FAIRVIEW ROAD SUBDIVISION
Knox County, Tennessee

TRAFFIC IMPACT STUDY

Prepared for :
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October 2007

FAIRVIEW ROAD
RESIDENTIAL DEVELOPMENT
KNOX COUNTY, TENNESSEE

TRAFFIC IMPACT STUDY

Prepared for

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REVISED

October 2007

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Project Number 101694

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INTRODUCTION

Wilbur Smith Associates is pleased to submit this report to address the impact and access of a proposed residential development located on Fairview Road in northeast Knox County, TN. The basis for this study required the collection of traffic data, generation of anticipated traffic volumes from the proposed site and development of projected traffic volumes from normal growth and from the site. Analysis of the resulting traffic projections was conducted to determine the capacity and levels of service for the site access and Fairview Road/Thompson School Road intersection with E. Emory Road. This study will develop measures necessary to mitigate traffic impacts including improved roadway geometrics and traffic control devices within the environs of the proposed residential development.

Knox County Traffic Engineering assisted in developing the required scope of this study. It was indicated that the study intersections should include the proposed access to Fairview Road, Thompson School Road at E. Emory Road (SR 131), Fairview Road at E. Emory Road, and Fairview Road at Tazewell Pike (S.R 331). The proposed residential development site was analyzed as a Level 2 Traffic Impact Study. Assessing peak hour traffic conditions, turn-lane warrants, and geometric configuration based on current and future traffic volumes with and without the development would be within the criteria of the study. This study will address the anticipated traffic impacts of the proposed residential development on the study intersections. Due to the proposed size of this development, an additional access point was to be reviewed.

Project Description

The proposed project is a 315-unit single family residential development with a current zoning of Agriculture thereby requiring a zone change to PR (Planned Residential). The site currently has a proposed single access to Fairview Road. Figure 1 shows the proposed site plan.

Site Location

The location of the proposed site is on Fairview Road. The site is near the Gibbs Community in northeast Knox County. The site is south of Fairview Road between Tazewell Pike to the east and E. Emory Road to the north. The site is northeast of the Knoxville central business district (CBD) Figure 2 illustrates the site location relative to CBD and local and regional access.

SITE PLAN

Fairview Road Subdivision

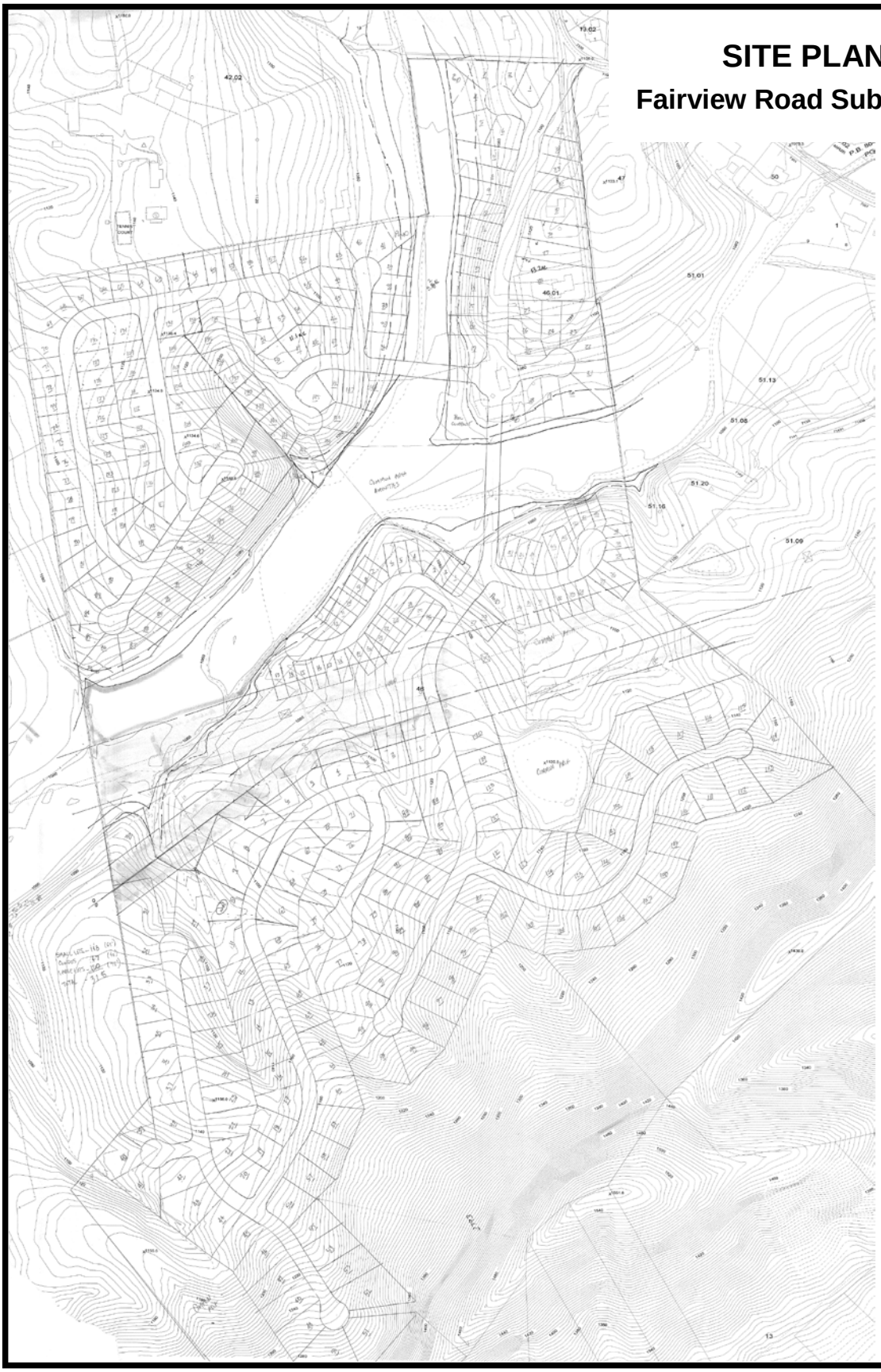


Figure 1

VICINITY MAP
Fairview Road Subdivision

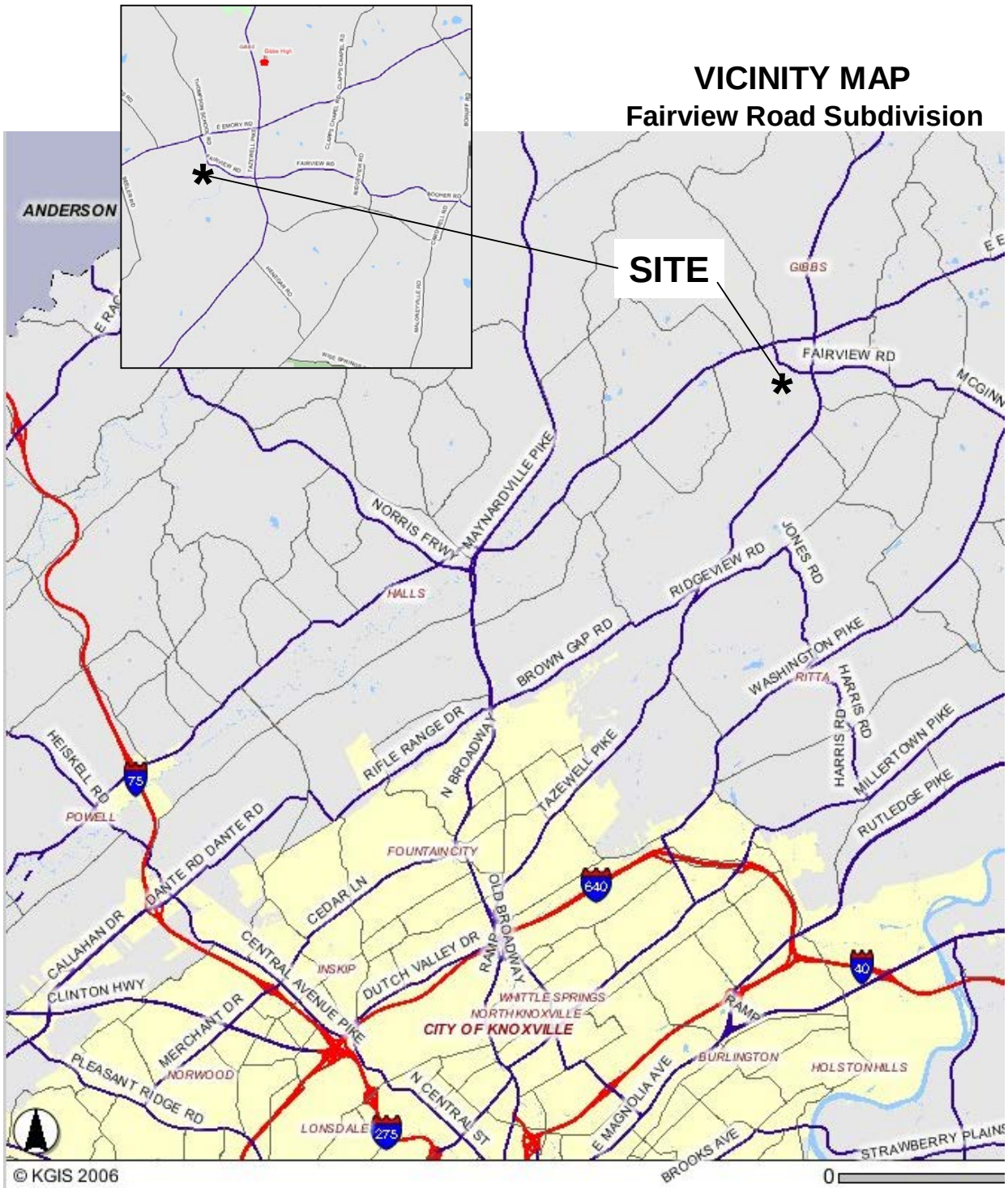


Figure 2

LOCAL AND REGIONAL ACCESS

Local Access

Local access to this site is Fairview Road. Fairview Road provides access to Tazewell Pike and E. Emory Road. Fairview Road is a minor arterial having a width of 20 feet. The posted speed limit is 30 mph. At its intersection with E. Emory Road near the proposed site, Fairview Road intersects E. Emory Road approximately 130 feet west of Thompson School Road. Thompson School Road is a major collector which extends north to Maynardville Highway. The posted speed limit is 30 mph.

Regional Access

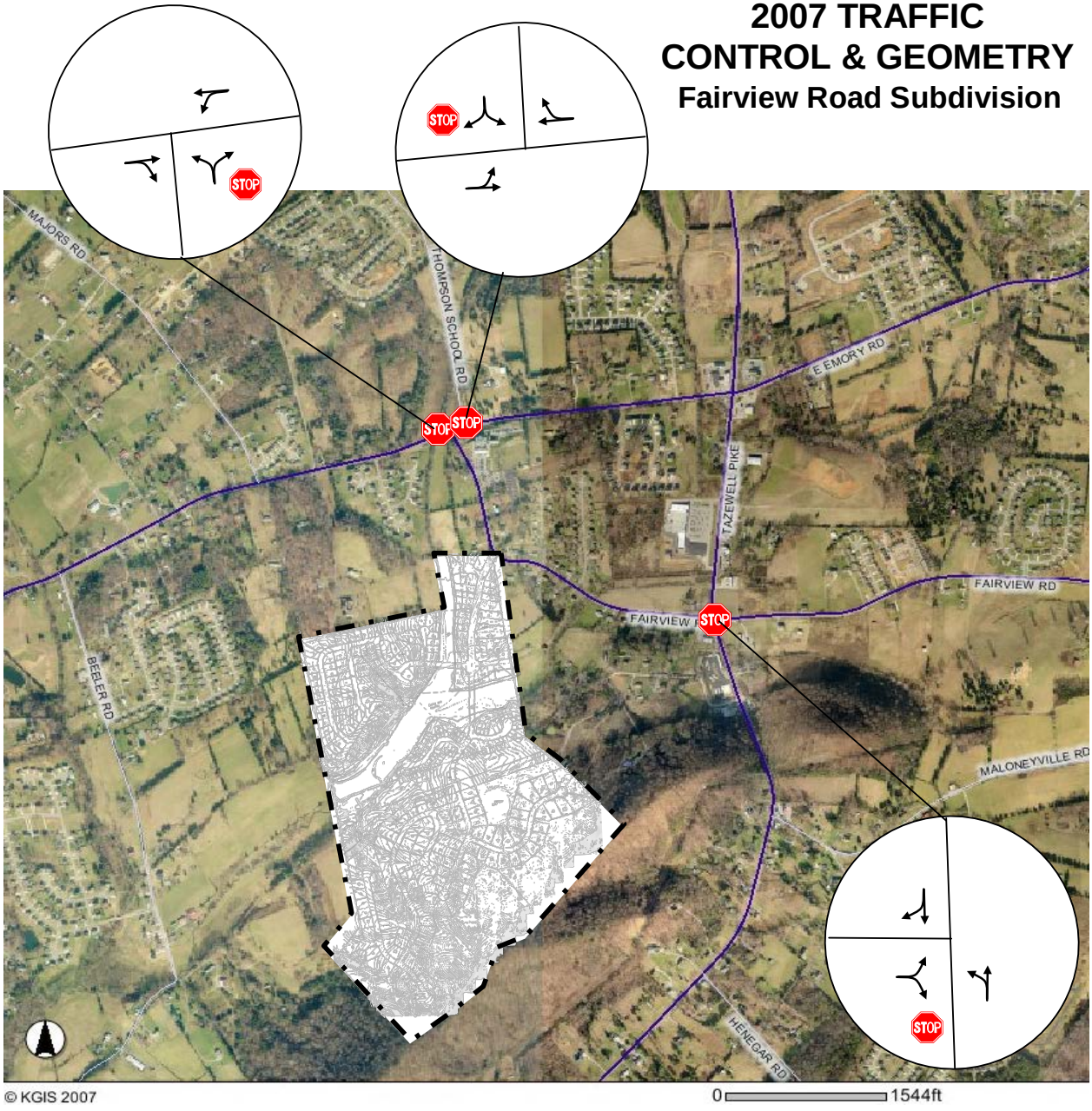
Emory Road (SR 131) extends for more than 26 miles across northern Knox County. Its west connection is Oak Ridge Highway near the Anderson County line. Its east end extends into Grainger County. Major intersections, which connect to Emory Road, are Clinton Highway, Interstate 75, Norris Freeway, Maynardville Highway, Tazewell Pike, and Washington Pike. Oak Ridge Highway (SR 62) near the Anderson County line had a 12,200 vehicle ADT in 2006. Clinton Highway (SR 9) had a recorded ADT of 31,275 adjusted average daily vehicles in 2006. The ADT recorded south of Exit 12 on I-75 in 2005 was approximately 59,500. Norris Freeway (SR 71) had an ADT of 9,900 in 2006. Maynardville Highway (SR 33) north of Emory Road had an ADT of 16,500 in 2006. Tazewell Pike (SR 331) south of Emory Road had an ADT of 10,380 in 2006. Washington Pike near the Grainger County line had an ADT of approximately 1,260 in 2005. These roadways provide a significant north-south connection between north Knox County and the downtown central business district.

EXISTING TRAFFIC CONDITIONS

Existing Traffic Control

The Thompson School Road approach to E. Emory Road is located approximately 130 feet east of Fairview Road approach to E. Emory Road. Both Thompson School Road and Fairview Road are stop controlled at E. Emory Road. E. Emory Road is a two-lane highway with a posted speed limit of 45 mph. The Fairview Road approach to Tazewell Pike is STOP controlled. Figure 3 shows the existing intersection geometrics and traffic control.

