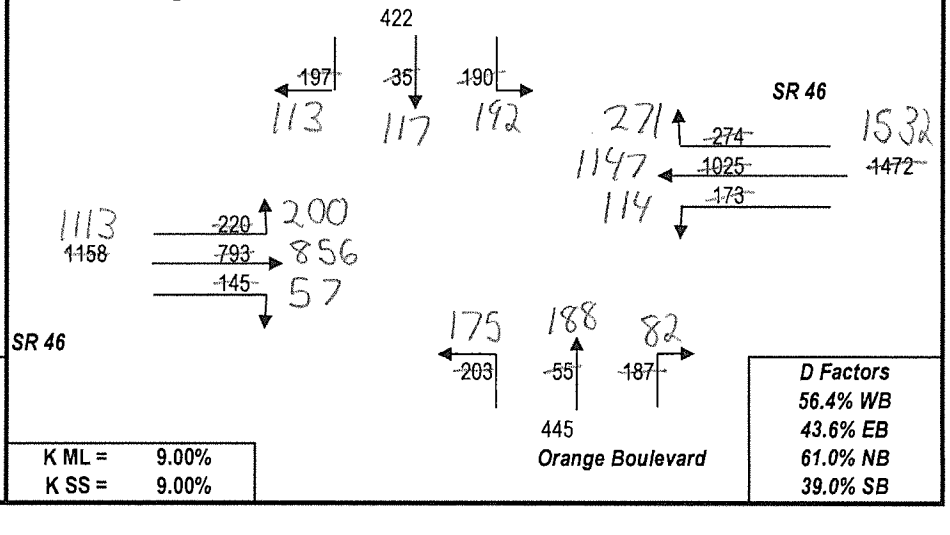
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
61.0% NB
39.0% SB

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040



K ML =	9.00%
K SS =	9.00%

D Factors
56.4% WB
43.6% EB
61.0% NB
39.0% SB

TURNS5 ANALYSIS SHEET - INPUT

Analyst: JT
Date: 13-Sep-13
Highway: Orange Boulevard
Intersection: Wayside Drive
From:
To: PM Build Alternative
County: Seminole

Is the Mainline Oriented North/South? (Enter Yes or No) (•) Yes ( ) No

K Factors

Mainline
9.00%
Sidestreet
9.00%

D Factors

Mainline	
61.0%	Northbound (NB)
39.0%	Southbound (SB)
Sidestreet	
61.0%	Westbound (WB)
39.0%	Eastbound (EB)

Do you have FTSUTMS Model Year traffic from which you would like to interpolate/extrapolate for project years? (Y/N) (Enter Yes or No) (•) Yes ( ) No

If "Yes" go to cell C47 — If "No" go to cell C31

Enter Year and Growth Rates from Base Year:

	Year	*Rate* (1.0% = 0.01) Mainline	Side Street
Base			
Opening			
Mid			
Design			

Mainline Growth Function: (•) Linear ( ) Exponential ( ) Decaying

Side Street Growth Function: (•) Linear ( ) Exponential ( ) Decaying

Enter Base Year AADTs for Volume Comparison:
(growth rates are used to calculate other project years)

From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
0	0	0	0	0

Enter Project and Model Years

	Year
Base	2013
Opening	2020
Mid	2030
Design	2040
Model	2040

Enter Base and Model Year AADTs for Volume Comparison:
(volumes for other project years are calculated by interpolation)

	From West: EB Approach	*From East: WB Approach*	*From North: SB Approach*	*From South: NB Approach*	***TOTAL***
2013	0	1600	6600	6600	14800
2040	0	3000	8200	8200	19400

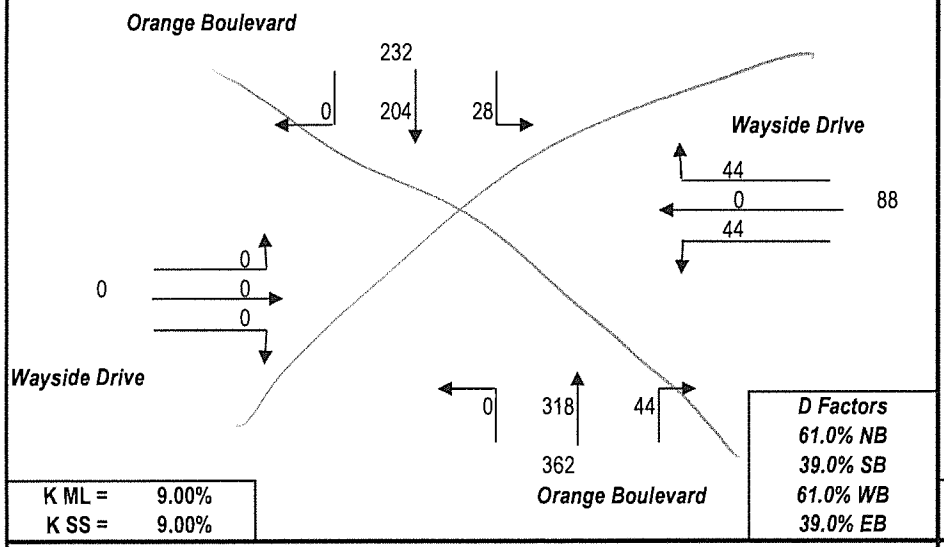
		1st Guess Turning %'s for AADT Balancing	**Actual/Counted Traffic for 2013**
(EB LT)	*West-to-North*	26%	4
(EB THRU)	*West-to-East*	21%	18
(EB RT)	*West-to-South*	53%	49
(WB LT)	*East-to-South*	58%	38
(WB THRU)	*East-to-West*	13%	18
(WB RT)	*East-to-North*	29%	74
(SB LT)	*North-to-East*	24%	13
(SB THRU)	*North-to-South*	63%	152
(SB RT)	*North-to-West*	13%	2
(NB LT)	*South-to-West*	19%	12
(NB THRU)	*South-to-North*	46%	301
(NB RT)	*South-to-East*	35%	23

(must be done manually)

Desired Closure: 0.01

PROJECT TRAFFIC FOR Orange Boulevard AT Wayside Drive: TO PM Build Alternative

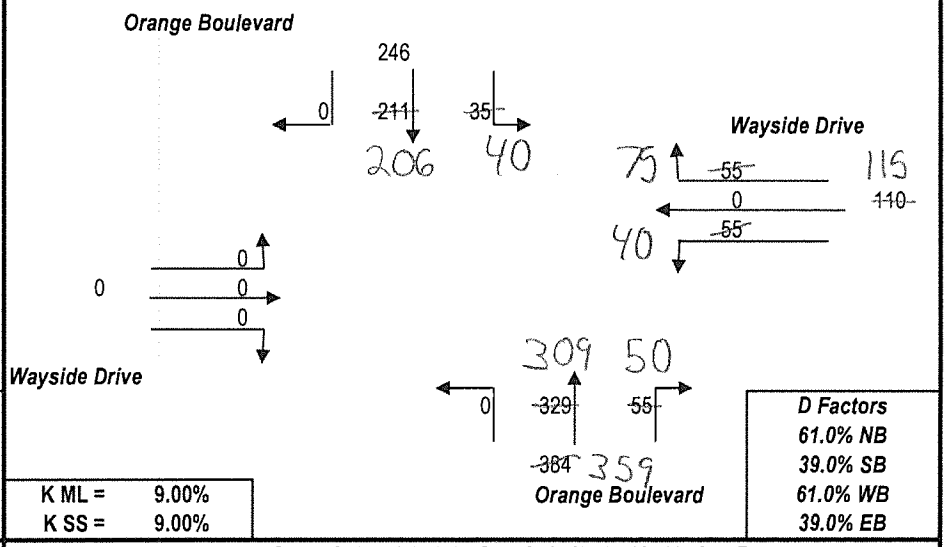
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2013



K ML =	9.00%
K SS =	9.00%

D Factors
61.0% NB
39.0% SB
61.0% WB
39.0% EB

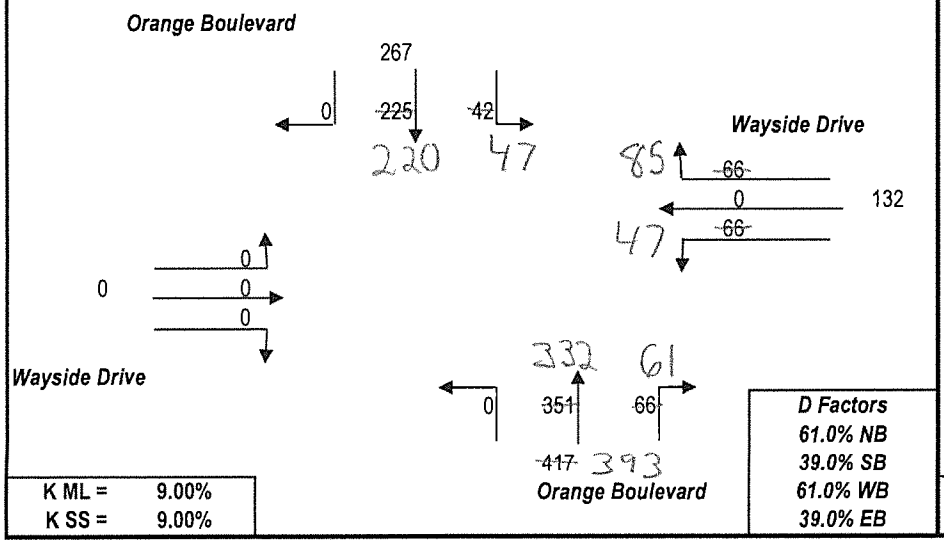
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2020



K ML =	9.00%
K SS =	9.00%

D Factors
61.0% NB
39.0% SB
61.0% WB
39.0% EB

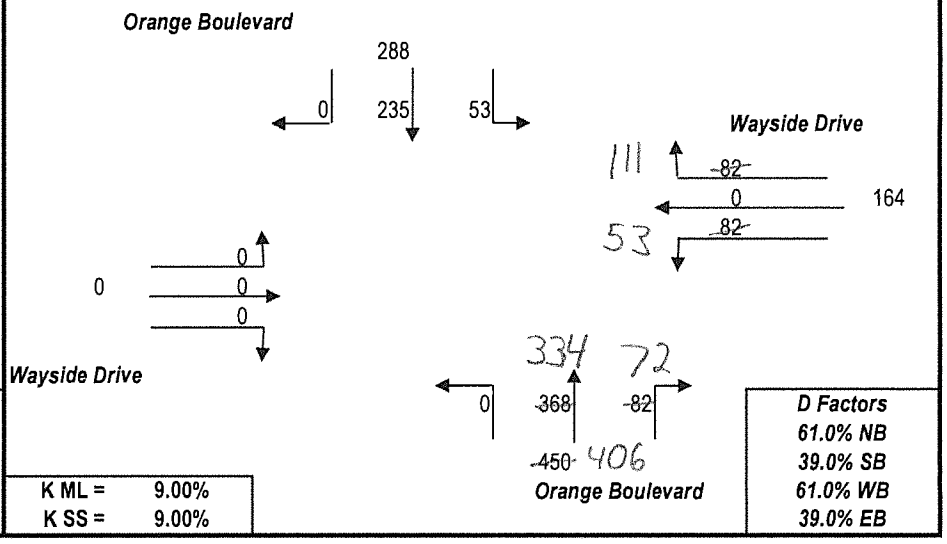
1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2030



K ML =	9.00%
K SS =	9.00%

D Factors
61.0% NB
39.0% SB
61.0% WB
39.0% EB

1-WAY DESIGN HOUR TURNING MOVEMENTS IN YEAR 2040

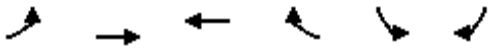


K ML =	9.00%
K SS =	9.00%

D Factors
61.0% NB
39.0% SB
61.0% WB
39.0% EB

Appendix K

SYNCHRO and HCS Intersection Analysis Outputs for Build Alternative



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	15	12	14	18	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	16	13	15	20	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	28				37	21
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	28				37	21
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	100
cM capacity (veh/h)	1592				978	1060

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	16	28	20
Volume Left	0	0	20
Volume Right	0	15	0
cSH	1592	1700	978
Volume to Capacity	0.00	0.02	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.0	8.8
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.8
Approach LOS			A

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Osprey Hammock Trail*
Time Period	*AM Peak*	Analysis Year	*2020*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*LTR*				*LTR*				*LR*				*LR*	
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h	*5*	*479*	*6*	*0*	*29*	*343*	*21*	*5*	*5*		*55*	*0*	*25*		*8*	*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*1*	*1*	*1*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*66*			*11*			*584*			*434*		
Exiting Flow (V_{ex}), pc/h	*635*			*404*			*30*			*40*		
Entry Flow (V_e), pc/h		*557*			*452*			*64*			*35*	
Entry Volume veh/h		*516*			*419*			*63*			*35*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1059*			*1118*			*631*			*732*	
Capacity (*c*), veh/h		*980*			*1035*			*625*			*725*	
v/c Ratio (X)		*0.53*			*0.40*			*0.10*			*0.05*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*10.3*			*7.8*			*6.9*			*5.5*	
Lane LOS		*B*			*A*			*A*			*A*	
Lane 95% Queue		*3.2*			*2.0*			*0.3*			*0.2*	
Approach Delay, s/veh	*10.31*			*7.84*			*6.92*			*5.45*		
Approach LOS, s/veh	*B*			*A*			*A*			*A*		
Intersection Delay, s/veh	*8.94*											
Intersection LOS	*A*											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Longwood Markham Road*
Time Period	*AM Peak*	Analysis Year	*2020*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*TR*				*LT*				*LR*					
Right-Turn Bypass	*Yielding*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h		*383*	*191*	*5*	*40*	*323*		*5*	*82*		*65*	*0*				*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*8*	*8*	*8*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*51*			*93*			*447*			*511*		
Exiting Flow (V_{ex}), pc/h	*510*			*460*			*0*			*45*		
Entry Flow (V_e), pc/h		*441*	*217*		*418*			*156*				
Entry Volume veh/h		*408*	*201*		*387*			*154*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1074*	*1080*		*1030*			*723*			*0*	
Capacity (*c*), veh/h		*994*	*1000*		*954*			*716*			*0*	
v/c Ratio (X)		*0.41*	*0.20*		*0.41*			*0.22*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*8.2*	*5.5*		*8.4*			*7.5*				
Lane LOS		*A*	*A*		*A*			*A*			*F*	
Lane 95% Queue		*2.0*	*0.7*		*2.0*			*0.8*				
Approach Delay, s/veh	*7.30*			*8.35*			*7.48*					
Approach LOS, s/veh	*A*			*A*			*A*					
Intersection Delay, s/veh	*7.68*											
Intersection LOS	*A*											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Yankee Lake Road*
Time Period	*AM Peak*	Analysis Year	*2020*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*LT*				*TR*								*LR*	
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h	*3*	*445*		*5*		*362*	*5*	*17*				*0*	*5*		*1*	*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*24*			*9*			*539*			*437*		
Exiting Flow (V_{ex}), pc/h	*531*			*418*			*9*			*0*		
Entry Flow (V_e), pc/h		*515*			*437*			*6*			*6*	
Entry Volume veh/h		*477*			*405*						*6*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1103*			*1120*			*0*			*730*	
Capacity (*c*), veh/h		*1021*			*1037*			*0*			*723*	
v/c Ratio (X)		*0.47*			*0.39*						*0.01*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*8.9*			*7.6*						*5.1*	
Lane LOS		*A*			*A*			*F*			*A*	
Lane 95% Queue		*2.5*			*1.9*						*0.0*	
Approach Delay, s/veh	*8.91*			*7.63*						*5.06*		
Approach LOS, s/veh	*A*			*A*						*A*		
Intersection Delay, s/veh	*8.30*											
Intersection LOS	*A*											

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	460	7	0	0	0	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	484	7	0	0	0	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			492		488	488
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			492		488	488
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	98
cM capacity (veh/h)			1077		541	582

Direction, Lane #	EB 1	NB 1
Volume Total	492	12
Volume Left	0	0
Volume Right	7	12
cSH	1700	582
Volume to Capacity	0.29	0.02
Queue Length 95th (ft)	0	2
Control Delay (s)	0.0	11.3
Lane LOS		B
Approach Delay (s)	0.0	11.3
Approach LOS		B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	158	19	0	0	0	13
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	166	20	0	0	0	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			186		176	176
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			186		176	176
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	98
cM capacity (veh/h)			1394		816	869

Direction, Lane #	EB 1	NB 1
Volume Total	186	14
Volume Left	0	0
Volume Right	20	14
cSH	1700	869
Volume to Capacity	0.11	0.02
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	9.2
Lane LOS		A
Approach Delay (s)	0.0	9.2
Approach LOS		A

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	19.5%	ICU Level of Service	A
Analysis Period (min)	15		

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Lake Markham Road*
Time Period	*AM Peak*	Analysis Year	*2020*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*TR*				*LT*				*LR*					
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h		*143*	*23*	*5*	*30*	*140*		*8*	*11*		*71*	*0*				*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*8*	*8*	*8*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*43*			*18*			*178*			*220*		
Exiting Flow (V_{ex}), pc/h	*247*			*177*			*0*			*60*		
Entry Flow (V_e), pc/h		*194*			*202*			*87*				
Entry Volume veh/h		*180*			*187*			*86*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1082*			*1111*			*946*			*0*	
Capacity (*c*), veh/h		*1002*			*1028*			*937*			*0*	
v/c Ratio (X)		*0.18*			*0.18*			*0.09*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*5.3*			*5.2*			*4.7*				
Lane LOS		*A*			*A*			*A*			*F*	
Lane 95% Queue		*0.7*			*0.7*			*0.3*				
Approach Delay, s/veh	*5.27*			*5.19*			*4.69*					
Approach LOS, s/veh	*A*			*A*			*A*					
Intersection Delay, s/veh	*5.13*											
Intersection LOS	*A*											

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	215	7	0	0	0	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	226	7	0	0	0	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	1007					
pX, platoon unblocked						
vC, conflicting volume			234		230	230
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			234		230	230
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1340		760	812

Direction, Lane #	EB 1	NB 1
Volume Total	234	12
Volume Left	0	0
Volume Right	7	12
cSH	1700	812
Volume to Capacity	0.14	0.01
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	9.5
Lane LOS		A
Approach Delay (s)	0.0	9.5
Approach LOS		A

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	21.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	220	6	0	0	0	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	232	6	0	0	0	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			238		235	235
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			238		235	235
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1335		756	807

Direction, Lane #	EB 1	NB 1
Volume Total	238	8
Volume Left	0	0
Volume Right	6	8
cSH	1700	807
Volume to Capacity	0.14	0.01
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	9.5
Lane LOS		A
Approach Delay (s)	0.0	9.5
Approach LOS		A

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	21.9%	ICU Level of Service	A
Analysis Period (min)	15		

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Glade View Drive*
Time Period	*AM Peak*	Analysis Year	*2020*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*TR*				*LT*				*LR*					
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h		*213*	*10*	*5*	*3*	*168*		*22*	*5*		*14*	*0*				*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*8*	*8*	*8*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*28*			*11*			*273*			*230*		
Exiting Flow (V_{ex}), pc/h	*282*			*202*			*0*			*15*		
Entry Flow (V_e), pc/h		*259*			*219*			*20*				
Entry Volume veh/h		*240*			*203*			*20*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1098*			*1118*			*860*			*0*	
Capacity (*c*), veh/h		*1017*			*1035*			*852*			*0*	
v/c Ratio (X)		*0.24*			*0.20*			*0.02*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*5.8*			*5.3*			*4.4*				
Lane LOS		*A*			*A*			*A*			*F*	
Lane 95% Queue		*0.9*			*0.7*			*0.1*				
Approach Delay, s/veh	*5.81*			*5.30*			*4.44*					
Approach LOS, s/veh	*A*			*A*			*A*					
Intersection Delay, s/veh	*5.53*											
Intersection LOS	*A*											

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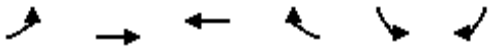
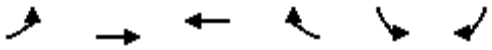


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	179	9	0	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	188	9	0	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	198				193	193
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	198				193	193
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	1381				798	851

Direction, Lane #	WB 1	SB 1
Volume Total	198	15
Volume Left	0	0
Volume Right	9	15
cSH	1700	851
Volume to Capacity	0.12	0.02
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	9.3
Lane LOS		A
Approach Delay (s)	0.0	9.3
Approach LOS		A

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	20.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	172	11	0	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	181	12	0	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	193				187	187
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	193				187	187
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	1387				805	858

Direction, Lane #	WB 1	SB 1
Volume Total	193	17
Volume Left	0	0
Volume Right	12	17
cSH	1700	858
Volume to Capacity	0.11	0.02
Queue Length 95th (ft)	0	2
Control Delay (s)	0.0	9.3
Lane LOS		A
Approach Delay (s)	0.0	9.3
Approach LOS		A

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	19.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (veh/h)	9	2	996	3	5	755	4	0	0	6	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	2	1048	3	5	795	4	0	0	6	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			None			None						
Median storage veh)												
Upstream signal (ft)						846						
pX, platoon unblocked	0.00	0.86						0.86	0.86		0.86	0.86
vC, conflicting volume	0	799			1052			1471	1864	526	1342	1863
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	447			1052			1226	1682	526	1077	1681
tC, single (s)	0.0	4.1			4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	100			99			100	100	99	100	100
cM capacity (veh/h)	0	963			664			115	81	499	148	81

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	2	699	353	5	530	269	6	8
Volume Left	2	0	0	5	0	0	0	0
Volume Right	0	0	3	0	0	4	6	8
cSH	963	1700	1700	664	1700	1700	499	938
Volume to Capacity	0.00	0.41	0.21	0.01	0.31	0.16	0.01	0.01
Queue Length 95th (ft)	0	0	0	1	0	0	1	1
Control Delay (s)	8.7	0.0	0.0	10.5	0.0	0.0	12.3	8.9
Lane LOS	A			B			B	A
Approach Delay (s)	0.0			0.1			12.3	8.9
Approach LOS							B	A

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	37.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Volume (veh/h)	8
Sign Control	
Grade	
Peak Hour Factor	0.95
Hourly flow rate (vph)	8
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.86
vC, conflicting volume	399
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	0
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	99
cM capacity (veh/h)	938
Direction, Lane #	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	816	101	130	651	137	58	66	122	242	153	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	4803	1599	1787	3343	1599	1787	1698		1787	1806	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.62	1.00		0.31	1.00	
Satd. Flow (perm)	1787	4803	1599	1787	3343	1599	1169	1698		578	1806	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	89	859	106	137	685	144	61	69	128	255	161	58
RTOR Reduction (vph)	0	0	73	0	0	91	0	69	0	0	14	0
Lane Group Flow (vph)	89	859	33	137	685	53	61	128	0	255	205	0
Heavy Vehicles (%)	1%	8%	1%	1%	8%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	pm+pt			pm+pt		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)	6.4	31.4	31.4	12.0	37.0	37.0	18.9	14.0		36.1	24.7	
Effective Green, g (s)	6.4	31.4	31.4	12.0	37.0	37.0	18.9	14.0		36.1	24.7	
Actuated g/C Ratio	0.06	0.31	0.31	0.12	0.37	0.37	0.19	0.14		0.36	0.25	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.5	5.0	5.0	3.5	5.0	5.0	3.5	3.5		3.5	3.5	
Lane Grp Cap (vph)	114	1508	502	214	1237	592	251	238		397	446	
v/s Ratio Prot	0.05	c0.18		0.08	c0.20		0.01	0.08		c0.10	0.11	
v/s Ratio Perm			0.02			0.03	0.03			c0.13		
v/c Ratio	0.78	0.57	0.07	0.64	0.55	0.09	0.24	0.54		0.64	0.46	
Uniform Delay, d1	46.1	28.7	24.0	41.9	25.0	20.5	34.0	40.0		24.5	32.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	29.2	1.6	0.3	6.7	1.8	0.3	0.6	2.6		3.7	0.9	
Delay (s)	75.3	30.2	24.3	48.6	26.7	20.8	34.6	42.6		28.2	32.9	
Level of Service	E	C	C	D	C	C	C	D		C	C	
Approach Delay (s)		33.4			29.0			40.7			30.4	
Approach LOS		C			C			D			C	

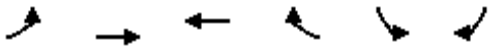
Intersection Summary			
HCM Average Control Delay	32.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	45	25	221	65	45	339
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	47	26	233	68	47	357
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		10				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	684	233			301	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	684	233			301	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	97			96	
cM capacity (veh/h)	400	809			1266	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	74	233	68	47	357
Volume Left	47	0	0	47	0
Volume Right	26	0	68	0	0
cSH	623	1700	1700	1266	1700
Volume to Capacity	0.12	0.14	0.04	0.04	0.21
Queue Length 95th (ft)	10	0	0	3	0
Control Delay (s)	13.2	0.0	0.0	8.0	0.0
Lane LOS	B			A	
Approach Delay (s)	13.2	0.0		0.9	
Approach LOS	B				

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	28.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	20	16	18	23	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	22	17	20	25	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	37				49	27
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	37				49	27
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				97	100
cM capacity (veh/h)	1580				963	1051

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	22	37	25
Volume Left	0	0	25
Volume Right	0	20	0
cSH	1580	1700	963
Volume to Capacity	0.00	0.02	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.0	8.8
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.8
Approach LOS			A

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Osprey Hammock Trail*
Time Period	*AM Peak*	Analysis Year	*2030*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*LTR*				*LTR*				*LR*				*LR*	
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h	*7*	*588*	*9*	*0*	*37*	*431*	*27*	*5*	*7*		*64*	*0*	*33*		*10*	*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*1*	*1*	*1*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*83*			*15*			*717*			*545*		
Exiting Flow (V_{ex}), pc/h	*777*			*508*			*39*			*52*		
Entry Flow (V_e), pc/h		*687*			*568*			*75*			*46*	
Entry Volume veh/h		*636*			*526*			*74*			*46*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1040*			*1113*			*552*			*655*	
Capacity (*c*), veh/h		*963*			*1030*			*546*			*649*	
v/c Ratio (X)		*0.66*			*0.51*			*0.14*			*0.07*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*14.0*			*9.6*			*8.3*			*6.3*	
Lane LOS		*B*			*A*			*A*			*A*	
Lane 95% Queue		*5.2*			*3.0*			*0.5*			*0.2*	
Approach Delay, s/veh	*14.00*			*9.64*			*8.31*			*6.32*		
Approach LOS, s/veh	*B*			*A*			*A*			*A*		
Intersection Delay, s/veh	*11.60*											
Intersection LOS	*B*											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Longwood Markham Road*
Time Period	*AM Peak*	Analysis Year	*2030*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*TR*				*LT*				*LR*					
Right-Turn Bypass	*Yielding*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h		*508*	*197*	*5*	*94*	*407*		*5*	*104*		*82*	*0*				*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*8*	*8*	*8*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*113*			*117*			*590*			*693*		
Exiting Flow (V_{ex}), pc/h	*670*			*579*			*0*			*107*		
Entry Flow (V_e), pc/h		*583*	*224*		*575*			*198*				
Entry Volume veh/h		*540*	*207*		*532*			*196*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1010*	*1015*		*1006*			*627*			*0*	
Capacity (*c*), veh/h		*935*	*940*		*931*			*621*			*0*	
v/c Ratio (X)		*0.58*	*0.22*		*0.57*			*0.32*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*11.9*	*6.0*		*11.8*			*10.0*				
Lane LOS		*B*	*A*		*B*			*B*			*F*	
Lane 95% Queue		*3.8*	*0.8*		*3.7*			*1.3*				
Approach Delay, s/veh	*10.24*			*11.76*			*10.03*					
Approach LOS, s/veh	*B*			*B*			*B*					
Intersection Delay, s/veh	*10.76*											
Intersection LOS	*B*											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Yankee Lake Road*
Time Period	*AM Peak*	Analysis Year	*2030*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*LT*				*TR*								*LR*	
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h	*4*	*586*		*5*		*499*	*5*	*22*				*0*	*5*		*2*	*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*30*			*11*			*707*			*598*		
Exiting Flow (V_{ex}), pc/h	*697*			*575*			*10*			*0*		
Entry Flow (V_e), pc/h		*676*			*598*			*7*			*7*	
Entry Volume veh/h		*626*			*554*						*7*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1096*			*1119*			*0*			*621*	
Capacity (*c*), veh/h		*1015*			*1036*			*0*			*615*	
v/c Ratio (X)		*0.62*			*0.53*						*0.01*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*12.2*			*10.1*						*6.0*	
Lane LOS		*B*			*B*			*F*			*A*	
Lane 95% Queue		*4.4*			*3.3*						*0.0*	
Approach Delay, s/veh	*12.16*			*10.06*						*5.98*		
Approach LOS, s/veh	*B*			*B*						*A*		
Intersection Delay, s/veh	*11.14*											
Intersection LOS	*B*											

 HCS 2010™ 6.50 Roundabouts Generated: 9/11/2013 9:41 AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	604	9	0	0	0	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	636	9	0	0	0	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			645		641	641
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			645		641	641
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	97
cM capacity (veh/h)			945		441	477

Direction, Lane #	EB 1	NB 1
Volume Total	645	15
Volume Left	0	0
Volume Right	9	15
cSH	1700	477
Volume to Capacity	0.38	0.03
Queue Length 95th (ft)	0	2
Control Delay (s)	0.0	12.8
Lane LOS		B
Approach Delay (s)	0.0	12.8
Approach LOS		B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	192	25	0	0	0	16
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	202	26	0	0	0	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			228		215	215
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			228		215	215
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	98
cM capacity (veh/h)			1346		775	827

Direction, Lane #	EB 1	NB 1
Volume Total	228	17
Volume Left	0	0
Volume Right	26	17
cSH	1700	827
Volume to Capacity	0.13	0.02
Queue Length 95th (ft)	0	2
Control Delay (s)	0.0	9.4
Lane LOS		A
Approach Delay (s)	0.0	9.4
Approach LOS		A

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	21.6%	ICU Level of Service	A
Analysis Period (min)	15		

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Lake Markham Road*
Time Period	*AM Peak*	Analysis Year	*2030*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*TR*				*LT*				*LR*					
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h		*172*	*29*	*7*	*38*	*191*		*9*	*18*		*86*	*0*				*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*8*	*8*	*8*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*53*			*27*			*214*			*297*		
Exiting Flow (V_{ex}), pc/h	*297*			*244*			*0*			*76*		
Entry Flow (V_e), pc/h		*236*			*271*			*111*				
Entry Volume veh/h		*219*			*251*			*110*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1071*			*1100*			*913*			*0*	
Capacity (*c*), veh/h		*992*			*1018*			*904*			*0*	
v/c Ratio (X)		*0.22*			*0.25*			*0.12*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*5.8*			*5.9*			*5.1*				
Lane LOS		*A*			*A*			*A*			*F*	
Lane 95% Queue		*0.8*			*1.0*			*0.4*				
Approach Delay, s/veh	*5.75*			*5.92*			*5.14*					
Approach LOS, s/veh	*A*			*A*			*A*					
Intersection Delay, s/veh	*5.71*											
Intersection LOS	*A*											

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	258	9	0	0	0	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	272	9	0	0	0	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	1007					
pX, platoon unblocked						
vC, conflicting volume			281		276	276
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			281		276	276
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	98
cM capacity (veh/h)			1287		716	765

Direction, Lane #	EB 1	NB 1
Volume Total	281	15
Volume Left	0	0
Volume Right	9	15
cSH	1700	765
Volume to Capacity	0.17	0.02
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	9.8
Lane LOS		A
Approach Delay (s)	0.0	9.8
Approach LOS		A

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	24.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	265	7	0	0	0	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	279	7	0	0	0	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			286		283	283
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			286		283	283
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1282		710	759

Direction, Lane #	EB 1	NB 1
Volume Total	286	9
Volume Left	0	0
Volume Right	7	9
cSH	1700	759
Volume to Capacity	0.17	0.01
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	9.8
Lane LOS		A
Approach Delay (s)	0.0	9.8
Approach LOS		A

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	24.4%	ICU Level of Service	A
Analysis Period (min)	15		

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Glade View Drive*
Time Period	*AM Peak*	Analysis Year	*2030*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*TR*				*LT*				*LR*					
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h		*256*	*12*	*6*	*4*	*224*		*27*	*8*		*17*	*0*				*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*8*	*8*	*8*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*36*			*16*			*329*			*307*		
Exiting Flow (V_{ex}), pc/h	*340*			*270*			*0*			*18*		
Entry Flow (V_e), pc/h		*311*			*290*			*27*				
Entry Volume veh/h		*288*			*269*			*27*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1091*			*1113*			*814*			*0*	
Capacity (*c*), veh/h		*1010*			*1030*			*806*			*0*	
v/c Ratio (X)		*0.29*			*0.26*			*0.03*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*6.4*			*6.0*			*4.8*				
Lane LOS		*A*			*A*			*A*			*F*	
Lane 95% Queue		*1.2*			*1.0*			*0.1*				
Approach Delay, s/veh	*6.41*			*6.03*			*4.79*					
Approach LOS, s/veh	*A*			*A*			*A*					
Intersection Delay, s/veh	*6.16*											
Intersection LOS	*A*											

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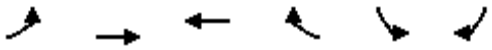
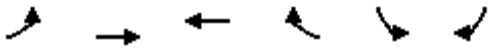


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	236	13	0	19
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	248	14	0	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	262				255	255
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	262				255	255
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	97
cM capacity (veh/h)	1308				736	786

Direction, Lane #	WB 1	SB 1
Volume Total	262	20
Volume Left	0	0
Volume Right	14	20
cSH	1700	786
Volume to Capacity	0.15	0.03
Queue Length 95th (ft)	0	2
Control Delay (s)	0.0	9.7
Lane LOS		A
Approach Delay (s)	0.0	9.7
Approach LOS		A

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	23.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	227	14	0	22
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	239	15	0	23
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	254				246	246
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	254				246	246
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	97
cM capacity (veh/h)	1317				744	795

Direction, Lane #	WB 1	SB 1
Volume Total	254	23
Volume Left	0	0
Volume Right	15	23
cSH	1700	795
Volume to Capacity	0.15	0.03
Queue Length 95th (ft)	0	2
Control Delay (s)	0.0	9.7
Lane LOS		A
Approach Delay (s)	0.0	9.7
Approach LOS		A