2007 TRAFFIC CONTROL & GEOMETRY
Fairview Road Subdivision



LEGEND
XXX AM PEAK
(XXX) PM PEAK

Figure 3

Existing Traffic Volumes

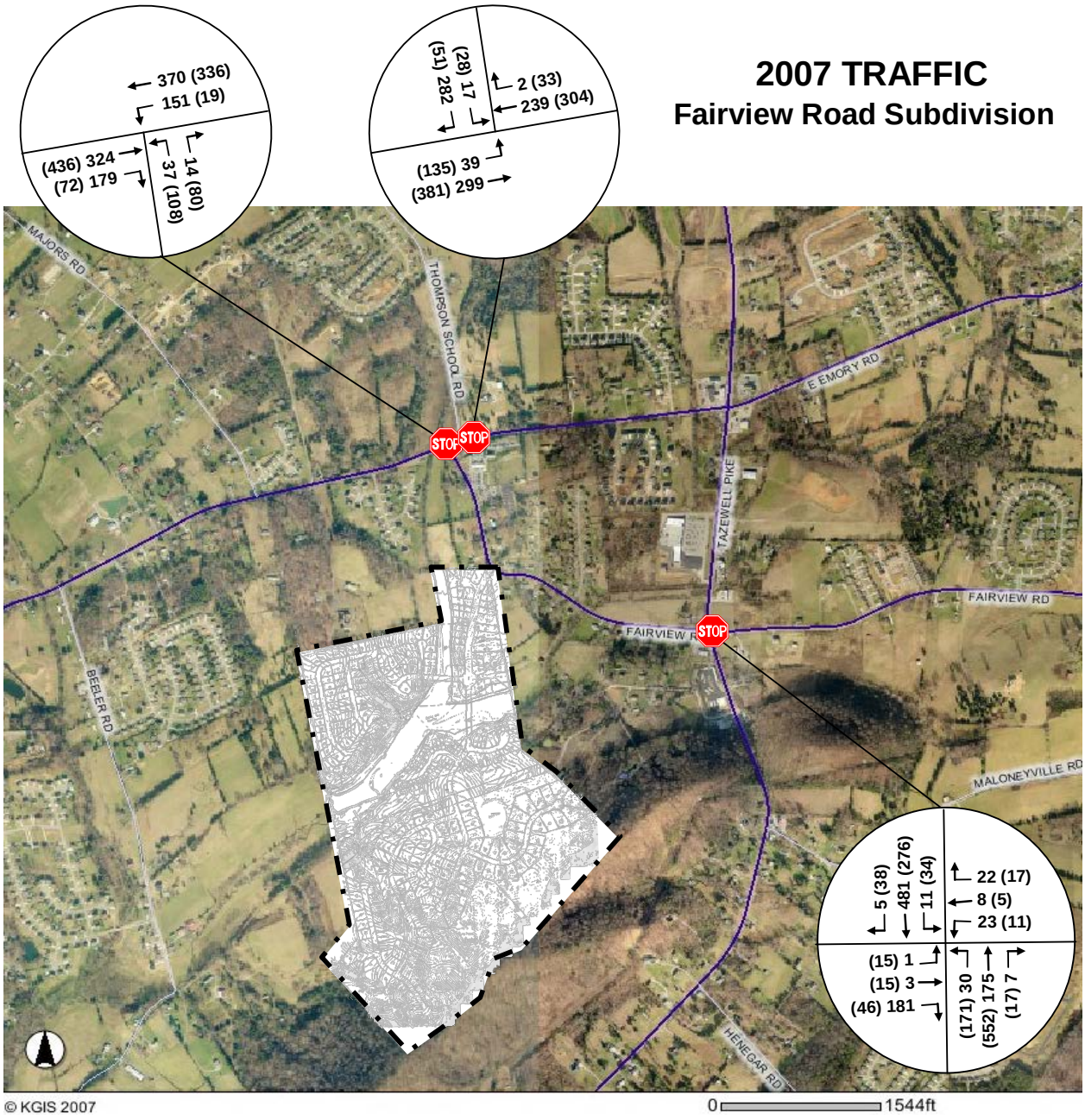
Peak-hour turning movement counts were conducted by WSA in January of 2007 for the intersection of E. Emory Road and Thompson School Road/Fairview Road. The peak hours were measured to be 7:15 AM to 8:15 AM and 5:00 PM to 6:00 PM. The count was conducted as a typical four approach intersection then converted to reflect two three-approach intersections in order to analyze the turn movements within the offset intersection. A turning movement count was also conducted for the intersection of Tazewell Pike and Fairview Road which PM peak hour was determined between 4:15 and 5:15PM. Figure 4 illustrates the resulting intersection turning movements for the AM and PM peak hours.

Auxiliary Lane Evaluation for Existing Conditions

Knox County's Access Control and Driveway Design Policy was used to evaluate the need for auxiliary lanes on E. Emory Road at the intersections Thompson School Road and Fairview Road. The warrants are met for the left-turn onto Fairview Road in the AM peak hour and for the left-turn onto Thompson School Road in the PM peak hour. The left-turning volumes are 3 and 6 times the threshold value for turning onto Thompson School Road and Fairview Road, respectively. Right-turn traffic on E. Emory Road did not meet warrants for neither intersection. The worksheets are provided in the Appendix.

The configuration has turning vehicles queuing inside the intersection as opposed to outside the intersection. The interlocking turning vehicle demand from Emory Road onto Fairview Road and Thompson School Road varies between the AM and PM peak hours. During the AM peak hour, a greater number of vehicles are turning left onto Fairview Road and a smaller number are turning left onto Thompson School Road. A two-way left-turn lane would accommodate the demand attempting a turning movement and to allow refuge from the through lane. During heavy demand periods, the possibility exists of westbound left-turn stacking to the point where eastbound left-turns are not able to access the two-way left-turn lane. The opposite direction is true for the PM peak hour where the demand to access Thompson School Road is greater. Another possible configuration would be separate left-turn lanes provided approved taper distances and road widening could occur. This would be a four-lane cross-section which would provide full storage for both left-turn movements from Emory Road.

2007 TRAFFIC
Fairview Road Subdivision



LEGEND
XXX AM PEAK
(XXX) PM PEAK

Figure 4

A study was conducted for Knox County by WSA titled "FIXIT" (2002) where intersections were evaluated as to capacity, operation, and safety. The intersection of Emory Road and Thompson School Road (Int. 32) was included. At this time, the traffic volumes did not meet the warrants for auxiliary lanes. However, it was noted that vehicles were stopped in the through lane to turn left.

With the existing traffic volumes, the northbound approach on Tazewell Pike at Fairview Road warrants a left-turn lane.

Signal Warrant Evaluation

Signal volume warrants were evaluated for the intersections of Emory Road (SR 131) at Fairview Road and Thompson School Road. There are eight traffic signal warrants published in the **Manual on Uniform Traffic Control Devices, 2000 Edition**. Three of the eight warrants pertain directly to traffic volumes including the Eight-Hour Traffic Volume Warrant consisting of the Minimum Volume (Warrant 1A), Interruption to Continuous Traffic Flow (Warrant 1B), Combination (Warrant 1A & B); Four-Hour (Warrant 2); and Peak-Hour Volume (Warrant 3B). Any part of Warrant 1 must be met for a minimum of eight hours. Warrant 2 must be met for four hours, and one hour must be met for the Peak-Hour Warrant (Warrant 3B). For rural intersections or for main street prevailing speeds in excess of 40mph, volume thresholds required to satisfy these warrants can be reduced. With a posted speed limit of 45mph, the threshold volumes were reduced for the signal warrant analyses.

For the 2007 traffic conditions, traffic signalization is warranted for the intersection of Emory Road (SR 131) at Fairview Road and Thompson School Road. Evaluation of the two approaches identified the Four Hour Volume fully satisfied, and the Interruption to Continuous Traffic Flow (1B), and Peak-hour Volume (3B) warrants very nearly satisfied. In the approval process of a signal on a state route, TDOT typically only considers signalization when Warrant 1 is fully satisfied.

The analysis is summarized as follows:

E. Emory Road at Fairview Rd. & Thompson School Rd		Satisfied	>90% Satisfied	Met?
Warrant 1A	Minimum Volume	3 hours	2 hours	No
Warrant 1B	Interruption to Continuous Traffic Flow	5 hours	2 hours	No
Warrant 1C	Combination of Parts A & B	5 hours	n/a	No
Warrant 2	Four Hour	4 hours	0 hour	Yes
Warrant 3B	Peak-hour Volume	0 hour	1 hour	No

Existing Capacity and Level of Service

In order to evaluate the current operations of the traffic control devices, capacity and level of service were calculated using the **2000 Highway Capacity Manual, Special Report 209** published by the Transportation Research Board (TRB). Signalized and unsignalized intersections are evaluated based on estimated intersection delays, which may be related to level of service (LOS).

Level of service and capacity are the measurements of an intersection's ability to accommodate traffic volumes. Levels of service for intersections range from A to F. LOS A is the best, and LOS F is failing. For signalized intersections, a LOS of A has an average estimated intersection delay of less than 10 seconds, and LOS F has an estimated delay of greater than 80 seconds. A LOS of C and D are typical design values. Within urban areas, a LOS D, delay between 35 and 55 seconds, is considered acceptable by the Institute of Transportation Engineers (ITE) for signalized intersections.

Unsignalized intersection levels of service have lower thresholds of delays. A LOS of F exceeds estimated delays of 50 seconds. For urban arterials, minor approaches may frequently experience levels of service E. A full level of service description for unsignalized and signalized intersections is presented in Tables 1 and 2, respectively.

Analyses were conducted using the Synchro Software, developed by Trafficware. The analyses conducted found that the study intersections currently operate at a minimum LOS of a D with STOP control. Signal warrants are met for the intersections of E. Emory Road at Fairview Road and Thompson School Road. Table 3 presents the capacity and levels of service for the study intersections.

The signalization of Fairview Road and Thompson School Road was analyzed and found to operate with a D LOS for both the AM and PM peak hours. The signalized analysis of the intersection assumed the signal installation of both approaches with a single controller with lead-lag signal phasing and left-turn lanes for each approach to the signal. The operation of this signal with this geometry can be accomplished but would be much less efficient than the alignment of the north and south approaches thereby removing the E. Emory Road lead-lag left-turn phasing, the side street split phasing, and reducing the otherwise necessary long all-red intervals

Table 1
LEVEL-OF-SERVICE (LOS) DESCRIPTION
FOR TWO-WAY STOP INTERSECTIONS

Level of Service	Average Control Delay per Vehicle (seconds)
A	≤ 10.0
B	> 10.0 and ≤ 15.0
C	> 15.0 and ≤ 25.0
D	> 25.0 and ≤ 35.0
E	> 35.0 and ≤ 50.0
F	> 50.0

SOURCE: **Highway Capacity Manual, TRB Special Report 209**

Table 2
LEVEL-OF-SERVICE (LOS) DESCRIPTION
FOR SIGNALIZED INTERSECTIONS

LOS	Average Control Delay per Vehicle (seconds)	Description
A	≤ 10.0	Very low delay with extremely favorable progression. Most vehicles don't stop.
B	> 10.0 and ≤ 20.0	Generally good progression. Increase number of stops from that described for LOS "A" resulting in higher delays
C	> 20.0 and ≤ 35.0	Fair progression with increased delay. Number of stopping vehicles become significant; however, many still pass through the intersection without stopping. Stable flow.
D	> 35.0 and ≤ 55.0	The influence of congestion becomes more noticeable. Longer delays resulting from unfavorable progression, longer cycles, or high V/C ratios. Approaching unstable flow.
E	> 55.0 and ≤ 80.0	Limit of acceptable delay. Long delays associated with poor progression, long cycles, or high V/C ratios.
F	> 80.0	Unacceptable operation resulting from oversaturation (flow rates exceed capacity). Poor progression, long cycles, and high V/C ratios.

SOURCE: **Highway Capacity Manual, TRB Special Report 209**

Table 3
2007 TRAFFIC
CAPACITY AND LEVELS OF SERVICE

INTERSECTION	TRAFFIC CONTROL	PEAK PERIOD	V/C	DELAY	LOS
Emory Road at	**STOP**	**AM**	**0.25 / 0.16**	**26.9 / 4.0**	**D / A**
Fairview Road	**NB/WB-L**	**PM**	**0.55 / 0.02**	**26.2 / 0.7**	**D / A**
Emory Road at	**STOP**	**AM**	**0.44 / 0.03**	**13.6 / 1.2**	**B / A**
Thompson School Road	**SB/EB-L**	**PM**	**0.22 / 0.12**	**16.7 / 3.2**	**C / A**
Emory Road at	*SIGNAL*	*AM*	*0.73*	*38.3*	*D*
Fairview Road/Thompson School Road	*Mitigation**	*PM*	*0.73*	*39.8*	*D*
Tazewell Pike at	**STOP**	**AM**	**0.37 / 0.24**	**15.5 / 24.8**	**C / C**
Fairview Road	**EB/WB**	**PM**	**0.38 / 0.23**	**31.6 / 35.6**	**D / E**

Note: Average vehicle delay estimated in seconds. STOP control analyses presented by total minor approaches.

* Mitigation consists of signalization of Thompson School Road and Fairview Road with current offset alignment, added left-turn lane on both side streets, added right-turn lanes on Emory Road, and separate left-turn lanes on Emory Road at both side street

BACKGROUND TRAFFIC CONDITIONS

Background traffic is traffic that can be anticipated regardless of the proposed development. Traffic within the study area should continue to grow due to other developments as well as the continued growth within the surrounding area. This background traffic must be analyzed and evaluated for the purpose of establishing a baseline. In addition, the background traffic reflects the historical traffic volumes in the area of the proposed development.

Background Traffic Volumes

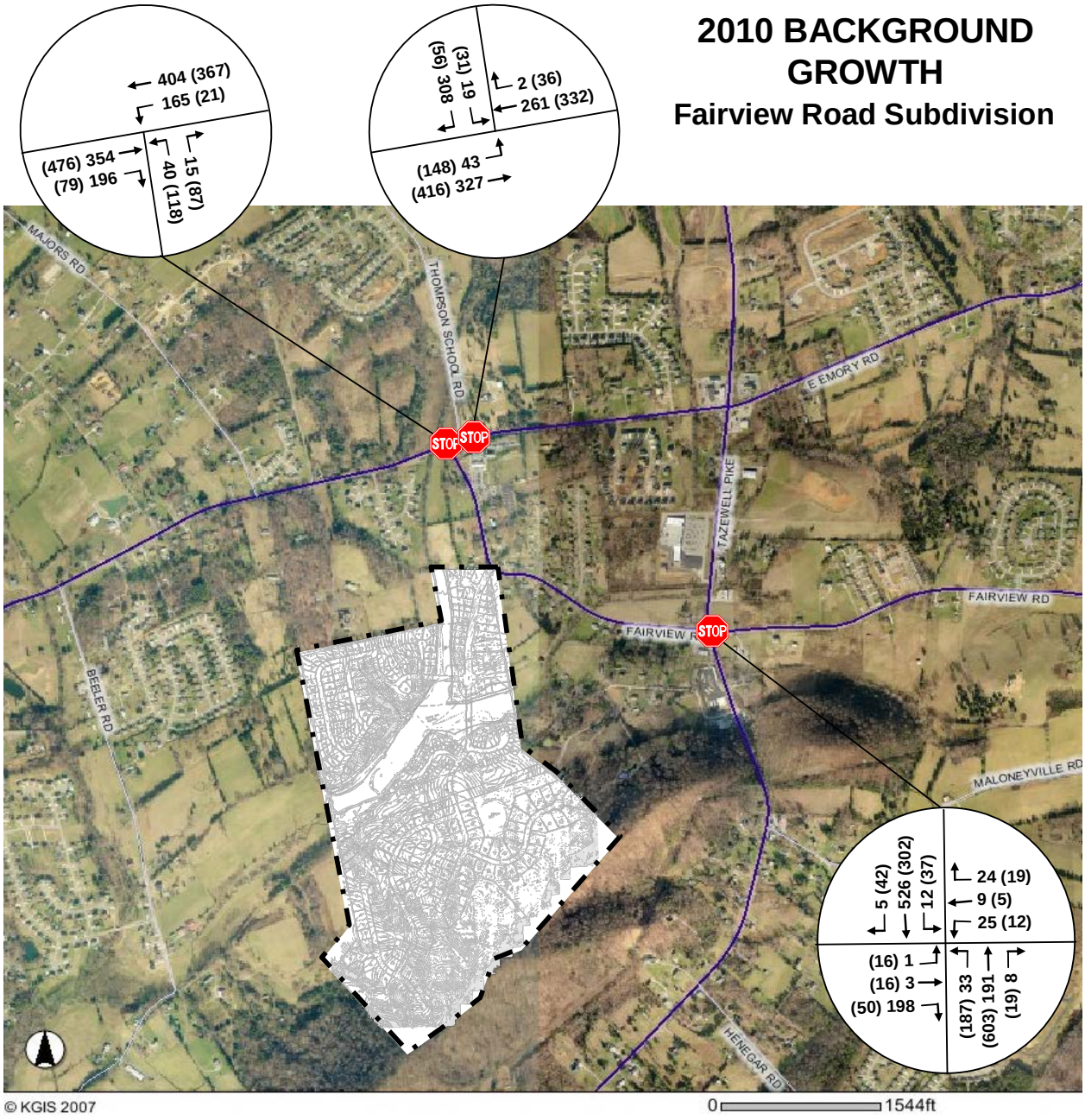
An average growth rate was determined using historical ADT traffic data from the Tennessee Department of Transportation count stations on E. Emory Road and Tazewell Pike. A count location was provided by the Knoxville Metropolitan Planning Organization on Thompson School Road. Count station 19 on E. Emory Road near Halls reflects an annual increase of 2.9% for the past two years. Count station 9 on E. Emory Road east of Tazewell Pike reflects an average annual increase of 2.0% for the past two years. Count station 6 on Tazewell Pike north of E. Emory Road reflects an annual increase of 1.1% for the past two years. Count station 8 on Tazewell Pike south of E. Emory Road reflects an annual increase of 2.2% for the past two years. Count station 218 on Thompson School Road north of E. Emory Road reflects an annual increase of 2.8% for the past two years. The count data covers the period from 1985 to 2006. It was assumed that a yearly average traffic growth of 3.0 percent could be expected for the area. The assumed completion of the proposed single-family residential development is for 2010. Therefore using a 3.0 percent annual growth rate, the study intersection reflects a 9.3-percent growth. The growth factor was applied to all movements. Figure 5A illustrates the traffic volumes with the appropriately applied growth factor.