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	22.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (veh/h)	12	3	1220	4	5	946	4	0	0	7	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	1284	4	5	996	4	0	0	7	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			None			None						
Median storage veh)												
Upstream signal (ft)						846						
pX, platoon unblocked	0.00	0.82						0.82	0.82		0.82	0.82
vC, conflicting volume	0	1000			1288			1811	2303	644	1664	2303
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	547			1288			1541	2145	644	1361	2145
tC, single (s)	0.0	4.1			4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	100			99			100	100	98	100	100
cM capacity (veh/h)	0	836			540			63	39	418	85	39

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	3	856	432	5	664	336	7	9
Volume Left	3	0	0	5	0	0	0	0
Volume Right	0	0	4	0	0	4	7	9
cSH	836	1700	1700	540	1700	1700	418	887
Volume to Capacity	0.00	0.50	0.25	0.01	0.39	0.20	0.02	0.01
Queue Length 95th (ft)	0	0	0	1	0	0	1	1
Control Delay (s)	9.3	0.0	0.0	11.7	0.0	0.0	13.8	9.1
Lane LOS	A			B			B	A
Approach Delay (s)	0.0			0.1			13.8	9.1
Approach LOS							B	A

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	43.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Volume (veh/h)	9
Sign Control	
Grade	
Peak Hour Factor	0.95
Hourly flow rate (vph)	9
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.82
vC, conflicting volume	500
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	0
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	99
cM capacity (veh/h)	887
Direction, Lane #	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	137	967	123	137	743	144	63	74	130	249	157	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	4803	1599	1787	3343	1599	1787	1701		1787	1744	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.53	1.00		0.27	1.00	
Satd. Flow (perm)	1787	4803	1599	1787	3343	1599	1004	1701		506	1744	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	144	1018	129	144	782	152	66	78	137	262	165	157
RTOR Reduction (vph)	0	0	85	0	0	101	0	64	0	0	34	0
Lane Group Flow (vph)	144	1018	44	144	782	51	66	151	0	262	288	0
Heavy Vehicles (%)	1%	8%	1%	1%	8%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	pm+pt			pm+pt		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)	11.0	33.8	33.8	10.9	33.7	33.7	18.9	14.0		34.8	23.4	
Effective Green, g (s)	11.0	33.8	33.8	10.9	33.7	33.7	18.9	14.0		34.8	23.4	
Actuated g/C Ratio	0.11	0.34	0.34	0.11	0.34	0.34	0.19	0.14		0.35	0.23	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.5	5.0	5.0	3.5	5.0	5.0	3.5	3.5		3.5	3.5	
Lane Grp Cap (vph)	197	1623	540	195	1127	539	228	238		359	408	
v/s Ratio Prot	0.08	c0.21		0.08	c0.23		0.01	0.09		c0.10	c0.17	
v/s Ratio Perm			0.03			0.03	0.04			c0.15		
v/c Ratio	0.73	0.63	0.08	0.74	0.69	0.10	0.29	0.64		0.73	0.71	
Uniform Delay, d1	43.1	27.8	22.5	43.2	28.7	22.7	34.2	40.6		25.8	35.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.5	1.8	0.3	14.0	3.5	0.4	0.8	5.7		7.5	5.7	
Delay (s)	56.5	29.7	22.8	57.2	32.2	23.1	35.0	46.3		33.3	40.9	
Level of Service	E	C	C	E	C	C	C	D		C	D	
Approach Delay (s)		32.0			34.3			43.7			37.5	
Approach LOS		C			C			D			D	

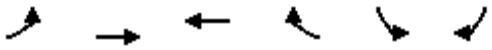
Intersection Summary			
HCM Average Control Delay	34.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	55	33	234	82	55	362
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	58	35	246	86	58	381
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		10				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	743	246			333	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	743	246			333	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	84	96			95	
cM capacity (veh/h)	366	795			1232	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	93	246	86	58	381
Volume Left	58	0	0	58	0
Volume Right	35	0	86	0	0
cSH	585	1700	1700	1232	1700
Volume to Capacity	0.16	0.14	0.05	0.05	0.22
Queue Length 95th (ft)	14	0	0	4	0
Control Delay (s)	14.1	0.0	0.0	8.1	0.0
Lane LOS	B			A	
Approach Delay (s)	14.1	0.0		1.1	
Approach LOS	B				

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	29.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	23	18	22	28	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	25	20	24	30	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	43				57	32
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	43				57	32
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				97	100
cM capacity (veh/h)	1572				953	1045

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	25	43	30
Volume Left	0	0	30
Volume Right	0	24	0
cSH	1572	1700	953
Volume to Capacity	0.00	0.03	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.0	8.9
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Osprey Hammock Trail*
Time Period	*AM Peak*	Analysis Year	*2040*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*LTR*				*LTR*				*LR*				*LR*	
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h	*9*	*711*	*12*	*0*	*44*	*521*	*31*	*5*	*9*		*79*	*0*	*39*		*12*	*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*1*	*1*	*1*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*97*			*20*			*865*			*658*		
Exiting Flow (V_{ex}), pc/h	*939*			*615*			*45*			*64*		
Entry Flow (V_e), pc/h		*832*			*683*			*94*			*54*	
Entry Volume veh/h		*770*			*632*			*93*			*53*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1025*			*1108*			*475*			*585*	
Capacity (*c*), veh/h		*949*			*1026*			*471*			*580*	
v/c Ratio (X)		*0.81*			*0.62*			*0.20*			*0.09*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*21.9*			*12.1*			*10.5*			*7.3*	
Lane LOS		*C*			*B*			*B*			*A*	
Lane 95% Queue		*9.2*			*4.4*			*0.7*			*0.3*	
Approach Delay, s/veh	*21.89*			*12.06*			*10.50*			*7.30*		
Approach LOS, s/veh	*C*			*B*			*B*			*A*		
Intersection Delay, s/veh	*16.69*											
Intersection LOS	*C*											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Longwood Markham Road*
Time Period	*AM Peak*	Analysis Year	*2040*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*TR*				*LT*				*LR*					
Right-Turn Bypass	*Yielding*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h		*651*	*203*	*5*	*148*	*490*		*5*	*126*		*99*	*0*				*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*8*	*8*	*8*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*174*			*140*			*752*			*871*		
Exiting Flow (V_{ex}), pc/h	*851*			*697*			*0*			*168*		
Entry Flow (V_e), pc/h		*746*	*231*		*731*			*239*				
Entry Volume veh/h		*691*	*214*		*677*			*237*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*950*	*955*		*983*			*533*			*0*	
Capacity (*c*), veh/h		*879*	*884*		*910*			*528*			*0*	
v/c Ratio (X)		*0.79*	*0.24*		*0.74*			*0.45*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*21.2*	*6.6*		*18.2*			*14.5*				
Lane LOS		*C*	*A*		*C*			*B*			*F*	
Lane 95% Queue		*8.2*	*0.9*		*7.0*			*2.3*				
Approach Delay, s/veh	*17.77*			*18.20*			*14.48*					
Approach LOS, s/veh	*C*			*C*			*B*					
Intersection Delay, s/veh	*17.50*											
Intersection LOS	*C*											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Yankee Lake Road*
Time Period	*AM Peak*	Analysis Year	*2040*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*LT*				*TR*								*LR*	
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h	*5*	*745*		*5*		*636*	*6*	*26*				*0*	*6*		*2*	*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*36*			*12*			*895*			*759*		
Exiting Flow (V_{ex}), pc/h	*883*			*731*			*13*			*0*		
Entry Flow (V_e), pc/h		*858*			*759*			*9*			*9*	
Entry Volume veh/h		*794*			*703*						*9*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1090*			*1117*			*0*			*529*	
Capacity (*c*), veh/h		*1009*			*1034*			*0*			*524*	
v/c Ratio (X)		*0.79*			*0.68*						*0.02*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*19.3*			*13.9*						*7.1*	
Lane LOS		*C*			*B*			*F*			*A*	
Lane 95% Queue		*8.4*			*5.6*						*0.1*	
Approach Delay, s/veh	*19.27*			*13.92*						*7.07*		
Approach LOS, s/veh	*C*			*B*						*A*		
Intersection Delay, s/veh	*16.70*											
Intersection LOS	*C*											

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	766	11	0	0	0	16
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	806	12	0	0	0	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			818		812	812
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			818		812	812
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	96
cM capacity (veh/h)			815		350	380

Direction, Lane #	EB 1	NB 1
Volume Total	818	17
Volume Left	0	0
Volume Right	12	17
cSH	1700	380
Volume to Capacity	0.48	0.04
Queue Length 95th (ft)	0	3
Control Delay (s)	0.0	14.9
Lane LOS		B
Approach Delay (s)	0.0	14.9
Approach LOS		B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	244	30	0	0	0	20
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	257	32	0	0	0	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			288		273	273
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			288		273	273
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	97
cM capacity (veh/h)			1279		719	768

Direction, Lane #	EB 1	NB 1
Volume Total	288	21
Volume Left	0	0
Volume Right	32	21
cSH	1700	768
Volume to Capacity	0.17	0.03
Queue Length 95th (ft)	0	2
Control Delay (s)	0.0	9.8
Lane LOS		A
Approach Delay (s)	0.0	9.8
Approach LOS		A

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	24.7%	ICU Level of Service	A
Analysis Period (min)	15		

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Lake Markham Road*
Time Period	*AM Peak*	Analysis Year	*2040*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*TR*				*LT*				*LR*					
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h		*219*	*35*	*10*	*46*	*242*		*11*	*24*		*102*	*0*				*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*8*	*8*	*8*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*65*			*37*			*273*			*377*		
Exiting Flow (V_{ex}), pc/h	*370*			*312*			*0*			*92*		
Entry Flow (V_e), pc/h		*300*			*340*			*134*				
Entry Volume veh/h		*278*			*315*			*133*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1059*			*1089*			*860*			*0*	
Capacity (*c*), veh/h		*981*			*1008*			*852*			*0*	
v/c Ratio (X)		*0.28*			*0.31*			*0.16*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*6.5*			*6.7*			*5.8*				
Lane LOS		*A*			*A*			*A*			*F*	
Lane 95% Queue		*1.2*			*1.3*			*0.5*				
Approach Delay, s/veh	*6.53*			*6.75*			*5.78*					
Approach LOS, s/veh	*A*			*A*			*A*					
Intersection Delay, s/veh	*6.49*											
Intersection LOS	*A*											

 HCS 2010™ 6.50 Roundabouts Generated: 9/11/2013 9:12 AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	321	11	0	0	0	16
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	338	12	0	0	0	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	1007					
pX, platoon unblocked						
vC, conflicting volume			349		344	344
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			349		344	344
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	98
cM capacity (veh/h)			1215		655	701

Direction, Lane #	EB 1	NB 1
Volume Total	349	17
Volume Left	0	0
Volume Right	12	17
cSH	1700	701
Volume to Capacity	0.21	0.02
Queue Length 95th (ft)	0	2
Control Delay (s)	0.0	10.3
Lane LOS		B
Approach Delay (s)	0.0	10.3
Approach LOS		B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	27.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	329	8	0	0	0	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	346	8	0	0	0	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			355		351	351
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			355		351	351
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	98
cM capacity (veh/h)			1210		649	695

Direction, Lane #	EB 1	NB 1
Volume Total	355	12
Volume Left	0	0
Volume Right	8	12
cSH	1700	695
Volume to Capacity	0.21	0.02
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	10.3
Lane LOS		B
Approach Delay (s)	0.0	10.3
Approach LOS		B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	27.8%	ICU Level of Service	A
Analysis Period (min)	15		

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Glade View Drive*
Time Period	*AM Peak*	Analysis Year	*2040*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*TR*				*LT*				*LR*					
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h		*318*	*14*	*8*	*6*	*281*		*32*	*10*		*20*	*0*				*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*8*	*8*	*8*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*43*			*20*			*407*			*382*		
Exiting Flow (V_{ex}), pc/h	*419*			*339*			*0*			*23*		
Entry Flow (V_e), pc/h		*387*			*363*			*32*				
Entry Volume veh/h		*358*			*336*			*32*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1082*			*1108*			*752*			*0*	
Capacity (*c*), veh/h		*1002*			*1026*			*745*			*0*	
v/c Ratio (X)		*0.36*			*0.33*			*0.04*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*7.4*			*6.8*			*5.3*				
Lane LOS		*A*			*A*			*A*			*F*	
Lane 95% Queue		*1.6*			*1.4*			*0.1*				
Approach Delay, s/veh	*7.37*			*6.85*			*5.26*					
Approach LOS, s/veh	*A*			*A*			*A*					
Intersection Delay, s/veh	*7.03*											
Intersection LOS	*A*											

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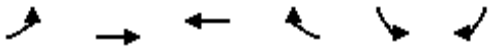
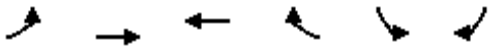


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	297	14	0	22
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	313	15	0	23
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	327				320	320
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	327				320	320
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	97
cM capacity (veh/h)	1238				676	723

Direction, Lane #	WB 1	SB 1
Volume Total	327	23
Volume Left	0	0
Volume Right	15	23
cSH	1700	723
Volume to Capacity	0.19	0.03
Queue Length 95th (ft)	0	2
Control Delay (s)	0.0	10.1
Lane LOS		B
Approach Delay (s)	0.0	10.1
Approach LOS		B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	26.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	286	16	0	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	301	17	0	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	318				309	309
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	318				309	309
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	96
cM capacity (veh/h)	1248				685	733

Direction, Lane #	WB 1	SB 1
Volume Total	318	26
Volume Left	0	0
Volume Right	17	26
cSH	1700	733
Volume to Capacity	0.19	0.04
Queue Length 95th (ft)	0	3
Control Delay (s)	0.0	10.1
Lane LOS		B
Approach Delay (s)	0.0	10.1
Approach LOS		B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	26.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (veh/h)	13	3	1491	5	6	1161	5	0	0	8	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	1569	5	6	1222	5	0	0	8	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			None			None						
Median storage veh)												
Upstream signal (ft)						846						
pX, platoon unblocked	0.00	0.76						0.76	0.76		0.76	0.76
vC, conflicting volume	0	1227			1575			2214	2818	787	2037	2818
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	669			1575			1966	2761	787	1733	2761
tC, single (s)	0.0	4.1			4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	100			98			100	100	97	100	100
cM capacity (veh/h)	0	702			419			28	15	336	42	15

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	3	1046	528	6	815	413	8	12
Volume Left	3	0	0	6	0	0	0	0
Volume Right	0	0	5	0	0	5	8	12
cSH	702	1700	1700	419	1700	1700	336	827
Volume to Capacity	0.00	0.62	0.31	0.02	0.48	0.24	0.03	0.01
Queue Length 95th (ft)	0	0	0	1	0	0	2	1
Control Delay (s)	10.1	0.0	0.0	13.7	0.0	0.0	16.0	9.4
Lane LOS	B			B			C	A
Approach Delay (s)	0.0			0.1			16.0	9.4
Approach LOS							C	A

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	51.4%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Volume (veh/h)	11
Sign Control	
Grade	
Peak Hour Factor	0.95
Hourly flow rate (vph)	12
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.76
vC, conflicting volume	614
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	0
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	99
cM capacity (veh/h)	827
Direction, Lane #	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	197	1156	146	140	847	147	78	78	132	252	159	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	4803	1599	1787	3343	1599	1787	1704		1787	1709	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.26	1.00		0.29	1.00	
Satd. Flow (perm)	1787	4803	1599	1787	3343	1599	485	1704		540	1709	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	207	1217	154	147	892	155	82	82	139	265	167	260
RTOR Reduction (vph)	0	0	103	0	0	107	0	61	0	0	55	0
Lane Group Flow (vph)	207	1217	51	147	892	48	82	160	0	265	372	0
Heavy Vehicles (%)	1%	8%	1%	1%	8%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	pm+pt			pm+pt		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)	13.0	33.2	33.2	10.7	30.9	30.9	20.3	15.5		35.6	24.3	
Effective Green, g (s)	13.0	33.2	33.2	10.7	30.9	30.9	20.3	15.5		35.6	24.3	
Actuated g/C Ratio	0.13	0.33	0.33	0.11	0.31	0.31	0.20	0.16		0.36	0.24	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.5	5.0	5.0	3.5	5.0	5.0	3.5	3.5		3.5	3.5	
Lane Grp Cap (vph)	232	1595	531	191	1033	494	161	264		362	415	
v/s Ratio Prot	0.12	c0.25		0.08	c0.27		0.02	0.09		c0.10	c0.22	
v/s Ratio Perm			0.03			0.03	0.08			0.16		
v/c Ratio	0.89	0.76	0.10	0.77	0.86	0.10	0.51	0.61		0.73	0.90	
Uniform Delay, d1	42.8	29.9	23.0	43.5	32.6	24.6	33.7	39.4		25.3	36.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	32.5	3.5	0.4	17.4	9.5	0.4	3.0	4.1		7.7	21.6	
Delay (s)	75.3	33.4	23.4	60.8	42.1	25.0	36.6	43.5		32.9	58.2	
Level of Service	E	C	C	E	D	C	D	D		C	E	
Approach Delay (s)		37.9			42.2			41.7			48.5	
Approach LOS		D			D			D			D	

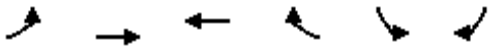
Intersection Summary			
HCM Average Control Delay	41.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	65	40	248	100	65	380
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	68	42	261	105	68	400
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		10				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	798	261			366	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	798	261			366	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	95			94	
cM capacity (veh/h)	336	780			1198	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	111	261	105	68	400
Volume Left	68	0	0	68	0
Volume Right	42	0	105	0	0
cSH	543	1700	1700	1198	1700
Volume to Capacity	0.20	0.15	0.06	0.06	0.24
Queue Length 95th (ft)	19	0	0	5	0
Control Delay (s)	15.2	0.0	0.0	8.2	0.0
Lane LOS	C			A	
Approach Delay (s)	15.2	0.0		1.2	
Approach LOS	C				

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	30.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	12	15	18	14	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	13	16	20	15	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	36				39	26
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	36				39	26
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	100
cM capacity (veh/h)	1582				975	1053

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	13	36	15
Volume Left	0	0	15
Volume Right	0	20	0
cSH	1582	1700	975
Volume to Capacity	0.00	0.02	0.02
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	8.7
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.7
Approach LOS			A

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Osprey Hammock Trail*
Time Period	*PM Peak*	Analysis Year	*2020*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*LTR*				*LTR*				*LR*				*LR*	
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h	*8*	*343*	*9*	*0*	*46*	*473*	*25*	*5*	*7*		*28*	*0*	*20*		*6*	*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*1*	*1*	*1*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*79*			*16*			*426*			*603*		
Exiting Flow (V_{ex}), pc/h	*447*			*552*			*38*			*63*		
Entry Flow (V_e), pc/h		*409*			*624*			*37*			*28*	
Entry Volume veh/h		*379*			*578*			*37*			*28*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1044*			*1111*			*738*			*618*	
Capacity (*c*), veh/h		*967*			*1029*			*731*			*612*	
v/c Ratio (X)		*0.39*			*0.56*			*0.05*			*0.05*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*8.1*			*10.7*			*5.4*			*6.4*	
Lane LOS		*A*			*B*			*A*			*A*	
Lane 95% Queue		*1.9*			*3.6*			*0.2*			*0.1*	
Approach Delay, s/veh	*8.06*			*10.69*			*5.43*			*6.39*		
Approach LOS, s/veh	*A*			*B*			*A*			*A*		
Intersection Delay, s/veh	*9.40*											
Intersection LOS	*A*											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Longwood Markham Road*
Time Period	*PM Peak*	Analysis Year	*2020*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*TR*				*LT*				*LR*					
Right-Turn Bypass	*Yielding*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h		*316*	*87*	*5*	*60*	*342*		*5*	*217*		*58*	*0*				*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*8*	*8*	*8*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*74*			*237*			*371*			*700*		
Exiting Flow (V_{ex}), pc/h	*427*			*625*			*0*			*68*		
Entry Flow (V_e), pc/h		*365*	*99*		*463*			*292*				
Entry Volume veh/h		*338*	*92*		*429*			*289*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1050*	*1056*		*892*			*780*			*0*	
Capacity (*c*), veh/h		*972*	*977*		*826*			*772*			*0*	
v/c Ratio (X)		*0.35*	*0.09*		*0.52*			*0.37*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*7.4*	*4.5*		*11.6*			*9.3*				
Lane LOS		*A*	*A*		*B*			*A*			*F*	
Lane 95% Queue		*1.6*	*0.3*		*3.0*			*1.7*				
Approach Delay, s/veh	*6.79*			*11.56*			*9.30*					
Approach LOS, s/veh	*A*			*B*			*A*					
Intersection Delay, s/veh	*9.20*											
Intersection LOS	*A*											

 HCS 2010™ 6.50 Roundabouts Generated: 9/11/2013 9:21 AM

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Yankee Lake Road*
Time Period	*PM Peak*	Analysis Year	*2020*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*LT*				*TR*								*LR*	
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h	*3*	*371*		*5*		*398*	*3*	*14*				*0*	*4*		*4*	*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*20*			*9*			*451*			*474*		
Exiting Flow (V_{ex}), pc/h	*442*			*462*			*7*			*0*		
Entry Flow (V_e), pc/h		*431*			*472*			*9*			*9*	
Entry Volume veh/h		*399*			*437*						*9*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1107*			*1120*			*0*			*703*	
Capacity (*c*), veh/h		*1025*			*1037*			*0*			*696*	
v/c Ratio (X)		*0.39*			*0.42*						*0.01*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*7.7*			*8.1*						*5.3*	
Lane LOS		*A*			*A*			*F*			*A*	
Lane 95% Queue		*1.9*			*2.1*						*0.0*	
Approach Delay, s/veh	*7.68*			*8.08*						*5.30*		
Approach LOS, s/veh	*A*			*A*						*A*		
Intersection Delay, s/veh	*7.86*											
Intersection LOS	*A*											

 HCS 2010™ 6.50 Roundabouts Generated: 9/11/2013 9:43 AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	378	11	0	0	0	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	398	12	0	0	0	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			409		404	404
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			409		404	404
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1155		605	649

Direction, Lane #	EB 1	NB 1
Volume Total	409	7
Volume Left	0	0
Volume Right	12	7
cSH	1700	649
Volume to Capacity	0.24	0.01
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	10.6
Lane LOS		B
Approach Delay (s)	0.0	10.6
Approach LOS		B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	30.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	144	13	0	0	0	19
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	152	14	0	0	0	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			165		158	158
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			165		158	158
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	98
cM capacity (veh/h)			1419		835	890

Direction, Lane #	EB 1	NB 1
Volume Total	165	20
Volume Left	0	0
Volume Right	14	20
cSH	1700	890
Volume to Capacity	0.10	0.02
Queue Length 95th (ft)	0	2
Control Delay (s)	0.0	9.1
Lane LOS		A
Approach Delay (s)	0.0	9.1
Approach LOS		A

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	18.4%	ICU Level of Service	A
Analysis Period (min)	15		

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Lake Markham Road*
Time Period	*PM Peak*	Analysis Year	*2020*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*TR*				*LT*				*LR*					
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h		*146*	*11*	*6*	*71*	*105*		*13*	*10*		*43*	*0*				*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*8*	*8*	*8*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*96*			*18*			*188*			*233*		
Exiting Flow (V_{ex}), pc/h	*226*			*137*			*0*			*93*		
Entry Flow (V_e), pc/h		*185*			*215*			*56*				
Entry Volume veh/h		*171*			*199*			*55*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1027*			*1110*			*937*			*0*	
Capacity (*c*), veh/h		*951*			*1028*			*927*			*0*	
v/c Ratio (X)		*0.18*			*0.19*			*0.06*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*5.5*			*5.3*			*4.4*				
Lane LOS		*A*			*A*			*A*			*F*	
Lane 95% Queue		*0.7*			*0.7*			*0.2*				
Approach Delay, s/veh	*5.52*			*5.31*			*4.43*					
Approach LOS, s/veh	*A*			*A*			*A*					
Intersection Delay, s/veh	*5.28*											
Intersection LOS	*A*											

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	191	11	0	0	0	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	201	12	0	0	0	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	1007					
pX, platoon unblocked						
vC, conflicting volume			213		207	207
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			213		207	207
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1364		784	836

Direction, Lane #	EB 1	NB 1
Volume Total	213	7
Volume Left	0	0
Volume Right	12	7
cSH	1700	836
Volume to Capacity	0.13	0.01
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	9.3
Lane LOS		A
Approach Delay (s)	0.0	9.3
Approach LOS		A

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	20.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	190	8	0	0	0	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	200	8	0	0	0	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			208		204	204
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			208		204	204
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1368		787	839

Direction, Lane #	EB 1	NB 1
Volume Total	208	6
Volume Left	0	0
Volume Right	8	6
cSH	1700	839
Volume to Capacity	0.12	0.01
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	9.3
Lane LOS		A
Approach Delay (s)	0.0	9.3
Approach LOS		A

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	20.5%	ICU Level of Service	A
Analysis Period (min)	15		

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Glade View Drive*
Time Period	*PM Peak*	Analysis Year	*2020*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*TR*				*LT*				*LR*					
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h		*182*	*7*	*7*	*12*	*179*		*13*	*3*		*10*	*0*				*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*8*	*8*	*8*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*29*			*11*			*230*			*243*		
Exiting Flow (V_{ex}), pc/h	*232*			*215*			*0*			*22*		
Entry Flow (V_e), pc/h		*223*			*232*			*14*				
Entry Volume veh/h		*206*			*215*			*14*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1098*			*1117*			*898*			*0*	
Capacity (*c*), veh/h		*1017*			*1035*			*889*			*0*	
v/c Ratio (X)		*0.20*			*0.21*			*0.02*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*5.5*			*5.4*			*4.2*				
Lane LOS		*A*			*A*			*A*			*F*	
Lane 95% Queue		*0.8*			*0.8*			*0.0*				
Approach Delay, s/veh	*5.45*			*5.42*			*4.19*					
Approach LOS, s/veh	*A*			*A*			*A*					
Intersection Delay, s/veh	*5.40*											
Intersection LOS	*A*											

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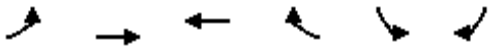
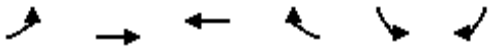


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	195	14	0	9
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	205	15	0	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	220				213	213
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	220				213	213
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1355				778	830

Direction, Lane #	WB 1	SB 1
Volume Total	220	9
Volume Left	0	0
Volume Right	15	9
cSH	1700	830
Volume to Capacity	0.13	0.01
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	9.4
Lane LOS		A
Approach Delay (s)	0.0	9.4
Approach LOS		A

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	21.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	198	16	0	11
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	208	17	0	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	225				217	217
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	225				217	217
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1349				774	826

Direction, Lane #	WB 1	SB 1
Volume Total	225	12
Volume Left	0	0
Volume Right	17	12
cSH	1700	826
Volume to Capacity	0.13	0.01
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	9.4
Lane LOS		A
Approach Delay (s)	0.0	9.4
Approach LOS		A

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	21.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (veh/h)	7	5	781	1	5	962	3	0	0	8	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	822	1	5	1013	3	0	0	8	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			None			None						
Median storage veh)												
Upstream signal (ft)						846						
pX, platoon unblocked	0.00	0.85						0.85	0.85		0.85	0.85
vC, conflicting volume	0	1016			823			1356	1859	412	1455	1858
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	653			823			1056	1651	412	1172	1650
tC, single (s)	0.0	4.1			4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	99			99			100	100	99	100	100
cM capacity (veh/h)	0	792			809			150	82	592	123	82

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	5	548	275	5	675	341	8	6
Volume Left	5	0	0	5	0	0	0	0
Volume Right	0	0	1	0	0	3	8	6
cSH	792	1700	1700	809	1700	1700	592	852
Volume to Capacity	0.01	0.32	0.16	0.01	0.40	0.20	0.01	0.01
Queue Length 95th (ft)	1	0	0	0	0	0	1	1
Control Delay (s)	9.6	0.0	0.0	9.5	0.0	0.0	11.2	9.3
Lane LOS	A			A			B	A
Approach Delay (s)	0.1			0.0			11.2	9.3
Approach LOS							B	A

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	36.7%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Volume (veh/h)	6
Sign Control	
Grade	
Peak Hour Factor	0.95
Hourly flow rate (vph)	6
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.85
vC, conflicting volume	508
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	52
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	99
cM capacity (veh/h)	852
Direction, Lane #	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	680	37	104	742	261	165	147	72	120	105	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	4803	1599	1787	3343	1599	1787	1788		1787	1776	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.38	1.00		0.43	1.00	
Satd. Flow (perm)	1787	4803	1599	1787	3343	1599	722	1788		812	1776	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	76	716	39	109	781	275	174	155	76	126	111	66
RTOR Reduction (vph)	0	0	23	0	0	153	0	16	0	0	19	0
Lane Group Flow (vph)	76	716	16	109	781	122	174	215	0	126	158	0
Heavy Vehicles (%)	1%	8%	1%	1%	8%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	pm+pt			pm+pt		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)	9.6	50.5	50.5	12.5	53.4	53.4	33.3	19.9		26.7	16.6	
Effective Green, g (s)	9.6	50.5	50.5	12.5	53.4	53.4	33.3	19.9		26.7	16.6	
Actuated g/C Ratio	0.08	0.42	0.42	0.10	0.44	0.44	0.28	0.17		0.22	0.14	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.5	5.0	5.0	3.5	5.0	5.0	3.5	3.5		3.5	3.5	
Lane Grp Cap (vph)	143	2021	673	186	1488	712	319	297		263	246	
v/s Ratio Prot	c0.04	0.15		0.06	c0.23		c0.06	c0.12		0.04	0.09	
v/s Ratio Perm			0.01			0.08	0.09			0.07		
v/c Ratio	0.53	0.35	0.02	0.59	0.52	0.17	0.55	0.72		0.48	0.64	
Uniform Delay, d1	53.0	23.7	20.3	51.3	24.1	20.0	35.0	47.5		39.1	48.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.2	0.5	0.1	5.0	1.3	0.5	2.1	8.8		1.6	5.9	
Delay (s)	57.3	24.1	20.4	56.2	25.4	20.5	37.1	56.2		40.8	54.8	
Level of Service	E	C	C	E	C	C	D	E		D	D	
Approach Delay (s)		27.0			27.2			48.0			48.9	
Approach LOS		C			C			D			D	

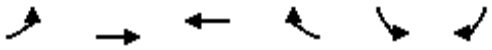
Intersection Summary			
HCM Average Control Delay	32.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	40	75	309	50	40	206
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	42	79	325	53	42	217
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		10				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	626	325			378	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	626	325			378	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	89			96	
cM capacity (veh/h)	433	718			1186	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	121	325	53	42	217
Volume Left	42	0	0	42	0
Volume Right	79	0	53	0	0
cSH	1101	1700	1700	1186	1700
Volume to Capacity	0.11	0.19	0.03	0.04	0.13
Queue Length 95th (ft)	9	0	0	3	0
Control Delay (s)	11.9	0.0	0.0	8.1	0.0
Lane LOS	B			A	
Approach Delay (s)	11.9	0.0		1.3	
Approach LOS	B				

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	16	20	23	18	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	17	22	25	20	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	47				52	34
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	47				52	34
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	100
cM capacity (veh/h)	1567				960	1042

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	17	47	20
Volume Left	0	0	20
Volume Right	0	25	0
cSH	1567	1700	960
Volume to Capacity	0.00	0.03	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.0	8.8
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.8
Approach LOS			A

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Osprey Hammock Trail*
Time Period	*PM Peak*	Analysis Year	*2030*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*LTR*				*LTR*				*LR*				*LR*	
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h	*10*	*426*	*14*	*0*	*57*	*596*	*33*	*5*	*12*		*34*	*0*	*26*		*8*	*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*1*	*1*	*1*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*99*			*24*			*529*			*762*		
Exiting Flow (V_{ex}), pc/h	*554*			*699*			*49*			*81*		
Entry Flow (V_e), pc/h		*512*			*786*			*49*			*36*	
Entry Volume veh/h		*474*			*728*			*49*			*36*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1024*			*1103*			*666*			*528*	
Capacity (*c*), veh/h		*949*			*1021*			*659*			*523*	
v/c Ratio (X)		*0.50*			*0.71*			*0.07*			*0.07*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*10.0*			*15.3*			*6.3*			*7.7*	
Lane LOS		*B*			*C*			*A*			*A*	
Lane 95% Queue		*2.9*			*6.3*			*0.2*			*0.2*	
Approach Delay, s/veh	*10.02*			*15.32*			*6.26*			*7.73*		
Approach LOS, s/veh	*B*			*C*			*A*			*A*		
Intersection Delay, s/veh	*12.81*											
Intersection LOS	*B*											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Longwood Markham Road*
Time Period	*PM Peak*	Analysis Year	*2030*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*TR*				*LT*				*LR*					
Right-Turn Bypass	*Yielding*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h		*395*	*107*	*5*	*79*	*463*		*5*	*243*		*72*	*0*				*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*8*	*8*	*8*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*96*			*264*			*461*			*886*		
Exiting Flow (V_{ex}), pc/h	*531*			*790*			*0*			*90*		
Entry Flow (V_e), pc/h		*455*	*122*		*622*			*335*				
Entry Volume veh/h		*421*	*113*		*576*			*332*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1027*	*1033*		*868*			*713*			*0*	
Capacity (*c*), veh/h		*951*	*956*		*804*			*706*			*0*	
v/c Ratio (X)		*0.44*	*0.12*		*0.72*			*0.47*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*9.0*	*4.9*		*18.5*			*11.9*				
Lane LOS		*A*	*A*		*C*			*B*			*F*	
Lane 95% Queue		*2.3*	*0.4*		*6.2*			*2.5*				
Approach Delay, s/veh	*8.10*			*18.51*			*11.88*					
Approach LOS, s/veh	*A*			*C*			*B*					
Intersection Delay, s/veh	*13.13*											
Intersection LOS	*B*											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Yankee Lake Road*
Time Period	*PM Peak*	Analysis Year	*2030*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*LT*				*TR*								*LR*	
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h	*3*	*464*		*5*		*538*	*21*	*18*				*0*	*5*		*4*	*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*25*			*9*			*561*			*638*		
Exiting Flow (V_{ex}), pc/h	*553*			*622*			*27*			*0*		
Entry Flow (V_e), pc/h		*537*			*656*			*10*			*10*	
Entry Volume veh/h		*497*			*607*						*10*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1101*			*1120*			*0*			*597*	
Capacity (*c*), veh/h		*1020*			*1037*			*0*			*591*	
v/c Ratio (X)		*0.49*			*0.59*						*0.02*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*9.3*			*11.2*						*6.3*	
Lane LOS		*A*			*B*			*F*			*A*	
Lane 95% Queue		*2.7*			*4.0*						*0.1*	
Approach Delay, s/veh	*9.28*			*11.19*						*6.28*		
Approach LOS, s/veh	*A*			*B*						*A*		
Intersection Delay, s/veh	*10.29*											
Intersection LOS	*B*											