In addition to the growth rate applied, the study included the trips associated with the planned 187 unit single-family subdivision, Edwards Place, on Thompson School Road, which was studied in January of this year. This development distributed 80-percent of its generated trips to the south and the Thompson School Road intersection with Emory Road. This daily trip generation for the site is approximately 1,850. The trip assignment is illustrated in Figure 5B.

The addition of the background traffic growth and the Edwards Place trip assignment result in the 2010 background traffic or baseline traffic for this study. Figure 6 illustrates the 2010 traffic volumes.

2010 BACKGROUND GROWTH

Fairview Road Subdivision



LEGEND

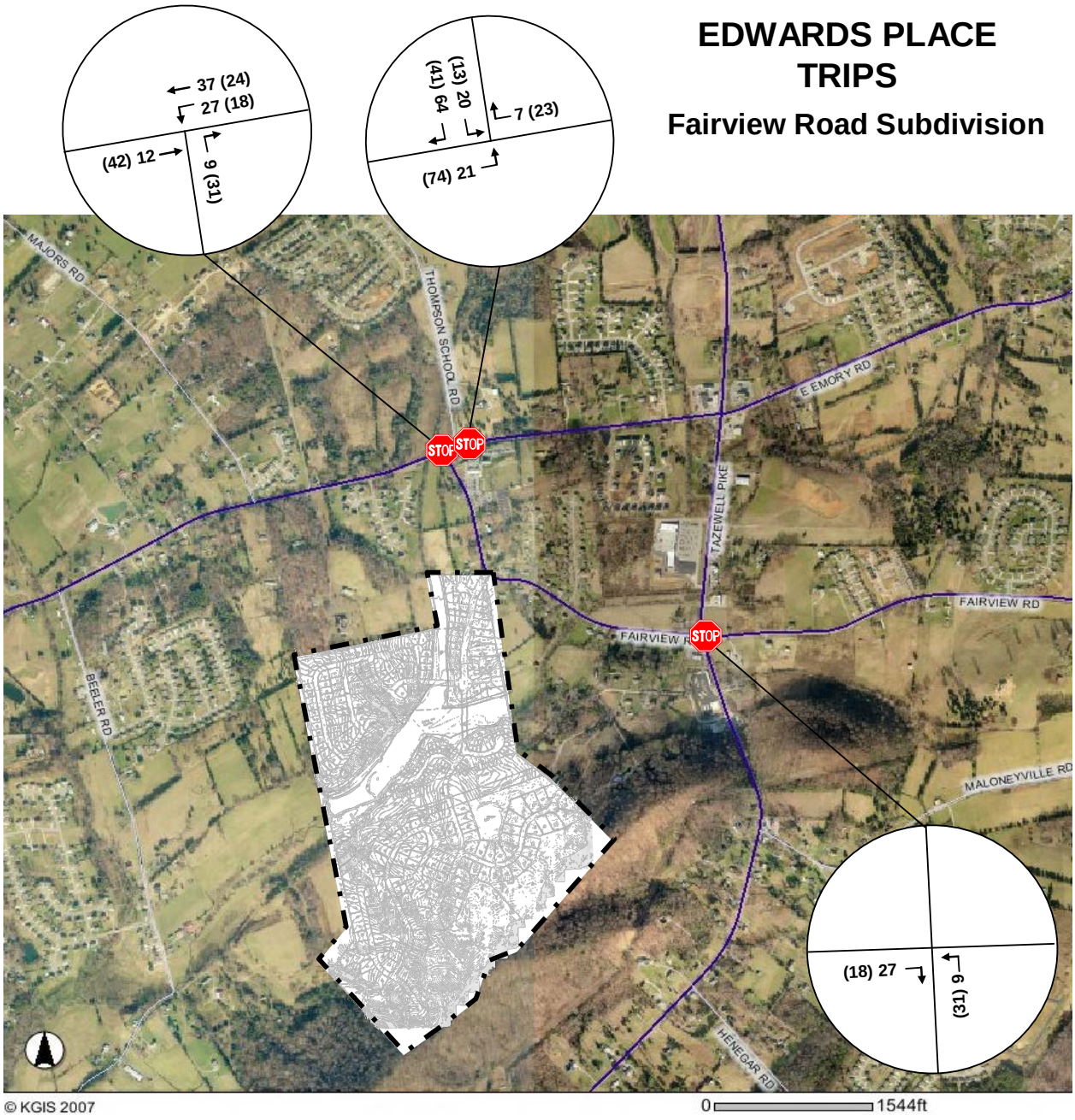
XXX AM PEAK

(XXX) PM PEAK

Figure 5A

EDWARDS PLACE TRIPS

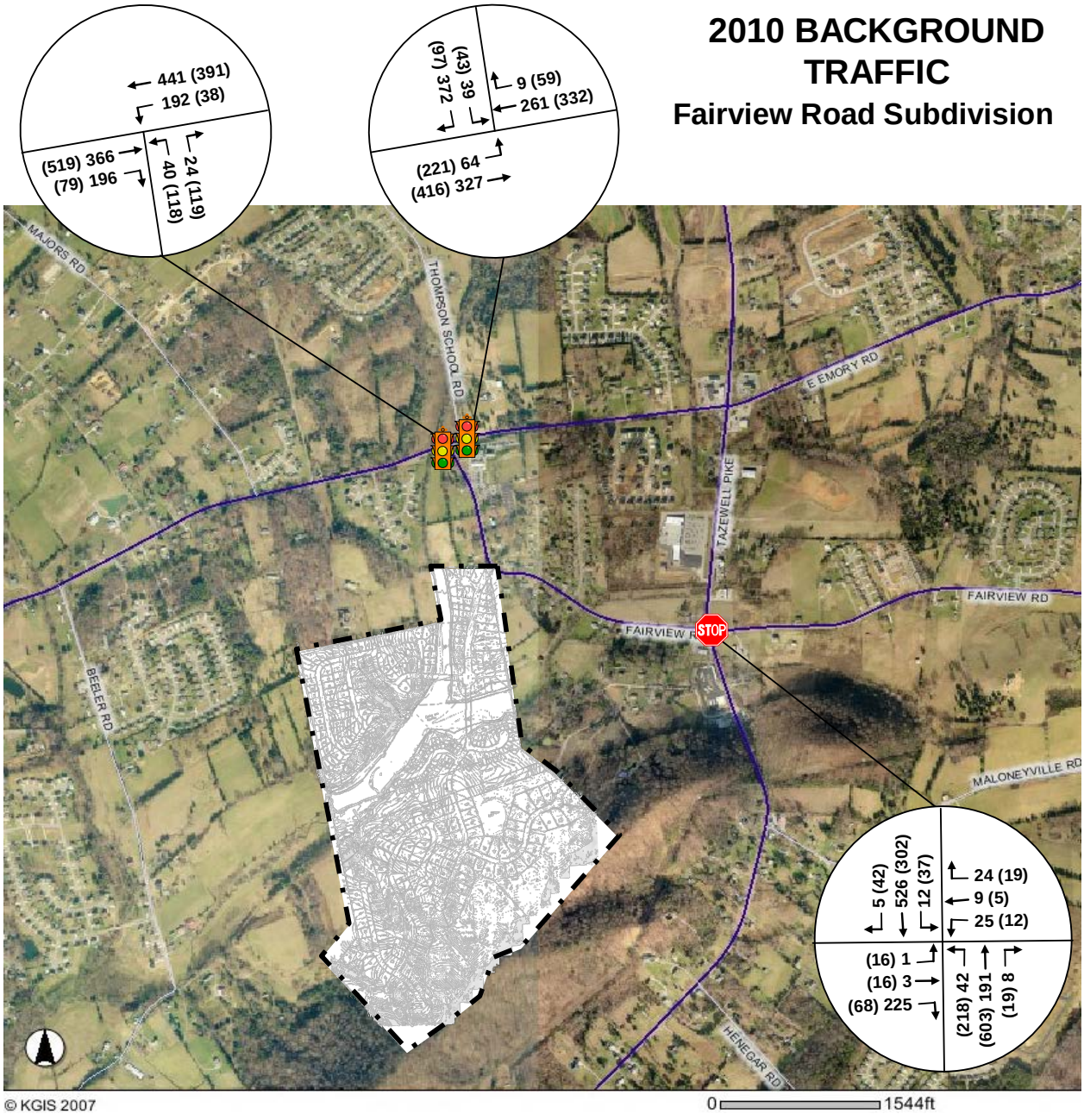
Fairview Road Subdivision



LEGEND
XXX AM PEAK
(XXX) PM PEAK

Figure 5B

2010 BACKGROUND TRAFFIC
Fairview Road Subdivision



LEGEND
XXX AM PEAK
(XXX) PM PEAK

Figure 6

Background Signal Warrant Analysis

With the 2007 existing traffic volumes increased with the trip generated by the Edwards Place Subdivision an 8-Hour Warrant is fully satisfied with the Combination of the Minimum and the Interruption (Warrant 1C), and the Interruption (Warrant 1B) is very nearly satisfied. The Four-Hour (Warrant 2) and Peak-Hour warrants are also fully satisfied. The Minimum Volume (Warrant 1A) is approached. A summary of the warrants and hours satisfied are as follows:

E. Emory Road at Fairview Rd. & Thompson School Rd		Satisfied	>90% Satisfied	Met?
Warrant 1A	Minimum Volume	5 hours	1 hour	No
Warrant 1B	Interruption to Continuous Traffic Flow	5 hours	3 hours	No
Warrant 1C	Combination of Parts A & B	8 hours	n/a	Yes
Warrant 2	Four Hour	4 hours	1 hour	Yes
Warrant 3B	Peak-hour Volume	3 hours	0 hour	Yes

Auxiliary Lane Evaluation for Background Conditions

Using the 2010 background traffic volumes, including the Edwards Place traffic, warrants for auxiliary lanes can be evaluated. Warrants were previously established by the traffic study prepared for the Edwards Place development for the E. Emory Road left-turn movement to Fairview Road and Thompson School Road. A right-turn lane for traffic turning from E. Emory Road to Fairview Road was also found warranted by the earlier study for both the AM and PM peak hours.

Background Capacity and Level of Service

Analyses were performed with the grown traffic volumes and presented in Table 4. The unsignalized Fairview Road approach to Emory Road begins to fail during the PM peak hour and the intersection with a signal approaches capacity with a V/C ratio of 0.85 and an E LOS during the PM peak hour; therefore, additional analyses were conducted to examine the alignment of the north and south approaches in order to improve the signal efficiency. With the alignment of the Fairview Road and Thompson School Road, the E LOS can be mitigated and results in a B LOS.

The Fairview Road approach to Tazewell Pike will experience an increase in the estimated delay resulting in an E LOS during the PM peak hour. Much of the eastbound traffic from Fairview Road is turning right to Tazewell Pike. A right-turn lane therefore should be considered and will reduce the delays.

Table 4
2010 BACKGROUND
CAPACITY AND LEVELS OF SERVICE

INTERSECTION	TRAFFIC CONTROL	PEAK PERIOD	V/C	DELAY	LOS
Emory Road at	**STOP**	**AM**	**0.40 / 0.22**	**39.5 / 5.0**	**E / A**
Fairview Road	**NB/WB-L**	**PM**	**0.84 / 0.04**	**57.2 / 1.3**	**F / A**
Emory Road at	**STOP**	**AM**	**0.66 / 0.05**	**20.2 / 1.8**	**C / A**
Thompson School Road	**SB/EB-L**	**PM**	**0.51 / 0.21**	**28.6 / 4.8**	**D / A**
Emory Road at	*SIGNAL*	*AM*	*0.85*	*55.7*	*E*
Fairview Road/Thompson School Road	*Mitigation**	*PM*	*0.83*	*53.0*	*D*
	SIGNAL	*AM*	*0.46*	*13.8*	*B*
	*Mitigation***	*PM*	*0.48*	*11.5*	*B*
Tazewell Pike at	**STOP**	**AM**	**0.49 / 0.38**	**18.7 / 39.2**	**C / E**
Fairview Road	**EB/WB**	**PM**	**0.59 / 0.38**	**48.8 / 60.1**	**E / F**
An Eastbound Right-turn Lane	**STOP**	**AM**	**0.47 / 0.32**	**18.0 / 32.0**	**C / D**
Mitigation	**EB/WB**	**PM**	**0.47 . 0.36**	**36.3 / 54.8**	**E / F**

Note: Average vehicle delay estimated in seconds. STOP control analyses presented by total minor approaches.

* Mitigation consists of signalization of Thompson School Road and Fairview Road with current offset alignment, added left-turn lane on both side streets, added right-turn lanes on Emory Road, and separate left-turn lanes on Emory Road at both side street

** Mitigation consists of signalization of Thompson School Road and Fairview Road with typical four-legged alignment, added left-turn lane on both side streets, added right-turn lanes on Emory Road, and separate left-turn lanes on Emory Road at both side

PROJECT IMPACTS

Project conditions are developed by generating traffic based on the proposed land uses, distributing the trips to the transportation network, and again conducting analyses for capacity and level of service.

Trip Generation

Project traffic was determined using the publication, **Trip Generation, 7th Edition**. This reference is published by the Institute of Transportation Engineers (ITE) and represents national data collected for many different land uses including industrial, residential, and commercial uses. **Trip Generation** is an essential tool in calculating the traffic, which may be generated by a proposed development. The study will generate traffic for Planned Residential, a total of 315 single-family units. From the trip generation calculations, the proposed site may generate approximately 2,990 daily trips. Table 5 presents the trip generation of this proposed site. The detailed data and worksheets for the trip generation calculations are contained in the Appendix.

Table 5
TRIP GENERATION

Land Use	Land-Use Code	Units	Daily Trips	AM Peak-Hour Trips		PM Peak-Hour Trips	
				Enter	Exit	Enter	Exit
Single-Family	210	315	2,988	57	172	193	108

Reference: Trip Generation, 7th Edition

Trip Distribution and Assignment

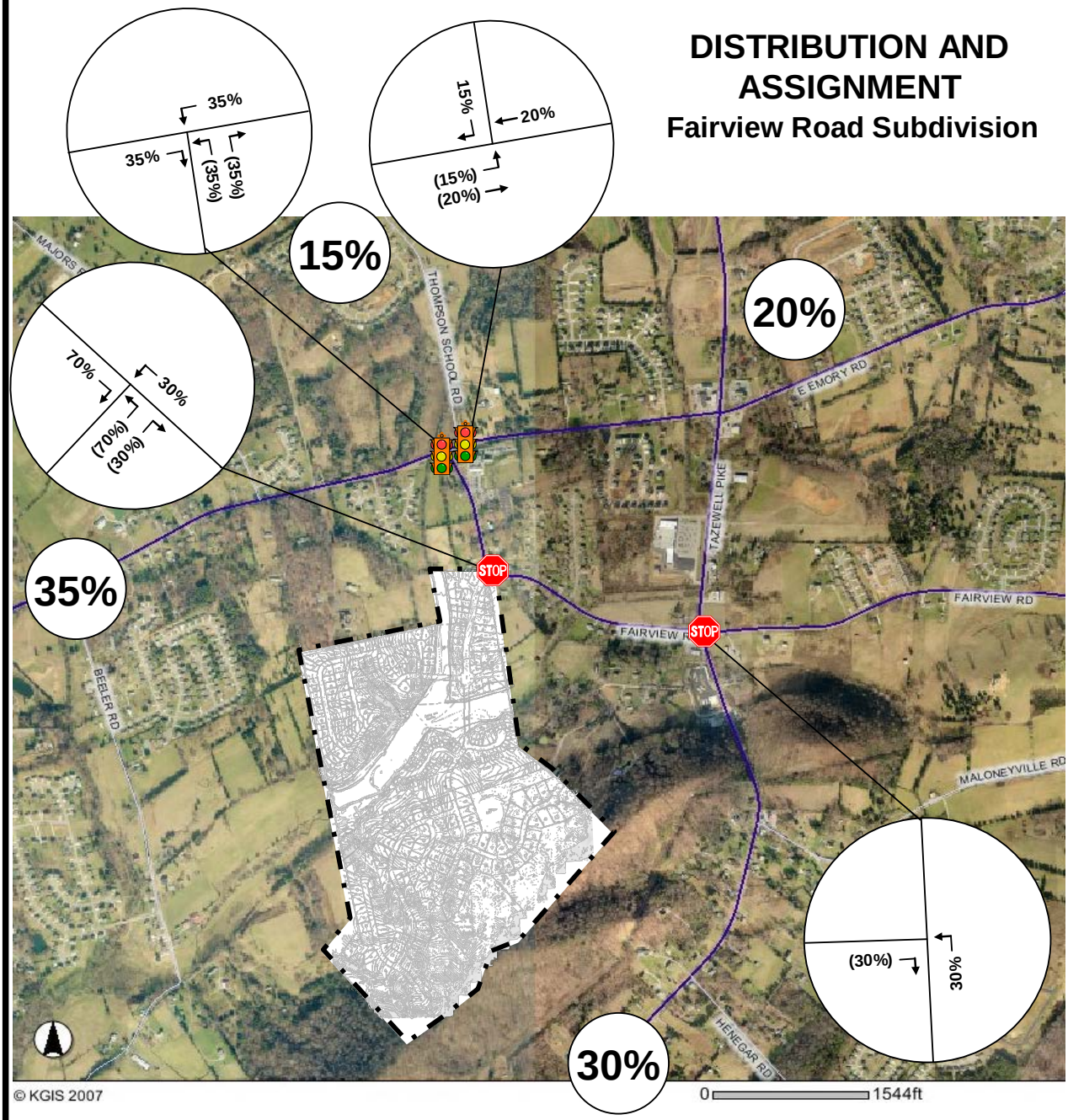
The distribution of this site trips used similar distribution as to that used for the Edwards Place trips which used the turning-movement count from the existing residents of Wheat Meadow Subdivision. The distribution of the Fairview Development trips assumed 70-percent of the generated trips distributed north to E. Emory Road with 15-percent distributed to Thompson School Road, 35-percent to E. Emory Road to the west, and 20-percent to E. Emory Road to the east. To the east on Fairview Road, 30-percent was distributed which turned south to Tazewell Pike. Figure 7 illustrates the traffic distribution and assignment.