 HCS 2010™ 6.50 Roundabouts Generated: 9/11/2013 9:44 AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	473	14	0	0	0	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	498	15	0	0	0	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			513		505	505
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			513		505	505
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	98
cM capacity (veh/h)			1058		528	569

Direction, Lane #	EB 1	NB 1
Volume Total	513	9
Volume Left	0	0
Volume Right	15	9
cSH	1700	569
Volume to Capacity	0.30	0.02
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	11.4
Lane LOS		B
Approach Delay (s)	0.0	11.4
Approach LOS		B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	156	16	0	0	0	25
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	164	17	0	0	0	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			181		173	173
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			181		173	173
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	97
cM capacity (veh/h)			1400		820	874

Direction, Lane #	EB 1	NB 1
Volume Total	181	26
Volume Left	0	0
Volume Right	17	26
cSH	1700	874
Volume to Capacity	0.11	0.03
Queue Length 95th (ft)	0	2
Control Delay (s)	0.0	9.2
Lane LOS		A
Approach Delay (s)	0.0	9.2
Approach LOS		A

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	19.2%	ICU Level of Service	A
Analysis Period (min)	15		

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Lake Markham Road*
Time Period	*PM Peak*	Analysis Year	*2030*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*TR*				*LT*				*LR*					
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h		*154*	*18*	*9*	*86*	*134*		*16*	*16*		*51*	*0*				*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*8*	*8*	*8*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*116*			*27*			*203*			*295*		
Exiting Flow (V_{ex}), pc/h	*247*			*180*			*0*			*118*		
Entry Flow (V_e), pc/h		*206*			*268*			*71*				
Entry Volume veh/h		*191*			*248*			*70*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1006*			*1100*			*922*			*0*	
Capacity (*c*), veh/h		*932*			*1018*			*913*			*0*	
v/c Ratio (X)		*0.20*			*0.24*			*0.08*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*5.9*			*5.9*			*4.7*				
Lane LOS		*A*			*A*			*A*			*F*	
Lane 95% Queue		*0.8*			*1.0*			*0.2*				
Approach Delay, s/veh	*5.88*			*5.89*			*4.66*					
Approach LOS, s/veh	*A*			*A*			*A*					
Intersection Delay, s/veh	*5.72*											
Intersection LOS	*A*											

 HCS 2010™ 6.50 Roundabouts Generated: 9/11/2013 9:14 AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	207	14	0	0	0	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	218	15	0	0	0	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	1007					
pX, platoon unblocked						
vC, conflicting volume			233		225	225
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			233		225	225
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1341		765	817

Direction, Lane #	EB 1	NB 1
Volume Total	233	9
Volume Left	0	0
Volume Right	15	9
cSH	1700	817
Volume to Capacity	0.14	0.01
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	9.5
Lane LOS		A
Approach Delay (s)	0.0	9.5
Approach LOS		A

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	21.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	207	9	0	0	0	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	218	9	0	0	0	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			227		223	223
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			227		223	223
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1347		768	819

Direction, Lane #	EB 1	NB 1
Volume Total	227	7
Volume Left	0	0
Volume Right	9	7
cSH	1700	819
Volume to Capacity	0.13	0.01
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	9.4
Lane LOS		A
Approach Delay (s)	0.0	9.4
Approach LOS		A

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	21.4%	ICU Level of Service	A
Analysis Period (min)	15		

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Glade View Drive*
Time Period	*PM Peak*	Analysis Year	*2030*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*TR*				*LT*				*LR*					
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h		*196*	*10*	*8*	*15*	*223*		*16*	*5*		*11*	*0*				*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*8*	*8*	*8*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*35*			*14*			*250*			*303*		
Exiting Flow (V_{ex}), pc/h	*253*			*268*			*0*			*28*		
Entry Flow (V_e), pc/h		*243*			*289*			*17*				
Entry Volume veh/h		*225*			*268*			*17*				

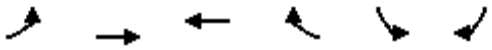
Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1091*			*1114*			*880*			*0*	
Capacity (*c*), veh/h		*1010*			*1031*			*871*			*0*	
v/c Ratio (X)		*0.22*			*0.26*			*0.02*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*5.7*			*6.0*			*4.3*				
Lane LOS		*A*			*A*			*A*			*F*	
Lane 95% Queue		*0.9*			*1.0*			*0.1*				
Approach Delay, s/veh	*5.70*			*6.01*			*4.31*					
Approach LOS, s/veh	*A*			*A*			*A*					
Intersection Delay, s/veh	*5.81*											
Intersection LOS	*A*											

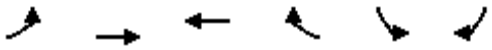
 HCS 2010™ 6.50 Roundabouts Generated: 9/11/2013 9:09 AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	241	19	0	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	254	20	0	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	274				264	264
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	274				264	264
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	1295				727	777

Direction, Lane #	WB 1	SB 1
Volume Total	274	14
Volume Left	0	0
Volume Right	20	14
cSH	1700	777
Volume to Capacity	0.16	0.02
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	9.7
Lane LOS		A
Approach Delay (s)	0.0	9.7
Approach LOS		A

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	23.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	246	22	0	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	259	23	0	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	282				271	271
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	282				271	271
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	1286				721	771

Direction, Lane #	WB 1	SB 1
Volume Total	282	15
Volume Left	0	0
Volume Right	23	15
cSH	1700	771
Volume to Capacity	0.17	0.02
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	9.8
Lane LOS		A
Approach Delay (s)	0.0	9.8
Approach LOS		A

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (veh/h)	11	5	932	1	6	1188	4	0	0	9	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	981	1	6	1251	4	0	0	9	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			None			None						
Median storage veh)												
Upstream signal (ft)						846						
pX, platoon unblocked	0.00	0.76						0.76	0.76		0.76	0.76
vC, conflicting volume	0	1255			982			1638	2259	491	1776	2258
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	689			982			1197	2019	491	1379	2017
tC, single (s)	0.0	4.1			4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	99			99			100	100	98	100	100
cM capacity (veh/h)	0	686			705			105	43	526	77	43

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	5	654	328	6	834	421	9	8
Volume Left	5	0	0	6	0	0	0	0
Volume Right	0	0	1	0	0	4	9	8
cSH	686	1700	1700	705	1700	1700	526	821
Volume to Capacity	0.01	0.38	0.19	0.01	0.49	0.25	0.02	0.01
Queue Length 95th (ft)	1	0	0	1	0	0	1	1
Control Delay (s)	10.3	0.0	0.0	10.2	0.0	0.0	12.0	9.4
Lane LOS	B			B			B	A
Approach Delay (s)	0.1			0.1			12.0	9.4
Approach LOS							B	A

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	43.0%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Volume (veh/h)	8
Sign Control	
Grade	
Peak Hour Factor	0.95
Hourly flow rate (vph)	8
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.76
vC, conflicting volume	627
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	0
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	99
cM capacity (veh/h)	821
Direction, Lane #	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	126	768	47	109	940	266	170	168	79	156	111	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00		0.95	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	4803	1599	1787	3343	1599	1787	1791		1698	1671	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.61	1.00		0.31	0.97	
Satd. Flow (perm)	1787	4803	1599	1787	3343	1599	1149	1791		561	1634	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	133	808	49	115	989	280	179	177	83	164	117	93
RTOR Reduction (vph)	0	0	29	0	0	167	0	14	0	0	21	0
Lane Group Flow (vph)	133	808	20	115	989	113	179	246	0	148	205	0
Heavy Vehicles (%)	1%	8%	1%	1%	8%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	pm+pt			pm+pt		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)	14.0	49.7	49.7	12.7	48.4	48.4	31.9	20.3		29.3	29.3	
Effective Green, g (s)	14.0	49.7	49.7	12.7	48.4	48.4	31.9	20.3		29.3	29.3	
Actuated g/C Ratio	0.12	0.41	0.41	0.11	0.40	0.40	0.27	0.17		0.24	0.24	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.5	5.0	5.0	3.5	5.0	5.0	3.5	3.5		3.5	3.5	
Lane Grp Cap (vph)	208	1989	662	189	1348	645	367	303		235	402	
v/s Ratio Prot	c0.07	0.17		0.06	c0.30		0.05	c0.14		c0.05	0.04	
v/s Ratio Perm			0.01			0.07	0.08			0.10	0.08	
v/c Ratio	0.64	0.41	0.03	0.61	0.73	0.18	0.49	0.81		0.63	0.51	
Uniform Delay, d1	50.6	24.8	20.9	51.3	30.3	23.0	35.9	48.0		37.9	39.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.6	0.6	0.1	5.7	3.6	0.6	1.2	15.5		5.5	1.2	
Delay (s)	57.2	25.4	20.9	57.0	33.9	23.6	37.1	63.5		43.4	40.4	
Level of Service	E	C	C	E	C	C	D	E		D	D	
Approach Delay (s)		29.4			33.7			52.7			41.6	
Approach LOS		C			C			D			D	

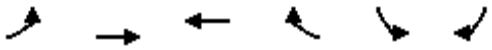
Intersection Summary			
HCM Average Control Delay	35.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	47	85	332	61	47	220
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	49	89	349	64	49	232
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		10				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	680	349			414	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	680	349			414	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	87			96	
cM capacity (veh/h)	400	696			1151	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	139	349	64	49	232
Volume Left	49	0	0	49	0
Volume Right	89	0	64	0	0
cSH	1081	1700	1700	1151	1700
Volume to Capacity	0.13	0.21	0.04	0.04	0.14
Queue Length 95th (ft)	11	0	0	3	0
Control Delay (s)	12.5	0.0	0.0	8.3	0.0
Lane LOS	B			A	
Approach Delay (s)	12.5	0.0		1.5	
Approach LOS	B				

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	34.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	18	23	28	22	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	20	25	30	24	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	55				60	40
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	55				60	40
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				97	100
cM capacity (veh/h)	1556				949	1034

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	20	55	24
Volume Left	0	0	24
Volume Right	0	30	0
cSH	1556	1700	949
Volume to Capacity	0.00	0.03	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.0	8.9
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Osprey Hammock Trail*
Time Period	*PM Peak*	Analysis Year	*2040*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*LTR*				*LTR*				*LR*				*LR*	
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h	*12*	*518*	*19*	*0*	*69*	*713*	*39*	*5*	*18*		*39*	*0*	*30*		*10*	*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*1*	*1*	*1*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*116*			*33*			*641*			*914*		
Exiting Flow (V_{ex}), pc/h	*668*			*840*			*58*			*100*		
Entry Flow (V_e), pc/h		*624*			*939*			*61*			*43*	
Entry Volume veh/h		*578*			*869*			*60*			*43*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1006*			*1094*			*596*			*453*	
Capacity (*c*), veh/h		*932*			*1013*			*590*			*449*	
v/c Ratio (X)		*0.62*			*0.86*			*0.10*			*0.09*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*13.0*			*24.8*			*7.3*			*9.3*	
Lane LOS		*B*			*C*			*A*			*A*	
Lane 95% Queue		*4.4*			*11.2*			*0.3*			*0.3*	
Approach Delay, s/veh	*13.05*			*24.84*			*7.31*			*9.33*		
Approach LOS, s/veh	*B*			*C*			*A*			*A*		
Intersection Delay, s/veh	*19.33*											
Intersection LOS	*C*											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Longwood Markham Road*
Time Period	*PM Peak*	Analysis Year	*2040*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*TR*				*LT*				*LR*					
Right-Turn Bypass	*Yielding*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h		*474*	*133*	*5*	*92*	*576*		*5*	*270*		*87*	*0*				*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*8*	*8*	*8*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*111*			*293*			*551*			*1059*		
Exiting Flow (V_{ex}), pc/h	*637*			*948*			*0*			*105*		
Entry Flow (V_e), pc/h		*545*	*151*		*765*			*380*				
Entry Volume veh/h		*505*	*140*		*708*			*376*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1012*	*1018*		*843*			*652*			*0*	
Capacity (*c*), veh/h		*937*	*942*		*781*			*645*			*0*	
v/c Ratio (X)		*0.54*	*0.15*		*0.91*			*0.58*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*10.9*	*5.2*		*36.4*			*16.0*				
Lane LOS		*B*	*A*		*E*			*C*			*F*	
Lane 95% Queue		*3.3*	*0.5*		*12.4*			*3.8*				
Approach Delay, s/veh	*9.69*			*36.37*			*16.01*					
Approach LOS, s/veh	*A*			*E*			*C*					
Intersection Delay, s/veh	*21.99*											
Intersection LOS	*C*											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Yankee Lake Road*
Time Period	*PM Peak*	Analysis Year	*2040*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*LT*				*TR*								*LR*	
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h	*4*	*557*		*5*		*663*	*4*	*21*				*0*	*6*		*5*	*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*30*			*11*			*674*			*784*		
Exiting Flow (V_{ex}), pc/h	*663*			*765*			*9*			*0*		
Entry Flow (V_e), pc/h		*643*			*782*			*12*			*12*	
Entry Volume veh/h		*595*			*724*						*12*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1096*			*1119*			*0*			*516*	
Capacity (*c*), veh/h		*1015*			*1036*			*0*			*511*	
v/c Ratio (X)		*0.59*			*0.70*						*0.02*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*11.4*			*14.6*						*7.3*	
Lane LOS		*B*			*B*			*F*			*A*	
Lane 95% Queue		*4.0*			*6.0*						*0.1*	
Approach Delay, s/veh	*11.38*			*14.61*						*7.33*		
Approach LOS, s/veh	*B*			*B*						*A*		
Intersection Delay, s/veh	*13.10*											
Intersection LOS	*B*											

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	568	16	0	0	0	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	598	17	0	0	0	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			615		606	606
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			615		606	606
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	98
cM capacity (veh/h)			970		462	499

Direction, Lane #	EB 1	NB 1
Volume Total	615	12
Volume Left	0	0
Volume Right	17	12
cSH	1700	499
Volume to Capacity	0.36	0.02
Queue Length 95th (ft)	0	2
Control Delay (s)	0.0	12.4
Lane LOS		B
Approach Delay (s)	0.0	12.4
Approach LOS		B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	40.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	167	20	0	0	0	30
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	176	21	0	0	0	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			197		186	186
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			197		186	186
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	96
cM capacity (veh/h)			1382		805	858

Direction, Lane #	EB 1	NB 1
Volume Total	197	32
Volume Left	0	0
Volume Right	21	32
cSH	1700	858
Volume to Capacity	0.12	0.04
Queue Length 95th (ft)	0	3
Control Delay (s)	0.0	9.4
Lane LOS		A
Approach Delay (s)	0.0	9.4
Approach LOS		A

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	20.0%	ICU Level of Service	A
Analysis Period (min)	15		

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Lake Markham Road*
Time Period	*PM Peak*	Analysis Year	*2040*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*TR*				*LT*				*LR*					
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h		*161*	*24*	*12*	*102*	*146*		*18*	*22*		*59*	*0*				*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*8*	*8*	*8*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*136*			*37*			*217*			*339*		
Exiting Flow (V_{ex}), pc/h	*266*			*203*			*0*			*143*		
Entry Flow (V_e), pc/h		*224*			*302*			*86*				
Entry Volume veh/h		*207*			*280*			*85*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*986*			*1089*			*909*			*0*	
Capacity (*c*), veh/h		*913*			*1008*			*900*			*0*	
v/c Ratio (X)		*0.23*			*0.28*			*0.09*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*6.2*			*6.3*			*4.9*				
Lane LOS		*A*			*A*			*A*			*F*	
Lane 95% Queue		*0.9*			*1.1*			*0.3*				
Approach Delay, s/veh	*6.23*			*6.32*			*4.89*					
Approach LOS, s/veh	*A*			*A*			*A*					
Intersection Delay, s/veh	*6.08*											
Intersection LOS	*A*											

 HCS 2010™ 6.50 Roundabouts Generated: 9/11/2013 9:15 AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	222	16	0	0	0	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	234	17	0	0	0	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	1007					
pX, platoon unblocked						
vC, conflicting volume			251		242	242
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			251		242	242
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1321		748	799

Direction, Lane #	EB 1	NB 1
Volume Total	251	12
Volume Left	0	0
Volume Right	17	12
cSH	1700	799
Volume to Capacity	0.15	0.01
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	9.6
Lane LOS		A
Approach Delay (s)	0.0	9.6
Approach LOS		A

Intersection Summary				
Average Delay		0.4		
Intersection Capacity Utilization		22.7%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	222	11	0	0	0	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	234	12	0	0	0	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			245		239	239
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			245		239	239
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1327		751	802

Direction, Lane #	EB 1	NB 1
Volume Total	245	8
Volume Left	0	0
Volume Right	12	8
cSH	1700	802
Volume to Capacity	0.14	0.01
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	9.5
Lane LOS		A
Approach Delay (s)	0.0	9.5
Approach LOS		A

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	22.4%	ICU Level of Service	A
Analysis Period (min)	15		

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*APanek*	Intersection	*Scenario 1*
Agency or Co.	*GMB*	E/W Street Name	*Frontage Road*
Date Performed	*9/4/2013*	N/S Street Name	*Glade View Drive*
Time Period	*PM Peak*	Analysis Year	*2040*
Peak Hour Factor	*0.95*	Project ID	*SR 429 - FIN ID: 240200-2*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes (N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*0*	*0*	
Lane Assignment			*TR*				*LT*				*LR*					
Right-Turn Bypass	*None*				None				None				None			
Conflicting Lanes	*1*				1				1				1			
Volume (V), veh/h		*208*	*12*	*10*	*18*	*249*		*19*	*7*		*13*	*0*				*0*
Heavy Veh. Adj. (f_{HV}), %	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*1*	*1*	*1*	*8*	*8*	*8*	*8*	*8*
Pedestrians Crossing	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*42*			*18*			*269*			*343*		
Exiting Flow (V_{ex}), pc/h	*272*			*302*			*0*			*34*		
Entry Flow (V_e), pc/h		*261*			*325*			*21*				
Entry Volume veh/h		*242*			*301*			*21*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1083*			*1109*			*863*			*0*	
Capacity (*c*), veh/h		*1003*			*1027*			*855*			*0*	
v/c Ratio (X)		*0.24*			*0.29*			*0.02*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*5.9*			*6.4*			*4.4*				
Lane LOS		*A*			*A*			*A*			*F*	
Lane 95% Queue		*0.9*			*1.2*			*0.1*				
Approach Delay, s/veh	*5.93*			*6.42*			*4.44*					
Approach LOS, s/veh	*A*			*A*			*A*					
Intersection Delay, s/veh	*6.13*											
Intersection LOS	*A*											

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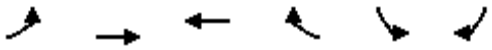
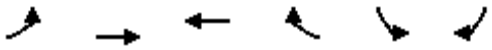


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	272	22	0	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	286	23	0	15
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	309				298	298
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	309				298	298
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	1257				695	744

Direction, Lane #	WB 1	SB 1
Volume Total	309	15
Volume Left	0	0
Volume Right	23	15
cSH	1700	744
Volume to Capacity	0.18	0.02
Queue Length 95th (ft)	0	2
Control Delay (s)	0.0	9.9
Lane LOS		A
Approach Delay (s)	0.0	9.9
Approach LOS		A

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	25.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	278	25	0	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	293	26	0	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	319				306	306
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	319				306	306
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	1247				688	736

Direction, Lane #	WB 1	SB 1
Volume Total	319	17
Volume Left	0	0
Volume Right	26	17
cSH	1700	736
Volume to Capacity	0.19	0.02
Queue Length 95th (ft)	0	2
Control Delay (s)	0.0	10.0
Lane LOS		B
Approach Delay (s)	0.0	10.0
Approach LOS		B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	26.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (veh/h)	13	6	1102	2	6	1424	5	0	0	11	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	6	1160	2	6	1499	5	0	0	12	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			None			None						
Median storage veh)												
Upstream signal (ft)						846						
pX, platoon unblocked	0.00	0.66						0.66	0.66		0.66	0.66
vC, conflicting volume	0	1504			1162			1944	2691	581	2118	2689
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	736			1162			1402	2532	581	1666	2529
tC, single (s)	0.0	4.1			4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	0.0	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	99			99			100	100	97	100	100
cM capacity (veh/h)	0	576			603			65	18	459	41	18

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	6	773	389	6	999	505	12	8
Volume Left	6	0	0	6	0	0	0	0
Volume Right	0	0	2	0	0	5	12	8
cSH	576	1700	1700	603	1700	1700	459	719
Volume to Capacity	0.01	0.45	0.23	0.01	0.59	0.30	0.03	0.01
Queue Length 95th (ft)	1	0	0	1	0	0	2	1
Control Delay (s)	11.3	0.0	0.0	11.0	0.0	0.0	13.0	10.1
Lane LOS	B			B			B	B
Approach Delay (s)	0.1			0.0			13.0	10.1
Approach LOS							B	B

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	49.5%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Volume (veh/h)	8
Sign Control	
Grade	
Peak Hour Factor	0.95
Hourly flow rate (vph)	8
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.66
vC, conflicting volume	752
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	0
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	99
cM capacity (veh/h)	719
Direction, Lane #	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	200	856	57	114	1147	271	175	188	82	192	117	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	4803	1599	1787	3343	1599	1787	1796		1787	1742	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.31	1.00		0.24	1.00	
Satd. Flow (perm)	1787	4803	1599	1787	3343	1599	578	1796		450	1742	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	211	901	60	120	1207	285	184	198	86	202	123	119
RTOR Reduction (vph)	0	0	35	0	0	174	0	13	0	0	29	0
Lane Group Flow (vph)	211	901	25	120	1207	111	184	271	0	202	213	0
Heavy Vehicles (%)	1%	8%	1%	1%	8%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	pm+pt			pm+pt		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6	8			4		
Actuated Green, G (s)	17.0	49.6	49.6	12.9	45.5	45.5	31.3	20.1		29.7	19.3	
Effective Green, g (s)	17.0	49.6	49.6	12.9	45.5	45.5	31.3	20.1		29.7	19.3	
Actuated g/C Ratio	0.14	0.41	0.41	0.11	0.38	0.38	0.26	0.17		0.25	0.16	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.5	5.0	5.0	3.5	5.0	5.0	3.5	3.5		3.5	3.5	
Lane Grp Cap (vph)	253	1985	661	192	1268	606	264	301		227	280	
v/s Ratio Prot	c0.12	0.19		0.07	c0.36		0.07	c0.15		c0.08	0.12	
v/s Ratio Perm			0.02			0.07	0.12			0.14		
v/c Ratio	0.83	0.45	0.04	0.62	0.95	0.18	0.70	0.90		0.89	0.76	
Uniform Delay, d1	50.1	25.4	21.0	51.2	36.2	24.9	37.0	49.0		40.0	48.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	20.9	0.8	0.1	6.5	16.1	0.7	8.1	27.9		32.2	11.6	
Delay (s)	71.0	26.2	21.1	57.7	52.3	25.5	45.1	76.9		72.2	59.7	
Level of Service	E	C	C	E	D	C	D	E		E	E	
Approach Delay (s)		34.0			48.0			64.4			65.4	
Approach LOS		C			D			E			E	

Intersection Summary			
HCM Average Control Delay	47.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	90.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	53	111	334	72	53	235
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	56	117	352	76	56	247
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		10				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	711	352			427	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	711	352			427	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	85	83			95	
cM capacity (veh/h)	382	694			1137	

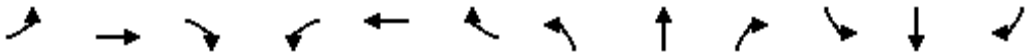
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	173	352	76	56	247
Volume Left	56	0	0	56	0
Volume Right	117	0	76	0	0
cSH	1026	1700	1700	1137	1700
Volume to Capacity	0.17	0.21	0.04	0.05	0.15
Queue Length 95th (ft)	15	0	0	4	0
Control Delay (s)	12.8	0.0	0.0	8.3	0.0
Lane LOS	B			A	
Approach Delay (s)	12.8	0.0		1.5	
Approach LOS	B				

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	34.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	45	323	87	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	47	340	92	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	47	340	92	0
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	5 8	
Permitted Phases						
Actuated Green, G (s)			7.8	57.5	28.5	
Effective Green, g (s)			7.8	57.5	28.5	
Actuated g/C Ratio			0.08	0.58	0.28	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			139	1922	509	
v/s Ratio Prot			c0.03	c0.10	c0.05	
v/s Ratio Perm						
v/c Ratio			0.34	0.18	0.18	
Uniform Delay, d1			43.7	10.1	26.9	
Progression Factor			1.00	1.00	0.14	
Incremental Delay, d2			2.0	0.2	0.2	
Delay (s)			45.6	10.3	4.0	
Level of Service			D	B	A	
Approach Delay (s)	0.0			14.6	4.0	
Approach LOS	A			B	A	

Intersection Summary			
HCM Average Control Delay	12.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	25.4%	ICU Level of Service	A
Analysis Period (min)	15		

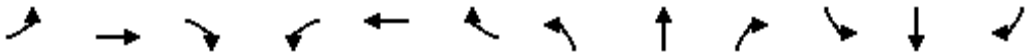
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	383	191	0	0	0	0	82	65	5	40	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.95						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (prot)	1787	3246						1881	1599		1871	
Flt Permitted	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (perm)	1787	3246						1881	1599		1871	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	403	201	0	0	0	0	86	68	5	42	0
RTOR Reduction (vph)	0	44	0	0	0	0	0	0	61	0	0	0
Lane Group Flow (vph)	5	560	0	0	0	0	0	86	7	0	47	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	Split		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8			
Actuated Green, G (s)	10.5	60.2						11.0	11.0		7.8	
Effective Green, g (s)	10.5	60.2						11.0	11.0		7.8	
Actuated g/C Ratio	0.10	0.60						0.11	0.11		0.08	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	188	1954						207	176		146	
v/s Ratio Prot	0.00	c0.17						c0.05			c0.03	
v/s Ratio Perm									0.00			
v/c Ratio	0.03	0.29						0.42	0.04		0.32	
Uniform Delay, d1	40.2	9.6						41.5	39.8		43.6	
Progression Factor	1.00	1.00						1.00	1.00		0.10	
Incremental Delay, d2	0.1	0.1						1.8	0.1		1.7	
Delay (s)	40.2	9.7						43.3	39.9		6.0	
Level of Service	D	A						D	D		A	
Approach Delay (s)		9.9			0.0			41.8			6.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM Average Control Delay	15.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		

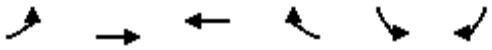
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	17	362	5	5	3	0	0	5	1
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	0	0	18	381	5	5	3	0	0	5	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	386			0			230	422	0	421	419	193
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	386			0			230	422	0	421	419	193
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	99	100	100	99	100
cM capacity (veh/h)	1176			1629			696	518	1088	512	520	819

Direction, Lane #	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	18	254	132	8	6
Volume Left	18	0	0	5	0
Volume Right	0	0	5	0	1
cSH	1629	1700	1700	617	554
Volume to Capacity	0.01	0.15	0.08	0.01	0.01
Queue Length 95th (ft)	1	0	0	1	1
Control Delay (s)	7.2	0.0	0.0	10.9	11.6
Lane LOS	A			B	B
Approach Delay (s)	0.3			10.9	11.6
Approach LOS				B	B

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	21.4%	ICU Level of Service		A
Analysis Period (min)	15			



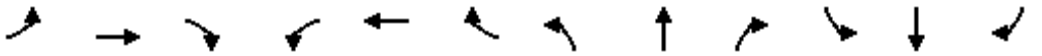
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	8	445	0	0	22	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	8	468	0	0	23	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0				251	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				251	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	100
cM capacity (veh/h)	1629				715	1088

Direction, Lane #	EB 1	EB 2	EB 3	SB 1
Volume Total	8	234	234	23
Volume Left	8	0	0	23
Volume Right	0	0	0	0
cSH	1629	1700	1700	715
Volume to Capacity	0.01	0.14	0.14	0.03
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	7.2	0.0	0.0	10.2
Lane LOS	A			B
Approach Delay (s)	0.1			10.2
Approach LOS				B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	22.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	38	140	16	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frpb, ped/bikes			1.00	1.00	1.00	
Flpb, ped/bikes			1.00	1.00	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	40	147	17	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	40	147	17	0
Confl. Peds. (#/hr)			105			
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	5 8	
Permitted Phases						
Actuated Green, G (s)			7.2	55.1	20.9	
Effective Green, g (s)			7.2	55.1	20.9	
Actuated g/C Ratio			0.08	0.61	0.23	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			143	2047	415	
v/s Ratio Prot			c0.02	c0.04	c0.01	
v/s Ratio Perm						
v/c Ratio			0.28	0.07	0.04	
Uniform Delay, d1			39.0	7.1	26.8	
Progression Factor			1.00	1.00	0.12	
Incremental Delay, d2			1.5	0.1	0.1	
Delay (s)			40.4	7.1	3.3	
Level of Service			D	A	A	
Approach Delay (s)	0.0			14.3	3.3	
Approach LOS	A			B	A	

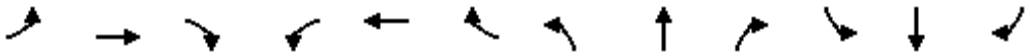
Intersection Summary			
HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.08		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	18.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	143	23	0	0	0	0	11	71	8	30	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.98						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (prot)	1787	3303						1881	1599		1863	
Flt Permitted	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (perm)	1787	3303						1881	1599		1863	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	151	24	0	0	0	0	12	75	8	32	0
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	70	0	0	0
Lane Group Flow (vph)	5	166	0	0	0	0	0	12	5	0	40	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	Split		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8			
Actuated Green, G (s)	7.5	55.4						6.4	6.4		7.2	
Effective Green, g (s)	7.5	55.4						6.4	6.4		7.2	
Actuated g/C Ratio	0.08	0.62						0.07	0.07		0.08	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	149	2033						134	114		149	
v/s Ratio Prot	0.00	c0.05						c0.01			c0.02	
v/s Ratio Perm									0.00			
v/c Ratio	0.03	0.08						0.09	0.05		0.27	
Uniform Delay, d1	37.9	7.0						39.1	39.0		38.9	
Progression Factor	1.00	1.00						1.00	1.00		0.11	
Incremental Delay, d2	0.1	0.0						0.4	0.2		1.3	
Delay (s)	38.0	7.0						39.5	39.2		5.4	
Level of Service	D	A						D	D		A	
Approach Delay (s)		7.9			0.0			39.2			5.4	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM Average Control Delay	16.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.10		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	29.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	213	10	0	0	0	0	5	14	22	3	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)	5	224	11	0	0	0	0	5	15	23	3	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									12			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			235			242	240	117	133	245	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			235			242	240	117	133	245	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	99	98	97	100	100
cM capacity (veh/h)	1629			1337			691	660	916	809	656	1088

Direction, Lane #	EB 1	EB 2	EB 3	NB 1	SB 1
Volume Total	5	149	85	20	26
Volume Left	5	0	0	0	23
Volume Right	0	0	11	15	0
cSH	1629	1700	1700	1243	787
Volume to Capacity	0.00	0.09	0.05	0.02	0.03
Queue Length 95th (ft)	0	0	0	1	3
Control Delay (s)	7.2	0.0	0.0	9.4	9.7
Lane LOS	A			A	A
Approach Delay (s)	0.2			9.4	9.7
Approach LOS				A	A

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	22.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	0	25	168	10	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	26	177	11	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		141	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		141	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		99	100
cM capacity (veh/h)			1629		827	1088

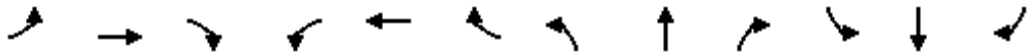
Direction, Lane #	WB 1	WB 2	WB 3	NB 1
Volume Total	26	88	88	11
Volume Left	26	0	0	11
Volume Right	0	0	0	0
cSH	1629	1700	1700	827
Volume to Capacity	0.02	0.05	0.05	0.01
Queue Length 95th (ft)	1	0	0	1
Control Delay (s)	7.2	0.0	0.0	9.4
Lane LOS	A			A
Approach Delay (s)	0.9			9.4
Approach LOS				A

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	14.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	99	407	109	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	104	428	115	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	104	428	115	0
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	5 8	
Permitted Phases						
Actuated Green, G (s)			12.1	52.2	33.8	
Effective Green, g (s)			12.1	52.2	33.8	
Actuated g/C Ratio			0.12	0.52	0.34	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			216	1745	604	
v/s Ratio Prot			c0.06	c0.13	c0.06	
v/s Ratio Perm						
v/c Ratio			0.48	0.25	0.19	
Uniform Delay, d1			41.0	13.1	23.4	
Progression Factor			0.99	0.85	0.15	
Incremental Delay, d2			2.3	0.3	0.2	
Delay (s)			42.7	11.5	3.8	
Level of Service			D	B	A	
Approach Delay (s)	0.0			17.6	3.8	
Approach LOS	A			B	A	

Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	29.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	508	197	0	0	0	0	104	82	5	94	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.96						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (prot)	1787	3262						1881	1599		1877	
Flt Permitted	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (perm)	1787	3262						1881	1599		1877	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	535	207	0	0	0	0	109	86	5	99	0
RTOR Reduction (vph)	0	32	0	0	0	0	0	0	75	0	0	0
Lane Group Flow (vph)	5	710	0	0	0	0	0	109	11	0	104	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	custom		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8	1	1	
Actuated Green, G (s)	14.2	54.3						12.6	12.6		12.1	
Effective Green, g (s)	14.2	54.3						12.6	12.6		12.1	
Actuated g/C Ratio	0.14	0.54						0.13	0.13		0.12	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	254	1771						237	201		227	
v/s Ratio Prot	0.00	c0.22						c0.06			c0.06	
v/s Ratio Perm									0.01			
v/c Ratio	0.02	0.40						0.46	0.05		0.46	
Uniform Delay, d1	36.9	13.3						40.5	38.5		40.9	
Progression Factor	1.00	1.00						1.00	1.00		0.13	
Incremental Delay, d2	0.0	0.2						1.9	0.2		1.9	
Delay (s)	37.0	13.5						42.5	38.6		7.1	
Level of Service	D	B						D	D		A	
Approach Delay (s)		13.7			0.0			40.8			7.1	
Approach LOS		B			A			D			A	

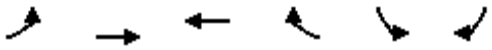
Intersection Summary			
HCM Average Control Delay	18.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	22	499	5	5	4	0	0	5	2
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	0	0	23	525	5	5	4	0	0	5	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	531			0			314	577	0	576	574	265
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	531			0			314	577	0	576	574	265
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	99	100	100	99	100
cM capacity (veh/h)	1040			1629			604	422	1088	395	423	736

Direction, Lane #	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	23	350	180	9	7
Volume Left	23	0	0	5	0
Volume Right	0	0	5	0	2
cSH	1629	1700	1700	507	482
Volume to Capacity	0.01	0.21	0.11	0.02	0.02
Queue Length 95th (ft)	1	0	0	1	1
Control Delay (s)	7.2	0.0	0.0	12.2	12.6
Lane LOS	A			B	B
Approach Delay (s)	0.3			12.2	12.6
Approach LOS				B	B

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	25.3%	ICU Level of Service		A
Analysis Period (min)	15			



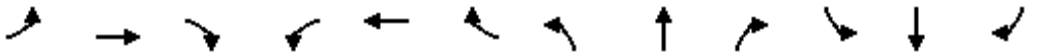
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	9	586	0	0	27	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	617	0	0	28	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0				327	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				327	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	100
cM capacity (veh/h)	1629				641	1088

Direction, Lane #	EB 1	EB 2	EB 3	SB 1
Volume Total	9	308	308	28
Volume Left	9	0	0	28
Volume Right	0	0	0	0
cSH	1629	1700	1700	641
Volume to Capacity	0.01	0.18	0.18	0.04
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	7.2	0.0	0.0	10.9
Lane LOS	A			B
Approach Delay (s)	0.1			10.9
Approach LOS				B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	26.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	47	191	25	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frpb, ped/bikes			1.00	1.00	1.00	
Flpb, ped/bikes			1.00	1.00	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	49	201	26	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	49	201	26	0
Confl. Peds. (#/hr)			105			
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	5 8	
Permitted Phases						
Actuated Green, G (s)			7.9	64.1	21.9	
Effective Green, g (s)			7.9	64.1	21.9	
Actuated g/C Ratio			0.08	0.64	0.22	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			141	2143	391	
v/s Ratio Prot			c0.03	c0.06	c0.01	
v/s Ratio Perm						
v/c Ratio			0.35	0.09	0.07	
Uniform Delay, d1			43.6	6.9	30.9	
Progression Factor			1.00	1.00	0.11	
Incremental Delay, d2			2.0	0.1	0.1	
Delay (s)			45.6	6.9	3.4	
Level of Service			D	A	A	
Approach Delay (s)	0.0			14.5	3.4	
Approach LOS	A			B	A	

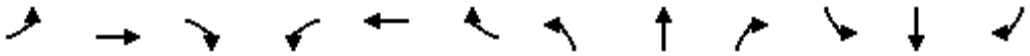
Intersection Summary			
HCM Average Control Delay	13.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.11		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	20.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	172	29	0	0	0	0	18	86	9	38	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.98						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (prot)	1787	3301						1881	1599		1864	
Flt Permitted	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (perm)	1787	3301						1881	1599		1864	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	7	181	31	0	0	0	0	19	91	9	40	0
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	85	0	0	0
Lane Group Flow (vph)	7	205	0	0	0	0	0	19	6	0	49	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	Split		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8			
Actuated Green, G (s)	8.2	64.4						6.7	6.7		7.9	
Effective Green, g (s)	8.2	64.4						6.7	6.7		7.9	
Actuated g/C Ratio	0.08	0.64						0.07	0.07		0.08	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	147	2126						126	107		147	
v/s Ratio Prot	0.00	c0.06						c0.01			c0.03	
v/s Ratio Perm									0.00			
v/c Ratio	0.05	0.10						0.15	0.06		0.33	
Uniform Delay, d1	42.3	6.8						44.0	43.7		43.6	
Progression Factor	1.26	1.73						1.00	1.00		0.09	
Incremental Delay, d2	0.2	0.0						0.8	0.3		1.8	
Delay (s)	53.4	11.7						44.7	44.0		5.9	
Level of Service	D	B						D	D		A	
Approach Delay (s)		13.1			0.0			44.1			5.9	
Approach LOS		B			A			D			A	

Intersection Summary			
HCM Average Control Delay	21.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.12		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	31.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	256	12	0	0	0	0	8	17	27	4	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)	6	269	13	0	0	0	0	8	18	28	4	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									12			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			282			291	288	141	161	295	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			282			291	288	141	161	295	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	99	98	96	99	100
cM capacity (veh/h)	1629			1285			637	620	884	766	615	1088

Direction, Lane #	EB 1	EB 2	EB 3	NB 1	SB 1
Volume Total	6	180	102	26	33
Volume Left	6	0	0	0	28
Volume Right	0	0	13	18	0
cSH	1629	1700	1700	1300	743
Volume to Capacity	0.00	0.11	0.06	0.02	0.04
Queue Length 95th (ft)	0	0	0	2	3
Control Delay (s)	7.2	0.0	0.0	9.7	10.1
Lane LOS	A			A	B
Approach Delay (s)	0.2			9.7	10.1
Approach LOS				A	B

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	24.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	0	31	224	14	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	33	236	15	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		183	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		183	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		98	100
cM capacity (veh/h)			1629		776	1088

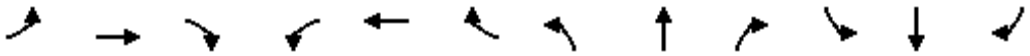
Direction, Lane #	WB 1	WB 2	WB 3	NB 1
Volume Total	33	118	118	15
Volume Left	33	0	0	15
Volume Right	0	0	0	0
cSH	1629	1700	1700	776
Volume to Capacity	0.02	0.07	0.07	0.02
Queue Length 95th (ft)	2	0	0	1
Control Delay (s)	7.3	0.0	0.0	9.7
Lane LOS	A			A
Approach Delay (s)	0.9			9.7
Approach LOS				A

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	16.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	153	490	131	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	161	516	138	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	161	516	138	0
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	8 5	
Permitted Phases						
Actuated Green, G (s)			14.6	48.2	37.8	
Effective Green, g (s)			14.6	48.2	37.8	
Actuated g/C Ratio			0.15	0.48	0.38	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			261	1611	675	
v/s Ratio Prot			c0.09	c0.15	c0.08	
v/s Ratio Perm						
v/c Ratio			0.62	0.32	0.20	
Uniform Delay, d1			40.1	15.9	21.0	
Progression Factor			0.92	0.84	0.15	
Incremental Delay, d2			4.9	0.5	0.2	
Delay (s)			41.8	13.9	3.4	
Level of Service			D	B	A	
Approach Delay (s)	0.0			20.5	3.4	
Approach LOS	A			C	A	

Intersection Summary			
HCM Average Control Delay	17.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		

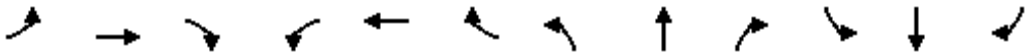
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	651	203	0	0	0	0	126	99	5	148	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.96						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (prot)	1787	3274						1881	1599		1878	
Flt Permitted	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (perm)	1787	3274						1881	1599		1878	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	685	214	0	0	0	0	133	104	5	156	0
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	90	0	0	0
Lane Group Flow (vph)	5	873	0	0	0	0	0	133	14	0	161	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	Split		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8			
Actuated Green, G (s)	17.5	51.1						13.3	13.3		14.6	
Effective Green, g (s)	17.5	51.1						13.3	13.3		14.6	
Actuated g/C Ratio	0.18	0.51						0.13	0.13		0.15	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	313	1673						250	213		274	
v/s Ratio Prot	0.00	c0.27						c0.07			c0.09	
v/s Ratio Perm									0.01			
v/c Ratio	0.02	0.52						0.53	0.06		0.59	
Uniform Delay, d1	34.1	16.3						40.4	37.9		39.9	
Progression Factor	1.00	1.00						1.00	1.00		0.20	
Incremental Delay, d2	0.0	0.4						2.8	0.2		3.3	
Delay (s)	34.2	16.7						43.2	38.1		11.3	
Level of Service	C	B						D	D		B	
Approach Delay (s)		16.8			0.0			41.0			11.3	
Approach LOS		B			A			D			B	

Intersection Summary			
HCM Average Control Delay	20.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

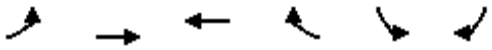
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	26	636	6	5	5	0	0	6	2
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	0	0	27	669	6	5	5	0	0	6	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	676			0			395	731	0	730	727	338
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	676			0			395	731	0	730	727	338
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			99	98	100	100	98	100
cM capacity (veh/h)	918			1629			526	344	1088	304	345	661

Direction, Lane #	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	27	446	229	11	8
Volume Left	27	0	0	5	0
Volume Right	0	0	6	0	2
cSH	1629	1700	1700	416	392
Volume to Capacity	0.02	0.26	0.13	0.03	0.02
Queue Length 95th (ft)	1	0	0	2	2
Control Delay (s)	7.2	0.0	0.0	13.9	14.4
Lane LOS	A			B	B
Approach Delay (s)	0.3			13.9	14.4
Approach LOS				B	B

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	29.2%	ICU Level of Service	A	
Analysis Period (min)	15			



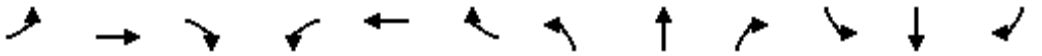
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	10	745	0	0	32	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	784	0	0	34	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0				413	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				413	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				94	100
cM capacity (veh/h)	1629				566	1088

Direction, Lane #	EB 1	EB 2	EB 3	SB 1
Volume Total	11	392	392	34
Volume Left	11	0	0	34
Volume Right	0	0	0	0
cSH	1629	1700	1700	566
Volume to Capacity	0.01	0.23	0.23	0.06
Queue Length 95th (ft)	0	0	0	5
Control Delay (s)	7.2	0.0	0.0	11.8
Lane LOS	A			B
Approach Delay (s)	0.1			11.8
Approach LOS				B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	30.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	57	242	34	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frpb, ped/bikes			1.00	1.00	1.00	
Flpb, ped/bikes			1.00	1.00	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	60	255	36	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	60	255	36	0
Confl. Peds. (#/hr)			105			
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	5 8	
Permitted Phases						
Actuated Green, G (s)			8.4	62.5	23.5	
Effective Green, g (s)			8.4	62.5	23.5	
Actuated g/C Ratio			0.08	0.62	0.24	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			150	2089	420	
v/s Ratio Prot			c0.03	c0.08	c0.02	
v/s Ratio Perm						
v/c Ratio			0.40	0.12	0.09	
Uniform Delay, d1			43.4	7.6	29.9	
Progression Factor			1.00	1.00	0.11	
Incremental Delay, d2			2.4	0.1	0.1	
Delay (s)			45.8	7.7	3.4	
Level of Service			D	A	A	
Approach Delay (s)	0.0			15.0	3.4	
Approach LOS	A			B	A	

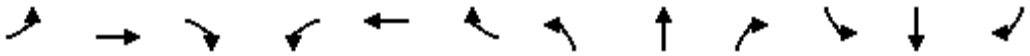
Intersection Summary			
HCM Average Control Delay	13.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.13		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	21.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	219	35	0	0	0	0	24	102	11	46	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.98						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (prot)	1787	3303						1881	1599		1863	
Flt Permitted	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (perm)	1787	3303						1881	1599		1863	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	231	37	0	0	0	0	25	107	12	48	0
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	98	0	0	0
Lane Group Flow (vph)	11	260	0	0	0	0	0	25	9	0	60	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	Split		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8			
Actuated Green, G (s)	8.2	62.3						8.3	8.3		8.4	
Effective Green, g (s)	8.2	62.3						8.3	8.3		8.4	
Actuated g/C Ratio	0.08	0.62						0.08	0.08		0.08	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	147	2058						156	133		156	
v/s Ratio Prot	0.01	c0.08						c0.01			c0.03	
v/s Ratio Perm									0.01			
v/c Ratio	0.07	0.13						0.16	0.07		0.38	
Uniform Delay, d1	42.4	7.7						42.6	42.3		43.4	
Progression Factor	1.37	1.99						1.00	1.00		0.09	
Incremental Delay, d2	0.3	0.0						0.7	0.3		2.1	
Delay (s)	58.3	15.4						43.3	42.6		6.2	
Level of Service	E	B						D	D		A	
Approach Delay (s)		17.1			0.0			42.7			6.2	
Approach LOS		B			A			D			A	

Intersection Summary			
HCM Average Control Delay	22.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.16		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	318	14	0	0	0	0	10	20	32	6	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)	8	335	15	0	0	0	0	11	21	34	6	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									12			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			349			362	359	175	200	366	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			349			362	359	175	200	366	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	98	97	95	99	100
cM capacity (veh/h)	1629			1213			564	566	841	712	560	1088

Direction, Lane #	EB 1	EB 2	EB 3	NB 1	SB 1
Volume Total	8	223	126	32	40
Volume Left	8	0	0	0	34
Volume Right	0	0	15	21	0
cSH	1629	1700	1700	1262	683
Volume to Capacity	0.01	0.13	0.07	0.03	0.06
Queue Length 95th (ft)	0	0	0	2	5
Control Delay (s)	7.2	0.0	0.0	10.1	10.6
Lane LOS	A			B	B
Approach Delay (s)	0.2			10.1	10.6
Approach LOS				B	B

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	25.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	0	38	281	18	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	40	296	19	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		228	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		228	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		97	100
cM capacity (veh/h)			1629		725	1088

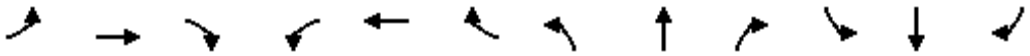
Direction, Lane #	WB 1	WB 2	WB 3	NB 1
Volume Total	40	148	148	19
Volume Left	40	0	0	19
Volume Right	0	0	0	0
cSH	1629	1700	1700	725
Volume to Capacity	0.02	0.09	0.09	0.03
Queue Length 95th (ft)	2	0	0	2
Control Delay (s)	7.3	0.0	0.0	10.1
Lane LOS	A			B
Approach Delay (s)	0.9			10.1
Approach LOS				B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	17.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	65	342	222	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	68	360	234	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	68	360	234	0
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	5 8	
Permitted Phases						
Actuated Green, G (s)			8.8	45.4	40.6	
Effective Green, g (s)			8.8	45.4	40.6	
Actuated g/C Ratio			0.09	0.45	0.41	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			157	1518	726	
v/s Ratio Prot			c0.04	c0.11	c0.13	
v/s Ratio Perm						
v/c Ratio			0.43	0.24	0.32	
Uniform Delay, d1			43.2	16.7	20.3	
Progression Factor			1.00	1.00	0.20	
Incremental Delay, d2			2.6	0.4	0.3	
Delay (s)			45.8	17.1	4.4	
Level of Service			D	B	A	
Approach Delay (s)	0.0			21.6	4.4	
Approach LOS	A			C	A	

Intersection Summary			
HCM Average Control Delay	15.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	33.4%	ICU Level of Service	A
Analysis Period (min)	15		

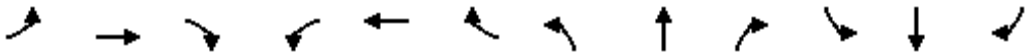
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	316	87	0	0	0	0	217	58	5	60	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.97						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (prot)	1787	3280						1881	1599		1874	
Flt Permitted	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (perm)	1787	3280						1881	1599		1874	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	333	92	0	0	0	0	228	61	5	63	0
RTOR Reduction (vph)	0	21	0	0	0	0	0	0	50	0	0	0
Lane Group Flow (vph)	5	404	0	0	0	0	0	228	11	0	68	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	Split		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8			
Actuated Green, G (s)	15.0	51.6						18.6	18.6		8.8	
Effective Green, g (s)	15.0	51.6						18.6	18.6		8.8	
Actuated g/C Ratio	0.15	0.52						0.19	0.19		0.09	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	268	1692						350	297		165	
v/s Ratio Prot	0.00	c0.12						c0.12			c0.04	
v/s Ratio Perm									0.01			
v/c Ratio	0.02	0.24						0.65	0.04		0.41	
Uniform Delay, d1	36.2	13.4						37.7	33.4		43.2	
Progression Factor	1.00	1.00						1.00	1.00		0.10	
Incremental Delay, d2	0.0	0.1						4.8	0.1		2.2	
Delay (s)	36.3	13.5						42.5	33.4		6.5	
Level of Service	D	B						D	C		A	
Approach Delay (s)		13.7			0.0			40.6			6.5	
Approach LOS		B			A			D			A	

Intersection Summary			
HCM Average Control Delay	23.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	36.0%	ICU Level of Service	A
Analysis Period (min)	15		

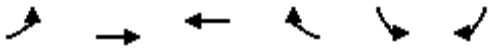
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	14	398	3	5	3	0	0	4	4
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	0	0	15	419	3	5	3	0	0	4	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	422			0			245	452	0	452	450	211
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	422			0			245	452	0	452	450	211
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	99	100	100	99	99
cM capacity (veh/h)	1141			1629			678	500	1088	488	501	798

Direction, Lane #	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	15	279	143	8	8
Volume Left	15	0	0	5	0
Volume Right	0	0	3	0	4
cSH	1629	1700	1700	598	615
Volume to Capacity	0.01	0.16	0.08	0.01	0.01
Queue Length 95th (ft)	1	0	0	1	1
Control Delay (s)	7.2	0.0	0.0	11.1	10.9
Lane LOS	A			B	B
Approach Delay (s)	0.2			11.1	10.9
Approach LOS				B	B

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	22.4%	ICU Level of Service		A
Analysis Period (min)	15			



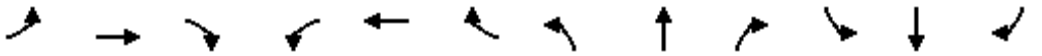
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	8	371	0	0	18	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	8	391	0	0	19	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0				212	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				212	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	100
cM capacity (veh/h)	1629				756	1088

Direction, Lane #	EB 1	EB 2	EB 3	SB 1
Volume Total	8	195	195	19
Volume Left	8	0	0	19
Volume Right	0	0	0	0
cSH	1629	1700	1700	756
Volume to Capacity	0.01	0.11	0.11	0.03
Queue Length 95th (ft)	0	0	0	2
Control Delay (s)	7.2	0.0	0.0	9.9
Lane LOS	A			A
Approach Delay (s)	0.2			9.9
Approach LOS				A

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	20.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	84	105	16	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frpb, ped/bikes			1.00	1.00	1.00	
Flpb, ped/bikes			1.00	1.00	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	88	111	17	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	88	111	17	0
Confl. Peds. (#/hr)			105			
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	5 8	
Permitted Phases						
Actuated Green, G (s)			9.3	56.7	19.3	
Effective Green, g (s)			9.3	56.7	19.3	
Actuated g/C Ratio			0.10	0.63	0.21	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			185	2106	383	
v/s Ratio Prot			c0.05	c0.03	c0.01	
v/s Ratio Perm						
v/c Ratio			0.48	0.05	0.04	
Uniform Delay, d1			38.1	6.4	28.0	
Progression Factor			1.00	1.00	0.11	
Incremental Delay, d2			2.6	0.0	0.1	
Delay (s)			40.7	6.4	3.3	
Level of Service			D	A	A	
Approach Delay (s)	0.0			21.6	3.3	
Approach LOS	A			C	A	

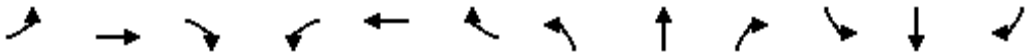
Intersection Summary			
HCM Average Control Delay	20.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.10		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	19.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	146	11	0	0	0	0	10	43	13	71	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.99						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (prot)	1787	3322						1881	1599		1867	
Flt Permitted	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (perm)	1787	3322						1881	1599		1867	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	154	12	0	0	0	0	11	45	14	75	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	43	0	0	0
Lane Group Flow (vph)	6	162	0	0	0	0	0	11	2	0	89	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Prot	Split		
Protected Phases	5	2 4						8	8	1	1	
Permitted Phases												
Actuated Green, G (s)	7.5	54.9						4.8	4.8		9.3	
Effective Green, g (s)	7.5	54.9						4.8	4.8		9.3	
Actuated g/C Ratio	0.08	0.61						0.05	0.05		0.10	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	149	2026						100	85		193	
v/s Ratio Prot	0.00	c0.05						c0.01	0.00		c0.05	
v/s Ratio Perm												
v/c Ratio	0.04	0.08						0.11	0.03		0.46	
Uniform Delay, d1	37.9	7.2						40.6	40.4		38.0	
Progression Factor	1.00	1.00						1.00	1.00		0.11	
Incremental Delay, d2	0.2	0.0						0.7	0.2		2.3	
Delay (s)	38.1	7.2						41.2	40.6		6.6	
Level of Service	D	A						D	D		A	
Approach Delay (s)		8.3			0.0			40.7			6.6	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM Average Control Delay	13.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.13		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	29.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	182	7	0	0	0	0	3	10	13	12	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)	7	192	7	0	0	0	0	3	11	14	13	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									12			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			199			216	210	99	117	214	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			199			216	210	99	117	214	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	98	98	100
cM capacity (veh/h)	1629			1378			711	685	940	834	682	1088

Direction, Lane #	EB 1	EB 2	EB 3	NB 1	SB 1
Volume Total	7	128	71	14	26
Volume Left	7	0	0	0	14
Volume Right	0	0	7	11	0
cSH	1629	1700	1700	1222	753
Volume to Capacity	0.00	0.08	0.04	0.01	0.03
Queue Length 95th (ft)	0	0	0	1	3
Control Delay (s)	7.2	0.0	0.0	9.2	10.0
Lane LOS	A			A	A
Approach Delay (s)	0.3			9.2	10.0
Approach LOS				A	A

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	21.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	0	25	179	10	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	26	188	11	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		147	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		147	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		99	100
cM capacity (veh/h)			1629		820	1088

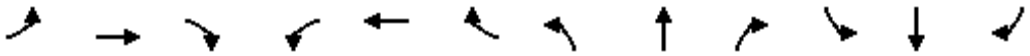
Direction, Lane #	WB 1	WB 2	WB 3	NB 1
Volume Total	26	94	94	11
Volume Left	26	0	0	11
Volume Right	0	0	0	0
cSH	1629	1700	1700	820
Volume to Capacity	0.02	0.06	0.06	0.01
Queue Length 95th (ft)	1	0	0	1
Control Delay (s)	7.2	0.0	0.0	9.4
Lane LOS	A			A
Approach Delay (s)	0.9			9.4
Approach LOS				A

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	14.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	84	463	248	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	88	487	261	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	88	487	261	0
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	5 8	
Permitted Phases						
Actuated Green, G (s)			11.2	44.3	41.7	
Effective Green, g (s)			11.2	44.3	41.7	
Actuated g/C Ratio			0.11	0.44	0.42	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			200	1481	745	
v/s Ratio Prot			0.05	c0.15	c0.15	
v/s Ratio Perm						
v/c Ratio			0.44	0.33	0.35	
Uniform Delay, d1			41.5	18.2	19.9	
Progression Factor			0.97	1.07	0.23	
Incremental Delay, d2			2.1	0.6	0.3	
Delay (s)			42.3	20.0	4.8	
Level of Service			D	C	A	
Approach Delay (s)	0.0			23.4	4.8	
Approach LOS	A			C	A	

Intersection Summary			
HCM Average Control Delay	17.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	38.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	395	107	0	0	0	0	243	72	5	79	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.97						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (prot)	1787	3281						1881	1599		1876	
Flt Permitted	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (perm)	1787	3281						1881	1599		1876	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	416	113	0	0	0	0	256	76	5	83	0
RTOR Reduction (vph)	0	21	0	0	0	0	0	0	61	0	0	0
Lane Group Flow (vph)	5	508	0	0	0	0	0	256	15	0	88	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	custom		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8	1	1	
Actuated Green, G (s)	15.0	48.1						19.7	19.7		11.2	
Effective Green, g (s)	15.0	48.1						19.7	19.7		11.2	
Actuated g/C Ratio	0.15	0.48						0.20	0.20		0.11	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	268	1578						371	315		210	
v/s Ratio Prot	0.00	c0.15						c0.14			c0.05	
v/s Ratio Perm									0.01			
v/c Ratio	0.02	0.32						0.69	0.05		0.42	
Uniform Delay, d1	36.2	15.9						37.3	32.5		41.4	
Progression Factor	1.00	1.00						1.00	1.00		0.10	
Incremental Delay, d2	0.0	0.2						5.9	0.1		1.8	
Delay (s)	36.3	16.1						43.2	32.6		5.8	
Level of Service	D	B						D	C		A	
Approach Delay (s)		16.3			0.0			40.8			5.8	
Approach LOS		B			A			D			A	

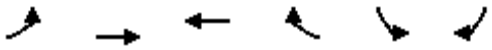
Intersection Summary			
HCM Average Control Delay	23.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	40.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	18	538	4	5	3	0	0	5	4
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	0	0	19	566	4	5	3	0	0	5	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	571			0			328	608	0	608	606	285
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	571			0			328	608	0	608	606	285
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	99	100	100	99	99
cM capacity (veh/h)	1005			1629			589	406	1088	376	407	715

Direction, Lane #	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	19	378	193	8	9
Volume Left	19	0	0	5	0
Volume Right	0	0	4	0	4
cSH	1629	1700	1700	504	503
Volume to Capacity	0.01	0.22	0.11	0.02	0.02
Queue Length 95th (ft)	1	0	0	1	1
Control Delay (s)	7.2	0.0	0.0	12.3	12.3
Lane LOS	A			B	B
Approach Delay (s)	0.2			12.3	12.3
Approach LOS				B	B

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	26.3%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	8	464	0	0	23	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	8	488	0	0	24	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0				261	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				261	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	100
cM capacity (veh/h)	1629				705	1088

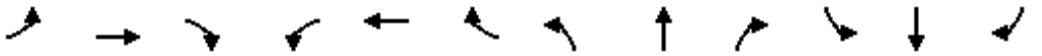
Direction, Lane #	EB 1	EB 2	EB 3	SB 1
Volume Total	8	244	244	24
Volume Left	8	0	0	24
Volume Right	0	0	0	0
cSH	1629	1700	1700	705
Volume to Capacity	0.01	0.14	0.14	0.03
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	7.2	0.0	0.0	10.3
Lane LOS	A			B
Approach Delay (s)	0.1			10.3
Approach LOS				B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	22.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	102	134	25	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	107	141	26	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	107	141	26	0
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	5 8	
Permitted Phases						
Actuated Green, G (s)			12.2	64.9	21.1	
Effective Green, g (s)			12.2	64.9	21.1	
Actuated g/C Ratio			0.12	0.65	0.21	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			218	2170	377	
v/s Ratio Prot			c0.06	c0.04	c0.01	
v/s Ratio Perm						
v/c Ratio			0.49	0.06	0.07	
Uniform Delay, d1			41.0	6.4	31.6	
Progression Factor			1.00	1.00	0.10	
Incremental Delay, d2			2.4	0.1	0.1	
Delay (s)			43.4	6.5	3.3	
Level of Service			D	A	A	
Approach Delay (s)	0.0			22.4	3.3	
Approach LOS	A			C	A	

Intersection Summary			
HCM Average Control Delay	20.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.12		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	20.7%	ICU Level of Service	A
Analysis Period (min)	15		

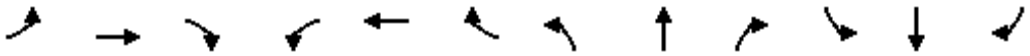
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	154	18	0	0	0	0	16	51	16	86	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.98						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (prot)	1787	3312						1881	1599		1866	
Flt Permitted	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (perm)	1787	3312						1881	1599		1866	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	9	162	19	0	0	0	0	17	54	17	91	0
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	51	0	0	0
Lane Group Flow (vph)	9	175	0	0	0	0	0	17	3	0	108	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	Split		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8			
Actuated Green, G (s)	7.7	60.4						6.4	6.4		12.2	
Effective Green, g (s)	7.7	60.4						6.4	6.4		12.2	
Actuated g/C Ratio	0.08	0.60						0.06	0.06		0.12	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	138	2000						120	102		228	
v/s Ratio Prot	0.01	c0.05						c0.01			c0.06	
v/s Ratio Perm									0.00			
v/c Ratio	0.07	0.09						0.14	0.03		0.47	
Uniform Delay, d1	42.8	8.3						44.2	43.9		40.9	
Progression Factor	1.04	0.69						1.00	1.00		0.10	
Incremental Delay, d2	0.3	0.0						0.7	0.2		2.0	
Delay (s)	44.7	5.7						44.9	44.1		6.2	
Level of Service	D	A						D	D		A	
Approach Delay (s)		7.6			0.0			44.3			6.2	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.15		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	31.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	196	10	0	0	0	0	5	11	16	15	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)	8	206	11	0	0	0	0	5	12	17	16	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									12			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			217			236	228	108	128	234	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			217			236	228	108	128	234	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	99	99	98	98	100
cM capacity (veh/h)	1629			1357			686	669	928	816	664	1088

Direction, Lane #	EB 1	EB 2	EB 3	NB 1	SB 1
Volume Total	8	138	79	17	33
Volume Left	8	0	0	0	17
Volume Right	0	0	11	12	0
cSH	1629	1700	1700	1349	735
Volume to Capacity	0.01	0.08	0.05	0.01	0.04
Queue Length 95th (ft)	0	0	0	1	3
Control Delay (s)	7.2	0.0	0.0	9.4	10.1
Lane LOS	A			A	B
Approach Delay (s)	0.3			9.4	10.1
Approach LOS				A	B

Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	22.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	0	31	223	13	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	33	235	14	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		183	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		183	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		98	100
cM capacity (veh/h)			1629		776	1088

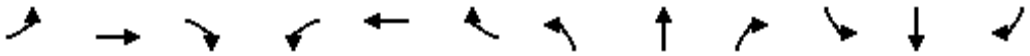
Direction, Lane #	WB 1	WB 2	WB 3	NB 1
Volume Total	33	117	117	14
Volume Left	33	0	0	14
Volume Right	0	0	0	0
cSH	1629	1700	1700	776
Volume to Capacity	0.02	0.07	0.07	0.02
Queue Length 95th (ft)	2	0	0	1
Control Delay (s)	7.3	0.0	0.0	9.7
Lane LOS	A			A
Approach Delay (s)	0.9			9.7
Approach LOS				A

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	16.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	97	576	275	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	102	606	289	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	102	606	289	0
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	8 5	
Permitted Phases						
Actuated Green, G (s)			11.9	42.7	43.3	
Effective Green, g (s)			11.9	42.7	43.3	
Actuated g/C Ratio			0.12	0.43	0.43	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			213	1427	774	
v/s Ratio Prot			0.06	c0.18	c0.16	
v/s Ratio Perm						
v/c Ratio			0.48	0.42	0.37	
Uniform Delay, d1			41.2	20.1	19.2	
Progression Factor			0.95	0.95	0.26	
Incremental Delay, d2			2.3	0.9	0.3	
Delay (s)			41.4	20.0	5.2	
Level of Service			D	C	A	
Approach Delay (s)	0.0			23.1	5.2	
Approach LOS	A			C	A	

Intersection Summary			
HCM Average Control Delay	17.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		

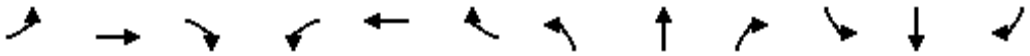
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	474	133	0	0	0	0	270	87	5	92	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.97						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (prot)	1787	3279						1881	1599		1877	
Flt Permitted	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (perm)	1787	3279						1881	1599		1877	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	499	140	0	0	0	0	284	92	5	97	0
RTOR Reduction (vph)	0	23	0	0	0	0	0	0	73	0	0	0
Lane Group Flow (vph)	5	616	0	0	0	0	0	284	19	0	102	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	Split		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8			
Actuated Green, G (s)	15.3	46.1						21.0	21.0		11.9	
Effective Green, g (s)	15.3	46.1						21.0	21.0		11.9	
Actuated g/C Ratio	0.15	0.46						0.21	0.21		0.12	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	273	1512						395	336		223	
v/s Ratio Prot	0.00	c0.19						c0.15			c0.05	
v/s Ratio Perm									0.01			
v/c Ratio	0.02	0.41						0.72	0.06		0.46	
Uniform Delay, d1	36.0	17.9						36.8	31.6		41.0	
Progression Factor	1.00	1.00						1.00	1.00		0.10	
Incremental Delay, d2	0.0	0.2						6.6	0.1		1.9	
Delay (s)	36.0	18.1						43.3	31.7		5.8	
Level of Service	D	B						D	C		A	
Approach Delay (s)		18.3			0.0			40.5			5.8	
Approach LOS		B			A			D			A	

Intersection Summary			
HCM Average Control Delay	24.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		

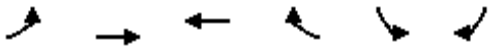
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	21	663	4	5	4	0	0	6	5
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	0	0	22	698	4	5	4	0	0	6	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	702			0			402	746	0	746	744	351
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	702			0			402	746	0	746	744	351
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	99	100	100	98	99
cM capacity (veh/h)	898			1629			518	338	1088	298	338	648

Direction, Lane #	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	22	465	237	9	12
Volume Left	22	0	0	5	0
Volume Right	0	0	4	0	5
cSH	1629	1700	1700	419	432
Volume to Capacity	0.01	0.27	0.14	0.02	0.03
Queue Length 95th (ft)	1	0	0	2	2
Control Delay (s)	7.2	0.0	0.0	13.8	13.6
Lane LOS	A			B	B
Approach Delay (s)	0.2			13.8	13.6
Approach LOS				B	B