Project Traffic Volumes

By multiplying the trips generated by the percentages assignments, the project traffic volumes were determined. Figure 8 illustrates the resulting project traffic volumes. These trips represents approximately a 13-percent and 17-percent increase in traffic for the intersection of Fairview Road at E. Emory Road for the AM and PM peaks, respectively. The increase for the intersection of Fairview Road at Tazewell Pike is approximately 6.5-percent for both the AM and PM peaks.

DISTRIBUTION AND ASSIGNMENT

Fairview Road Subdivision

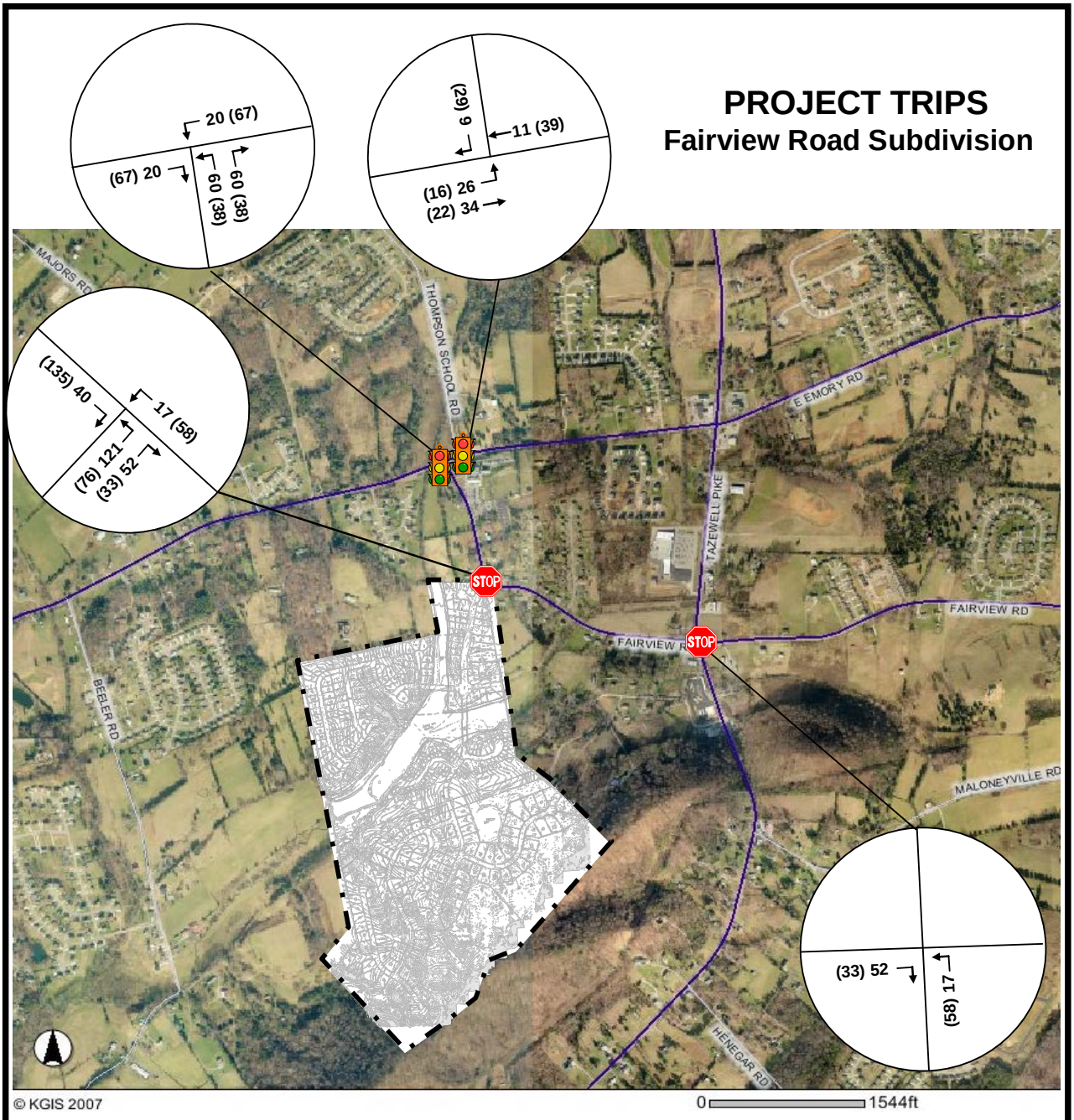


LEGEND

XXX AM ENTERING TRIPS
(XXX) PM EXITING TRIPS

Figure 7

PROJECT TRIPS
Fairview Road Subdivision



LEGEND
XXX AM PEAK
(XXX) PM PEAK

Figure 8

Total Projected Traffic Volumes

Background and project traffic volumes were added together to develop post-development traffic volumes for the year 2010. Figure 9 illustrates this 2010 projection. Using this projection, mitigation measures including traffic control devices, roadway cross-section, and intersection geometry can be evaluated.

Projected Signal Warrant Analysis

With the 2007 existing traffic volumes increased with the trip generated by the Thompson School Road and the Fairview subdivisions, 8-Hour Warrants is fully satisfied with the Combination of the Minimum and the Interruption (Warrant 1C)is very nearly satisfied. The Four-Hour (Warrant 2) and Peak-Hour warrants are fully satisfied. A summary of the warrants and hours satisfied are as follows:

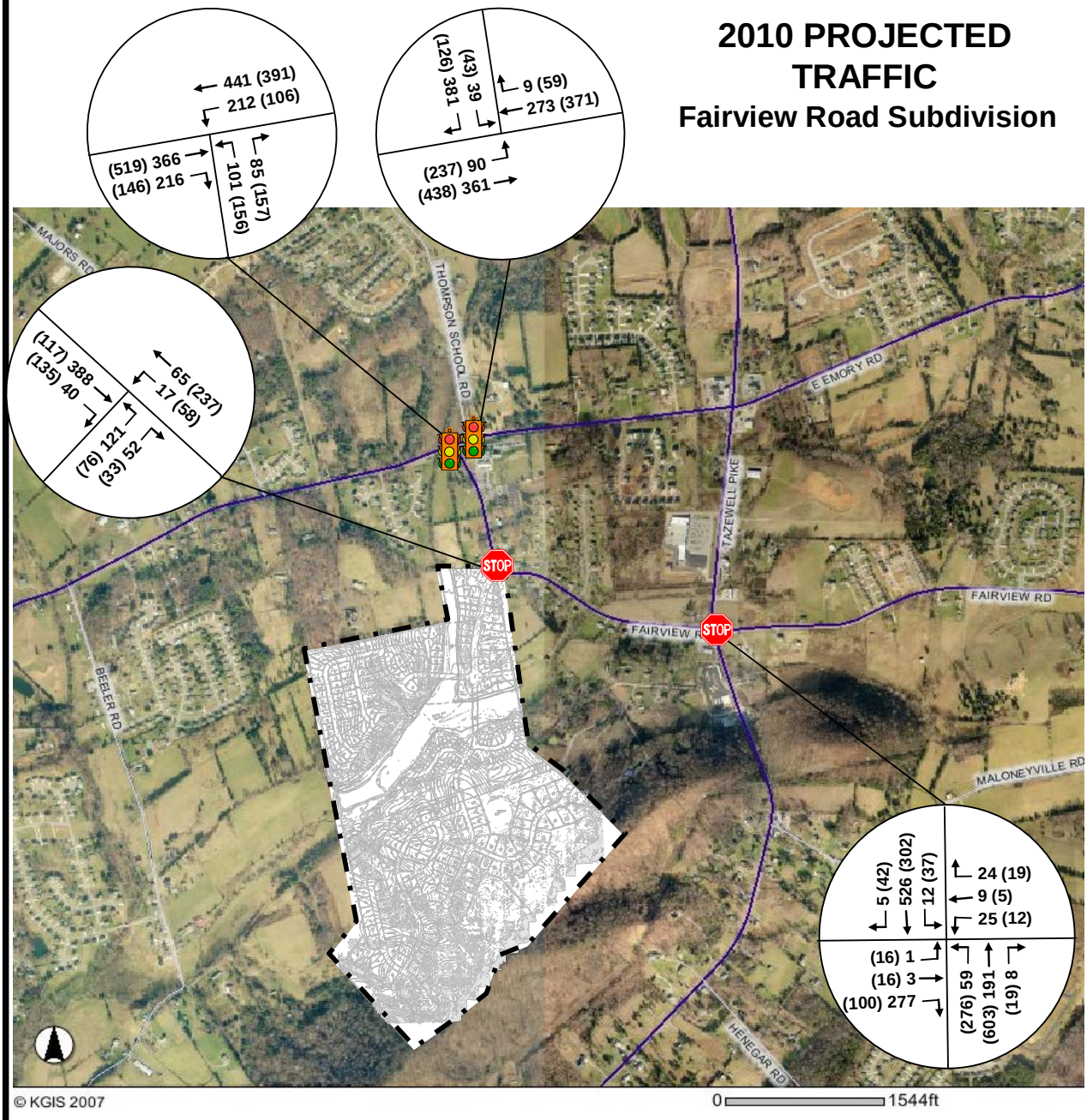
E. Emory Road at Fairview Rd. & Thompson School Rd		Satisfied	>90% Satisfied	Met?
Warrant 1A	Minimum Volume	9 hours	2 hours	Yes
Warrant 1B	Interruption to Continuous Traffic Flow	6 hours	4 hours	No
Warrant 1C	Combination of Parts A & B	11 hours	n/a	Yes
Warrant 2	Four Hour	6 hours	1 hour	Yes
Warrant 3B	Peak-hour Volume	3 hours	1 hour	Yes

Projected Capacity and Level of Service

The development traffic was analyzed to project the impact at the unsignalized intersections of E. Emory Road and Thompson School Road/Fairview Road. The intersection of Fairview Road and E. Emory Road will continue to operate at an LOS F in the peak hours. The Thompson School Road intersection with E. Emory Road will operate at an LOS C and E in the AM and PM peak hour, respectively. The proposed site access is expected to operate at a minimum LOS C during the peak hours. The STOP control approaches of Fairview Road to Tazewell Pike may experience delays associated with failing levels of service. However, a separate right-turn lane for eastbound Fairview Road would be mitigation for the AM peak hour. The LOS analyses are presented in Table 6.

The unsignalized intersection of E. Emory Road at Fairview Road further deteriorates with increasing delays and the intersection failing both the AM and PM peak hours. The E. Emory Road intersection with Thompson School Road was found to have an E LOS during the PM peak hour and its proximity to Fairview Road will further impact it. Signalization of the intersection with the geometry discussed for background conditions would be necessary for the intersections to operate at acceptable levels of service. Signalized intersection capacities may exceed 0.90 V/C ratios, thereby suggesting unstable traffic flows and LOS E may be experienced for both the AM and PM peak hours. Mitigation of the E LOS is the alignment of the north and south approaches which results in a very good LOS.

2010 PROJECTED TRAFFIC
Fairview Road Subdivision



LEGEND
XXX AM PEAK
(XXX) PM PEAK

Figure 9

Table 6
2010 PROJECTED
CAPACITY AND LEVELS OF SERVICE

INTERSECTION	TRAFFIC CONTROL	PEAK PERIOD	V/C	DELAY	LOS
Emory Road at	**STOP**	**AM**	**1.18 / 0.24**	**178.8 / 5.5**	**F / A**
Fairview Road	**NB/WB-L**	**PM**	**1.46 / 0.13**	**266.5 / 3.4**	**F / A**
Emory Road at	**STOP**	**AM**	**0.71 / 0.08**	**22.9 / 2.3**	**C / A**
Thompson School Road	**SB/EB-L**	**PM**	**0.63 / 0.24**	**36.3 / 5.2**	**E / A**
Emory Road at	*SIGNAL*	*AM*	*0.92*	*67.2*	*E*
Fairview Road/Thompson School Road	*Mitigation**	*PM*	*0.92*	*64.4*	*E*
	SIGNAL	*AM*	*0.53*	*15.1*	*B*
	*Mitigation***	*PM*	*0.56*	*14.7*	*B*
Tazewell Pike at	**STOP**	**AM**	**0.60 / 0.53**	**22.1 / 65.4**	**C / F**
Fairview Road	**EB/WB**	**PM**	**0.78 / 0.54**	**71.4 / 102.1**	**F / F**
An Eastbound Right-turn Lane	**STOP**	**AM**	**0.58 / 0.43**	**21.1 / 47.3**	**C / E**
Mitigation	**EB/WB**	**PM**	**0.61 / 0.49**	**41.6 / 87.8**	**E / F**
Fairview Road at	**STOP**	**AM**	**0.27 / 0.09**	**15.1 / 11.5**	**C / B**
Proposed Site Access	**NB-L/R**	**PM**	**0.18 / 0.04**	**14.8 / 9.5**	**B / A**

Note: Average vehicle delay estimated in seconds. STOP control analyses presented by total minor approaches.

* Mitigation consists of signalization of Thompson School Road and Fairview Road with current offset alignment, added left-turn lane on both side streets, added right-turn lanes on Emory Road, and separate left-turn lanes on Emory Road at both side street

** Mitigation consists of signalization of Thompson School Road and Fairview Road with typical four-legged alignment, added left-turn lane on both side streets, added right-turn lanes on Emory Road, and separate left-turn lanes on Emory Road at both side

The eastbound approach of Fairview Road at Tazewell Pike may fail during the PM peak hour where as the LOS is unchanged from that determined for background conditions during the AM peak hours. Mitigation of this eastbound LOS is the addition of a right-turn lane which would facilitate the large right-turn traffic volume throughout the day. The eastbound right-turn lane also reduces the westbound approach delay which improves its AM LOS from a LOS F to an E LOS. Table 7 provides a summary of the analysis conducted for this study.

Sight Distance

The proposed site access to Fairview Road has a measured sight distance greater than 300 feet looking left or right from the proposed access street. The sight-distance to the north is approximately 500-feet and 300 feet to the east. The posted speed limit on Fairview Road is 30-mph. The required distance is 200 feet to meet the minimum stopping sight-distance for American Association of State Highway and Transportation Officials (AASHTO) and 300 feet to meet the Knox County Minimum Corner Sight-distance standard. The proposed site access to Fairview Road intersection meets both criteria to be acceptable for safe operations. Figure 10 shows the measured sight distance and a sample driver's view.

TABLE 7
CAPACITY AND LEVEL OF SERVICE
SUMMARY

INTERSECTION	TRAFFIC CONTROL	PEAK PERIOD	2007 TRAFFIC V/C	2007 TRAFFIC DELAY	2007 TRAFFIC LOS	2010 BACKGROUND V/C	2010 BACKGROUND DELAY	2010 BACKGROUND LOS	2010 PROJECTED V/C	2010 PROJECTED DELAY	2010 PROJECTED LOS
Emory Road at	**STOP**	**AM**	**0.25 / 0.16**	**26.9 / 4.0**	**D / A**	**0.40 / 0.22**	**39.5 / 5.0**	**E / A**	**1.18 / 0.24**	**178.8 / 5.5**	**F / A**
Fairview Road	**NB/WB-L**	**PM**	**0.55 / 0.02**	**26.2 / 0.7**	**D / A**	**0.84 / 0.04**	**57.2 / 1.3**	**F / A**	**1.46 / 0.13**	**266.5 / 3.4**	**F / A**
Emory Road at	**STOP**	**AM**	**0.44 / 0.03**	**13.6 / 1.2**	**B / A**	**0.66 / 0.05**	**20.2 / 1.8**	**C / A**	**0.71 / 0.08**	**22.9 / 2.3**	**C / A**
Thompson School Road	**SB/EB-L**	**PM**	**0.22 / 0.12**	**16.7 / 3.2**	**C / A**	**0.51 / 0.21**	**28.6 / 4.8**	**D / A**	**0.63 / 0.24**	**36.3 / 5.2**	**E / A**
Emory Road at	*SIGNAL*	*AM*	*0.73*	*38.3*	*D*	*0.85*	*55.7*	*E*	*0.92*	*67.2*	*E*
Fairview Road/Thompson School Road	*Mitigation**	*PM*	*0.73*	*39.8*	*D*	*0.83*	*53.0*	*D*	*0.92*	*64.4*	*E*
	SIGNAL	*AM*				*0.46*	*13.8*	*B*	*0.53*	*15.1*	*B*
	*Mitigation***	*PM*				*0.48*	*11.5*	*B*	*0.56*	*14.7*	*B*
Tazewell Pike at	**STOP**	**AM**	**0.37 / 0.24**	**15.5 / 24.8**	**C / C**	**0.49 / 0.38**	**18.7 / 39.2**	**C / E**	**0.60 / 0.53**	**22.1 / 65.4**	**C / F**
Fairview Road	**EB/WB**	**PM**	**0.38 / 0.23**	**31.6 / 35.6**	**D / E**	**0.59 / 0.38**	**48.8 / 60.1**	**E / F**	**0.78 / 0.54**	**71.4 / 102.1**	**F / F**
An Eastbound Right-turn Lane	**STOP**	**AM**				**0.47 / 0.32**	**18.0 / 32.0**	**C / D**	**0.58 / 0.43**	**21.1 / 47.3**	**C / E**
Mitigation	**EB/WB**	**PM**				**0.47 . 0.36**	**36.3 / 54.8**	**E / F**	**0.61 / 0.49**	**41.6 / 87.8**	**E / F**
Fairview Road at	**STOP**	**AM**							**0.27 / 0.09**	**15.1 / 11.5**	**C / B**
Proposed Site Access	**NB-L/R**	**PM**							**0.18 / 0.04**	**14.8 / 9.5**	**B / A**

Note: Average vehicle delay estimated in seconds. STOP control analyses presented by total minor approaches.