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	29.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	9	557	0	0	27	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	586	0	0	28	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0				312	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				312	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	100
cM capacity (veh/h)	1629				655	1088

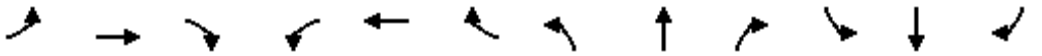
Direction, Lane #	EB 1	EB 2	EB 3	SB 1
Volume Total	9	293	293	28
Volume Left	9	0	0	28
Volume Right	0	0	0	0
cSH	1629	1700	1700	655
Volume to Capacity	0.01	0.17	0.17	0.04
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	7.2	0.0	0.0	10.7
Lane LOS	A			B
Approach Delay (s)	0.1			10.7
Approach LOS				B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	25.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	120	146	34	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	126	154	36	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	126	154	36	0
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	5 8	
Permitted Phases						
Actuated Green, G (s)			13.4	64.2	21.8	
Effective Green, g (s)			13.4	64.2	21.8	
Actuated g/C Ratio			0.13	0.64	0.22	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			239	2146	390	
v/s Ratio Prot			c0.07	c0.05	c0.02	
v/s Ratio Perm						
v/c Ratio			0.53	0.07	0.09	
Uniform Delay, d1			40.3	6.7	31.2	
Progression Factor			1.00	1.00	0.11	
Incremental Delay, d2			2.7	0.1	0.1	
Delay (s)			43.1	6.8	3.5	
Level of Service			D	A	A	
Approach Delay (s)	0.0			23.1	3.5	
Approach LOS	A			C	A	

Intersection Summary			
HCM Average Control Delay	20.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.14		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	21.6%	ICU Level of Service	A
Analysis Period (min)	15		

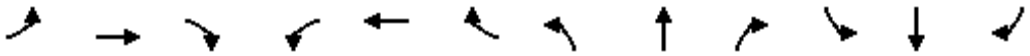
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	161	24	0	0	0	0	22	59	18	102	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.98						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (prot)	1787	3306						1881	1599		1867	
Flt Permitted	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (perm)	1787	3306						1881	1599		1867	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	13	169	25	0	0	0	0	23	62	19	107	0
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	58	0	0	0
Lane Group Flow (vph)	13	186	0	0	0	0	0	23	4	0	126	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	Split		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8			
Actuated Green, G (s)	8.2	59.0						6.6	6.6		13.4	
Effective Green, g (s)	8.2	59.0						6.6	6.6		13.4	
Actuated g/C Ratio	0.08	0.59						0.07	0.07		0.13	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	147	1951						124	106		250	
v/s Ratio Prot	0.01	c0.06						c0.01			c0.07	
v/s Ratio Perm									0.00			
v/c Ratio	0.09	0.10						0.19	0.04		0.50	
Uniform Delay, d1	42.4	8.9						44.2	43.7		40.2	
Progression Factor	1.46	2.13						1.00	1.00		0.09	
Incremental Delay, d2	0.3	0.0						1.0	0.2		2.1	
Delay (s)	62.3	19.0						45.1	43.9		5.8	
Level of Service	E	B						D	D		A	
Approach Delay (s)		21.7			0.0			44.3			5.8	
Approach LOS		C			A			D			A	

Intersection Summary			
HCM Average Control Delay	21.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	32.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	208	12	0	0	0	0	7	13	19	18	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)	11	219	13	0	0	0	0	7	14	20	19	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									12			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			232			256	246	116	141	253	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			232			256	246	116	141	253	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	99	99	97	97	100
cM capacity (veh/h)	1629			1341			661	653	918	795	648	1088

Direction, Lane #	EB 1	EB 2	EB 3	NB 1	SB 1
Volume Total	11	146	86	21	39
Volume Left	11	0	0	0	20
Volume Right	0	0	13	14	0
cSH	1629	1700	1700	1412	716
Volume to Capacity	0.01	0.09	0.05	0.01	0.05
Queue Length 95th (ft)	0	0	0	1	4
Control Delay (s)	7.2	0.0	0.0	9.5	10.3
Lane LOS	A			A	B
Approach Delay (s)	0.3			9.5	10.3
Approach LOS				A	B

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	22.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	0	37	249	17	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	39	262	18	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		209	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		209	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		98	100
cM capacity (veh/h)			1629		745	1088

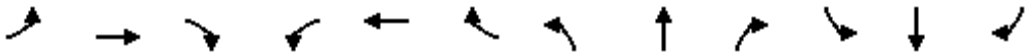
Direction, Lane #	WB 1	WB 2	WB 3	NB 1
Volume Total	39	131	131	18
Volume Left	39	0	0	18
Volume Right	0	0	0	0
cSH	1629	1700	1700	745
Volume to Capacity	0.02	0.08	0.08	0.02
Queue Length 95th (ft)	2	0	0	2
Control Delay (s)	7.3	0.0	0.0	10.0
Lane LOS	A			A
Approach Delay (s)	0.9			10.0
Approach LOS				A

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	16.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	45	323	87	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	47	340	92	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	47	340	92	0
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	5 8	
Permitted Phases						
Actuated Green, G (s)			7.8	57.5	28.5	
Effective Green, g (s)			7.8	57.5	28.5	
Actuated g/C Ratio			0.08	0.58	0.28	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			139	1922	509	
v/s Ratio Prot			c0.03	c0.10	c0.05	
v/s Ratio Perm						
v/c Ratio			0.34	0.18	0.18	
Uniform Delay, d1			43.7	10.1	26.9	
Progression Factor			1.00	1.00	0.14	
Incremental Delay, d2			2.0	0.2	0.2	
Delay (s)			45.6	10.3	4.0	
Level of Service			D	B	A	
Approach Delay (s)	0.0			14.6	4.0	
Approach LOS	A			B	A	

Intersection Summary			
HCM Average Control Delay	12.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	25.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	383	191	0	0	0	0	82	65	5	40	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.95						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (prot)	1787	3246						1881	1599		1871	
Flt Permitted	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (perm)	1787	3246						1881	1599		1871	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	403	201	0	0	0	0	86	68	5	42	0
RTOR Reduction (vph)	0	44	0	0	0	0	0	0	61	0	0	0
Lane Group Flow (vph)	5	560	0	0	0	0	0	86	7	0	47	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	Split		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8			
Actuated Green, G (s)	10.5	60.2						11.0	11.0		7.8	
Effective Green, g (s)	10.5	60.2						11.0	11.0		7.8	
Actuated g/C Ratio	0.10	0.60						0.11	0.11		0.08	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	188	1954						207	176		146	
v/s Ratio Prot	0.00	c0.17						c0.05			c0.03	
v/s Ratio Perm									0.00			
v/c Ratio	0.03	0.29						0.42	0.04		0.32	
Uniform Delay, d1	40.2	9.6						41.5	39.8		43.6	
Progression Factor	1.00	1.00						1.00	1.00		0.10	
Incremental Delay, d2	0.1	0.1						1.8	0.1		1.7	
Delay (s)	40.2	9.7						43.3	39.9		6.0	
Level of Service	D	A						D	D		A	
Approach Delay (s)		9.9			0.0			41.8			6.0	
Approach LOS		A			A			D			A	

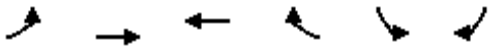
Intersection Summary			
HCM Average Control Delay	15.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	17	362	5	5	3	0	0	5	1
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	0	0	18	381	5	5	3	0	0	5	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	386			0			230	422	0	421	419	193
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	386			0			230	422	0	421	419	193
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	99	100	100	99	100
cM capacity (veh/h)	1176			1629			696	518	1088	512	520	819

Direction, Lane #	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	18	254	132	8	6
Volume Left	18	0	0	5	0
Volume Right	0	0	5	0	1
cSH	1629	1700	1700	617	554
Volume to Capacity	0.01	0.15	0.08	0.01	0.01
Queue Length 95th (ft)	1	0	0	1	1
Control Delay (s)	7.2	0.0	0.0	10.9	11.6
Lane LOS	A			B	B
Approach Delay (s)	0.3			10.9	11.6
Approach LOS				B	B

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	21.4%	ICU Level of Service		A
Analysis Period (min)	15			



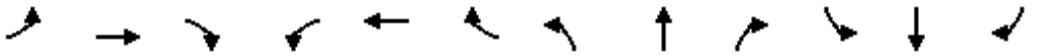
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	8	445	0	0	22	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	8	468	0	0	23	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0				251	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				251	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	100
cM capacity (veh/h)	1629				715	1088

Direction, Lane #	EB 1	EB 2	EB 3	SB 1
Volume Total	8	234	234	23
Volume Left	8	0	0	23
Volume Right	0	0	0	0
cSH	1629	1700	1700	715
Volume to Capacity	0.01	0.14	0.14	0.03
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	7.2	0.0	0.0	10.2
Lane LOS	A			B
Approach Delay (s)	0.1			10.2
Approach LOS				B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	22.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	38	140	16	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frpb, ped/bikes			1.00	1.00	1.00	
Flpb, ped/bikes			1.00	1.00	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	40	147	17	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	40	147	17	0
Confl. Peds. (#/hr)			105			
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	5 8	
Permitted Phases						
Actuated Green, G (s)			7.2	55.1	20.9	
Effective Green, g (s)			7.2	55.1	20.9	
Actuated g/C Ratio			0.08	0.61	0.23	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			143	2047	415	
v/s Ratio Prot			c0.02	c0.04	c0.01	
v/s Ratio Perm						
v/c Ratio			0.28	0.07	0.04	
Uniform Delay, d1			39.0	7.1	26.8	
Progression Factor			1.00	1.00	0.12	
Incremental Delay, d2			1.5	0.1	0.1	
Delay (s)			40.4	7.1	3.3	
Level of Service			D	A	A	
Approach Delay (s)	0.0			14.3	3.3	
Approach LOS	A			B	A	

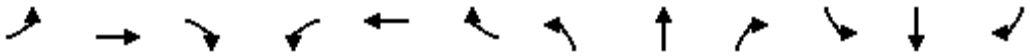
Intersection Summary			
HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.08		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	18.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	143	23	0	0	0	0	11	71	8	30	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.98						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (prot)	1787	3303						1881	1599		1863	
Flt Permitted	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (perm)	1787	3303						1881	1599		1863	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	151	24	0	0	0	0	12	75	8	32	0
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	70	0	0	0
Lane Group Flow (vph)	5	166	0	0	0	0	0	12	5	0	40	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	Split		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8			
Actuated Green, G (s)	7.5	55.4						6.4	6.4		7.2	
Effective Green, g (s)	7.5	55.4						6.4	6.4		7.2	
Actuated g/C Ratio	0.08	0.62						0.07	0.07		0.08	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	149	2033						134	114		149	
v/s Ratio Prot	0.00	c0.05						c0.01			c0.02	
v/s Ratio Perm									0.00			
v/c Ratio	0.03	0.08						0.09	0.05		0.27	
Uniform Delay, d1	37.9	7.0						39.1	39.0		38.9	
Progression Factor	1.00	1.00						1.00	1.00		0.11	
Incremental Delay, d2	0.1	0.0						0.4	0.2		1.3	
Delay (s)	38.0	7.0						39.5	39.2		5.4	
Level of Service	D	A						D	D		A	
Approach Delay (s)		7.9			0.0			39.2			5.4	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM Average Control Delay	16.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.10		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	29.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	213	10	0	0	0	0	5	14	22	3	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)	5	224	11	0	0	0	0	5	15	23	3	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									12			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			235			242	240	117	133	245	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			235			242	240	117	133	245	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	99	98	97	100	100
cM capacity (veh/h)	1629			1337			691	660	916	809	656	1088

Direction, Lane #	EB 1	EB 2	EB 3	NB 1	SB 1
Volume Total	5	149	85	20	26
Volume Left	5	0	0	0	23
Volume Right	0	0	11	15	0
cSH	1629	1700	1700	1243	787
Volume to Capacity	0.00	0.09	0.05	0.02	0.03
Queue Length 95th (ft)	0	0	0	1	3
Control Delay (s)	7.2	0.0	0.0	9.4	9.7
Lane LOS	A			A	A
Approach Delay (s)	0.2			9.4	9.7
Approach LOS				A	A

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	22.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	0	25	168	10	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	26	177	11	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		141	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		141	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		99	100
cM capacity (veh/h)			1629		827	1088

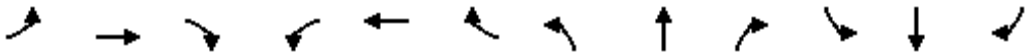
Direction, Lane #	WB 1	WB 2	WB 3	NB 1
Volume Total	26	88	88	11
Volume Left	26	0	0	11
Volume Right	0	0	0	0
cSH	1629	1700	1700	827
Volume to Capacity	0.02	0.05	0.05	0.01
Queue Length 95th (ft)	1	0	0	1
Control Delay (s)	7.2	0.0	0.0	9.4
Lane LOS	A			A
Approach Delay (s)	0.9			9.4
Approach LOS				A

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	14.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	99	407	109	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	104	428	115	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	104	428	115	0
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	5 8	
Permitted Phases						
Actuated Green, G (s)			12.1	52.2	33.8	
Effective Green, g (s)			12.1	52.2	33.8	
Actuated g/C Ratio			0.12	0.52	0.34	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			216	1745	604	
v/s Ratio Prot			c0.06	c0.13	c0.06	
v/s Ratio Perm						
v/c Ratio			0.48	0.25	0.19	
Uniform Delay, d1			41.0	13.1	23.4	
Progression Factor			0.99	0.85	0.15	
Incremental Delay, d2			2.3	0.3	0.2	
Delay (s)			42.7	11.5	3.8	
Level of Service			D	B	A	
Approach Delay (s)	0.0			17.6	3.8	
Approach LOS	A			B	A	

Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	29.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	508	197	0	0	0	0	104	82	5	94	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.96						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (prot)	1787	3262						1881	1599		1877	
Flt Permitted	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (perm)	1787	3262						1881	1599		1877	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	535	207	0	0	0	0	109	86	5	99	0
RTOR Reduction (vph)	0	32	0	0	0	0	0	0	75	0	0	0
Lane Group Flow (vph)	5	710	0	0	0	0	0	109	11	0	104	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	custom		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8	1	1	
Actuated Green, G (s)	14.2	54.3						12.6	12.6		12.1	
Effective Green, g (s)	14.2	54.3						12.6	12.6		12.1	
Actuated g/C Ratio	0.14	0.54						0.13	0.13		0.12	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	254	1771						237	201		227	
v/s Ratio Prot	0.00	c0.22						c0.06			c0.06	
v/s Ratio Perm									0.01			
v/c Ratio	0.02	0.40						0.46	0.05		0.46	
Uniform Delay, d1	36.9	13.3						40.5	38.5		40.9	
Progression Factor	1.00	1.00						1.00	1.00		0.13	
Incremental Delay, d2	0.0	0.2						1.9	0.2		1.9	
Delay (s)	37.0	13.5						42.5	38.6		7.1	
Level of Service	D	B						D	D		A	
Approach Delay (s)		13.7			0.0			40.8			7.1	
Approach LOS		B			A			D			A	

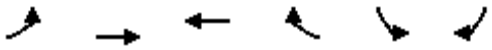
Intersection Summary			
HCM Average Control Delay	18.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	22	499	5	5	4	0	0	5	2
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	0	0	23	525	5	5	4	0	0	5	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	531			0			314	577	0	576	574	265
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	531			0			314	577	0	576	574	265
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	99	100	100	99	100
cM capacity (veh/h)	1040			1629			604	422	1088	395	423	736

Direction, Lane #	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	23	350	180	9	7
Volume Left	23	0	0	5	0
Volume Right	0	0	5	0	2
cSH	1629	1700	1700	507	482
Volume to Capacity	0.01	0.21	0.11	0.02	0.02
Queue Length 95th (ft)	1	0	0	1	1
Control Delay (s)	7.2	0.0	0.0	12.2	12.6
Lane LOS	A			B	B
Approach Delay (s)	0.3			12.2	12.6
Approach LOS				B	B

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	25.3%	ICU Level of Service		A
Analysis Period (min)	15			



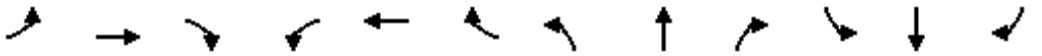
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	9	586	0	0	27	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	617	0	0	28	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0				327	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				327	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	100
cM capacity (veh/h)	1629				641	1088

Direction, Lane #	EB 1	EB 2	EB 3	SB 1
Volume Total	9	308	308	28
Volume Left	9	0	0	28
Volume Right	0	0	0	0
cSH	1629	1700	1700	641
Volume to Capacity	0.01	0.18	0.18	0.04
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	7.2	0.0	0.0	10.9
Lane LOS	A			B
Approach Delay (s)	0.1			10.9
Approach LOS				B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	26.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	47	191	25	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frpb, ped/bikes			1.00	1.00	1.00	
Flpb, ped/bikes			1.00	1.00	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	49	201	26	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	49	201	26	0
Confl. Peds. (#/hr)			105			
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	5 8	
Permitted Phases						
Actuated Green, G (s)			7.9	64.1	21.9	
Effective Green, g (s)			7.9	64.1	21.9	
Actuated g/C Ratio			0.08	0.64	0.22	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			141	2143	391	
v/s Ratio Prot			c0.03	c0.06	c0.01	
v/s Ratio Perm						
v/c Ratio			0.35	0.09	0.07	
Uniform Delay, d1			43.6	6.9	30.9	
Progression Factor			1.00	1.00	0.11	
Incremental Delay, d2			2.0	0.1	0.1	
Delay (s)			45.6	6.9	3.4	
Level of Service			D	A	A	
Approach Delay (s)	0.0			14.5	3.4	
Approach LOS	A			B	A	

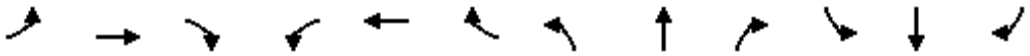
Intersection Summary			
HCM Average Control Delay	13.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.11		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	20.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	172	29	0	0	0	0	18	86	9	38	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.98						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (prot)	1787	3301						1881	1599		1864	
Flt Permitted	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (perm)	1787	3301						1881	1599		1864	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	7	181	31	0	0	0	0	19	91	9	40	0
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	85	0	0	0
Lane Group Flow (vph)	7	205	0	0	0	0	0	19	6	0	49	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	Split		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8			
Actuated Green, G (s)	8.2	64.4						6.7	6.7		7.9	
Effective Green, g (s)	8.2	64.4						6.7	6.7		7.9	
Actuated g/C Ratio	0.08	0.64						0.07	0.07		0.08	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	147	2126						126	107		147	
v/s Ratio Prot	0.00	c0.06						c0.01			c0.03	
v/s Ratio Perm									0.00			
v/c Ratio	0.05	0.10						0.15	0.06		0.33	
Uniform Delay, d1	42.3	6.8						44.0	43.7		43.6	
Progression Factor	1.26	1.73						1.00	1.00		0.09	
Incremental Delay, d2	0.2	0.0						0.8	0.3		1.8	
Delay (s)	53.4	11.7						44.7	44.0		5.9	
Level of Service	D	B						D	D		A	
Approach Delay (s)		13.1			0.0			44.1			5.9	
Approach LOS		B			A			D			A	

Intersection Summary			
HCM Average Control Delay	21.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.12		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	31.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	256	12	0	0	0	0	8	17	27	4	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)	6	269	13	0	0	0	0	8	18	28	4	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									12			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			282			291	288	141	161	295	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			282			291	288	141	161	295	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	99	98	96	99	100
cM capacity (veh/h)	1629			1285			637	620	884	766	615	1088

Direction, Lane #	EB 1	EB 2	EB 3	NB 1	SB 1
Volume Total	6	180	102	26	33
Volume Left	6	0	0	0	28
Volume Right	0	0	13	18	0
cSH	1629	1700	1700	1300	743
Volume to Capacity	0.00	0.11	0.06	0.02	0.04
Queue Length 95th (ft)	0	0	0	2	3
Control Delay (s)	7.2	0.0	0.0	9.7	10.1
Lane LOS	A			A	B
Approach Delay (s)	0.2			9.7	10.1
Approach LOS				A	B

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	24.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	0	31	224	14	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	33	236	15	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		183	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		183	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		98	100
cM capacity (veh/h)			1629		776	1088

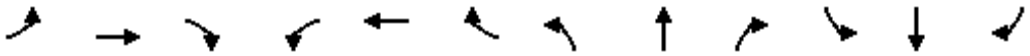
Direction, Lane #	WB 1	WB 2	WB 3	NB 1
Volume Total	33	118	118	15
Volume Left	33	0	0	15
Volume Right	0	0	0	0
cSH	1629	1700	1700	776
Volume to Capacity	0.02	0.07	0.07	0.02
Queue Length 95th (ft)	2	0	0	1
Control Delay (s)	7.3	0.0	0.0	9.7
Lane LOS	A			A
Approach Delay (s)	0.9			9.7
Approach LOS				A

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	16.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	153	490	131	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	161	516	138	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	161	516	138	0
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	8 5	
Permitted Phases						
Actuated Green, G (s)			14.6	48.2	37.8	
Effective Green, g (s)			14.6	48.2	37.8	
Actuated g/C Ratio			0.15	0.48	0.38	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			261	1611	675	
v/s Ratio Prot			c0.09	c0.15	c0.08	
v/s Ratio Perm						
v/c Ratio			0.62	0.32	0.20	
Uniform Delay, d1			40.1	15.9	21.0	
Progression Factor			0.92	0.84	0.15	
Incremental Delay, d2			4.9	0.5	0.2	
Delay (s)			41.8	13.9	3.4	
Level of Service			D	B	A	
Approach Delay (s)	0.0			20.5	3.4	
Approach LOS	A			C	A	

Intersection Summary			
HCM Average Control Delay	17.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		

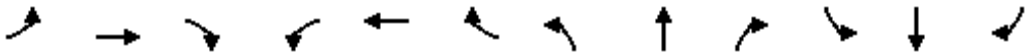
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	651	203	0	0	0	0	126	99	5	148	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.96						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (prot)	1787	3274						1881	1599		1878	
Flt Permitted	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (perm)	1787	3274						1881	1599		1878	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	685	214	0	0	0	0	133	104	5	156	0
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	90	0	0	0
Lane Group Flow (vph)	5	873	0	0	0	0	0	133	14	0	161	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	Split		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8			
Actuated Green, G (s)	17.5	51.1						13.3	13.3		14.6	
Effective Green, g (s)	17.5	51.1						13.3	13.3		14.6	
Actuated g/C Ratio	0.18	0.51						0.13	0.13		0.15	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	313	1673						250	213		274	
v/s Ratio Prot	0.00	c0.27						c0.07			c0.09	
v/s Ratio Perm									0.01			
v/c Ratio	0.02	0.52						0.53	0.06		0.59	
Uniform Delay, d1	34.1	16.3						40.4	37.9		39.9	
Progression Factor	1.00	1.00						1.00	1.00		0.20	
Incremental Delay, d2	0.0	0.4						2.8	0.2		3.3	
Delay (s)	34.2	16.7						43.2	38.1		11.3	
Level of Service	C	B						D	D		B	
Approach Delay (s)		16.8			0.0			41.0			11.3	
Approach LOS		B			A			D			B	

Intersection Summary			
HCM Average Control Delay	20.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

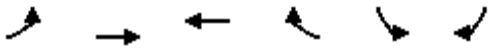
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	26	636	6	5	5	0	0	6	2
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	0	0	27	669	6	5	5	0	0	6	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	676			0			395	731	0	730	727	338
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	676			0			395	731	0	730	727	338
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			99	98	100	100	98	100
cM capacity (veh/h)	918			1629			526	344	1088	304	345	661

Direction, Lane #	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	27	446	229	11	8
Volume Left	27	0	0	5	0
Volume Right	0	0	6	0	2
cSH	1629	1700	1700	416	392
Volume to Capacity	0.02	0.26	0.13	0.03	0.02
Queue Length 95th (ft)	1	0	0	2	2
Control Delay (s)	7.2	0.0	0.0	13.9	14.4
Lane LOS	A			B	B
Approach Delay (s)	0.3			13.9	14.4
Approach LOS				B	B

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	29.2%	ICU Level of Service	A	
Analysis Period (min)	15			



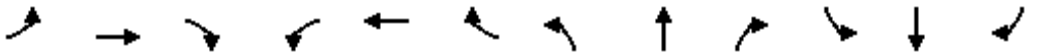
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	10	745	0	0	32	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	784	0	0	34	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0				413	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				413	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				94	100
cM capacity (veh/h)	1629				566	1088

Direction, Lane #	EB 1	EB 2	EB 3	SB 1
Volume Total	11	392	392	34
Volume Left	11	0	0	34
Volume Right	0	0	0	0
cSH	1629	1700	1700	566
Volume to Capacity	0.01	0.23	0.23	0.06
Queue Length 95th (ft)	0	0	0	5
Control Delay (s)	7.2	0.0	0.0	11.8
Lane LOS	A			B
Approach Delay (s)	0.1			11.8
Approach LOS				B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	30.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	57	242	34	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frpb, ped/bikes			1.00	1.00	1.00	
Flpb, ped/bikes			1.00	1.00	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	60	255	36	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	60	255	36	0
Confl. Peds. (#/hr)			105			
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	5 8	
Permitted Phases						
Actuated Green, G (s)			8.4	62.5	23.5	
Effective Green, g (s)			8.4	62.5	23.5	
Actuated g/C Ratio			0.08	0.62	0.24	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			150	2089	420	
v/s Ratio Prot			c0.03	c0.08	c0.02	
v/s Ratio Perm						
v/c Ratio			0.40	0.12	0.09	
Uniform Delay, d1			43.4	7.6	29.9	
Progression Factor			1.00	1.00	0.11	
Incremental Delay, d2			2.4	0.1	0.1	
Delay (s)			45.8	7.7	3.4	
Level of Service			D	A	A	
Approach Delay (s)	0.0			15.0	3.4	
Approach LOS	A			B	A	

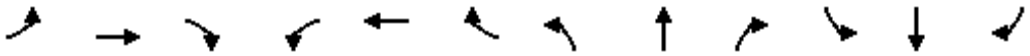
Intersection Summary			
HCM Average Control Delay	13.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.13		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	21.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	219	35	0	0	0	0	24	102	11	46	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.98						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (prot)	1787	3303						1881	1599		1863	
Flt Permitted	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (perm)	1787	3303						1881	1599		1863	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	231	37	0	0	0	0	25	107	12	48	0
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	98	0	0	0
Lane Group Flow (vph)	11	260	0	0	0	0	0	25	9	0	60	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	Split		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8			
Actuated Green, G (s)	8.2	62.3						8.3	8.3		8.4	
Effective Green, g (s)	8.2	62.3						8.3	8.3		8.4	
Actuated g/C Ratio	0.08	0.62						0.08	0.08		0.08	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	147	2058						156	133		156	
v/s Ratio Prot	0.01	c0.08						c0.01			c0.03	
v/s Ratio Perm									0.01			
v/c Ratio	0.07	0.13						0.16	0.07		0.38	
Uniform Delay, d1	42.4	7.7						42.6	42.3		43.4	
Progression Factor	1.37	1.99						1.00	1.00		0.09	
Incremental Delay, d2	0.3	0.0						0.7	0.3		2.1	
Delay (s)	58.3	15.4						43.3	42.6		6.2	
Level of Service	E	B						D	D		A	
Approach Delay (s)		17.1			0.0			42.7			6.2	
Approach LOS		B			A			D			A	

Intersection Summary			
HCM Average Control Delay	22.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.16		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	318	14	0	0	0	0	10	20	32	6	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)	8	335	15	0	0	0	0	11	21	34	6	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									12			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			349			362	359	175	200	366	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			349			362	359	175	200	366	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	98	97	95	99	100
cM capacity (veh/h)	1629			1213			564	566	841	712	560	1088

Direction, Lane #	EB 1	EB 2	EB 3	NB 1	SB 1
Volume Total	8	223	126	32	40
Volume Left	8	0	0	0	34
Volume Right	0	0	15	21	0
cSH	1629	1700	1700	1262	683
Volume to Capacity	0.01	0.13	0.07	0.03	0.06
Queue Length 95th (ft)	0	0	0	2	5
Control Delay (s)	7.2	0.0	0.0	10.1	10.6
Lane LOS	A			B	B
Approach Delay (s)	0.2			10.1	10.6
Approach LOS				B	B

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	25.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	0	38	281	18	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	40	296	19	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		228	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		228	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		97	100
cM capacity (veh/h)			1629		725	1088

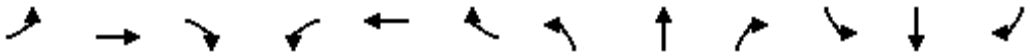
Direction, Lane #	WB 1	WB 2	WB 3	NB 1
Volume Total	40	148	148	19
Volume Left	40	0	0	19
Volume Right	0	0	0	0
cSH	1629	1700	1700	725
Volume to Capacity	0.02	0.09	0.09	0.03
Queue Length 95th (ft)	2	0	0	2
Control Delay (s)	7.3	0.0	0.0	10.1
Lane LOS	A			B
Approach Delay (s)	0.9			10.1
Approach LOS				B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	17.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	65	342	222	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	68	360	234	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	68	360	234	0
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	5 8	
Permitted Phases						
Actuated Green, G (s)			8.8	45.4	40.6	
Effective Green, g (s)			8.8	45.4	40.6	
Actuated g/C Ratio			0.09	0.45	0.41	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			157	1518	726	
v/s Ratio Prot			c0.04	c0.11	c0.13	
v/s Ratio Perm						
v/c Ratio			0.43	0.24	0.32	
Uniform Delay, d1			43.2	16.7	20.3	
Progression Factor			1.00	1.00	0.20	
Incremental Delay, d2			2.6	0.4	0.3	
Delay (s)			45.8	17.1	4.4	
Level of Service			D	B	A	
Approach Delay (s)	0.0			21.6	4.4	
Approach LOS	A			C	A	

Intersection Summary			
HCM Average Control Delay	15.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	33.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	316	87	0	0	0	0	217	58	5	60	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.97						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (prot)	1787	3280						1881	1599		1874	
Flt Permitted	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (perm)	1787	3280						1881	1599		1874	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	333	92	0	0	0	0	228	61	5	63	0
RTOR Reduction (vph)	0	21	0	0	0	0	0	0	50	0	0	0
Lane Group Flow (vph)	5	404	0	0	0	0	0	228	11	0	68	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	Split		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8			
Actuated Green, G (s)	15.0	51.6						18.6	18.6		8.8	
Effective Green, g (s)	15.0	51.6						18.6	18.6		8.8	
Actuated g/C Ratio	0.15	0.52						0.19	0.19		0.09	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	268	1692						350	297		165	
v/s Ratio Prot	0.00	c0.12						c0.12			c0.04	
v/s Ratio Perm									0.01			
v/c Ratio	0.02	0.24						0.65	0.04		0.41	
Uniform Delay, d1	36.2	13.4						37.7	33.4		43.2	
Progression Factor	1.00	1.00						1.00	1.00		0.10	
Incremental Delay, d2	0.0	0.1						4.8	0.1		2.2	
Delay (s)	36.3	13.5						42.5	33.4		6.5	
Level of Service	D	B						D	C		A	
Approach Delay (s)		13.7			0.0			40.6			6.5	
Approach LOS		B			A			D			A	

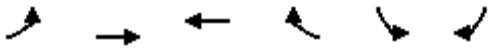
Intersection Summary			
HCM Average Control Delay	23.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	36.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	14	398	3	5	3	0	0	4	4
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	0	0	15	419	3	5	3	0	0	4	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	422			0			245	452	0	452	450	211
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	422			0			245	452	0	452	450	211
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	99	100	100	99	99
cM capacity (veh/h)	1141			1629			678	500	1088	488	501	798

Direction, Lane #	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	15	279	143	8	8
Volume Left	15	0	0	5	0
Volume Right	0	0	3	0	4
cSH	1629	1700	1700	598	615
Volume to Capacity	0.01	0.16	0.08	0.01	0.01
Queue Length 95th (ft)	1	0	0	1	1
Control Delay (s)	7.2	0.0	0.0	11.1	10.9
Lane LOS	A			B	B
Approach Delay (s)	0.2			11.1	10.9
Approach LOS				B	B

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	22.4%	ICU Level of Service		A
Analysis Period (min)	15			



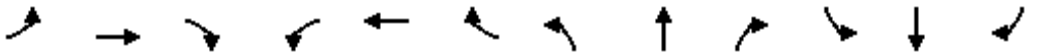
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	8	371	0	0	18	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	8	391	0	0	19	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0				212	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				212	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	100
cM capacity (veh/h)	1629				756	1088

Direction, Lane #	EB 1	EB 2	EB 3	SB 1
Volume Total	8	195	195	19
Volume Left	8	0	0	19
Volume Right	0	0	0	0
cSH	1629	1700	1700	756
Volume to Capacity	0.01	0.11	0.11	0.03
Queue Length 95th (ft)	0	0	0	2
Control Delay (s)	7.2	0.0	0.0	9.9
Lane LOS	A			A
Approach Delay (s)	0.2			9.9
Approach LOS				A

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	20.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	84	105	16	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frpb, ped/bikes			1.00	1.00	1.00	
Flpb, ped/bikes			1.00	1.00	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	88	111	17	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	88	111	17	0
Confl. Peds. (#/hr)			105			
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	5 8	
Permitted Phases						
Actuated Green, G (s)			9.3	56.7	19.3	
Effective Green, g (s)			9.3	56.7	19.3	
Actuated g/C Ratio			0.10	0.63	0.21	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			185	2106	383	
v/s Ratio Prot			c0.05	c0.03	c0.01	
v/s Ratio Perm						
v/c Ratio			0.48	0.05	0.04	
Uniform Delay, d1			38.1	6.4	28.0	
Progression Factor			1.00	1.00	0.11	
Incremental Delay, d2			2.6	0.0	0.1	
Delay (s)			40.7	6.4	3.3	
Level of Service			D	A	A	
Approach Delay (s)	0.0			21.6	3.3	
Approach LOS	A			C	A	

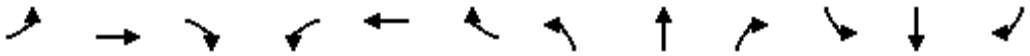
Intersection Summary			
HCM Average Control Delay	20.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.10		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	19.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	146	11	0	0	0	0	10	43	13	71	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.99						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (prot)	1787	3322						1881	1599		1867	
Flt Permitted	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (perm)	1787	3322						1881	1599		1867	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	154	12	0	0	0	0	11	45	14	75	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	43	0	0	0
Lane Group Flow (vph)	6	162	0	0	0	0	0	11	2	0	89	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Prot	Split		
Protected Phases	5	2 4						8	8	1	1	
Permitted Phases												
Actuated Green, G (s)	7.5	54.9						4.8	4.8		9.3	
Effective Green, g (s)	7.5	54.9						4.8	4.8		9.3	
Actuated g/C Ratio	0.08	0.61						0.05	0.05		0.10	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	149	2026						100	85		193	
v/s Ratio Prot	0.00	c0.05						c0.01	0.00		c0.05	
v/s Ratio Perm												
v/c Ratio	0.04	0.08						0.11	0.03		0.46	
Uniform Delay, d1	37.9	7.2						40.6	40.4		38.0	
Progression Factor	1.00	1.00						1.00	1.00		0.11	
Incremental Delay, d2	0.2	0.0						0.7	0.2		2.3	
Delay (s)	38.1	7.2						41.2	40.6		6.6	
Level of Service	D	A						D	D		A	
Approach Delay (s)		8.3			0.0			40.7			6.6	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM Average Control Delay	13.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.13		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	29.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	182	7	0	0	0	0	3	10	13	12	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)	7	192	7	0	0	0	0	3	11	14	13	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									12			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			199			216	210	99	117	214	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			199			216	210	99	117	214	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	98	98	100
cM capacity (veh/h)	1629			1378			711	685	940	834	682	1088

Direction, Lane #	EB 1	EB 2	EB 3	NB 1	SB 1
Volume Total	7	128	71	14	26
Volume Left	7	0	0	0	14
Volume Right	0	0	7	11	0
cSH	1629	1700	1700	1222	753
Volume to Capacity	0.00	0.08	0.04	0.01	0.03
Queue Length 95th (ft)	0	0	0	1	3
Control Delay (s)	7.2	0.0	0.0	9.2	10.0
Lane LOS	A			A	A
Approach Delay (s)	0.3			9.2	10.0
Approach LOS				A	A

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	21.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	0	25	179	10	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	26	188	11	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		147	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		147	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		99	100
cM capacity (veh/h)			1629		820	1088

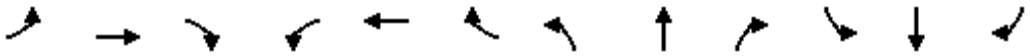
Direction, Lane #	WB 1	WB 2	WB 3	NB 1
Volume Total	26	94	94	11
Volume Left	26	0	0	11
Volume Right	0	0	0	0
cSH	1629	1700	1700	820
Volume to Capacity	0.02	0.06	0.06	0.01
Queue Length 95th (ft)	1	0	0	1
Control Delay (s)	7.2	0.0	0.0	9.4
Lane LOS	A			A
Approach Delay (s)	0.9			9.4
Approach LOS				A

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	14.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	84	463	248	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	88	487	261	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	88	487	261	0
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	5 8	
Permitted Phases						
Actuated Green, G (s)			11.2	44.3	41.7	
Effective Green, g (s)			11.2	44.3	41.7	
Actuated g/C Ratio			0.11	0.44	0.42	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			200	1481	745	
v/s Ratio Prot			0.05	c0.15	c0.15	
v/s Ratio Perm						
v/c Ratio			0.44	0.33	0.35	
Uniform Delay, d1			41.5	18.2	19.9	
Progression Factor			0.97	1.07	0.23	
Incremental Delay, d2			2.1	0.6	0.3	
Delay (s)			42.3	20.0	4.8	
Level of Service			D	C	A	
Approach Delay (s)	0.0			23.4	4.8	
Approach LOS	A			C	A	

Intersection Summary			
HCM Average Control Delay	17.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	38.2%	ICU Level of Service	A
Analysis Period (min)	15		

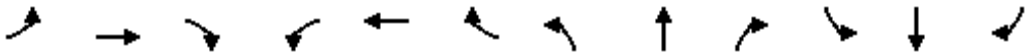
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	395	107	0	0	0	0	243	72	5	79	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.97						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (prot)	1787	3281						1881	1599		1876	
Flt Permitted	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (perm)	1787	3281						1881	1599		1876	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	416	113	0	0	0	0	256	76	5	83	0
RTOR Reduction (vph)	0	21	0	0	0	0	0	0	61	0	0	0
Lane Group Flow (vph)	5	508	0	0	0	0	0	256	15	0	88	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	custom		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8	1	1	
Actuated Green, G (s)	15.0	48.1						19.7	19.7		11.2	
Effective Green, g (s)	15.0	48.1						19.7	19.7		11.2	
Actuated g/C Ratio	0.15	0.48						0.20	0.20		0.11	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	268	1578						371	315		210	
v/s Ratio Prot	0.00	c0.15						c0.14			c0.05	
v/s Ratio Perm									0.01			
v/c Ratio	0.02	0.32						0.69	0.05		0.42	
Uniform Delay, d1	36.2	15.9						37.3	32.5		41.4	
Progression Factor	1.00	1.00						1.00	1.00		0.10	
Incremental Delay, d2	0.0	0.2						5.9	0.1		1.8	
Delay (s)	36.3	16.1						43.2	32.6		5.8	
Level of Service	D	B						D	C		A	
Approach Delay (s)		16.3			0.0			40.8			5.8	
Approach LOS		B			A			D			A	

Intersection Summary			
HCM Average Control Delay	23.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	40.7%	ICU Level of Service	A
Analysis Period (min)	15		

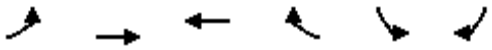
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	18	538	4	5	3	0	0	5	4
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	0	0	19	566	4	5	3	0	0	5	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	571			0			328	608	0	608	606	285
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	571			0			328	608	0	608	606	285
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	99	100	100	99	99
cM capacity (veh/h)	1005			1629			589	406	1088	376	407	715

Direction, Lane #	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	19	378	193	8	9
Volume Left	19	0	0	5	0
Volume Right	0	0	4	0	4
cSH	1629	1700	1700	504	503
Volume to Capacity	0.01	0.22	0.11	0.02	0.02
Queue Length 95th (ft)	1	0	0	1	1
Control Delay (s)	7.2	0.0	0.0	12.3	12.3
Lane LOS	A			B	B
Approach Delay (s)	0.2			12.3	12.3
Approach LOS				B	B

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	26.3%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	8	464	0	0	23	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	8	488	0	0	24	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0				261	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				261	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	100
cM capacity (veh/h)	1629				705	1088

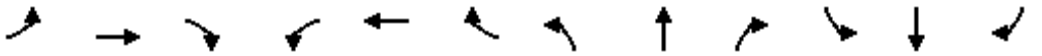
Direction, Lane #	EB 1	EB 2	EB 3	SB 1
Volume Total	8	244	244	24
Volume Left	8	0	0	24
Volume Right	0	0	0	0
cSH	1629	1700	1700	705
Volume to Capacity	0.01	0.14	0.14	0.03
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	7.2	0.0	0.0	10.3
Lane LOS	A			B
Approach Delay (s)	0.1			10.3
Approach LOS				B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	22.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	102	134	25	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	107	141	26	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	107	141	26	0
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	5 8	
Permitted Phases						
Actuated Green, G (s)			12.2	64.9	21.1	
Effective Green, g (s)			12.2	64.9	21.1	
Actuated g/C Ratio			0.12	0.65	0.21	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			218	2170	377	
v/s Ratio Prot			c0.06	c0.04	c0.01	
v/s Ratio Perm						
v/c Ratio			0.49	0.06	0.07	
Uniform Delay, d1			41.0	6.4	31.6	
Progression Factor			1.00	1.00	0.10	
Incremental Delay, d2			2.4	0.1	0.1	
Delay (s)			43.4	6.5	3.3	
Level of Service			D	A	A	
Approach Delay (s)	0.0			22.4	3.3	
Approach LOS	A			C	A	

Intersection Summary			
HCM Average Control Delay	20.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.12		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	20.7%	ICU Level of Service	A
Analysis Period (min)	15		

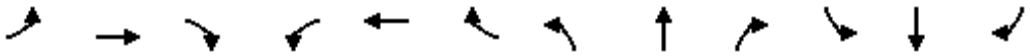
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	154	18	0	0	0	0	16	51	16	86	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.98						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (prot)	1787	3312						1881	1599		1866	
Flt Permitted	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (perm)	1787	3312						1881	1599		1866	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	9	162	19	0	0	0	0	17	54	17	91	0
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	51	0	0	0
Lane Group Flow (vph)	9	175	0	0	0	0	0	17	3	0	108	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	Split		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8			
Actuated Green, G (s)	7.7	60.4						6.4	6.4		12.2	
Effective Green, g (s)	7.7	60.4						6.4	6.4		12.2	
Actuated g/C Ratio	0.08	0.60						0.06	0.06		0.12	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	138	2000						120	102		228	
v/s Ratio Prot	0.01	c0.05						c0.01			c0.06	
v/s Ratio Perm									0.00			
v/c Ratio	0.07	0.09						0.14	0.03		0.47	
Uniform Delay, d1	42.8	8.3						44.2	43.9		40.9	
Progression Factor	1.04	0.69						1.00	1.00		0.10	
Incremental Delay, d2	0.3	0.0						0.7	0.2		2.0	
Delay (s)	44.7	5.7						44.9	44.1		6.2	
Level of Service	D	A						D	D		A	
Approach Delay (s)		7.6			0.0			44.3			6.2	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.15		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	31.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	196	10	0	0	0	0	5	11	16	15	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)	8	206	11	0	0	0	0	5	12	17	16	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									12			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			217			236	228	108	128	234	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			217			236	228	108	128	234	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	99	99	98	98	100
cM capacity (veh/h)	1629			1357			686	669	928	816	664	1088

Direction, Lane #	EB 1	EB 2	EB 3	NB 1	SB 1
Volume Total	8	138	79	17	33
Volume Left	8	0	0	0	17
Volume Right	0	0	11	12	0
cSH	1629	1700	1700	1349	735
Volume to Capacity	0.01	0.08	0.05	0.01	0.04
Queue Length 95th (ft)	0	0	0	1	3
Control Delay (s)	7.2	0.0	0.0	9.4	10.1
Lane LOS	A			A	B
Approach Delay (s)	0.3			9.4	10.1
Approach LOS				A	B

Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	22.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	0	31	223	13	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	33	235	14	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		183	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		183	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		98	100
cM capacity (veh/h)			1629		776	1088

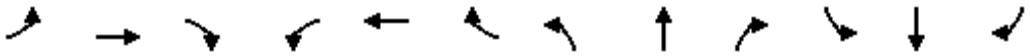
Direction, Lane #	WB 1	WB 2	WB 3	NB 1
Volume Total	33	117	117	14
Volume Left	33	0	0	14
Volume Right	0	0	0	0
cSH	1629	1700	1700	776
Volume to Capacity	0.02	0.07	0.07	0.02
Queue Length 95th (ft)	2	0	0	1
Control Delay (s)	7.3	0.0	0.0	9.7
Lane LOS	A			A
Approach Delay (s)	0.9			9.7
Approach LOS				A

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	16.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	97	576	275	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	102	606	289	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	102	606	289	0
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	8 5	
Permitted Phases						
Actuated Green, G (s)			11.9	42.7	43.3	
Effective Green, g (s)			11.9	42.7	43.3	
Actuated g/C Ratio			0.12	0.43	0.43	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			213	1427	774	
v/s Ratio Prot			0.06	c0.18	c0.16	
v/s Ratio Perm						
v/c Ratio			0.48	0.42	0.37	
Uniform Delay, d1			41.2	20.1	19.2	
Progression Factor			0.95	0.95	0.26	
Incremental Delay, d2			2.3	0.9	0.3	
Delay (s)			41.4	20.0	5.2	
Level of Service			D	C	A	
Approach Delay (s)	0.0			23.1	5.2	
Approach LOS	A			C	A	

Intersection Summary			
HCM Average Control Delay	17.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		

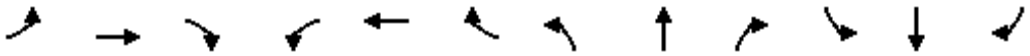
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	474	133	0	0	0	0	270	87	5	92	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.97						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (prot)	1787	3279						1881	1599		1877	
Flt Permitted	0.95	1.00						1.00	1.00		1.00	
Satd. Flow (perm)	1787	3279						1881	1599		1877	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	499	140	0	0	0	0	284	92	5	97	0
RTOR Reduction (vph)	0	23	0	0	0	0	0	0	73	0	0	0
Lane Group Flow (vph)	5	616	0	0	0	0	0	284	19	0	102	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	Split		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8			
Actuated Green, G (s)	15.3	46.1						21.0	21.0		11.9	
Effective Green, g (s)	15.3	46.1						21.0	21.0		11.9	
Actuated g/C Ratio	0.15	0.46						0.21	0.21		0.12	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	273	1512						395	336		223	
v/s Ratio Prot	0.00	c0.19						c0.15			c0.05	
v/s Ratio Perm									0.01			
v/c Ratio	0.02	0.41						0.72	0.06		0.46	
Uniform Delay, d1	36.0	17.9						36.8	31.6		41.0	
Progression Factor	1.00	1.00						1.00	1.00		0.10	
Incremental Delay, d2	0.0	0.2						6.6	0.1		1.9	
Delay (s)	36.0	18.1						43.3	31.7		5.8	
Level of Service	D	B						D	C		A	
Approach Delay (s)		18.3			0.0			40.5			5.8	
Approach LOS		B			A			D			A	

Intersection Summary			
HCM Average Control Delay	24.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		

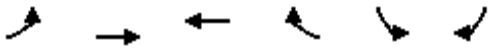
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	21	663	4	5	4	0	0	6	5
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	0	0	22	698	4	5	4	0	0	6	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	702			0			402	746	0	746	744	351
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	702			0			402	746	0	746	744	351
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	99	100	100	98	99
cM capacity (veh/h)	898			1629			518	338	1088	298	338	648

Direction, Lane #	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	22	465	237	9	12
Volume Left	22	0	0	5	0
Volume Right	0	0	4	0	5
cSH	1629	1700	1700	419	432
Volume to Capacity	0.01	0.27	0.14	0.02	0.03
Queue Length 95th (ft)	1	0	0	2	2
Control Delay (s)	7.2	0.0	0.0	13.8	13.6
Lane LOS	A			B	B
Approach Delay (s)	0.2			13.8	13.6
Approach LOS				B	B

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	29.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	9	557	0	0	27	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	586	0	0	28	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0				312	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				312	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	100
cM capacity (veh/h)	1629				655	1088

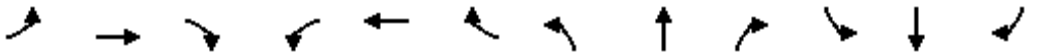
Direction, Lane #	EB 1	EB 2	EB 3	SB 1
Volume Total	9	293	293	28
Volume Left	9	0	0	28
Volume Right	0	0	0	0
cSH	1629	1700	1700	655
Volume to Capacity	0.01	0.17	0.17	0.04
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	7.2	0.0	0.0	10.7
Lane LOS	A			B
Approach Delay (s)	0.1			10.7
Approach LOS				B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	25.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	0	0	120	146	34	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			1.00	0.95	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1787	3343	1787	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1787	3343	1787	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	126	154	36	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	126	154	36	0
Heavy Vehicles (%)	1%	1%	1%	8%	1%	1%
Turn Type			Prot			
Protected Phases			1	6	5 8	
Permitted Phases						
Actuated Green, G (s)			13.4	64.2	21.8	
Effective Green, g (s)			13.4	64.2	21.8	
Actuated g/C Ratio			0.13	0.64	0.22	
Clearance Time (s)			7.0	7.0		
Vehicle Extension (s)			4.0	4.0		
Lane Grp Cap (vph)			239	2146	390	
v/s Ratio Prot			c0.07	c0.05	c0.02	
v/s Ratio Perm						
v/c Ratio			0.53	0.07	0.09	
Uniform Delay, d1			40.3	6.7	31.2	
Progression Factor			1.00	1.00	0.11	
Incremental Delay, d2			2.7	0.1	0.1	
Delay (s)			43.1	6.8	3.5	
Level of Service			D	A	A	
Approach Delay (s)	0.0			23.1	3.5	
Approach LOS	A			C	A	

Intersection Summary			
HCM Average Control Delay	20.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.14		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	21.6%	ICU Level of Service	A
Analysis Period (min)	15		

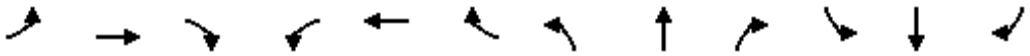
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	161	24	0	0	0	0	22	59	18	102	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95						1.00	1.00		1.00	
Frt	1.00	0.98						1.00	0.85		1.00	
Flt Protected	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (prot)	1787	3306						1881	1599		1867	
Flt Permitted	0.95	1.00						1.00	1.00		0.99	
Satd. Flow (perm)	1787	3306						1881	1599		1867	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	13	169	25	0	0	0	0	23	62	19	107	0
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	58	0	0	0
Lane Group Flow (vph)	13	186	0	0	0	0	0	23	4	0	126	0
Heavy Vehicles (%)	1%	8%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot								Perm	Split		
Protected Phases	5	2 4						8		1	1	
Permitted Phases									8			
Actuated Green, G (s)	8.2	59.0						6.6	6.6		13.4	
Effective Green, g (s)	8.2	59.0						6.6	6.6		13.4	
Actuated g/C Ratio	0.08	0.59						0.07	0.07		0.13	
Clearance Time (s)	7.0							7.0	7.0		7.0	
Vehicle Extension (s)	4.0							4.0	4.0		4.0	
Lane Grp Cap (vph)	147	1951						124	106		250	
v/s Ratio Prot	0.01	c0.06						c0.01			c0.07	
v/s Ratio Perm									0.00			
v/c Ratio	0.09	0.10						0.19	0.04		0.50	
Uniform Delay, d1	42.4	8.9						44.2	43.7		40.2	
Progression Factor	1.46	2.13						1.00	1.00		0.09	
Incremental Delay, d2	0.3	0.0						1.0	0.2		2.1	
Delay (s)	62.3	19.0						45.1	43.9		5.8	
Level of Service	E	B						D	D		A	
Approach Delay (s)		21.7			0.0			44.3			5.8	
Approach LOS		C			A			D			A	

Intersection Summary			
HCM Average Control Delay	21.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	32.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	208	12	0	0	0	0	7	13	19	18	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)	11	219	13	0	0	0	0	7	14	20	19	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									12			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	0			232			256	246	116	141	253	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			232			256	246	116	141	253	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	99	99	97	97	100
cM capacity (veh/h)	1629			1341			661	653	918	795	648	1088

Direction, Lane #	EB 1	EB 2	EB 3	NB 1	SB 1
Volume Total	11	146	86	21	39
Volume Left	11	0	0	0	20
Volume Right	0	0	13	14	0
cSH	1629	1700	1700	1412	716
Volume to Capacity	0.01	0.09	0.05	0.01	0.05
Queue Length 95th (ft)	0	0	0	1	4
Control Delay (s)	7.2	0.0	0.0	9.5	10.3
Lane LOS	A			A	B
Approach Delay (s)	0.3			9.5	10.3
Approach LOS				A	B

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	22.8%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	0	37	249	17	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	39	262	18	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		209	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		209	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		98	100
cM capacity (veh/h)			1629		745	1088

Direction, Lane #	WB 1	WB 2	WB 3	NB 1
Volume Total	39	131	131	18
Volume Left	39	0	0	18
Volume Right	0	0	0	0
cSH	1629	1700	1700	745
Volume to Capacity	0.02	0.08	0.08	0.02
Queue Length 95th (ft)	2	0	0	2
Control Delay (s)	7.3	0.0	0.0	10.0
Lane LOS	A			A
Approach Delay (s)	0.9			10.0
Approach LOS				A

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	16.9%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix L

HCS Ramp Analysis Outputs for Build Alternative

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) EB
Agency or Company	GMB	Junction	EB Off Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	AM Peak	Analysis Year	2020

Project Description SR 429

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A:	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D: 590	V_D = veh/h
	Freeway Volume, V_F: 1904	
	Ramp Volume, V_R: 15	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	1904	0.95	Level	8	0	0.962	1.00	2084
Ramp	15	0.95	Level	8	0	0.962	1.00	16
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R = mph (Exhibit 13-11)

S_0 = mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation (Exhibit 13-7)

V_{12} = 2084 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	2084	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	2068	Exhibit 13-8	4800	No
V_R	16	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	2084	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 16.9 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

D_s = 0.234 (Exhibit 13-12)

S_R = 63.4 mph (Exhibit 13-12)

S_0 = N/A mph (Exhibit 13-12)

S = 63.4 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) EB
Agency or Company	GMB	Junction	EB Off Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	AM Peak	Analysis Year	2030

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off; L_{up} = ft; V_u = veh/h

Freeway Number of Lanes, N	2
Ramp Number of Lanes, N	1
Acceleration Lane Length, L_A	
Deceleration Lane Length L_D	590
Freeway Volume, V_F	2792
Ramp Volume, V_R	20
Freeway Free-Flow Speed, S_{FF}	70.0
Ramp Free-Flow Speed, S_{FR}	50.0

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off; L_{down} = ft; V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2792	0.95	Level	8	0	0.962	1.00	3057
Ramp	20	0.95	Level	8	0	0.962	1.00	22
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R = mph (Exhibit 13-11)

S_0 = mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation (Exhibit 13-7)

V_{12} = 3057 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	3057	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	3035	Exhibit 13-8	4800	No
V_R	22	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	3057	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 25.2 (pc/mi/ln)

LOS = C (Exhibit 13-2)

Speed Determination

D_s = 0.235 (Exhibit 13-12)

S_R = 63.4 mph (Exhibit 13-12)

S_0 = N/A mph (Exhibit 13-12)

S = 63.4 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) EB
Agency or Company	GMB	Junction	EB Off Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	AM Peak	Analysis Year	2040

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off; L_{up} = ft; V_u = veh/h

Freeway Number of Lanes, N	2
Ramp Number of Lanes, N	1
Acceleration Lane Length, L_A	
Deceleration Lane Length L_D	590
Freeway Volume, V_F	3705
Ramp Volume, V_R	25
Freeway Free-Flow Speed, S_{FF}	70.0
Ramp Free-Flow Speed, S_{FR}	50.0

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off; L_{down} = ft; V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3705	0.95	Level	8	0	0.962	1.00	4056
Ramp	25	0.95	Level	8	0	0.962	1.00	27
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R = mph (Exhibit 13-11)

S_0 = mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation (Exhibit 13-7)

V_{12} = 4056 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	4056	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	4029	Exhibit 13-8	4800	No
V_R	27	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	4056	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 33.8 (pc/mi/ln)

LOS = D (Exhibit 13-2)

Speed Determination

D_s = 0.235 (Exhibit 13-12)

S_R = 63.4 mph (Exhibit 13-12)

S_0 = N/A mph (Exhibit 13-12)

S = 63.4 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) WB
Agency or Company	GMB	Junction	WB On Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	AM Peak	Analysis Year	2020

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 580	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 1460	
	Ramp Volume, V_R: 12	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	1460	0.95	Level	8	0	0.962	1.00	1598
Ramp	12	0.95	Level	8	0	0.962	1.00	13
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 1598 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	1611	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	1611	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 14.4 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

M_S = 0.283 (Exibit 13-11)

S_R = 62.1 mph (Exhibit 13-11)

S_0 = N/A mph (Exhibit 13-11)

S = 62.1 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R = mph (Exhibit 13-12)

S_0 = mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) WB
Agency or Company	GMB	Junction	WB On Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	AM Peak	Analysis Year	2030

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 580	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 2143	
	Ramp Volume, V_R: 16	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2143	0.95	Level	8	0	0.962	1.00	2346
Ramp	16	0.95	Level	8	0	0.962	1.00	18
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 2346 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes,V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	2364	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	2364	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 20.3 (pc/mi/ln)

LOS = C (Exhibit 13-2)

Speed Determination

M_S = 0.304 (Exibit 13-11)

S_R= 61.5 mph (Exhibit 13-11)

S_0= N/A mph (Exhibit 13-11)

S = 61.5 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes,V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R= mph (Exhibit 13-12)

S_0= mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) WB
Agency or Company	GMB	Junction	WB On Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	AM Peak	Analysis Year	2040

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 580	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 2845	
	Ramp Volume, V_R: 20	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2845	0.95	Level	8	0	0.962	1.00	3115
Ramp	20	0.95	Level	8	0	0.962	1.00	22
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 3115 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	3137	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	3137	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 26.3 (pc/mi/ln)

LOS = C (Exhibit 13-2)

Speed Determination

M_S = 0.353 (Exibit 13-11)

S_R = 60.1 mph (Exhibit 13-11)

S_0 = N/A mph (Exhibit 13-11)

S = 60.1 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R = mph (Exhibit 13-12)

S_0 = mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) EB
Agency or Company	GMB	Junction	EB On Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	AM Peak	Analysis Year	2020

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 580	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 1888	
	Ramp Volume, V_R: 294	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	1888	0.95	Level	8	0	0.962	1.00	2067
Ramp	294	0.95	Level	8	0	0.962	1.00	322
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 2067 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes,V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	2389	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	2389	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 20.3 (pc/mi/ln)

LOS = C (Exhibit 13-2)

Speed Determination

M_S = 0.306 (Exibit 13-11)

S_R = 61.4 mph (Exhibit 13-11)

S_0 = N/A mph (Exhibit 13-11)

S = 61.4 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes,V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R = mph (Exhibit 13-12)

S_0 = mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) EB
Agency or Company	GMB	Junction	EB On Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	AM Peak	Analysis Year	2030

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 580	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 2771	
	Ramp Volume, V_R: 401	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2771	0.95	Level	8	0	0.962	1.00	3034
Ramp	401	0.95	Level	8	0	0.962	1.00	439
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 3034 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	3473	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	3473	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 28.7 (pc/mi/ln)

LOS = D (Exhibit 13-2)

Speed Determination

M_S = 0.389 (Exibit 13-11)

S_R = 59.1 mph (Exhibit 13-11)

S_0 = N/A mph (Exhibit 13-11)

S = 59.1 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R = mph (Exhibit 13-12)

S_0 = mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) EB
Agency or Company	GMB	Junction	EB On Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	AM Peak	Analysis Year	2040

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 580	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 3680	
	Ramp Volume, V_R: 508	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3680	0.95	Level	8	0	0.962	1.00	4029
Ramp	508	0.95	Level	8	0	0.962	1.00	556
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 4029 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	4585	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	4585	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 37.3 (pc/mi/ln)

LOS = E (Exhibit 13-2)

Speed Determination

M_S = 0.645 (Exibit 13-11)

S_R = 51.9 mph (Exhibit 13-11)

S_0 = N/A mph (Exhibit 13-11)

S = 51.9 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R = mph (Exhibit 13-12)

S_0 = mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) EB
Agency or Company	GMB	Junction	EB On Slip Ramp (Improved)
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	AM Peak	Analysis Year	2040

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 1000	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 3680	
	Ramp Volume, V_R: 508	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3680	0.95	Level	8	0	0.962	1.00	4029
Ramp	508	0.95	Level	8	0	0.962	1.00	556
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 4029 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes,V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	4585	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	4585	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 34.7 (pc/mi/ln)

LOS = D (Exhibit 13-2)

Speed Determination

M_S = 0.603 (Exibit 13-11)

S_R= 53.1 mph (Exhibit 13-11)

S_0= N/A mph (Exhibit 13-11)

S = 53.1 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes,V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R= mph (Exhibit 13-12)

S_0= mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) WB
Agency or Company	GMB	Junction	WB Off Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	AM Peak	Analysis Year	2020

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A:	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D: 590	V_D = veh/h
	Freeway Volume, V_F: 1687	
	Ramp Volume, V_R: 228	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	1687	0.95	Level	8	0	0.962	1.00	1847
Ramp	228	0.95	Level	8	0	0.962	1.00	250
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R = mph (Exhibit 13-11)

S_0 = mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation (Exhibit 13-7)

V_{12} = 1847 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	1847	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	1597	Exhibit 13-8	4800	No
V_R	250	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	1847	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 14.8 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

D_s = 0.255 (Exhibit 13-12)

S_R = 62.8 mph (Exhibit 13-12)

S_0 = N/A mph (Exhibit 13-12)

S = 62.8 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) WB
Agency or Company	GMB	Junction	WB Off Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	AM Peak	Analysis Year	2030

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A:	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D: 590	V_D = veh/h
	Freeway Volume, V_F: 2452	
	Ramp Volume, V_R: 310	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	2452	0.95	Level	8	0	0.962	1.00	2684
Ramp	310	0.95	Level	8	0	0.962	1.00	339
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R = mph (Exhibit 13-11)

S_0 = mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation (Exhibit 13-7)

V_{12} = 2684 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	2684	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	2345	Exhibit 13-8	4800	No
V_R	339	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	2684	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 22.0 (pc/mi/ln)

LOS = C (Exhibit 13-2)

Speed Determination

D_s = 0.264 (Exhibit 13-12)

S_R = 62.6 mph (Exhibit 13-12)

S_0 = N/A mph (Exhibit 13-12)

S = 62.6 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) WB
Agency or Company	GMB	Junction	WB Off Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	AM Peak	Analysis Year	2040

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A:	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D: 590	V_D = veh/h
	Freeway Volume, V_F: 3237	
	Ramp Volume, V_R: 392	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	3237	0.95	Level	8	0	0.962	1.00	3544
Ramp	392	0.95	Level	8	0	0.962	1.00	429
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R = mph (Exhibit 13-11)

S_0 = mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation (Exhibit 13-7)

V_{12} = 3544 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	3544	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	3115	Exhibit 13-8	4800	No
V_R	429	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	3544	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 29.4 (pc/mi/ln)

LOS = D (Exhibit 13-2)

Speed Determination

D_s = 0.272 (Exhibit 13-12)

S_R = 62.4 mph (Exhibit 13-12)

S_0 = N/A mph (Exhibit 13-12)

S = 62.4 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) EB
Agency or Company	GMB	Junction	EB Off Ramp FF
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	AM Peak	Analysis Year	2020

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A:	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D: 590	V_D = veh/h
	Freeway Volume, V_F: 2183	
	Ramp Volume, V_R: 761	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	2183	0.95	Level	8	0	0.962	1.00	2390
Ramp	761	0.95	Level	8	0	0.962	1.00	833
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R = mph (Exhibit 13-11)

S_0 = mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation (Exhibit 13-7)

V_{12} = 2390 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	2390	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	1557	Exhibit 13-8	4800	No
V_R	833	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	2390	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 19.5 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

D_s = 0.308 (Exhibit 13-12)

S_R = 61.4 mph (Exhibit 13-12)

S_0 = N/A mph (Exhibit 13-12)

S = 61.4 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) EB
Agency or Company	GMB	Junction	EB Off Ramp FF
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	AM Peak	Analysis Year	2030
Project Description	SR 429 (Wekiva Parkway)		

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A:	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D: 590	V_D = veh/h
	Freeway Volume, V_F: 3173	
	Ramp Volume, V_R: 939	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	3173	0.95	Level	8	0	0.962	1.00	3474
Ramp	939	0.95	Level	8	0	0.962	1.00	1028
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R = mph (Exhibit 13-11)

S_0 = mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation (Exhibit 13-7)

V_{12} = 3474 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	3474	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	2446	Exhibit 13-8	4800	No
V_R	1028	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	3474	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 28.8 (pc/mi/ln)

LOS = D (Exhibit 13-2)

Speed Determination

D_s = 0.326 (Exhibit 13-12)

S_R = 60.9 mph (Exhibit 13-12)

S_0 = N/A mph (Exhibit 13-12)

S = 60.9 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) EB
Agency or Company	GMB	Junction	EB Off Ramp FF
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	AM Peak	Analysis Year	2040

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A:	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D: 590	V_D = veh/h
	Freeway Volume, V_F: 4188	
	Ramp Volume, V_R: 1142	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	4188	0.95	Level	8	0	0.962	1.00	4585
Ramp	1142	0.95	Level	8	0	0.962	1.00	1250
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R = mph (Exhibit 13-11)

S_0 = mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation (Exhibit 13-7)

V_{12} = 4585 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	4585	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	3335	Exhibit 13-8	4800	No
V_R	1250	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	4585	Exhibit 13-8	4400:All	Yes

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 38.4 (pc/mi/ln)

LOS = E (Exhibit 13-2)

Speed Determination

D_s = 0.345 (Exhibit 13-12)

S_R = 60.3 mph (Exhibit 13-12)

S_0 = N/A mph (Exhibit 13-12)

S = 60.3 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) EB
Agency or Company	GMB	Junction	EB Off Ramp FF (Improved)
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	AM Peak	Analysis Year	2040
Project Description	SR 429 (Wekiva Parkway)		

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A:	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D: 1000	V_D = veh/h
	Freeway Volume, V_F: 4188	
	Ramp Volume, V_R: 1142	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	4188	0.95	Level	8	0	0.962	1.00	4585
Ramp	1142	0.95	Level	8	0	0.962	1.00	1250
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R = mph (Exhibit 13-11)

S_0 = mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation (Exhibit 13-7)

V_{12} = 4585 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	4585	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	3335	Exhibit 13-8	4800	No
V_R	1250	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	4585	Exhibit 13-8	4400:All	Yes

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 34.7 (pc/mi/ln)

LOS = D (Exhibit 13-2)

Speed Determination

D_s = 0.345 (Exhibit 13-12)

S_R = 60.3 mph (Exhibit 13-12)

S_0 = N/A mph (Exhibit 13-12)

S = 60.3 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) WB
Agency or Company	GMB	Junction	WB On Ramp EE
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	AM Peak	Analysis Year	2020

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 580	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 1099	
	Ramp Volume, V_R: 589	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	1099	0.95	Level	8	0	0.962	1.00	1203
Ramp	589	0.95	Level	8	0	0.962	1.00	645
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 1203 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	1848	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	1848	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 16.0 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

M_S = 0.288 (Exibit 13-11)

S_R = 61.9 mph (Exhibit 13-11)

S_0 = N/A mph (Exhibit 13-11)

S = 61.9 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R = mph (Exhibit 13-12)