* Mitigation consists of signalization of Thompson School Road and Fairview Road with current offset alignment, added left-turn lane on both side streets, added right-turn lanes on Emory Road, and separate left-turn lanes on Emory Road at both side streets.

** Mitigation consists of signalization of Thompson School Road and Fairview Road with typical four-legged alignment, added left-turn lane on both side streets, added right-turn lanes on Emory Road, and separate left-turn lanes on Emory Road at both side streets.

SIGHT-DISTANCES
Fairview Road Subdivision

Figure 10

Auxiliary Lane Evaluation for Project Impacts

For background traffic conditions, warrants were established for the E. Emory Road left-turn lanes to Fairview Road and Thompson School Road and a right-turn lane to Fairview Road. Further analyses were conducted for the proposed site access. This evaluation determined that turn lanes were not required for the site access from Fairview Road.

Additional Access Point Evaluation

Local planning and engineering agencies generally require that additional access be considered for residential developments when the number of units exceeds 150. The proposed total of this residential development is 315 units, so provision of an additional access route is required. The key issues are traffic operations (capacity and level of service) at the access points and maintaining accessibility for emergency vehicles. Given the projected acceptable traffic LOS for the site access, the more pertinent issue is emergency vehicle access.

The current site has its only access to Fairview Road with a very limited frontage. There currently exists no other alternative for additional access for the site until the adjacent properties develop. This development should, therefore, make provisions for future access through the adjacent properties when it may develop in order to provide additional access for emergency vehicles and distribution of site generated traffic.

ADDITIONAL ANALYSIS

Due to the size of this proposed residential development, the reviewing agencies requested analysis to explicitly identify the impact of this development to the existing network. The proposed development would not occur in its entirety at the beginning. Therefore, a phase of units will occur over the first several years. Then, additional units over the following years would be constructed and sold until the development has completed the entire 315 units.

Phase 1 Capacity and LOS

Analyses were performed with the 2007 traffic volumes and Phase 1 generated trips. This set of analyses did not include background traffic growth or any other approved development. Phase 1 of the development will consist of 181 residential units. This is approximately 57% of the proposed 315-unit development. The AM and PM trips generated are expected to be approximately 136 and 183, respectively. The daily trips generated by Phase 1 would be approximately 1,795. Figure 11 shows the traffic volumes expected with Phase 1 of the proposed development. With Phase 1 of the development,

the existing study intersections are expected to operate at LOS E or better without any additional mitigation. Table 8 displays the expected additional trips generated by Phase 1 of the development. Table 9 shows the expected capacity and LOS data for Phase 1 plus the 2007 traffic volumes.

Phase 2 Capacity and LOS

Analyses were performed with the 2007 traffic volumes and Phase 2 generated trips. Phase 2 units include the 181 units of Phase 1 to total 292 units. This is approximately 93% of the proposed 315-unit development. The AM and PM trips generated are expected to be approximately 213 and 281, respectively. The daily trips generated by Phase 2 would be approximately 2,787. Figure 12 shows the traffic volumes expected with Phase 2 of the proposed development. With Phase 2 of the development, the existing study intersections are expected to operate at LOS F without mitigation. Therefore, Phase 2 trips could operate at LOS E or better with the mitigation of a 150-foot right-turn lane on Fairview Road at Emory Road. Table 8 displays the expected additional trips generated by Phase 2 of the development. Table 9 shows the expected capacity and LOS data for Phase 2 plus the 2007 traffic volumes.

Phase 3 Capacity and LOS

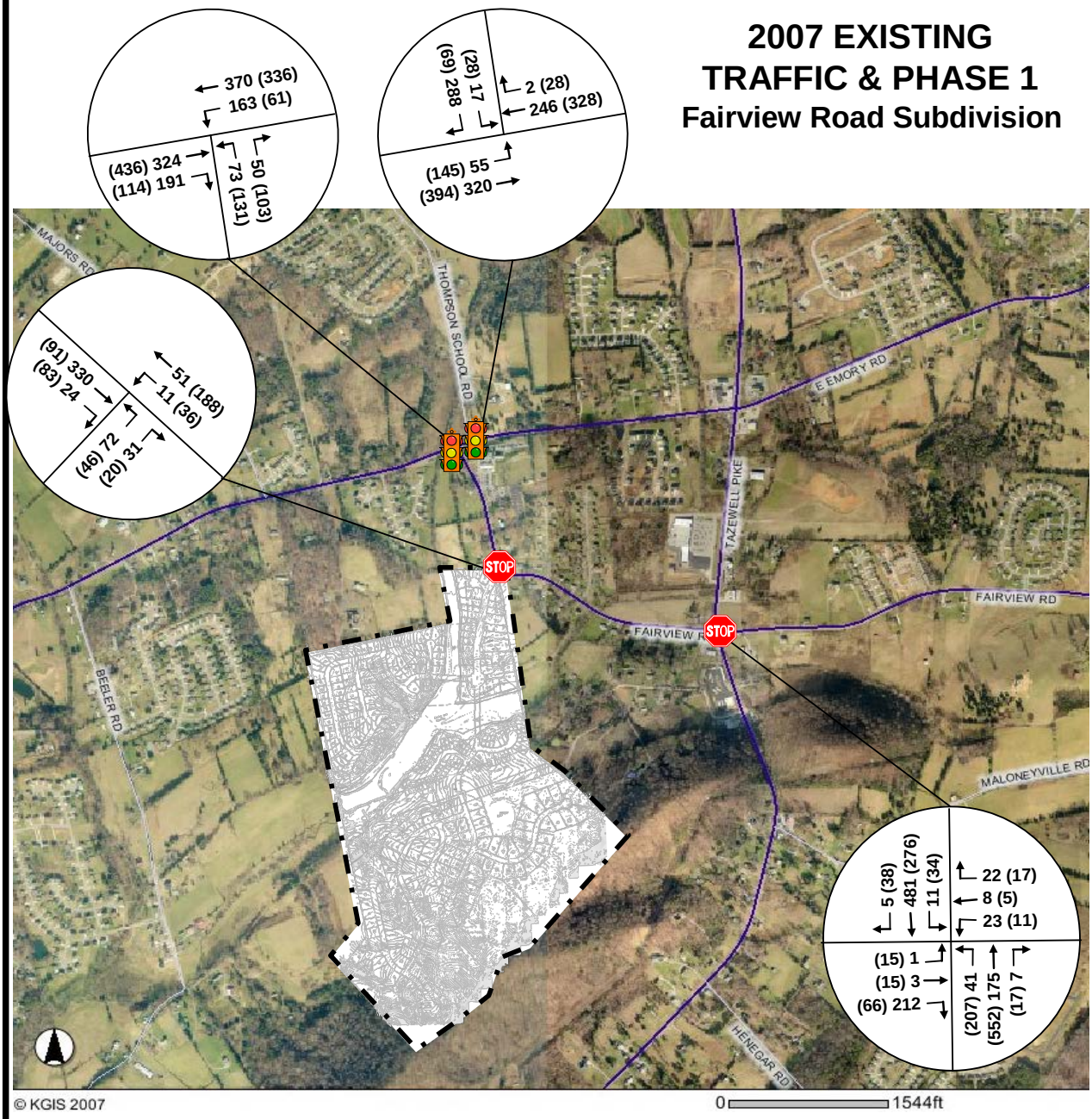
Analyses were performed with the 2007 traffic volumes and Phase 3 generated trips. Phase 3 units are an additional 23 units to complete the entire 315 proposed units. The AM and PM trips generated, as previously stated, are expected to be approximately 229 and 301, respectively. The daily trips generated by Phase 3 would be approximately 2,988. Figure 13 shows the traffic volumes expected with Phase 3 of the proposed development. With Phase 3 of the development, the existing study intersections are expected to operate at LOS F even with the added turn lane on Fairview Road at Emory Road. Therefore, Phase 3 trips could operate at LOS E or better with an additional mitigation of a 100-foot right-turn lane on Fairview Road at Tazewell Pike. Table 8 displays the expected additional trips generated by Phase 3 of the development. Table 9 shows the expected capacity and LOS data for Phase 3 plus the 2007 traffic volumes.

TABLE 8
TRIP GENERATION BY PHASE

				Daily	AM Peak-Hour		PM Peak-Hour	
Phase	**Land Use**	**L.U.C.**	**Units**	**Trips**	**Enter**	**Exit**	**Enter**	**Exit**
1	**Single-Family**	**210**	181	1,795	34	102	118	65
2	**Single-Family**	**210**	292	2,787	53	160	180	101
3	**Single-Family**	**210**	315	2,988	57	172	193	108

Note: Units are total residnetial lots within the development at the completion of the particular phase.

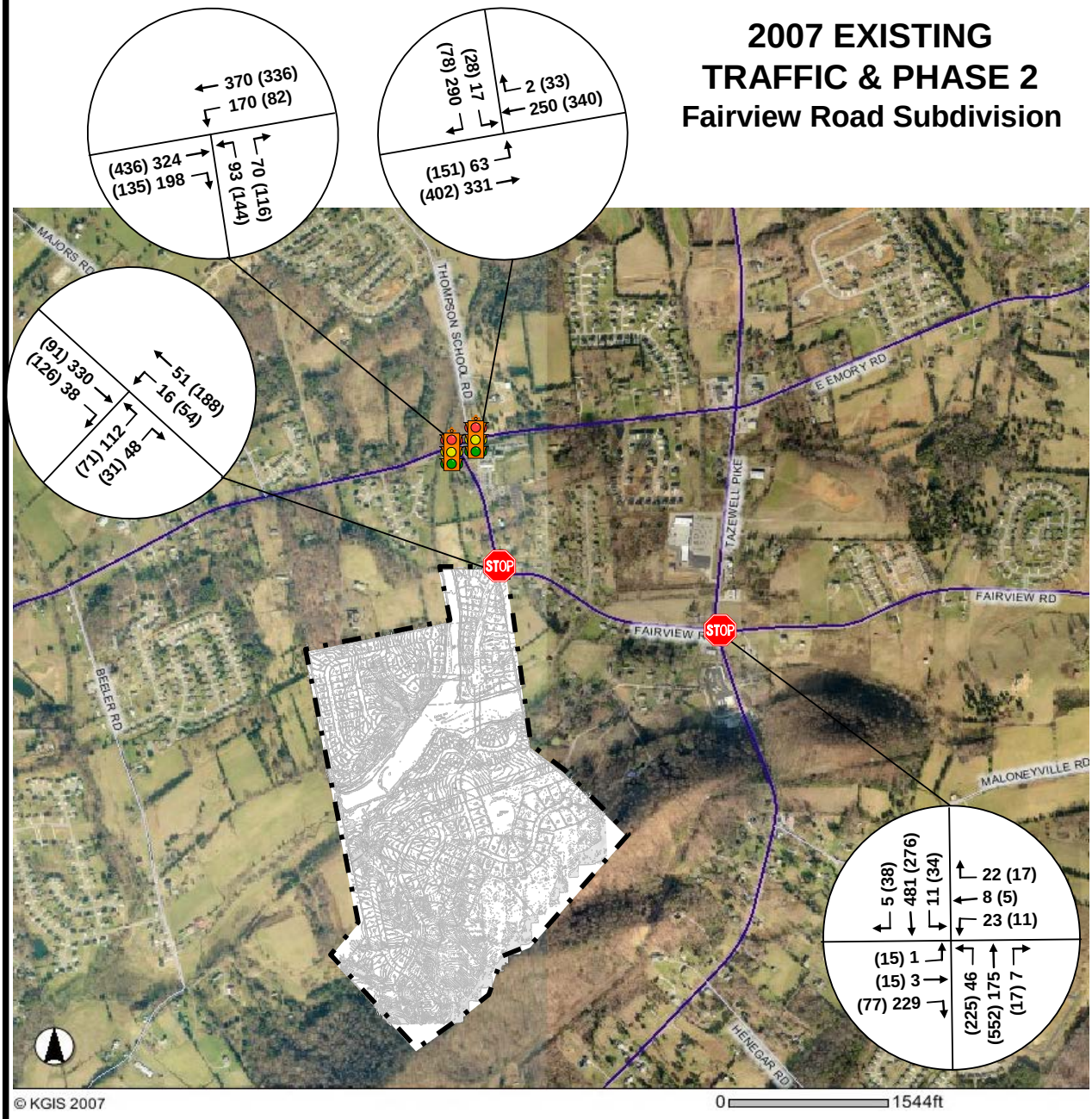
2007 EXISTING TRAFFIC & PHASE 1
Fairview Road Subdivision



LEGEND
XXX AM PEAK
(XXX) PM PEAK

Figure 11

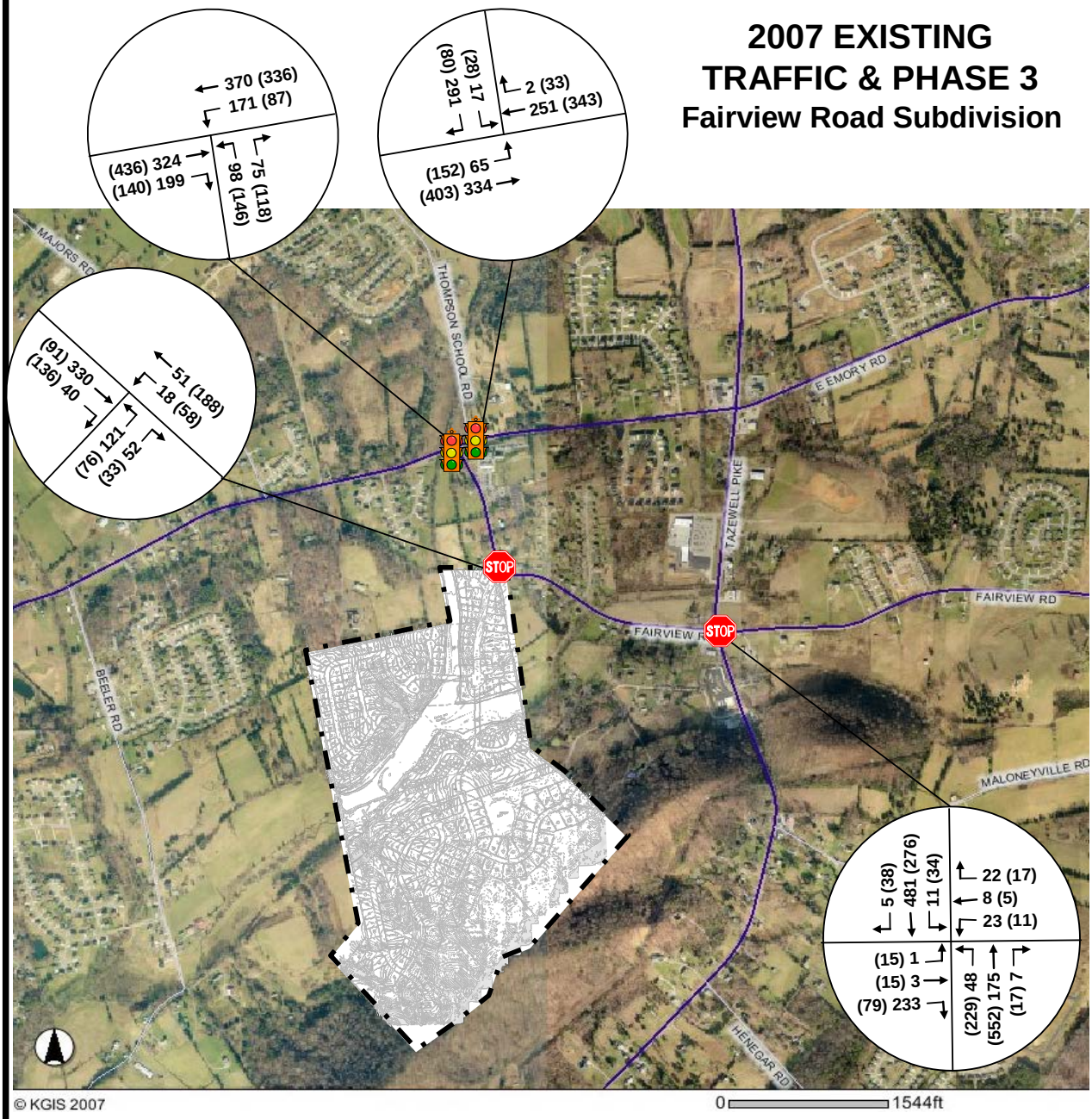
2007 EXISTING TRAFFIC & PHASE 2
Fairview Road Subdivision



LEGEND
XXX AM PEAK
(XXX) PM PEAK

Figure 12

2007 EXISTING TRAFFIC & PHASE 3
Fairview Road Subdivision



LEGEND
XXX AM PEAK
(XXX) PM PEAK

Figure 13

TABLE 9
CAPACITY AND LEVEL OF SERVICE
SUMMARY OF DEVELOPMENT PHASES

INTERSECTION	TRAFFIC CONTROL	PEAK PERIOD	2007 TRAFFIC V/C	2007 TRAFFIC DELAY	2007 TRAFFIC LOS	2007 PHASE 1 V/C	2007 PHASE 1 DELAY	2007 PHASE 1 LOS	2007 PHASE 2 V/C	2007 PHASE 2 DELAY	2007 PHASE 2 LOS	2007 PHASE 3 V/C	2007 PHASE 3 DELAY	2007 PHASE 3 LOS
Emory Road at	**STOP**	**AM**	**0.25 / 0.16**	**26.9 / 4.0**	**D / A**	**0.57 / 0.18**	**38.7 / 4.3**	**E / A**	**0.76 / 0.18**	**56.9 / 4.5**	**F / A**	**0.81 / 0.19**	**63.4 / 4.5**	**F / A**
Fairview Road	**NB/WB-L**	**PM**	**0.55 / 0.02**	**26.2 / 0.7**	**D / A**	**0.80 / 0.07**	**49.3 / 2.0**	**E / A**	**0.96 / 0.09**	**81.6 / 2.7**	**F / A**	**0.99 / 0.10**	**90.9 / 2.8**	**F / A**
Added 150-FT Right-turn	*STOP*	*AM*							*0.63 / 0.33*	*39.3 / 4.5*	*E / A*	*0.67 / 0.19*	*41.7 / 4.5*	*E / A*
Lane on Fairview Road	*NB/WB-L*	*PM*							*0.73 / 0.09*	*37.2 / 2.7*	*E / A*	*0.75 / 0.10*	*39.9 / 2.8*	*E / A*
Emory Road at	**STOP**	**AM**	**0.44 / 0.03**	**13.6 / 1.2**	**B / A**	**0.46 / 0.05**	**14.1 / 1.6**	**B / A**	**0.46 / 0.05**	**14.3 / 1.7**	**B / A**	**0.47 / 0.05**	**14.4 / 1.8**	**B / A**
Thompson School Road	**SB/EB-L**	**PM**	**0.22 / 0.12**	**16.7 / 3.2**	**C / A**	**0.27 / 0.14**	**17.3 / 3.4**	**C / A**	**0.29 / 0.14**	**17.8 / 3.6**	**C / A**	**0.30 / 0.14**	**17.9 / 3.6**	**C / A**
Tazewell Pike at	**STOP**	**AM**	**0.37 / 0.24**	**15.5 / 24.8**	**C / C**	**0.43 / 0.26**	**16.6 / 29.5**	**C / D**	**0.47 / 0.31**	**17.3 / 32.8**	**C / D**	**0.47 / 0.32**	**17.5 / 33.8**	**C / D**
Fairview Road	**EB/WB**	**PM**	**0.38 / 0.23**	**31.6 / 35.6**	**D / E**	**0.46 / 0.28**	**34.2 / 44.1**	**D / E**	**0.51 / 0.31**	**36.2 / 50.0**	**E / E**	**0.52 / 0.32**	**36.8 / 51.3**	**E / F**
Added 100-FT Right-turn	*STOP*	*AM*										*0.46 / 0.27*	*17.0 / 28.1*	*C / D*
Lane on Fairview Road	*EB/WB*	*PM*										*0.40 / 0.30*	*28.3 / 48.4*	*D / E*
Fairview Road at	**STOP**	**AM**				**0.09 / 0.02**	**11.9 / 9.1**	**B / A**	**0.22 / 0.08**	**13.5 / 10.8**	**B / B**	**0.24 / 0.08**	**13.8 / 10.9**	**B / B**
Proposed Site Access	**NB-L/R**	**PM**				**0.09 / 0.02**	**11.9 / 9.1**	**B / A**	**0.15 / 0.04**	**13.2 / 9.3**	**B / A**	**0.16 / 0.04**	**13.6 / 9.3**	**B / A**

Note 1: Average vehicle delay estimated in seconds. STOP control analyses presented by total minor approaches.

Note 2: Traffic Analysis based on 2007 Existing Traffic plus Fairview Residential Development Traffic.

Note 3: Mitigation consists of added 150-foot right-turn lane on Fairview Road at Emory Road for Phase 2.

Note 4: Mitigation consists of added 100-foot right-turn lane on Fairview Road at Tazewell Pike for Phase 3.

RECOMMENDATIONS

The analyses conducted and the review of the traffic volumes identified the following recommendations:

Non-Development Related Impacts:

- Consider two-way left-turn lane or separate left-turn lanes as previously discussed. Left-turn lanes on Emory Road to Thompson School Road and Fairview Road are warranted under existing conditions without or with the proposed Fairview Development.

- Provide a 150-foot minimum eastbound right-turn lane on E. Emory Road at Fairview Road. This is based on the recommendations from the Edwards Place Study as background conditions not associated with Edwards Place or the proposed Fairview Residential Development.

- Provide a 250-foot minimum northbound left-turn lane for Tazewell Pike at Fairview Road. This is warranted based on the 2007 existing conditions.

Development Related Impacts:

- During Phase 1, Fairview Residential Development is not expected to cause significant additional impacts to existing networks.

- Develop a provision of a future access through the adjacent properties.

- During Phase 2, provide a 150-foot minimum northbound right-turn lane on Fairview Road at Emory Road.

- During Phase 3, provide a 100-foot minimum eastbound right-turn lane from Fairview Road to Tazewell Pike.

- Minimize landscaping, using low growing vegetation, and signing at the proposed street access to insure that safe sight distance is maintained within the proposed access intersection at Fairview Road.

- Intersection design should conform to the recommended standards and practices of the American Association of State Highway and Transportation Officials, the Institute of Transportation Engineers, and the Knox County Department of Public Works and Engineering.

CONCLUSION

The study of this proposed single-family residential development, with 315 units, evaluated the projected traffic conditions. Background traffic was determined using a 3.0% annual growth rate until the year 2010 and the development of the Edwards Place subdivision. Traffic associated with the proposed project was then generated and distributed to the study intersections. Using the identified turning movements for the projected traffic conditions, unsignalized and signalized capacity and level of service analyses were conducted using the **2000 Highway Capacity Manual**.

Unsignalized levels of service were found to be acceptable for the existing traffic conditions but will fail with or without the proposed development for the intersection of E. Emory Road and Thompson School Road/Fairview Road. Signalization of the Thompson School Road and Fairview Road intersections with E. Emory Road is warranted for existing conditions by the Four-Hour warrant. Further warrants are satisfied with the proposed and the planned development of the Edwards Place subdivision. Signalized analyses with left-turn lanes provided for each approach resulted in an E level of service which may accommodate the current planned development, but the alignment of the Fairview Road and Thompson School Road approaches provided for the most efficient signalized intersection operation with a B LOS. The signalization of the offset intersection can be provided with lead-lag left-turn phasing for E. Emory Road, split phasing for the Fairview Road and Thompson School Road approaches, and all-red intervals. The alignment of the north and south approaches provides for more efficient phasing and minimized the all-red intervals.

The STOP controlled eastbound approach of Fairview Road at Tazewell Pike is acceptable during the AM peak hour with or without the proposed development, but may experience increased delays during the PM peak which may become an E LOS for background traffic conditions and fails with the development. The provision of a right-turn lane for the eastbound approach of Fairview Road would minimize the unsignalized delay resulting in a minimum E LOS. The delays for the westbound approach are also reduced with an eastbound right-turn lane.

Auxiliary lanes are warranted with existing and background traffic without the development. The development traffic further increases the turning volumes, but the increase is 8% and 6% during the AM and PM peak hours, respectively. The sight distance for the site access to Fairview Road is adequate based on field measurements for a posted 30-mph speed limit. With the recommendations of this report, the efficient and safe flow of traffic should be maintained.

APPENDIX

Historical ADT's

Trip Generation

Capacity and LOS Analyses

Traffic Counts

Auxiliary Lane Evaluations

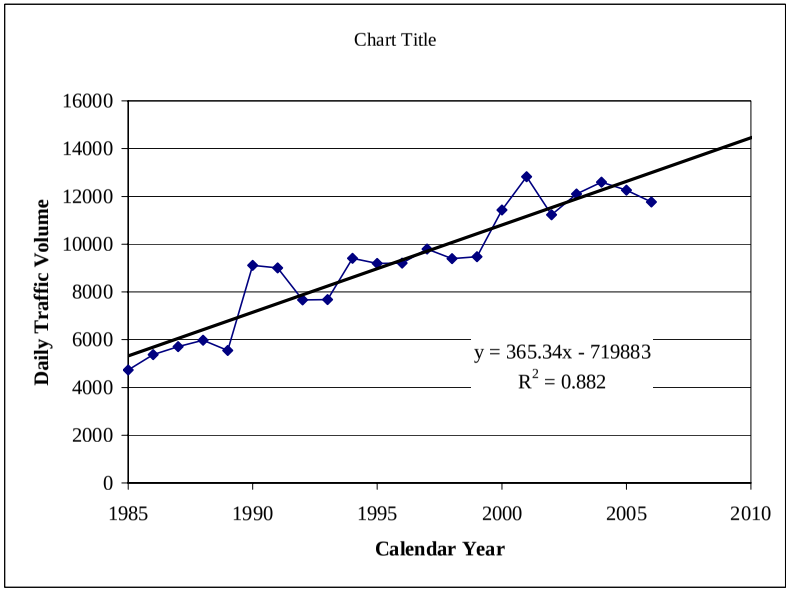
HISTORICAL ADT'S

Station #	County	Location	Route #	Route Name	Station Out
	19 Knox	NE OF HALLS CROSS RDS	SR131	SR-131	N

Remarks	Year	Adj. Ave. Daily Traffic	Linear Regression	Diff.	Annual Increase
	1985	4731	5320		
	1986	5368	5680	360	6.8%
	1987	5715	6050	370	6.5%
	1988	5970	6410	360	6.0%
	1989	5554	6780	370	5.8%
STA 24 ALSO UP	1990	9111	7140	360	5.3%
EST-CONST.	1991	9000	7510	370	5.2%
	1992	7669	7870	360	4.8%
	1993	7682	8240	370	4.7%
	1994	9402	8600	360	4.4%
	1995	9194	8970	370	4.3%
ACTUAL = 8495	1996	9200	9340	370	4.1%
	1997	9800	9700	360	3.9%
	1998	9396	10070	370	3.8%
	1999	9476	10430	360	3.6%
DIFF MONTH	2000	11430	10800	370	3.5%
	2001	12829	11160	360	3.3%
	2002	11236	11530	370	3.3%
	2003	12105	11890	360	3.1%
EST	2004	12600	12260	370	3.1%
	2005	12267	12620	360	2.9%
	2006	11770	12990	370	2.9%

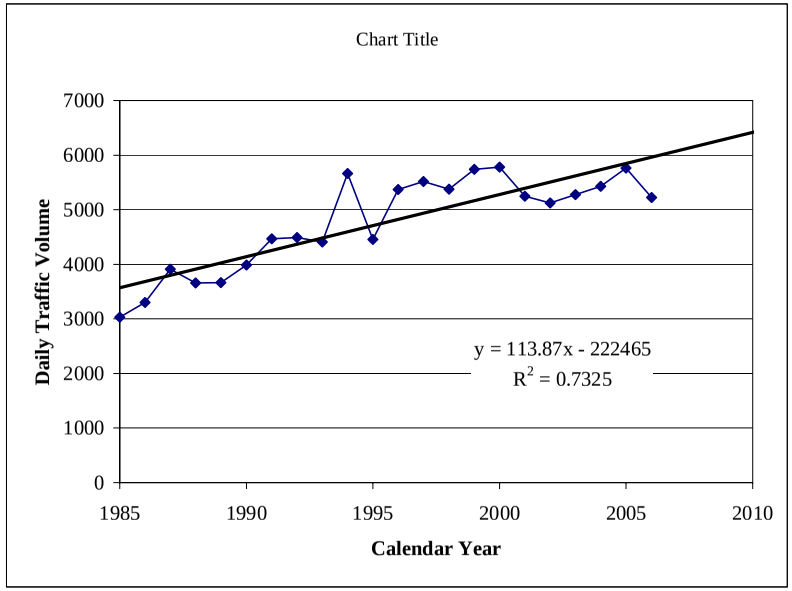
Historical Growth	6.87%
Forecast Growth	2.74%

Year	Linear Regression	Diff.	Annual Increase
2007	13360	370	2.8%
2008	13730	370	2.8%
2009	14090	360	2.6%
2010	14460	370	2.6%
2011	14820	360	2.5%
2012	15190	370	2.5%



Station #	County	Location	Route #	Route Name	Station Out
	9 Knox	E. OF HARBISON CROSS R	SR331	SR-131	N

Remarks	Year	Adj. Ave. Daily Traffic	Linear Regression	Diff.	Annual Increase
	1985	3029	3570		
	1986	3299	3680	110	3.1%
	1987	3910	3790	110	3.0%
	1988	3657	3910	120	3.2%
	1989	3665	4020	110	2.8%
	1990	3985	4140	120	3.0%
	1991	4465	4250	110	2.7%
	1992	4488	4360	110	2.6%
	1993	4410	4480	120	2.8%
	1994	5662	4590	110	2.5%
	1995	4456	4710	120	2.6%
	1996	5372	4820	110	2.3%
	1997	5515	4930	110	2.3%
	1998	5376	5050	120	2.4%
	1999	5738	5160	110	2.2%
	2000	5778	5280	120	2.3%
	2001	5250	5390	110	2.1%
	2002	5122	5500	110	2.0%
	2003	5276	5620	120	2.2%
	2004	5429	5730	110	2.0%
	2005	5761	5840	110	1.9%
	2006	5222	5960	120	2.1%

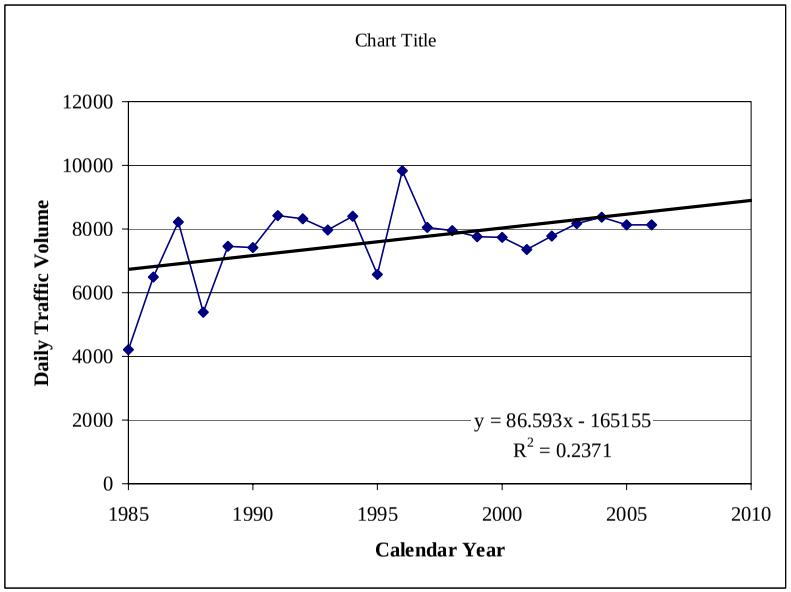


Historical Growth	3.19%
Forecast Growth	1.88%

Year	Linear Regression	Diff.	Annual Increase
2007	6080	120	2.0%
2008	6190	110	1.8%
2009	6300	110	1.8%
2010	6420	120	1.9%
2011	6530	110	1.7%
2012	6650	120	1.8%

Station #	County	Location	Route #	Route Name	Station Out
	6 Knox	N.OF HARBISON CROSS R(	SR131	SR-131	N