S_0 = mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) WB
Agency or Company	GMB	Junction	WB On Ramp EE
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	AM Peak	Analysis Year	2030

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 580	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 1727	
	Ramp Volume, V_R: 726	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	1727	0.95	Level	8	0	0.962	1.00	1891
Ramp	726	0.95	Level	8	0	0.962	1.00	795
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 1891 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	2686	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	2686	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 22.4 (pc/mi/ln)

LOS = C (Exhibit 13-2)

Speed Determination

M_S = 0.320 (Exibit 13-11)

S_R = 61.0 mph (Exhibit 13-11)

S_0 = N/A mph (Exhibit 13-11)

S = 61.0 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R = mph (Exhibit 13-12)

S_0 = mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) WB
Agency or Company	GMB	Junction	WB On Ramp EE
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	AM Peak	Analysis Year	2040

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 580	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 2354	
	Ramp Volume, V_R: 883	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2354	0.95	Level	8	0	0.962	1.00	2577
Ramp	883	0.95	Level	8	0	0.962	1.00	967
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 2577 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	3544	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	3544	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 29.0 (pc/mi/ln)

LOS = D (Exhibit 13-2)

Speed Determination

M_S = 0.398 (Exibit 13-11)

S_R = 58.9 mph (Exhibit 13-11)

S_0 = N/A mph (Exhibit 13-11)

S = 58.9 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R = mph (Exhibit 13-12)

S_0 = mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) EB
Agency or Company	GMB	Junction	EB Off Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	PM Peak	Analysis Year	2020

Project Description SR 429

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A:	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D: 590	V_D = veh/h
	Freeway Volume, V_F: 1472	
	Ramp Volume, V_R: 12	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	1472	0.95	Level	8	0	0.962	1.00	1611
Ramp	12	0.95	Level	8	0	0.962	1.00	13
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R = mph (Exhibit 13-11)

S_0 = mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation (Exhibit 13-7)

V_{12} = 1611 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	1611	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	1598	Exhibit 13-8	4800	No
V_R	13	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	1611	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 12.8 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

D_s = 0.234 (Exhibit 13-12)

S_R = 63.4 mph (Exhibit 13-12)

S_0 = N/A mph (Exhibit 13-12)

S = 63.4 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) EB
Agency or Company	GMB	Junction	EB Off Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	PM Peak	Analysis Year	2030

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off; L_{up} = ft; V_u = veh/h

Freeway Number of Lanes, N	2
Ramp Number of Lanes, N	1
Acceleration Lane Length, L_A	
Deceleration Lane Length L_D	590
Freeway Volume, V_F	2158
Ramp Volume, V_R	16
Freeway Free-Flow Speed, S_{FF}	70.0
Ramp Free-Flow Speed, S_{FR}	50.0

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off; L_{down} = ft; V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2158	0.95	Level	8	0	0.962	1.00	2362
Ramp	16	0.95	Level	8	0	0.962	1.00	18
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R = mph (Exhibit 13-11)

S_0 = mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation (Exhibit 13-7)

V_{12} = 2362 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	2362	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	2344	Exhibit 13-8	4800	No
V_R	18	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	2362	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 19.3 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

D_s = 0.235 (Exhibit 13-12)

S_R = 63.4 mph (Exhibit 13-12)

S_0 = N/A mph (Exhibit 13-12)

S = 63.4 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) EB
Agency or Company	GMB	Junction	EB Off Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	PM Peak	Analysis Year	2040

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A:	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D: 590	V_D = veh/h
	Freeway Volume, V_F: 2865	
	Ramp Volume, V_R: 20	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	2865	0.95	Level	8	0	0.962	1.00	3136
Ramp	20	0.95	Level	8	0	0.962	1.00	22
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R = mph (Exhibit 13-11)

S_0 = mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation (Exhibit 13-7)

V_{12} = 3136 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	3136	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	3114	Exhibit 13-8	4800	No
V_R	22	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	3136	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 25.9 (pc/mi/ln)

LOS = C (Exhibit 13-2)

Speed Determination

D_s = 0.235 (Exhibit 13-12)

S_R = 63.4 mph (Exhibit 13-12)

S_0 = N/A mph (Exhibit 13-12)

S = 63.4 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) WB
Agency or Company	GMB	Junction	WB On Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	PM Peak	Analysis Year	2020

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 580	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 1888	
	Ramp Volume, V_R: 15	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	1888	0.95	Level	8	0	0.962	1.00	2067
Ramp	15	0.95	Level	8	0	0.962	1.00	16
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 2067 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	2083	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	2083	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 18.1 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

M_S = 0.294 (Exibit 13-11)

S_R = 61.8 mph (Exhibit 13-11)

S_0 = N/A mph (Exhibit 13-11)

S = 61.8 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R = mph (Exhibit 13-12)

S_0 = mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) WB
Agency or Company	GMB	Junction	WB On Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	PM Peak	Analysis Year	2030

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 580	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 2771	
	Ramp Volume, V_R: 20	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2771	0.95	Level	8	0	0.962	1.00	3034
Ramp	20	0.95	Level	8	0	0.962	1.00	22
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 3034 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	3056	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	3056	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 25.7 (pc/mi/ln)

LOS = C (Exhibit 13-2)

Speed Determination

M_S = 0.346 (Exibit 13-11)

S_R = 60.3 mph (Exhibit 13-11)

S_0 = N/A mph (Exhibit 13-11)

S = 60.3 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R = mph (Exhibit 13-12)

S_0 = mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) WB
Agency or Company	GMb	Junction	WB On Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	PM Peak	Analysis Year	2040

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 580	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 3680	
	Ramp Volume, V_R: 25	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3680	0.95	Level	8	0	0.962	1.00	4029
Ramp	25	0.95	Level	8	0	0.962	1.00	27
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 4029 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes,V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	4056	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	4056	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 33.5 (pc/mi/ln)

LOS = D (Exhibit 13-2)

Speed Determination

M_S = 0.488 (Exibit 13-11)

S_R= 56.3 mph (Exhibit 13-11)

S_0= N/A mph (Exhibit 13-11)

S = 56.3 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes,V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R= mph (Exhibit 13-12)

S_0= mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) EB
Agency or Company	GMB	Junction	EB On Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	PM Peak	Analysis Year	2020

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 580	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 1460	
	Ramp Volume, V_R: 228	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	1460	0.95	Level	8	0	0.962	1.00	1598
Ramp	228	0.95	Level	8	0	0.962	1.00	250
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 1598 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes,V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	1848	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	1848	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 16.1 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

M_S = 0.288 (Exibit 13-11)

S_R= 61.9 mph (Exhibit 13-11)

S_0= N/A mph (Exhibit 13-11)

S = 61.9 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes,V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R= mph (Exhibit 13-12)

S_0= mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) EB
Agency or Company	GMB	Junction	EB On Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	PM Peak	Analysis Year	2030

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 580	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 2143	
	Ramp Volume, V_R: 310	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2143	0.95	Level	8	0	0.962	1.00	2346
Ramp	310	0.95	Level	8	0	0.962	1.00	339
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 2346 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes,V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	2685	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	2685	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 22.6 (pc/mi/ln)

LOS = C (Exhibit 13-2)

Speed Determination

M_S = 0.320 (Exibit 13-11)

S_R= 61.0 mph (Exhibit 13-11)

S_0= N/A mph (Exhibit 13-11)

S = 61.0 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes,V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R= mph (Exhibit 13-12)

S_0= mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) EB
Agency or Company	GMB	Junction	EB On Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	PM Peak	Analysis Year	2040

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 580	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 2845	
	Ramp Volume, V_R: 392	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2845	0.95	Level	8	0	0.962	1.00	3115
Ramp	392	0.95	Level	8	0	0.962	1.00	429
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 3115 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	3544	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	3544	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 29.3 (pc/mi/ln)

LOS = D (Exhibit 13-2)

Speed Determination

M_S = 0.398 (Exibit 13-11)

S_R = 58.9 mph (Exhibit 13-11)

S_0 = N/A mph (Exhibit 13-11)

S = 58.9 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R = mph (Exhibit 13-12)

S_0 = mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) WB
Agency or Company	GMB	Junction	WB Off Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	PM Peak	Analysis Year	2020

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A:	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D: 590	V_D = veh/h
	Freeway Volume, V_F: 2183	
	Ramp Volume, V_R: 294	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	2183	0.95	Level	8	0	0.962	1.00	2390
Ramp	294	0.95	Level	8	0	0.962	1.00	322
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R = mph (Exhibit 13-11)

S_0 = mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation (Exhibit 13-7)

V_{12} = 2390 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	2390	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	2068	Exhibit 13-8	4800	No
V_R	322	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	2390	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 19.5 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

D_s = 0.262 (Exhibit 13-12)

S_R = 62.7 mph (Exhibit 13-12)

S_0 = N/A mph (Exhibit 13-12)

S = 62.7 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) WB
Agency or Company	GMB	Junction	WB Off Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	PM Peak	Analysis Year	2030

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A:	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D: 590	V_D = veh/h
	Freeway Volume, V_F: 3173	
	Ramp Volume, V_R: 401	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3173	0.95	Level	8	0	0.962	1.00	3474
Ramp	401	0.95	Level	8	0	0.962	1.00	439
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R = mph (Exhibit 13-11)

S_0 = mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation (Exhibit 13-7)

V_{12} = 3474 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	3474	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	3035	Exhibit 13-8	4800	No
V_R	439	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	3474	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 28.8 (pc/mi/ln)

LOS = D (Exhibit 13-2)

Speed Determination

D_s = 0.273 (Exhibit 13-12)

S_R = 62.4 mph (Exhibit 13-12)

S_0 = N/A mph (Exhibit 13-12)

S = 62.4 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) WB
Agency or Company	GMB	Junction	WB Off Slip Ramp
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	PM Peak	Analysis Year	2040

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A:	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D: 590	V_D = veh/h
	Freeway Volume, V_F: 4188	
	Ramp Volume, V_R: 508	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	4188	0.95	Level	8	0	0.962	1.00	4585
Ramp	508	0.95	Level	8	0	0.962	1.00	556
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R = mph (Exhibit 13-11)

S_0 = mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation (Exhibit 13-7)

V_{12} = 4585 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	4585	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	4029	Exhibit 13-8	4800	No
V_R	556	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	4585	Exhibit 13-8	4400:All	Yes

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 38.4 (pc/mi/ln)

LOS = E (Exhibit 13-2)

Speed Determination

D_s = 0.283 (Exhibit 13-12)

S_R = 62.1 mph (Exhibit 13-12)

S_0 = N/A mph (Exhibit 13-12)

S = 62.1 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) WB
Agency or Company	GMB	Junction	WB Off Slip Ramp (Improved)
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	PM Peak	Analysis Year	2040

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A:	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D: 1000	V_D = veh/h
	Freeway Volume, V_F: 4188	
	Ramp Volume, V_R: 508	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	4188	0.95	Level	8	0	0.962	1.00	4585
Ramp	508	0.95	Level	8	0	0.962	1.00	556
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R = mph (Exhibit 13-11)

S_0 = mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation (Exhibit 13-7)

V_{12} = 4585 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	4585	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	4029	Exhibit 13-8	4800	No
V_R	556	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	4585	Exhibit 13-8	4400:All	Yes

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 34.7 (pc/mi/ln)

LOS = D (Exhibit 13-2)

Speed Determination

D_s = 0.283 (Exhibit 13-12)

S_R = 62.1 mph (Exhibit 13-12)

S_0 = N/A mph (Exhibit 13-12)

S = 62.1 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) EB
Agency or Company	GMB	Junction	EB Off Ramp FF
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	PM Peak	Analysis Year	2020

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A:	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D: 590	V_D = veh/h
	Freeway Volume, V_F: 1687	
	Ramp Volume, V_R: 589	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	1687	0.95	Level	8	0	0.962	1.00	1847
Ramp	589	0.95	Level	8	0	0.962	1.00	645
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R = mph (Exhibit 13-11)

S_0 = mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation (Exhibit 13-7)

V_{12} = 1847 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	1847	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	1202	Exhibit 13-8	4800	No
V_R	645	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	1847	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 14.8 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

D_s = 0.291 (Exhibit 13-12)

S_R = 61.9 mph (Exhibit 13-12)

S_0 = N/A mph (Exhibit 13-12)

S = 61.9 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) EB
Agency or Company	GMB	Junction	EB Off Ramp FF
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	PM Peak	Analysis Year	2030

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A:	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D: 590	V_D = veh/h
	Freeway Volume, V_F: 2452	
	Ramp Volume, V_R: 726	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	2452	0.95	Level	8	0	0.962	1.00	2684
Ramp	726	0.95	Level	8	0	0.962	1.00	795
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R = mph (Exhibit 13-11)

S_0 = mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation (Exhibit 13-7)

V_{12} = 2684 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	2684	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	1889	Exhibit 13-8	4800	No
V_R	795	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	2684	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 22.0 (pc/mi/ln)

LOS = C (Exhibit 13-2)

Speed Determination

D_s = 0.305 (Exhibit 13-12)

S_R = 61.5 mph (Exhibit 13-12)

S_0 = N/A mph (Exhibit 13-12)

S = 61.5 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) EB
Agency or Company	GMB	Junction	EB Off Ramp FF
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	PM Peak	Analysis Year	2040

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp
☐ Yes ☐ On
☑ No ☐ Off
L_{up} = ft
V_u = veh/h

Freeway Number of Lanes, N	2
Ramp Number of Lanes, N	1
Acceleration Lane Length, L_A	
Deceleration Lane Length L_D	590
Freeway Volume, V_F	3237
Ramp Volume, V_R	883
Freeway Free-Flow Speed, S_{FF}	70.0
Ramp Free-Flow Speed, S_{FR}	50.0

Downstream Adj Ramp
☐ Yes ☐ On
☑ No ☐ Off
L_{down} = ft
V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3237	0.95	Level	8	0	0.962	1.00	3544
Ramp	883	0.95	Level	8	0	0.962	1.00	967
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)
P_{FM} = using Equation (Exhibit 13-6)
V_{12} = pc/h
V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)
Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No
Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No
If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)
LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)
S_R = mph (Exhibit 13-11)
S_0 = mph (Exhibit 13-11)
S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)
P_{FD} = 1.000 using Equation (Exhibit 13-7)
V_{12} = 3544 pc/h
V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)
Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No
Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No
If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	3544	Exhibit 13-8	4800	No
$V_{FO} = V_F - V_R$	2577	Exhibit 13-8	4800	No
V_R	967	Exhibit 13-10	2100	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	3544	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 29.4 (pc/mi/ln)
LOS = D (Exhibit 13-2)

Speed Determination

D_s = 0.320 (Exhibit 13-12)
S_R = 61.0 mph (Exhibit 13-12)
S_0 = N/A mph (Exhibit 13-12)
S = 61.0 mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) WB
Agency or Company	GMB	Junction	WB On Ramp EE
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	PM Peak	Analysis Year	2020

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 580	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 1421	
	Ramp Volume, V_R: 761	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	1421	0.95	Level	8	0	0.962	1.00	1556
Ramp	761	0.95	Level	8	0	0.962	1.00	833
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 1556 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	2389	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	2389	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 20.1 (pc/mi/ln)

LOS = C (Exhibit 13-2)

Speed Determination

M_S = 0.306 (Exibit 13-11)

S_R = 61.4 mph (Exhibit 13-11)

S_0 = N/A mph (Exhibit 13-11)

S = 61.4 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R = mph (Exhibit 13-12)

S_0 = mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) WB
Agency or Company	GMB	Junction	WB On Ramp EE
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	PM Peak	Analysis Year	2030

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 580	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 2233	
	Ramp Volume, V_R: 939	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2233	0.95	Level	8	0	0.962	1.00	2445
Ramp	939	0.95	Level	8	0	0.962	1.00	1028
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 2445 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes,V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	3473	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	3473	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 28.5 (pc/mi/ln)

LOS = D (Exhibit 13-2)

Speed Determination

M_S = 0.389 (Exibit 13-11)

S_R= 59.1 mph (Exhibit 13-11)

S_0= N/A mph (Exhibit 13-11)

S = 59.1 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes,V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R= mph (Exhibit 13-12)

S_0= mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) WB
Agency or Company	GMB	Junction	WB On Ramp EE
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	PM Peak	Analysis Year	2040

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 580	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 3046	
	Ramp Volume, V_R: 1142	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3046	0.95	Level	8	0	0.962	1.00	3335
Ramp	1142	0.95	Level	8	0	0.962	1.00	1250
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 3335 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes,V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	4585	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	4585	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 37.0 (pc/mi/ln)

LOS = E (Exhibit 13-2)

Speed Determination

M_S = 0.645 (Exibit 13-11)

S_R= 51.9 mph (Exhibit 13-11)

S_0= N/A mph (Exhibit 13-11)

S = 51.9 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes,V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R= mph (Exhibit 13-12)

S_0= mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	APanek	Freeway/Dir of Travel	SR 429 (Wekiva Parkway) WB
Agency or Company	GMB	Junction	WB On Ramp EE (Improved)
Date Performed	8/28/2013	Jurisdiction	Seminole
Analysis Time Period	PM Peak	Analysis Year	2040

Project Description SR 429 (Wekiva Parkway)

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 1000	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 3046	
	Ramp Volume, V_R: 1142	
	Freeway Free-Flow Speed, S_{FF}: 70.0	
	Ramp Free-Flow Speed, S_{FR}: 50.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3046	0.95	Level	8	0	0.962	1.00	3335
Ramp	1142	0.95	Level	8	0	0.962	1.00	1250
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 3335 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	4585	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	4585	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 34.4 (pc/mi/ln)

LOS = D (Exhibit 13-2)

Speed Determination

M_S = 0.603 (Exibit 13-11)

S_R = 53.1 mph (Exhibit 13-11)

S_0 = N/A mph (Exhibit 13-11)

S = 53.1 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R = mph (Exhibit 13-12)

S_0 = mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

Appendix M

HCS Freeway Analysis Outputs for Build Alternative

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	*APanek*
Agency or Company	*GMB*
Date Performed	*8/28/2013*
Analysis Time Period	

Site Information

Highway/Direction of Travel	*SR 429 Peak Hour Peak Dir.*
From/To	*East of Wekiva River Road*
Jurisdiction	*Seminole*
Analysis Year	*2020*

Project Description *SR 429 (Wekiva Parkway)*

☑ Oper.(LOS) ☐ Des.(N) ☑ Planning Data

Flow Inputs

Volume, V	*1924*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT	*37500*	veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K	*0.09*		%RVs, P_R	*0*
Peak-Hr Direction Prop, D	*57*		General Terrain:	*Level*
DDHV = AADT x K x D	*1924*	veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1053*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*15.0*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	*APanek*
Agency or Company	*GMB*
Date Performed	*8/28/2013*
Analysis Time Period	

Site Information

Highway/Direction of Travel	*SR 429 Peak Hour Peak Dir.*
From/To	*East of Wekiva River Road*
Jurisdiction	*Seminole*
Analysis Year	*2030*

Project Description *SR 429 (Wekiva Parkway)*

☑ Oper.(LOS) ☐ Des.(N) ☑ Planning Data

Flow Inputs

Volume, V	*2822*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT	*55000*	veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K	*0.09*		%RVs, P_R	*0*
Peak-Hr Direction Prop, D	*57*		General Terrain:	*Level*
DDHV = AADT x K x D	*2822*	veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1545*	pc/h/ln
S	*68.6*	mph
D = v_p / S	*22.5*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	*APanek*
Agency or Company	*GMB*
Date Performed	*8/28/2013*
Analysis Time Period	

Site Information

Highway/Direction of Travel	*SR 429 Peak Hour Peak Dir.*
From/To	*East of Wekiva River Road*
Jurisdiction	*Seminole*
Analysis Year	*2040*

Project Description *SR 429 (Wekiva Parkway)*

☑ Oper.(LOS) ☐ Des.(N) ☑ Planning Data

Flow Inputs

Volume, V	*3745*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT	*73000*	veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K	*0.09*		%RVs, P_R	*0*
Peak-Hr Direction Prop, D	*57*		General Terrain:	*Level*
DDHV = AADT x K x D	*3745*	veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2050*	pc/h/ln
S	*61.6*	mph
D = v_p / S	*33.3*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 10-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	*APanek*
Agency or Company	*GMB*
Date Performed	*8/28/2013*
Analysis Time Period	

Site Information

Highway/Direction of Travel	*SR 429 Peak Hour Peak Dir.*
From/To	*East of EB Off/WB On Slip Ramp*
Jurisdiction	*Seminole*
Analysis Year	*2020*

Project Description *SR 429 (Wekiva Parkway)*

☑ Oper.(LOS) ☐ Des.(N) ☑ Planning Data

Flow Inputs

Volume, V	*1908*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT	*37200*	veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K	*0.09*		%RVs, P_R	*0*
Peak-Hr Direction Prop, D	*57*		General Terrain:	*Level*
DDHV = AADT x K x D	*1908*	veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1044*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*14.9*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	*APanek*
Agency or Company	*GMB*
Date Performed	*8/28/2013*
Analysis Time Period	

Site Information

Highway/Direction of Travel	*SR 429 Peak Hour Peak Dir.*
From/To	*East of EB Off/WB On Slip Ramp*
Jurisdiction	*Seminole*
Analysis Year	*2030*

Project Description *SR 429 (Wekiva Parkway)*

☑ Oper.(LOS) ☐ Des.(N) ☑ Planning Data

Flow Inputs

Volume, V	*2801*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT	*54600*	veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K	*0.09*		%RVs, P_R	*0*
Peak-Hr Direction Prop, D	*57*		General Terrain:	*Level*
DDHV = AADT x K x D	*2801*	veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1533*	pc/h/ln
S	*68.7*	mph
D = v_p / S	*22.3*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	*APanek*
Agency or Company	*GMB*
Date Performed	*8/28/2013*
Analysis Time Period	

Site Information

Highway/Direction of Travel	*SR 429 Peak Hour Peak Dir.*
From/To	*East of EB Off/WB On Slip Ramp*
Jurisdiction	*Seminole*
Analysis Year	*2040*

Project Description *SR 429 (Wekiva Parkway)*

☑ Oper.(LOS) ☐ Des.(N) ☑ Planning Data

Flow Inputs

Volume, V	*3719*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT	*72500*	veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K	*0.09*		%RVs, P_R	*0*
Peak-Hr Direction Prop, D	*57*		General Terrain:	*Level*
DDHV = AADT x K x D	*3719*	veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2036*	pc/h/ln
S	*61.9*	mph
D = v_p / S	*32.9*	pc/mi/ln
LOS	*D*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	*APanek*
Agency or Company	*GMB*
Date Performed	*8/28/2013*
Analysis Time Period	

Site Information

Highway/Direction of Travel	*SR 429 Peak Hour Peak Dir.*
From/To	*East of EB On/WB Off Slip Ramp*
Jurisdiction	*Seminole*
Analysis Year	*2020*

Project Description *SR 429 (Wekiva Parkway)*

☑ Oper.(LOS) ☐ Des.(N) ☑ Planning Data

Flow Inputs

Volume, V	*2206*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT	*43000*	veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K	*0.09*		%RVs, P_R	*0*
Peak-Hr Direction Prop, D	*57*		General Terrain:	*Level*
DDHV = AADT x K x D	*2206*	veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1207*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*17.2*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
S		mph
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

BASIC FREEWAY SEGMENTS WORKSHEET

General Information		Site Information	
Analyst	*APanek*	Highway/Direction of Travel	*SR 429 Peak Hour Peak Dir.*
Agency or Company	*GMB*	From/To	*East of EB On/WB Off Slip Ramp*
Date Performed	*8/28/2013*	Jurisdiction	*Seminole*
Analysis Time Period		Analysis Year	*2030*

Project Description *SR 429 (Wekiva Parkway)*

☑ Oper.(LOS) ☐ Des.(N) ☑ Planning Data

Flow Inputs

Volume, V	*3206*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT	*62500*	veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K	*0.09*		%RVs, P_R	*0*
Peak-Hr Direction Prop, D	*57*		General Terrain:	*Level*
DDHV = AADT x K x D	*3206*	veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f_{LW}		mph
Number of Lanes, N	*2*		f_{LC}		mph
Total Ramp Density, TRD		ramps/mi	TRD Adjustment		mph
FFS (measured)	*70.0*	mph	FFS	*70.0*	mph
Base free-flow Speed, BFFS		mph			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1755*	pc/h/ln	Design LOS		
S	*66.4*	mph	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
D = v_p / S	*26.4*	pc/mi/ln	S		mph
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
V - Hourly volume	D - Density	E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 11-18	TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 11-2, 11-3	
DDHV - Directional design hour volume			

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	*APanek*
Agency or Company	*GMB*
Date Performed	*8/28/2013*
Analysis Time Period	

Site Information

Highway/Direction of Travel	*SR 429 Peak Hour Peak Dir.*
From/To	*East of EB On/WB Off Slip Ramp*
Jurisdiction	*Seminole*
Analysis Year	*2040*

Project Description *SR 429 (Wekiva Parkway)*

☑ Oper.(LOS) ☐ Des.(N) ☑ Planning Data

Flow Inputs

Volume, V	*4232*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT	*82500*	veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K	*0.09*		%RVs, P_R	*0*
Peak-Hr Direction Prop, D	*57*		General Terrain:	*Level*
DDHV = AADT x K x D	*4232*	veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2316*	pc/h/ln
S	*55.6*	mph
D = v_p / S	*41.7*	pc/mi/ln
LOS	*E*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
S		mph
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

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BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	*APanek*
Agency or Company	*GMB*
Date Performed	*8/28/2013*
Analysis Time Period	

Site Information

Highway/Direction of Travel	*SR 429 Peak Hour Peak Dir.*
From/To	*West of Orange Boulevard*
Jurisdiction	*Seminole*
Analysis Year	*2020*

Project Description *SR 429 (Wekiva Parkway)*

☑ Oper.(LOS) ☐ Des.(N) ☑ Planning Data

Flow Inputs

Volume, V	*1436*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT	*28000*	veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K	*0.09*		%RVs, P_R	*0*
Peak-Hr Direction Prop, D	*57*		General Terrain:	*Level*
DDHV = AADT x K x D	*1436*	veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*786*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*11.2*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	*APanek*
Agency or Company	*GMB*
Date Performed	*8/28/2013*
Analysis Time Period	

Site Information

Highway/Direction of Travel	*SR 429 Peak Hour Peak Dir.*
From/To	*West of Orange Boulevard*
Jurisdiction	*Seminole*
Analysis Year	*2030*

Project Description *SR 429 (Wekiva Parkway)*

☑ Oper.(LOS) ☐ Des.(N) ☑ Planning Data

Flow Inputs

Volume, V	*2257*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT	*44000*	veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K	*0.09*		%RVs, P_R	*0*
Peak-Hr Direction Prop, D	*57*		General Terrain:	*Level*
DDHV = AADT x K x D	*2257*	veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1235*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*17.6*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 10-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	*APanek*
Agency or Company	*GMB*
Date Performed	*8/28/2013*
Analysis Time Period	

Site Information

Highway/Direction of Travel	*SR 429 Peak Hour Peak Dir.*
From/To	*West of Orange Boulevard*
Jurisdiction	*Seminole*
Analysis Year	*2040*

Project Description *SR 429 (Wekiva Parkway)*

☑ Oper.(LOS) ☐ Des.(N) ☑ Planning Data

Flow Inputs

Volume, V	*3078*	veh/h	Peak-Hour Factor, PHF	*0.95*
AADT	*60000*	veh/day	%Trucks and Buses, P_T	*8*
Peak-Hr Prop. of AADT, K	*0.09*		%RVs, P_R	*0*
Peak-Hr Direction Prop, D	*57*		General Terrain:	*Level*
DDHV = AADT x K x D	*3078*	veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.962*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1685*	pc/h/ln
S	*67.3*	mph
D = v_p / S	*25.0*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

Appendix N

ESAL Calculation

18 kip EQUIVALENT SINGLE AXLE LOAD ANALYSIS

PROJECT TRAFFIC FOR PD&E and DESIGN ANALYSIS INFO / FACTORS

FIN #: 240200-2
COUNTY: Seminole
ROADWAY ID: 77320000
PROJECT DESCRIPTION: SR 429 (Wekiva Parkway) - East of EB On/WB Off Slip Ramps

LOCATION #: 1

LOCATION DESCRIPTION: East of EB On/WB Off Slip Ramps

GROWTH RATE FORMULA

A: Interpolation
B: Enter Growth Rate
C: Enter All AADTs
D: New Facility

If "A" select an interpolation function
If "B" enter rate as decimals (1%=1.01)
If ""C", or "D" continue to next section

Choose A, B, C, or D here: D

Linear Growth Rate ____ %
Compounded Growth Rate ____ %
Decaying Growth Rate ____ %
(select one)

DESIGN INFORMATION

		AADT
Existing Year	N/A	0
Opening Year	2020	43000
Mid-Design Year	2030	62500
Design Year	2040	82500

Note: AADT values have been rounded to the nearest 100

Daily Direction Split (50% or 100%)	50%
Lanes in One Direction	2
T24 values	
Existing to Opening Year	10.50%
Opening to Mid-Year	10.50%
Mid-Year to Design-Year	10.50%

1995 EQUIVALENCY FACTORS |u(1)|

(selected with an X)	FLEXIBLE PAVEMENT SN = 5/THICK		RIGID PAVEMENT SN = 12/THICK	
RURAL FREEWAY:	1.050	___	1.600	___
URBAN FREEWAY:	0.900	X	1.270	X
RURAL HIGHWAY:	0.960	___	1.350	___
URBAN HIGHWAY:	0.890	___	1.220	___
OTHER (Enter Factor and X):		___		___

(1) Equivalency Factors are based on Updated Pavement Damage Factors Memorandum, dated July 2, 1998.
Lane Factors developed by Copes equation

I have reviewed the 18 kip Equivalent Single Axle Loads (ESAL's) to be used for pavement design on this project. I hereby attest that these have been developed in accordance with the FDOT Project Traffic Forecasting Procedure using historical traffic data and other available information.

Prepared by: GMB Engineers & Planners, Inc.
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Org. Unit or Firm
Jorge Tolosa, P.E. # 67387
Name
Jorge Eduardo Tolosa
Signature
9/27/2013
Date

FLORIDA BOARD OF PROFESSIONAL ENGINEERS LICENSE No 67387 STATE OF FLORIDA JORGE EDUARDO TOLOSA

Reviewed by: Terry W. Rains
Name
Project Manager - Design Traffic FDOT - D5
Title
Org. Unit or Firm
Signature
Date

18 kip EQUIVALENT SINGLE AXLE LOAD ANALYSIS - LOCATION 1

PROJECT TRAFFIC FOR PD&E and DESIGN ANALYSIS INFO / FACTORS

YEARS: *2020 to 2040*

SECTION #: 77320000 **COUNTY:** Seminole **FIN #:** 240200-2

FLEXIBLE PAVEMENT URBAN FREEWAY 0.900

SN=5/THICK SR 429 (Wekiva Parkway) - East of EB On/WB Off Slip Ramps D

YEAR	AADT	ESAL (1000S)	ACCUM (1000s)	D	T	LF	EF
2020	43000	551	551	0.5	10.50%	0.743	0.900
2021	44900	573	1124	0.5	10.50%	0.739	0.900
2022	46900	596	1720	0.5	10.50%	0.736	0.900
2023	48800	617	2337	0.5	10.50%	0.733	0.900
2024	50800	639	2976	0.5	10.50%	0.729	0.900
2025	52700	661	3637	0.5	10.50%	0.726	0.900
2026	54700	683	4320	0.5	10.50%	0.723	0.900
2027	56600	704	5024	0.5	10.50%	0.720	0.900
2028	58600	726	5750	0.5	10.50%	0.717	0.900
2029	60500	746	6496	0.5	10.50%	0.715	0.900
2030	62500	768	7264	0.5	10.50%	0.712	0.900
2031	64500	790	8054	0.5	10.50%	0.710	0.900
2032	66500	811	8865	0.5	10.50%	0.707	0.900
2033	68500	833	9698	0.5	10.50%	0.705	0.900
2034	70500	854	10552	0.5	10.50%	0.702	0.900
2035	72500	876	11428	0.5	10.50%	0.700	0.900
2036	74500	897	12325	0.5	10.50%	0.698	0.900
2037	76500	918	13243	0.5	10.50%	0.695	0.900
2038	78500	939	14182	0.5	10.50%	0.693	0.900
2039	80500	960	15142	0.5	10.50%	0.691	0.900
2040	82500	981	16123	0.5	10.50%	0.689	0.900

Opening to Mid-Design Year ESAL Accumulation (1000s): 6713

Opening to Design Year ESAL Accumulation (1000s): 15572

I have reviewed the 18 kip Equivalent Single Axle Loads (ESAL's) to be used for pavement design on this project. I hereby attest that these have been developed in accordance with the FDOT Project Traffic Forecasting Procedure using historical traffic data and other available information.

Prepared by: GMB Engineers & Planners, Inc.
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Jorge Tolosa, P.E. # 67397
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Signature 8/7/2013
Date

JORGE EDUARDO TOLOSA LICENSE # 67397 STATE OF FLORIDA PROFESSIONAL ENGINEER

Reviewed by: Terry W. Rains
Name

Project Manager - Design Traffic FDOT - D5
Title Org. Unit or Firm

Signature Date

18 kip EQUIVALENT SINGLE AXLE LOAD ANALYSIS - LOCATION 1

PROJECT TRAFFIC FOR PD&E and DESIGN ANALYSIS INFO / FACTORS

YEARS: *2020 to 2040*

SECTION #: 77320000 **LOCATION #:** 1 **FIN #:** 240200-2

RIGID PAVEMENT URBAN FREEWAY 1.270

SN=12/THICK SR 429 (Wekiva Parkway) - East of EB On/WB Off Slip Ramps D

YEAR	AADT	ESAL (1000S)	ACCUM (1000s)	D	T	LF	EF
2020	43000	778	778	0.5	10.50%	0.743	1.270
2021	44900	808	1586	0.5	10.50%	0.739	1.270
2022	46900	840	2426	0.5	10.50%	0.736	1.270
2023	48800	870	3296	0.5	10.50%	0.733	1.270
2024	50800	902	4198	0.5	10.50%	0.729	1.270
2025	52700	932	5130	0.5	10.50%	0.726	1.270
2026	54700	963	6093	0.5	10.50%	0.723	1.270
2027	56600	993	7086	0.5	10.50%	0.720	1.270
2028	58600	1024	8110	0.5	10.50%	0.717	1.270
2029	60500	1053	9163	0.5	10.50%	0.715	1.270
2030	62500	1084	10247	0.5	10.50%	0.712	1.270
2031	64500	1114	11361	0.5	10.50%	0.710	1.270
2032	66500	1145	12506	0.5	10.50%	0.707	1.270
2033	68500	1175	13681	0.5	10.50%	0.705	1.270
2034	70500	1205	14886	0.5	10.50%	0.702	1.270
2035	72500	1235	16121	0.5	10.50%	0.700	1.270
2036	74500	1265	17386	0.5	10.50%	0.698	1.270
2037	76500	1295	18681	0.5	10.50%	0.695	1.270
2038	78500	1325	20006	0.5	10.50%	0.693	1.270
2039	80500	1355	21361	0.5	10.50%	0.691	1.270
2040	82500	1384	22745	0.5	10.50%	0.689	1.270

Opening to Mid-Design Year ESAL Accumulation (1000s): 9469

Opening to Design Year ESAL Accumulation (1000s): 21967

I have reviewed the 18 kip Equivalent Single Axle Loads (ESAL's) to be used for pavement design on this project. I hereby attest that these have been developed in accordance with the FDOT Project Traffic Forecasting Procedure using historical traffic data and other available information.