Remarks	Year	Adj. Ave. Daily Traffic	Linear Regression	Diff.	Annual Increase
	1985	4209	6730		
	1986	6492	6820	90	1.3%
	1987	8218	6910	90	1.3%
	1988	5382	6990	80	1.2%
	1989	7455	7080	90	1.3%
	1990	7420	7170	90	1.3%
	1991	8427	7250	80	1.1%
	1992	8317	7340	90	1.2%
	1993	7970	7420	80	1.1%
	1994	8400	7510	90	1.2%
	1995	6576	7600	90	1.2%
	1996	9834	7680	80	1.1%
	1997	8049	7770	90	1.2%
	1998	7949	7860	90	1.2%
	1999	7759	7940	80	1.0%
	2000	7738	8030	90	1.1%
	2001	7353	8120	90	1.1%
	2002	7781	8200	80	1.0%
	2003	8169	8290	90	1.1%
	2004	8373	8380	90	1.1%
	2005	8129	8460	80	1.0%
	2006	8129	8550	90	1.1%

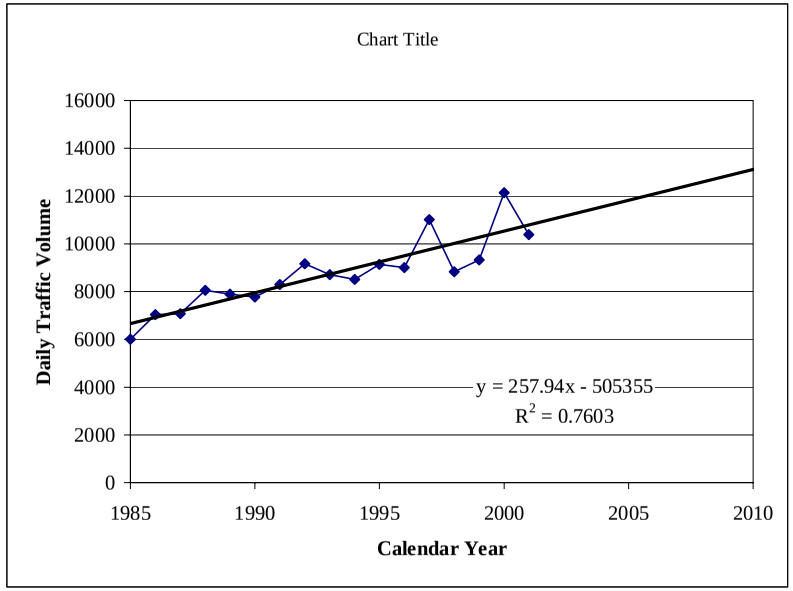


Historical Growth	1.29%
Forecast Growth	1.00%

Year	Linear Regression	Diff.	Annual Increase
2007	8640	90	1.1%
2008	8720	80	0.9%
2009	8810	90	1.0%
2010	8900	90	1.0%
2011	8980	80	0.9%
2012	9070	90	1.0%

Station #	County	Location	Route #	Route Name	Station Out
	8 Knox	S. OF HARBISON CROSS R	SR331	SR-331	N

Remarks	Year	Adj. Ave. Daily Traffic	Linear Regression	Diff.	Annual Increase
	1985	6005	6660		
	1986	7034	6910	250	3.8%
	1987	7082	7170	260	3.8%
	1988	8054	7430	260	3.6%
	1989	7896	7690	260	3.5%
	1990	7772	7950	260	3.4%
	1991	8300	8200	250	3.1%
	1992	9166	8460	260	3.2%
	1993	8709	8720	260	3.1%
	1994	8510	8980	260	3.0%
	1995	9137	9240	260	2.9%
	1996	9000	9490	250	2.7%
	1997	11014	9750	260	2.7%
	1998	8828	10010	260	2.7%
	1999	9320	10270	260	2.6%
	2000	12145	10530	260	2.5%
	2001	10379	10780	250	2.4%
	2002		11040	260	2.4%
	2003		11300	260	2.4%
	2004		11560	260	2.3%
	2005		11810	250	2.2%
	2006		12070	260	2.2%

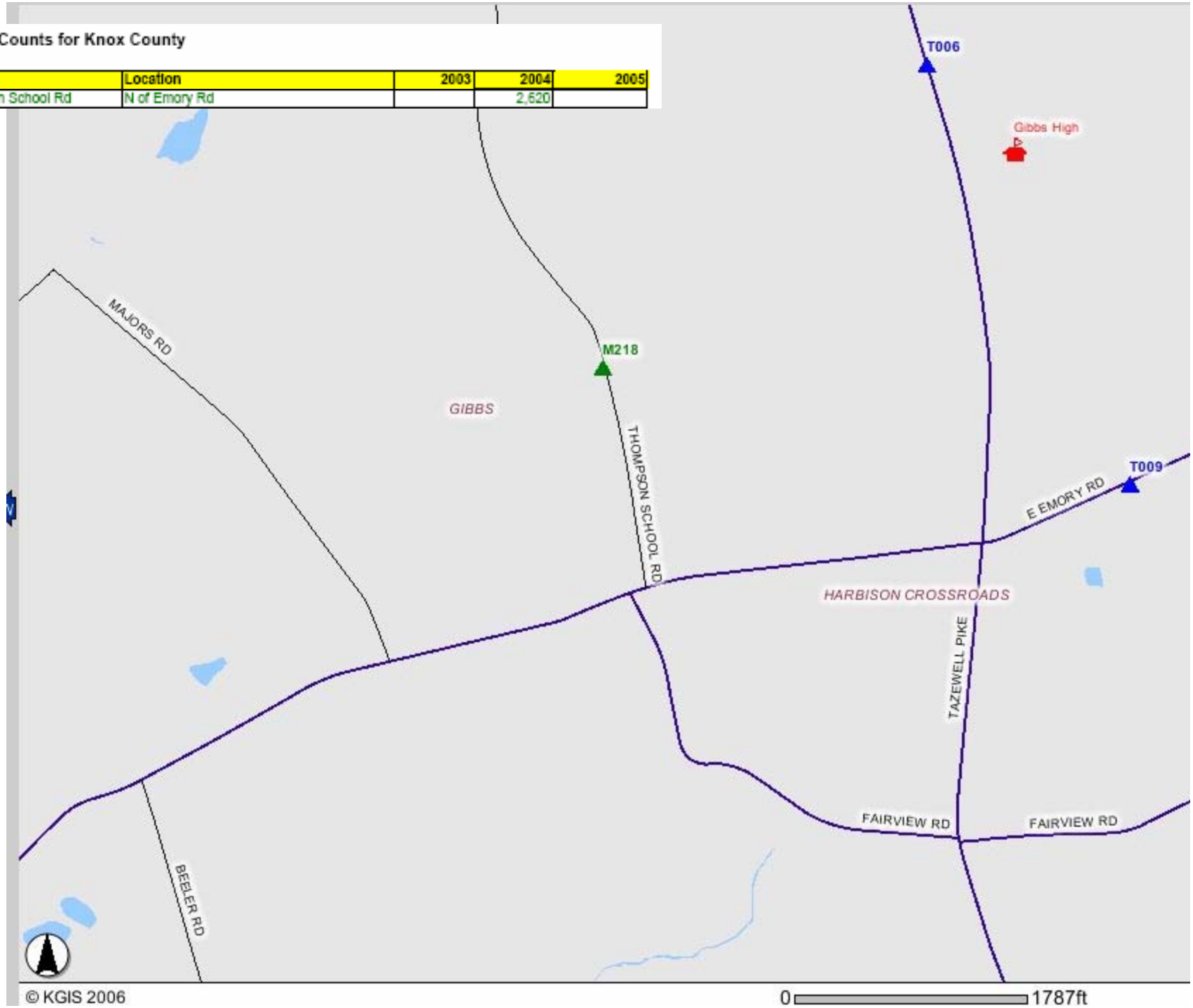


Historical Growth	3.87%
Forecast Growth	2.09%

Year	Linear Regression	Diff.	Annual Increase
2007	12340	270	2.2%
2008	12600	260	2.1%
2009	12850	250	2.0%
2010	13110	260	2.0%
2011	13370	260	2.0%
2012	13630	260	1.9%

2003-2005 Traffic Counts for Knox County

Station	Street	Location	2003	2004	2005
M218	Thompson School Rd	N of Emory Rd		2,620	



Kevin Cole

From: Mike Conger [Mike.Conger@knoxtrans.org]
Sent: Wednesday, January 24, 2007 4:52 PM
To: kcole@wilbursmith.com
Subject: Re:

Other years I have for sta 218 are as follows:

1996 974
1998 1061
2000 2380
2002 2100
2004 2620
2006 2640

Let me know if you need add'l info.

Mike

Michael D. Conger, P.E.
Senior Transportation Engineer
Knoxville Regional TPO
400 Main Street, Suite 403
Knoxville, TN 37902

Ph: 865-215-3813
Fax:865-215-2068

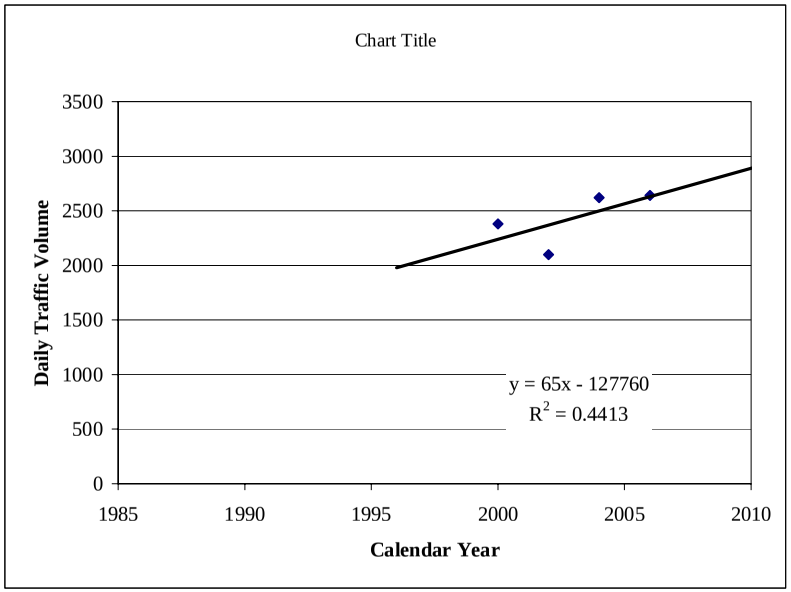
>>> "Kevin Cole" <kcole@wilbursmith.com> 1/24/2007 3:48 PM >>>
Do you happen to have additional count years for this location? I have attached a map and the 2004 adt for station 218.

Thanks,

Kevin A. Cole, PE
Wilbur Smith Associates-TETP
Knoxville, TN
865-963-4300

Station #	County	Location	Route #	Route Name	Station Out
218	Knox	Thompson School Rd			N

Remarks	Year	Adj. Ave. Daily Traffic	Linear Regression	Diff.	Annual Increase
	1985				
	1986			0	#DIV/0!
	1987			0	#DIV/0!
	1988			0	#DIV/0!
	1989			0	#DIV/0!
	1990			0	#DIV/0!
	1991			0	#DIV/0!
	1992			0	#DIV/0!
	1993			0	#DIV/0!
	1994			0	#DIV/0!
	1995			0	#DIV/0!
	1996			0	#DIV/0!
	1997			0	#DIV/0!
	1998			0	#DIV/0!
	1999			0	#DIV/0!
	2000	2380	2240	2240	#DIV/0!
	2001		2310	70	3.1%
	2002	2100	2370	60	2.6%
	2003		2440	70	3.0%
	2004	2620	2500	60	2.5%
	2005		2570	70	2.8%
	2006	2640	2630	60	2.3%



Historical Growth	2.90%
Forecast Growth	2.37%

Year	Linear Regression	Diff.	Annual Increase
2007	2700	70	2.7%
2008	2760	60	2.2%
2009	2830	70	2.5%
2010	2890	60	2.1%
2011	2960	70	2.4%
2012	3020	60	2.0%

TRIP GENERATION

TRIP GENERATION

06-Aug-07

			AVERAGE						
			DAILY	AM PEAK			PM PEAK		
LAND USE	L.U.C	SIZE	TRAFFIC	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
SINGLE FAMILY	210	315	3,015	59	177	236	204	115	318
SINGLE FAMILY	210	187	1,790	35	105	140	121	68	189
			4,804	94	282	377	324	183	507

			EGRESSION						
			DAILY	AM PEAK			PM PEAK		
LAND USE	L.U.C	SIZE	TRAFFIC	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
SINGLE FAMILY	210	315	2,988	57	172	230	193	108	301
SINGLE FAMILY	210	187	1,849	35	105	140	121	68	188
			4,837	93	278	370	313	176	489

			SATURDAY				SUNDAY			
			DAILY	PEAK			DAILY	PEAK		
LAND USE	L.U.C	SIZE	TRAFFIC	ENTER	EXIT	TOTAL	TRAFFIC	ENTER	EXIT	TOTAL
SINGLE FAMILY	210	315	3,182	160	136	296	2,766	144	127	271
SINGLE FAMILY	210	187	1,889	95	81	176	1,642	85	76	161
			5,070	255	217	472	4,408	229	203	432

TRAFFIC COUNTS

Wilbur Smith Associates
1100 Marion Street Suite 200
Knoxville, TN 37921

File Name : Emory Fairview Int Editted
Site Code : 00000000
Start Date : 1/26/2007
Page No : 1

Groups Printed- Unshifted

	THOMPSONFAIRVIE W Southbound				EMORY Westbound				THOMPSONFAIRVIE W Northbound				EMORY Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	6	21	24	51	3	42	2	47	4	0	3	7	6	65	40	111	216
07:15 AM	2	47	26	75	2	71	0	73	2	0	1	3	6	82	57	145	296
07:30 AM	3	38	44	85	1	54	1	56	8	1	2	11	14	67	39	120	272
07:45 AM	5	34	45	84	0	59	1	60	13	0	2	15	10	60	45	115	274
Total	16	140	139	295	6	226	4	236	27	1	8	36	36	274	181	491	1058
08:00 AM	7	28	20	55	1	51	0	52	14	2	6	22	6	79	38	123	252
08:15 AM	6	12	17	35	0	63	5	68	9	4	0	13	4	50	17	71	187
08:30 AM	5	12	8	25	0	49	2	51	9	2	2	13	3	27	13	43	132
08:45 AM	3	6	6	15	1	43	6	50	9	0	0	9	2	36	9	47	121
Total	21	58	51	130	2	206	13	221	41	8	8	57	15	192	77	284	692
11:00 AM	10	3	4	17	0	47	2	49	4	3	2	9	3	45	6	54	129
11:15 AM	7	3	5	15	2	37	2	41	13	1	0	14	4	47	14	65	135
11:30 AM	4	2	10	16	0	56	2	58	8	2	1	11	8	41	10	59	144
11:45 AM	5	2	5	12	0	35	4	39	8	0	0	8	5	39	8	52	111
Total	26	10	24	60	2	175	10	187	33	6	3	42	20	172	38	230	519
12:00 PM	7	4	5	16	0	53	4	57	3	0	3	6	4	49	6	59	138
12:15 PM	9	2	6	17	0	38	4	42	8	0	1	9	3	65	10	78	146
12:30 PM	5	0	8	13	1	51	4	56	5	1	0	6	4	54	9	67	142
12:45 PM	11	3	4	18	0	61	4	65	7	1	2	10	12	60	6	78	171
Total	32	9	23	64	1	203	16	220	23	2	6	31	23	228	31	282	597
02:00 PM	6	2	1	9	0	72	3	75	9	3	0	12	13	63	14	90	186
02:15 PM	9	3	1	13	0	44	5	49	8	3	1	12	6	66	10	82	156
02:30 PM	9	1	5	15	2	62	3	67	14	5	1	20	6	68	17	91	193
02:45 PM	6	5	4	15	3	70	6	79	18	2	3	23	7	68	8	83	200
Total	30	11	11	52	5	248	17	270	49	13	5	67	32	265	49	346	735
03:00 PM	8	2	5	15	1	78	8	87	20	8	2	30	7	70	10	87	219
03:15 PM	2	5	6	13	0	74	4	78	19	6	4	29	9	73	10	92	212
03:30 PM	7	18	33	58	1	79	5	85	17	7	0	24	18	76	14	108	275
03:45 PM	9	20	25	54	1	60	15	76	32	17	4	53	10	78	21	109	292
Total	26	45	69	140	3	291	32	326	88	38	10	136	44	297	55	396	998
04:00 PM	4	8	5	17	1	60	13	74	28	12	1	41	11	94	25	130	262
04:15 PM	4	3	7	14	1	57	7	65	33	19	9	61	11	100	13	124	264
04:30 PM	7	7	4	18	1	75	8	84	32	14	6	52	12	81	19	112	266
04:45 PM	9	4	6	19	0	74	12	86	31	7	4	42	17	78	16	111	258
Total	24	22	22	68	3	266	40	309	124	52	20	196	51	353	73	477	1050
05:00 PM	6	3	8	17	0	74	5	79	33	20	5	58	18	78	21	117	271
05:15 PM	9	3	9	21	0	61	10	71	30	10	6	46	13	102	21	136	274
05:30 PM	6	9	10	25	2	85	7	94	27	23	3	53	17	96	19	132	304
05:45 PM	7	2	7	16	0	82	11	93	18	10	3	31	24	88	11	123	263
Total	28	17	34	79	2	302	33	337	108	63	17	188	72	364	72	508	1112
Grand Total	203	312	373	888	24	1917	165	2106	493	183	77	753	293	2145	576	3014	6761
Apprch %	22.9	35.1	42		1.1	91	7.8		65.5	24.3	10.2		9.7	71.2	19.1		
Total %	3	4.6	5.5	13.1	0.4	28.4	2.4	31.1	7.3	2.7	1.1	11.1	4.3	31.7	8.5	44.6	