Prepared by: GMB Engineers & Planners, Inc.
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Org. Unit or Firm

Jorge Tolosa, PE # 67397
Name

Signature Date 9/27/2013

JORGE LUIS TOLOSA LICENSE No 67397 STATE OF FLORIDA PROFESSIONAL ENGINEER

Reviewed by: Terry W. Rains
Name

Project Manager - Design Traffic FDOT - D5
Title Org. Unit or Firm

Signature Date

18 kip EQUIVALENT SINGLE AXLE LOAD ANALYSIS

PROJECT TRAFFIC FOR PD&E and DESIGN ANALYSIS INFO / FACTORS

FIN #: 240200-2
COUNTY: Seminole
ROADWAY ID: 77320000
PROJECT DESCRIPTION: SR 429 (Wekiva Parkway) - West of Orange Boulevard

LOCATION #: 2

LOCATION DESCRIPTION: West of Orange Boulevard

GROWTH RATE FORMULA

A: Interpolation
B: Enter Growth Rate
C: Enter All AADTs
D: New Facility

If "A" select an interpolation function
If "B" enter rate as decimals (1%=1.01)
If ""C", or "D" continue to next section

Choose A, B, C, or D here: D

Linear Growth Rate ____ %
Compounded Growth Rate ____ %
Decaying Growth Rate ____ %
(select one)

DESIGN INFORMATION

		AADT
Existing Year	N/A	0
Opening Year	2020	28000
Mid-Design Year	2030	44000
Design Year	2040	60000

Note: AADT values have been rounded to the nearest 100

Daily Direction Split (50% or 100%)	50%
Lanes in One Direction	2
T24 values	
Existing to Opening Year	10.50%
Opening to Mid-Year	10.50%
Mid-Year to Design-Year	10.50%

1995 EQUIVALENCY FACTORS |u(1)|

(selected with an X)	FLEXIBLE PAVEMENT SN = 5/THICK		RIGID PAVEMENT SN = 12/THICK	
RURAL FREEWAY:	1.050		1.600	
URBAN FREEWAY:	0.900	X	1.270	X
RURAL HIGHWAY:	0.960		1.350	
URBAN HIGHWAY:	0.890		1.220	
OTHER (Enter Factor and X):				

(1) Equivalency Factors are based on Updated Pavement Damage Factors Memorandum, dated July 2, 1998.
Lane Factors developed by Copes equation

I have reviewed the 18 kip Equivalent Single Axle Loads (ESAL's) to be used for pavement design on this project. I hereby attest that these have been developed in accordance with the FDOT Project Traffic Forecasting Procedure using historical traffic data and other available information.

Prepared by: GMB Engineers & Planners, Inc.
2602 E. Livingston Street, Orlando, FL 32803
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Jorge Tolosa, P.E. # 67397
Name
Signature
9/27/2013
Date

STATE OF FLORIDA JORGE EDUARDO TOLOSA No. 67397 PROFESSIONAL ENGINEER

Reviewed by: Terry W. Rains
Name
Project Manager - Design Traffic FDOT - D5
Title
Org. Unit or Firm
Signature
Date

18 kip EQUIVALENT SINGLE AXLE LOAD ANALYSIS - LOCATION 2

PROJECT TRAFFIC FOR PD&E and DESIGN ANALYSIS INFO / FACTORS

YEARS: *2020 to 2040*

SECTION #: 77320000 **COUNTY:** Seminole **FIN #:** 240200-2

FLEXIBLE PAVEMENT URBAN FREEWAY 0.900

SN=5/THICK SR 429 (Wekiva Parkway) - West of Orange Boulevard D

YEAR	AADT	ESAL (1000S)	ACCUM (1000s)	D	T	LF	EF
2020	28000	376	376	0.5	10.50%	0.778	0.900
2021	29600	396	772	0.5	10.50%	0.774	0.900
2022	31200	415	1187	0.5	10.50%	0.769	0.900
2023	32800	433	1620	0.5	10.50%	0.765	0.900
2024	34400	452	2072	0.5	10.50%	0.761	0.900
2025	36000	471	2543	0.5	10.50%	0.758	0.900
2026	37600	489	3032	0.5	10.50%	0.754	0.900
2027	39200	508	3540	0.5	10.50%	0.751	0.900
2028	40800	526	4066	0.5	10.50%	0.747	0.900
2029	42400	545	4611	0.5	10.50%	0.744	0.900
2030	44000	563	5174	0.5	10.50%	0.741	0.900
2031	45600	581	5755	0.5	10.50%	0.738	0.900
2032	47200	599	6354	0.5	10.50%	0.735	0.900
2033	48800	617	6971	0.5	10.50%	0.733	0.900
2034	50400	635	7606	0.5	10.50%	0.730	0.900
2035	52000	653	8259	0.5	10.50%	0.727	0.900
2036	53600	671	8930	0.5	10.50%	0.725	0.900
2037	55200	688	9618	0.5	10.50%	0.722	0.900
2038	56800	706	10324	0.5	10.50%	0.720	0.900
2039	58400	723	11047	0.5	10.50%	0.718	0.900
2040	60000	741	11788	0.5	10.50%	0.715	0.900

Opening to Mid-Design Year ESAL Accumulation (1000s): 4798

Opening to Design Year ESAL Accumulation (1000s): 11412

I have reviewed the 18 kip Equivalent Single Axle Loads (ESAL's) to be used for pavement design on this project. I hereby attest that these have been developed in accordance with the FDOT Project Traffic Forecasting Procedure using historical traffic data and other available information.

Prepared by: GMB Engineers & Planners, Inc.
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Jorge Tolosa, P.E. # 67397
Name

Jorge Eduardo Tolosa 9/27/2013
Signature Date

Reviewed by: Terry W. Rains
Name

Project Manager - Design Traffic FDOT - D5
Title Org. Unit or Firm

Signature Date

JORGE EDUARDO TOLOSA LICENSE No 67397 STATE OF FLORIDA PROFESSIONAL ENGINEER

18 kip EQUIVALENT SINGLE AXLE LOAD ANALYSIS - LOCATION 2

PROJECT TRAFFIC FOR PD&E and DESIGN ANALYSIS INFO / FACTORS

YEARS: *2020 to 2040*

SECTION #: 77320000 **LOCATION #:** 2 **FIN #:** 240200-2

RIGID PAVEMENT URBAN FREEWAY 1.270

SN=12/THICK SR 429 (Wekiva Parkway) - West of Orange Boulevard D

YEAR	AADT	ESAL (1000S)	ACCUM (1000s)	D	T	LF	EF
2020	28000	531	531	0.5	10.50%	0.778	1.270
2021	29600	558	1089	0.5	10.50%	0.774	1.270
2022	31200	585	1674	0.5	10.50%	0.769	1.270
2023	32800	611	2285	0.5	10.50%	0.765	1.270
2024	34400	638	2923	0.5	10.50%	0.761	1.270
2025	36000	664	3587	0.5	10.50%	0.758	1.270
2026	37600	691	4278	0.5	10.50%	0.754	1.270
2027	39200	717	4995	0.5	10.50%	0.751	1.270
2028	40800	743	5738	0.5	10.50%	0.747	1.270
2029	42400	768	6506	0.5	10.50%	0.744	1.270
2030	44000	794	7300	0.5	10.50%	0.741	1.270
2031	45600	820	8120	0.5	10.50%	0.738	1.270
2032	47200	845	8965	0.5	10.50%	0.735	1.270
2033	48800	870	9835	0.5	10.50%	0.733	1.270
2034	50400	896	10731	0.5	10.50%	0.730	1.270
2035	52000	921	11652	0.5	10.50%	0.727	1.270
2036	53600	946	12598	0.5	10.50%	0.725	1.270
2037	55200	971	13569	0.5	10.50%	0.722	1.270
2038	56800	996	14565	0.5	10.50%	0.720	1.270
2039	58400	1021	15586	0.5	10.50%	0.718	1.270
2040	60000	1045	16631	0.5	10.50%	0.715	1.270

Opening to Mid-Design Year ESAL Accumulation (1000s): 6769

Opening to Design Year ESAL Accumulation (1000s): 16100

I have reviewed the 18 kip Equivalent Single Axle Loads (ESAL's) to be used for pavement design on this project. I hereby attest that these have been developed in accordance with the FDOT Project Traffic Forecasting Procedure using historical traffic data and other available information.

Prepared by: GMB Engineers & Planners, Inc.
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Jorge Tolosa, P.E. # 67397
Name

Jorge Eduardo Tolosa 9/27/2013
Signature Date

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Reviewed by: Terry W. Rains
Name

Project Manager - Design Traffic FDOT - D5
Title Org. Unit or Firm

Signature Date

18 kip EQUIVALENT SINGLE AXLE LOAD ANALYSIS

PROJECT TRAFFIC FOR PD&E and DESIGN ANALYSIS INFO / FACTORS

FIN #: 240200-2
COUNTY: Seminole
ROADWAY ID: 77320000
PROJECT DESCRIPTION: Frontage Road - East of EB Off/WB On Slip Ramps

LOCATION #: 3

LOCATION DESCRIPTION: East of EB Off/WB On Slip Ramps

GROWTH RATE FORMULA

A: Interpolation
B: Enter Growth Rate
C: Enter All AADTs
D: New Facility

If "A" select an interpolation function
If "B" enter rate as decimals (1%=1.01)
If ""C", or "D" continue to next section

Choose A, B, C, or D here: D

Linear Growth Rate ______ %
Compounded Growth Rate ______ %
Decaying Growth Rate ______ %
(select one)

DESIGN INFORMATION

	Year	AADT
Existing Year	N/A	0
Opening Year	2020	10000
Mid-Design Year	2030	13000
Design Year	2040	15500

Note: AADT values have been rounded to the nearest 100

Daily Direction Split (50% or 100%)	50%
Lanes in One Direction	1
T24 values	
Existing to Opening Year	10.50%
Opening to Mid-Year	10.50%
Mid-Year to Design-Year	10.50%

1995 EQUIVALENCY FACTORS |u(1)|

(selected with an X)	FLEXIBLE PAVEMENT SN = 5/THICK		RIGID PAVEMENT SN = 12/THICK	
RURAL FREEWAY:	1.050	___	1.600	___
URBAN FREEWAY:	0.900	___	1.270	___
RURAL HIGHWAY:	0.960	___	1.350	___
URBAN HIGHWAY:	0.890	X	1.220	X
OTHER (Enter Factor and X):		___		___

(1) Equivalency Factors are based on Updated Pavement Damage Factors Memorandum, dated July 2, 1998.
Lane Factors developed by Copes equation

I have reviewed the 18 kip Equivalent Single Axle Loads (ESAL's) to be used for pavement design on this project. I hereby attest that these have been developed in accordance with the FDOT Project Traffic Forecasting Procedure using historical traffic data and other available information.

Prepared by: GMB Engineers & Planners, Inc.
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No. 67397
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Reviewed by: Terry W. Rains
Name
Project Manager - Design Traffic FDOT - D5
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18 kip EQUIVALENT SINGLE AXLE LOAD ANALYSIS - LOCATION 3

PROJECT TRAFFIC FOR PD&E and DESIGN ANALYSIS INFO / FACTORS

YEARS: *2020 to 2040*

SECTION #: 77320000 **COUNTY:** Seminole **FIN #:** 240200-2

FLEXIBLE PAVEMENT URBAN HIGHWAY 0.890

SN=5/THICK Frontage Road - East of EB Off/WB On Slip Ramps D

YEAR	AADT	ESAL (1000S)	ACCUM (1000s)	D	T	LF	EF
2020	10000	171	171	0.5	10.50%	1.000	0.890
2021	10300	176	347	0.5	10.50%	1.000	0.890
2022	10600	181	528	0.5	10.50%	1.000	0.890
2023	10900	186	714	0.5	10.50%	1.000	0.890
2024	11200	192	906	0.5	10.50%	1.000	0.890
2025	11500	197	1103	0.5	10.50%	1.000	0.890
2026	11800	202	1305	0.5	10.50%	1.000	0.890
2027	12100	207	1512	0.5	10.50%	1.000	0.890
2028	12400	212	1724	0.5	10.50%	1.000	0.890
2029	12700	217	1941	0.5	10.50%	1.000	0.890
2030	13000	222	2163	0.5	10.50%	1.000	0.890
2031	13200	226	2389	0.5	10.50%	1.000	0.890
2032	13500	231	2620	0.5	10.50%	1.000	0.890
2033	13700	234	2854	0.5	10.50%	1.000	0.890
2034	14000	239	3093	0.5	10.50%	1.000	0.890
2035	14200	243	3336	0.5	10.50%	1.000	0.890
2036	14500	248	3584	0.5	10.50%	1.000	0.890
2037	14700	251	3835	0.5	10.50%	1.000	0.890
2038	15000	256	4091	0.5	10.50%	1.000	0.890
2039	15200	260	4351	0.5	10.50%	1.000	0.890
2040	15500	265	4616	0.5	10.50%	1.000	0.890

Opening to Mid-Design Year ESAL Accumulation (1000s): 1992

Opening to Design Year ESAL Accumulation (1000s): 4445

I have reviewed the 18 kip Equivalent Single Axle Loads (ESAL's) to be used for pavement design on this project. I hereby attest that these have been developed in accordance with the FDOT Project Traffic Forecasting Procedure using historical traffic data and other available information.

Prepared by: GMB Engineers & Planners, Inc.
2602 E. Livingston Street, Orlando, FL 32803
Org. Unit or Firm

Jorge Tolosa, P.E. # 67397
Name

STATE OF FLORIDA JORGE EDUARDO TOLOSA NO. 67397 PROFESSIONAL ENGINEER

Signature 9/27/2013
Date

Reviewed by: Terry W. Rains
Name

Project Manager - Design Traffic FDOT - D5
Title Org. Unit or Firm

Signature Date

18 kip EQUIVALENT SINGLE AXLE LOAD ANALYSIS - LOCATION 3

PROJECT TRAFFIC FOR PD&E and DESIGN ANALYSIS INFO / FACTORS

YEARS: *2020 to 2040*

SECTION #: 77320000 **LOCATION #:** 3 **FIN #:** 240200-2

RIGID PAVEMENT URBAN HIGHWAY 1.220

SN=12/THICK Frontage Road - East of EB Off/WB On Slip Ramps D

YEAR	AADT	ESAL (1000S)	ACCUM (1000s)	D	T	LF	EF
2020	10000	234	234	0.5	10.50%	1.000	1.220
2021	10300	241	475	0.5	10.50%	1.000	1.220
2022	10600	248	723	0.5	10.50%	1.000	1.220
2023	10900	255	978	0.5	10.50%	1.000	1.220
2024	11200	262	1240	0.5	10.50%	1.000	1.220
2025	11500	269	1509	0.5	10.50%	1.000	1.220
2026	11800	276	1785	0.5	10.50%	1.000	1.220
2027	12100	283	2068	0.5	10.50%	1.000	1.220
2028	12400	290	2358	0.5	10.50%	1.000	1.220
2029	12700	297	2655	0.5	10.50%	1.000	1.220
2030	13000	304	2959	0.5	10.50%	1.000	1.220
2031	13200	309	3268	0.5	10.50%	1.000	1.220
2032	13500	316	3584	0.5	10.50%	1.000	1.220
2033	13700	321	3905	0.5	10.50%	1.000	1.220
2034	14000	328	4233	0.5	10.50%	1.000	1.220
2035	14200	332	4565	0.5	10.50%	1.000	1.220
2036	14500	339	4904	0.5	10.50%	1.000	1.220
2037	14700	344	5248	0.5	10.50%	1.000	1.220
2038	15000	351	5599	0.5	10.50%	1.000	1.220
2039	15200	356	5955	0.5	10.50%	1.000	1.220
2040	15500	363	6318	0.5	10.50%	1.000	1.220

Opening to Mid-Design Year ESAL Accumulation (1000s): 2725

Opening to Design Year ESAL Accumulation (1000s): 6084

I have reviewed the 18 kip Equivalent Single Axle Loads (ESAL's) to be used for pavement design on this project. I hereby attest that these have been developed in accordance with the FDOT Project Traffic Forecasting Procedure using historical traffic data and other available information.

Prepared by: GMB Engineers & Planners, Inc.
2602 E. Livingston Street, Orlando,FL 32803
Org. Unit or Firm

Jorge Tolosa, P.E. # 67397
Name

STATE OF FLORIDA PROFESSIONAL ENGINEER EDUARDO TOLOSA No 67397

Jorge Tolosa 9/27/2013
Signature Date

Reviewed by: Terry W. Rains
Name

Project Manager - Design Traffic FDOT - D5
Title Org. Unit or Firm

Signature Date

18 kip EQUIVALENT SINGLE AXLE LOAD ANALYSIS

PROJECT TRAFFIC FOR PD&E and DESIGN ANALYSIS INFO / FACTORS

FIN #: 240200-2
COUNTY: Seminole
ROADWAY ID: 77320000
PROJECT DESCRIPTION: SR 46 - West of Orange Boulevard

LOCATION #: 4

LOCATION DESCRIPTION: West of Orange Boulevard

GROWTH RATE FORMULA

A: Interpolation
B: Enter Growth Rate
C: Enter All AADTs
D: New Facility

If "A" select an interpolation function
If "B" enter rate as decimals (1%=1.01)
If "C", or "D" continue to next section

Choose A, B, C, or D here: D

Linear Growth Rate _____ %
Compounded Growth Rate _____ %
Decaying Growth Rate _____ %
(select one)

DESIGN INFORMATION

		AADT
Existing Year	N/A	0
Opening Year	2020	20500
Mid-Design Year	2030	25000
Design Year	2040	29500

Note: AADT values have been rounded to the nearest 100

Daily Direction Split (50% or 100%)	50%
Lanes in One Direction	2
T24 values	
Existing to Opening Year	10.50%
Opening to Mid-Year	10.50%
Mid-Year to Design-Year	10.50%

1995 EQUIVALENCY FACTORS |u(1)|

(selected with an X)	FLEXIBLE PAVEMENT SN = 5/THICK		RIGID PAVEMENT SN = 12/THICK	
RURAL FREEWAY:	1.050	___	1.600	___
URBAN FREEWAY:	0.900	___	1.270	___
RURAL HIGHWAY:	0.960	___	1.350	___
URBAN HIGHWAY:	0.890	X	1.220	X
OTHER (Enter Factor and X):		___		___

(1) Equivalency Factors are based on Updated Pavement Damage Factors Memorandum, dated July 2, 1998.
Lane Factors developed by Copes equation

I have reviewed the 18 kip Equivalent Single Axle Loads (ESAL's) to be used for pavement design on this project. I hereby attest that these have been developed in accordance with the FDOT Project Traffic Forecasting Procedure using historical traffic data and other available information.

Prepared by: GMB Engineers & Planners, Inc.
3602 E. Livingston Street, Orlando, FL 32803
Org. Unit or Firm
Jorge Tolosa, P.E. # 67397
Name
Signature
9/27/2013
Date

JORGE EDUARDO TOLOSA — LICENSE NUMBER 67397 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

Reviewed by: Terry W. Rains
Name
Project Manager - Design Traffic FDOT - D5
Title
Org. Unit or Firm
Signature
Date

18 kip EQUIVALENT SINGLE AXLE LOAD ANALYSIS - LOCATION 4

PROJECT TRAFFIC FOR PD&E and DESIGN ANALYSIS INFO / FACTORS

YEARS: *2020 to 2040*

SECTION #: 77320000 **COUNTY:** Seminole **FIN #:** 240200-2

FLEXIBLE PAVEMENT URBAN HIGHWAY 0.890

SN=5/THICK SR 46 - West of Orange Boulevard D

YEAR	AADT	ESAL (1000S)	ACCUM (1000s)	D	T	LF	EF
2020	20500	282	282	0.5	10.50%	0.804	0.890
2021	20900	287	569	0.5	10.50%	0.803	0.890
2022	21400	293	862	0.5	10.50%	0.801	0.890
2023	21800	298	1160	0.5	10.50%	0.799	0.890
2024	22300	304	1464	0.5	10.50%	0.797	0.890
2025	22700	309	1773	0.5	10.50%	0.796	0.890
2026	23200	315	2088	0.5	10.50%	0.794	0.890
2027	23600	319	2407	0.5	10.50%	0.793	0.890
2028	24100	326	2733	0.5	10.50%	0.791	0.890
2029	24500	330	3063	0.5	10.50%	0.789	0.890
2030	25000	336	3399	0.5	10.50%	0.788	0.890
2031	25400	341	3740	0.5	10.50%	0.786	0.890
2032	25900	347	4087	0.5	10.50%	0.785	0.890
2033	26300	352	4439	0.5	10.50%	0.784	0.890
2034	26800	358	4797	0.5	10.50%	0.782	0.890
2035	27200	363	5160	0.5	10.50%	0.781	0.890
2036	27700	369	5529	0.5	10.50%	0.779	0.890
2037	28100	373	5902	0.5	10.50%	0.778	0.890
2038	28600	379	6281	0.5	10.50%	0.777	0.890
2039	29000	384	6665	0.5	10.50%	0.776	0.890
2040	29500	390	7055	0.5	10.50%	0.774	0.890

Opening to Mid-Design Year ESAL Accumulation (1000s): 3117

Opening to Design Year ESAL Accumulation (1000s): 6773

I have reviewed the 18 kip Equivalent Single Axle Loads (ESAL's) to be used for pavement design on this project. I hereby attest that these have been developed in accordance with the FDOT Project Traffic Forecasting Procedure using historical traffic data and other available information.

Prepared by: GMB Engineers & Planners, Inc.
2632 E. Livingston Street, Orlando, FL 32803
Org. Unit or Firm
Jorge Tolosa, P.E. # 67387
Name
STATE OF FLORIDA
Signature 9/27/2013
Date

JORGE EDUARDO TOLOSA LICENSE No. 67387 STATE OF FLORIDA PROFESSIONAL ENGINEER

Reviewed by: Terry W. Rains
Name
Project Manager - Design Traffic FDOT - D5
Title Org. Unit or Firm

Signature Date

18 kip EQUIVALENT SINGLE AXLE LOAD ANALYSIS - LOCATION 4

PROJECT TRAFFIC FOR PD&E and DESIGN ANALYSIS INFO / FACTORS

YEARS: *2020 to 2040*

SECTION #: 77320000 **LOCATION #:** 4 **FIN #:** 240200-2

RIGID PAVEMENT URBAN HIGHWAY 1.220

SN=12/THICK SR 46 - West of Orange Boulevard D

YEAR	AADT	ESAL (1000S)	ACCUM (1000s)	D	T	LF	EF
2020	20500	386	386	0.5	10.50%	0.804	1.220
2021	20900	393	779	0.5	10.50%	0.803	1.220
2022	21400	401	1180	0.5	10.50%	0.801	1.220
2023	21800	408	1588	0.5	10.50%	0.799	1.220
2024	22300	416	2004	0.5	10.50%	0.797	1.220
2025	22700	423	2427	0.5	10.50%	0.796	1.220
2026	23200	431	2858	0.5	10.50%	0.794	1.220
2027	23600	438	3296	0.5	10.50%	0.793	1.220
2028	24100	446	3742	0.5	10.50%	0.791	1.220
2029	24500	453	4195	0.5	10.50%	0.789	1.220
2030	25000	461	4656	0.5	10.50%	0.788	1.220
2031	25400	468	5124	0.5	10.50%	0.786	1.220
2032	25900	476	5600	0.5	10.50%	0.785	1.220
2033	26300	482	6082	0.5	10.50%	0.784	1.220
2034	26800	490	6572	0.5	10.50%	0.782	1.220
2035	27200	497	7069	0.5	10.50%	0.781	1.220
2036	27700	505	7574	0.5	10.50%	0.779	1.220
2037	28100	512	8086	0.5	10.50%	0.778	1.220
2038	28600	520	8606	0.5	10.50%	0.777	1.220
2039	29000	526	9132	0.5	10.50%	0.776	1.220
2040	29500	534	9666	0.5	10.50%	0.774	1.220

Opening to Mid-Design Year ESAL Accumulation (1000s): 4270

Opening to Design Year ESAL Accumulation (1000s): 9280

I have reviewed the 18 kip Equivalent Single Axle Loads (ESAL's) to be used for pavement design on this project. I hereby attest that these have been developed in accordance with the FDOT Project Traffic Forecasting Procedure using historical traffic data and other available information.

Prepared by: GMB Engineers & Planners, Inc.
2601 E. Livingston Street, Orlando, FL 32803
Org. Unit or Firm

Jorge Tolosa, P.E. # 67397
Name

Jorge Eduardo de Tolosa 9/27/2013
Signature Date

STATE OF FLORIDA JORGE EDUARDO TOLOSA LICENSE No 67397 PROFESSIONAL ENGINEER

Reviewed by: Terry W. Rains
Name

Project Manager - Design Traffic FDOT - D5
Title Org. Unit or Firm

Signature Date

18 kip EQUIVALENT SINGLE AXLE LOAD ANALYSIS

PROJECT TRAFFIC FOR PD&E and DESIGN ANALYSIS INFO / FACTORS

FIN #: 240200-2
COUNTY: Seminole
ROADWAY ID: 77320000
PROJECT DESCRIPTION: SR 429 Ramps (Wekiva Parkway) - EE and FF Ramps

LOCATION #: 5

LOCATION DESCRIPTION: EE and FF Ramps

GROWTH RATE FORMULA

A: Interpolation
B: Enter Growth Rate
C: Enter All AADTs
D: New Facility

If "A" select an interpolation function
If "B" enter rate as decimals (1%=1.01)
If ""C", or "D" continue to next section

Choose A, B, C, or D here: D

Linear Growth Rate _____ %
Compounded Growth Rate _____ %
Decaying Growth Rate _____ %
(select one)

DESIGN INFORMATION

		AADT
Existing Year	N/A	0
Opening Year	2020	15000
Mid-Design Year	2030	18500
Design Year	2040	22500

Note: AADT values have been rounded to the nearest 100

Daily Direction Split (50% or 100%)	50%
Lanes in One Direction	2
T24 values	
Existing to Opening Year	10.50%
Opening to Mid-Year	10.50%
Mid-Year to Design-Year	10.50%

1995 EQUIVALENCY FACTORS |u(1)|

(selected with an X)	FLEXIBLE PAVEMENT SN = 5/THICK		RIGID PAVEMENT SN = 12/THICK	
RURAL FREEWAY:	1.050	___	1.600	___
URBAN FREEWAY:	0.900	X	1.270	X
RURAL HIGHWAY:	0.960	___	1.350	___
URBAN HIGHWAY:	0.890	___	1.220	___
OTHER (Enter Factor and X):		___		___

(1) Equivalency Factors are based on Updated Pavement Damage Factors Memorandum, dated July 2, 1998.
Lane Factors developed by Copes equation

I have reviewed the 18 kip Equivalent Single Axle Loads (ESAL's) to be used for pavement design on this project. I hereby attest that these have been developed in accordance with the FDOT Project Traffic Forecasting Procedure using historical traffic data and other available information.

Prepared by: GMB Engineers & Planners, Inc.
2602 E. Livingston Street, Orlando FL - 32803
Org. Unit or Firm
Jorge Eduardo Tolosa, PE #67397
Name
Jorge Eduardo Tolosa 9/27/2013
Signature Date

JORGE EDUARDO TOLOSA — No 67397 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

Reviewed by: Terry W. Rains
Name
Project Manager - Design Traffic FDOT - D5
Title Org. Unit or Firm

Signature Date

18 kip EQUIVALENT SINGLE AXLE LOAD ANALYSIS - LOCATION 5

PROJECT TRAFFIC FOR PD&E and DESIGN ANALYSIS INFO / FACTORS

YEARS: *2020 to 2040*

SECTION #: 77320000 **COUNTY:** Seminole **FIN #:** 240200-2

FLEXIBLE PAVEMENT URBAN FREEWAY 0.900

SN=5/THICK SR 429 Ramps (Wekiva Parkway) - EE and FF Ramps D

YEAR	AADT	ESAL (1000S)	ACCUM (1000s)	D	T	LF	EF
2020	15000	215	215	0.5	10.50%	0.830	0.900
2021	15300	219	434	0.5	10.50%	0.828	0.900
2022	15700	224	658	0.5	10.50%	0.826	0.900
2023	16000	228	886	0.5	10.50%	0.825	0.900
2024	16400	233	1119	0.5	10.50%	0.823	0.900
2025	16700	237	1356	0.5	10.50%	0.821	0.900
2026	17100	242	1598	0.5	10.50%	0.819	0.900
2027	17400	246	1844	0.5	10.50%	0.818	0.900
2028	17800	251	2095	0.5	10.50%	0.816	0.900
2029	18100	255	2350	0.5	10.50%	0.814	0.900
2030	18500	260	2610	0.5	10.50%	0.813	0.900
2031	18900	265	2875	0.5	10.50%	0.811	0.900
2032	19300	270	3145	0.5	10.50%	0.809	0.900
2033	19700	275	3420	0.5	10.50%	0.807	0.900
2034	20100	280	3700	0.5	10.50%	0.806	0.900
2035	20500	285	3985	0.5	10.50%	0.804	0.900
2036	20900	290	4275	0.5	10.50%	0.803	0.900
2037	21300	295	4570	0.5	10.50%	0.801	0.900
2038	21700	300	4870	0.5	10.50%	0.799	0.900
2039	22100	305	5175	0.5	10.50%	0.798	0.900
2040	22500	310	5485	0.5	10.50%	0.796	0.900

Opening to Mid-Design Year ESAL Accumulation (1000s): 2395

Opening to Design Year ESAL Accumulation (1000s): 5270

I have reviewed the 18 kip Equivalent Single Axle Loads (ESAL's) to be used for pavement design on this project. I hereby attest that these have been developed in accordance with the FDOT Project Traffic Forecasting Procedure using historical traffic data and other available information.

Prepared by: GMB Engineers & Planners, Inc.
2602 E. Livingston Street, Orlando FL - 32803
Org. Unit or Firm
Jorge Tolosa - PE # 67397
Name
Signature Date

JORGE EDUARDO TOLOSA LICENSE No 67397 STATE OF FLORIDA PROFESSIONAL ENGINEER

Jorge E Tolosa 9/27/2013

Reviewed by: Terry W. Rains
Name
Project Manager - Design Traffic FDOT - D5
Title Org. Unit or Firm
Signature Date

18 kip EQUIVALENT SINGLE AXLE LOAD ANALYSIS - LOCATION 5

PROJECT TRAFFIC FOR PD&E and DESIGN ANALYSIS INFO / FACTORS

YEARS: *2020 to 2040*

SECTION #: 77320000 **LOCATION #:** 5 **FIN #:** 240200-2

RIGID PAVEMENT URBAN FREEWAY 1.270

SN=12/THICK SR 429 Ramps (Wekiva Parkway) - EE and FF Ramps D

YEAR	AADT	ESAL (1000S)	ACCUM (1000s)	D	T	LF	EF
2020	15000	303	303	0.5	10.50%	0.830	1.270
2021	15300	309	612	0.5	10.50%	0.828	1.270
2022	15700	316	928	0.5	10.50%	0.826	1.270
2023	16000	322	1250	0.5	10.50%	0.825	1.270
2024	16400	329	1579	0.5	10.50%	0.823	1.270
2025	16700	334	1913	0.5	10.50%	0.821	1.270
2026	17100	341	2254	0.5	10.50%	0.819	1.270
2027	17400	347	2601	0.5	10.50%	0.818	1.270
2028	17800	354	2955	0.5	10.50%	0.816	1.270
2029	18100	359	3314	0.5	10.50%	0.814	1.270
2030	18500	366	3680	0.5	10.50%	0.813	1.270
2031	18900	373	4053	0.5	10.50%	0.811	1.270
2032	19300	381	4434	0.5	10.50%	0.809	1.270
2033	19700	388	4822	0.5	10.50%	0.807	1.270
2034	20100	395	5217	0.5	10.50%	0.806	1.270
2035	20500	402	5619	0.5	10.50%	0.804	1.270
2036	20900	409	6028	0.5	10.50%	0.803	1.270
2037	21300	416	6444	0.5	10.50%	0.801	1.270
2038	21700	423	6867	0.5	10.50%	0.799	1.270
2039	22100	430	7297	0.5	10.50%	0.798	1.270
2040	22500	437	7734	0.5	10.50%	0.796	1.270

Opening to Mid-Design Year ESAL Accumulation (1000s): 3377

Opening to Design Year ESAL Accumulation (1000s): 7431

I have reviewed the 18 kip Equivalent Single Axle Loads (ESAL's) to be used for pavement design on this project. I hereby attest that these have been developed in accordance with the FDOT Project Traffic Forecasting Procedure using historical traffic data and other available information.

Prepared by: GMB Engineers & Planners, Inc.
2602 E. Livingston Street, Orlando, FL 32803
Org. Unit or Firm

Jorge Telosa, P.E. # 67397
Name

Jorge Eduardo Telosa 9/27/2013
Signature Date

STATE OF FLORIDA JORGE EDUARDO TELOSA LICENSE No 67397 PROFESSIONAL ENGINEER

Reviewed by: Terry W. Rains
Name

Project Manager - Design Traffic FDOT - D5
Title Org. Unit or Firm

Signature Date