Wilbur Smith Associates
1100 Marion Street Suite 200
Knoxville, TN 37921

File Name : Emory Fairview Int Editted
Site Code : 00000000
Start Date : 1/26/2007

	THOMPSONFAIRVIE W Southbound				EMORY Westbound				THOMPSONFAIRVIE W Northbound				EMORY Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	2	**47**	26	75	**2**	**71**	0	**73**	2	0	1	3	6	**82**	**57**	**145**	**296**
07:30 AM	3	38	44	**85**	1	54	**1**	56	8	1	2	11	**14**	67	39	120	272
07:45 AM	5	34	**45**	84	0	59	1	60	13	0	2	15	10	60	45	115	274
08:00 AM	**7**	28	20	55	1	51	0	52	**14**	**2**	**6**	**22**	6	79	38	123	252
Total Volume	17	147	135	299	4	235	2	241	37	3	11	51	36	288	179	503	1094
% App. Total	5.7	49.2	45.2		1.7	97.5	0.8		72.5	5.9	21.6		7.2	57.3	35.6		
PHF	.607	.782	.750	.879	.500	.827	.500	.825	.661	.375	.458	.580	.643	.878	.785	.867	.924
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	7	**4**	5	16	0	53	**4**	57	3	0	**3**	6	4	49	6	59	138
12:15 PM	9	2	6	17	0	38	4	42	**8**	0	1	9	3	**65**	**10**	**78**	146
12:30 PM	5	0	**8**	13	**1**	51	4	56	5	**1**	0	6	4	54	9	67	142
12:45 PM	**11**	3	4	**18**	0	**61**	4	**65**	7	1	2	**10**	**12**	60	6	78	**171**
Total Volume	32	9	23	64	1	203	16	220	23	2	6	31	23	228	31	282	597
% App. Total	50	14.1	35.9		0.5	92.3	7.3		74.2	6.5	19.4		8.2	80.9	11		
PHF	.727	.563	.719	.889	.250	.832	1.000	.846	.719	.500	.500	.775	.479	.877	.775	.904	.873
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	6	3	8	17	0	74	5	79	**33**	20	5	**58**	18	78	**21**	117	271
05:15 PM	**9**	3	9	21	0	61	10	71	30	10	**6**	46	13	**102**	21	**136**	274
05:30 PM	6	**9**	**10**	**25**	**2**	**85**	7	**94**	27	**23**	3	53	17	96	19	132	**304**
05:45 PM	7	2	7	16	0	82	**11**	93	18	10	3	31	**24**	88	11	123	263
Total Volume	28	17	34	79	2	302	33	337	108	63	17	188	72	364	72	508	1112
% App. Total	35.4	21.5	43		0.6	89.6	9.8		57.4	33.5	9		14.2	71.7	14.2		
PHF	.778	.472	.850	.790	.250	.888	.750	.896	.818	.685	.708	.810	.750	.892	.857	.934	.914

Wilbur Smith Associates
1100 Marion Street Suite 200
Knoxville, TN 37921

File Name : Tazewell Pike with Fairview Road
Site Code : 00000001
Start Date : 7/19/2007
Page No : 1

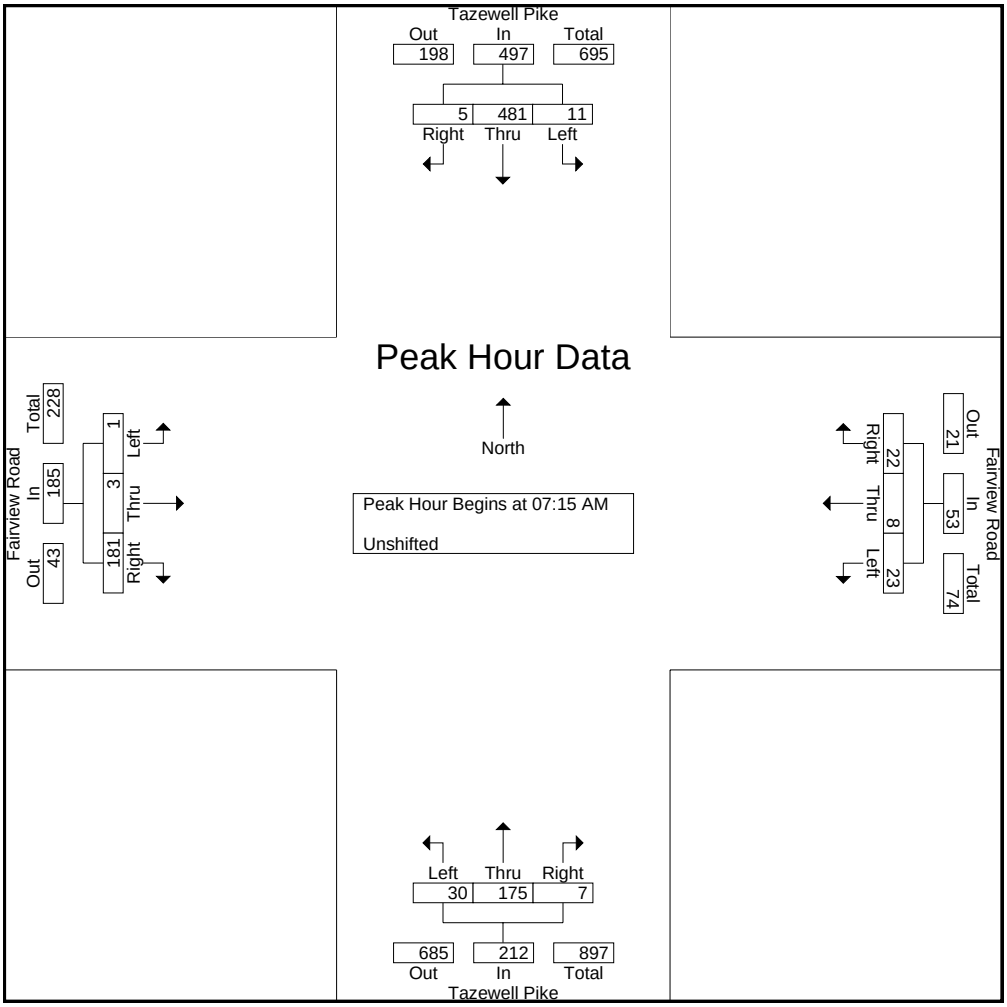
Groups Printed- Unshifted

	Tazewell Pike Southbound				Fairview Road Westbound				Tazewell Pike Northbound				Fairview Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	145	1	146	4	0	3	7	3	28	2	33	0	1	40	41	227
07:15 AM	1	128	2	131	7	2	4	13	5	48	1	54	0	1	51	52	250
07:30 AM	2	119	0	121	5	0	4	9	5	42	3	50	1	1	58	60	240
07:45 AM	3	120	2	125	6	2	5	13	10	41	3	54	0	1	36	37	229
Total	6	512	5	523	22	4	16	42	23	159	9	191	1	4	185	190	946
08:00 AM	5	114	1	120	5	4	9	18	10	44	0	54	0	0	36	36	228
08:15 AM	2	102	2	106	2	1	4	7	5	43	0	48	0	2	39	41	202
08:30 AM	4	81	2	87	4	0	7	11	10	49	2	61	0	0	20	20	179
08:45 AM	5	87	2	94	6	1	4	11	5	46	2	53	2	0	25	27	185
Total	16	384	7	407	17	6	24	47	30	182	4	216	2	2	120	124	794
09:00 AM	2	90	0	92	2	2	4	8	7	49	2	58	2	2	18	22	180
09:15 AM	2	74	1	77	4	0	6	10	5	44	0	49	2	2	18	22	158
09:30 AM	5	72	0	77	1	0	3	4	9	34	2	45	0	1	17	18	144
09:45 AM	3	59	1	63	1	1	8	10	12	55	0	67	0	0	15	15	155
Total	12	295	2	309	8	3	21	32	33	182	4	219	4	5	68	77	637
*** BREAK ***																	
11:00 AM	4	96	4	104	4	0	8	12	6	53	6	65	0	0	18	18	199
11:15 AM	4	85	4	93	6	1	4	11	8	58	2	68	3	0	14	17	189
11:30 AM	2	63	2	67	1	0	4	5	1	73	5	79	7	1	13	21	172
11:45 AM	1	66	3	70	2	2	3	7	10	53	1	64	2	3	12	17	158
Total	11	310	13	334	13	3	19	35	25	237	14	276	12	4	57	73	718
12:00 PM	6	69	4	79	6	3	7	16	9	74	3	86	3	0	13	16	197
12:15 PM	4	72	4	80	4	2	9	15	7	73	7	87	3	1	19	23	205
12:30 PM	6	86	4	96	2	3	2	7	11	76	3	90	6	1	16	23	216
12:45 PM	6	83	3	92	4	1	3	8	10	81	1	92	2	3	15	20	212
Total	22	310	15	347	16	9	21	46	37	304	14	355	14	5	63	82	830
*** BREAK ***																	
02:00 PM	3	76	1	80	3	1	4	8	11	77	4	92	3	3	11	17	197
02:15 PM	0	64	1	65	3	2	3	8	12	80	2	94	6	1	14	21	188
02:30 PM	5	56	7	68	1	0	2	3	8	75	4	87	6	4	16	26	184
02:45 PM	4	59	10	73	1	2	3	6	9	83	2	94	2	3	15	20	193
Total	12	255	19	286	8	5	12	25	40	315	12	367	17	11	56	84	762
03:00 PM	5	59	6	70	1	2	3	6	11	103	1	115	2	4	5	11	202
03:15 PM	3	73	5	81	5	2	6	13	17	96	4	117	1	0	10	11	222
03:30 PM	4	66	6	76	2	5	5	12	10	122	4	136	7	1	22	30	254
03:45 PM	2	63	3	68	0	1	7	8	20	130	3	153	2	1	17	20	249
Total	14	261	20	295	8	10	21	39	58	451	12	521	12	6	54	72	927
04:00 PM	4	69	4	77	2	0	5	7	16	94	2	112	9	0	20	29	225
04:15 PM	5	58	9	72	1	0	2	3	18	190	4	212	5	3	9	17	304
04:30 PM	13	74	8	95	6	1	5	12	29	149	6	184	4	2	7	13	304
04:45 PM	11	74	14	99	4	2	5	11	67	113	5	185	4	6	14	24	319
Total	33	275	35	343	13	3	17	33	130	546	17	693	22	11	50	83	1152
05:00 PM	5	70	7	82	0	2	5	7	57	100	2	159	2	4	16	22	270
05:15 PM	8	46	9	63	1	2	3	6	33	104	8	145	0	2	14	16	230
05:30 PM	4	59	4	67	4	0	6	10	41	124	6	171	0	2	16	18	266
05:45 PM	3	70	6	79	4	1	10	15	29	153	3	185	1	5	15	21	300
Total	20	245	26	291	9	5	24	38	160	481	19	660	3	13	61	77	1066
Grand Total	146	2847	142	3135	114	48	175	337	536	2857	105	3498	87	61	714	862	7832
Apprch %	4.7	90.8	4.5		33.8	14.2	51.9		15.3	81.7	3		10.1	7.1	82.8		
Total %	1.9	36.4	1.8	40	1.5	0.6	2.2	4.3	6.8	36.5	1.3	44.7	1.1	0.8	9.1	11	

Wilbur Smith Associates
1100 Marion Street Suite 200
Knoxville, TN 37921

File Name : Tazewell Pike with Fairview Road
Site Code : 00000001
Start Date : 7/19/2007
Page No : 2

	Tazewell Pike Southbound				Fairview Road Westbound				Tazewell Pike Northbound				Fairview Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	1	**128**	**2**	**131**	**7**	2	4	13	5	**48**	1	**54**	0	**1**	51	52	**250**
07:30 AM	2	119	0	121	5	0	4	9	5	42	**3**	50	**1**	1	**58**	**60**	240
07:45 AM	3	120	2	125	6	2	5	13	**10**	41	3	54	0	1	36	37	229
08:00 AM	**5**	114	1	120	5	**4**	**9**	**18**	10	44	0	54	0	0	36	36	228
Total Volume	11	481	5	497	23	8	22	53	30	175	7	212	1	3	181	185	947
% App. Total	2.2	96.8	1		43.4	15.1	41.5		14.2	82.5	3.3		0.5	1.6	97.8		
PHF	.550	.939	.625	.948	.821	.500	.611	.736	.750	.911	.583	.981	.250	.750	.780	.771	.947

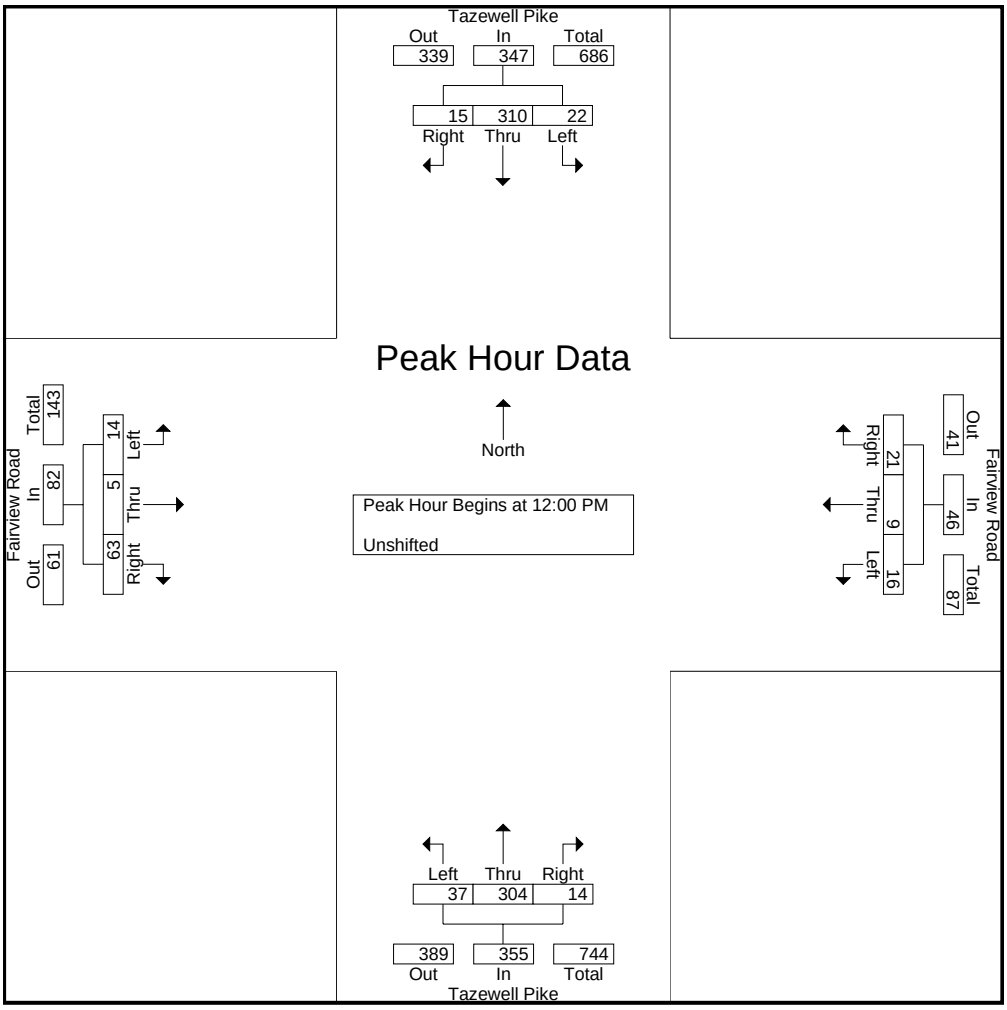


Wilbur Smith Associates

1100 Marion Street Suite 200
Knoxville, TN 37921

File Name : Tazewell Pike with Fairview Road
Site Code : 00000001
Start Date : 7/19/2007
Page No : 3

	Tazewell Pike Southbound				Fairview Road Westbound				Tazewell Pike Northbound				Fairview Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	**6**	69	**4**	79	**6**	**3**	7	**16**	9	74	3	86	3	0	13	16	197
12:15 PM	4	72	4	80	4	2	**9**	15	7	73	**7**	87	3	1	**19**	**23**	205
12:30 PM	6	**86**	4	**96**	2	3	2	7	**11**	76	3	90	**6**	1	16	23	**216**
12:45 PM	6	83	3	92	4	1	3	8	10	**81**	1	**92**	2	**3**	15	20	212
Total Volume	22	310	15	347	16	9	21	46	37	304	14	355	14	5	63	82	830
% App. Total	6.3	89.3	4.3		34.8	19.6	45.7		10.4	85.6	3.9		17.1	6.1	76.8		
PHF	.917	.901	.938	.904	.667	.750	.583	.719	.841	.938	.500	.965	.583	.417	.829	.891	.961

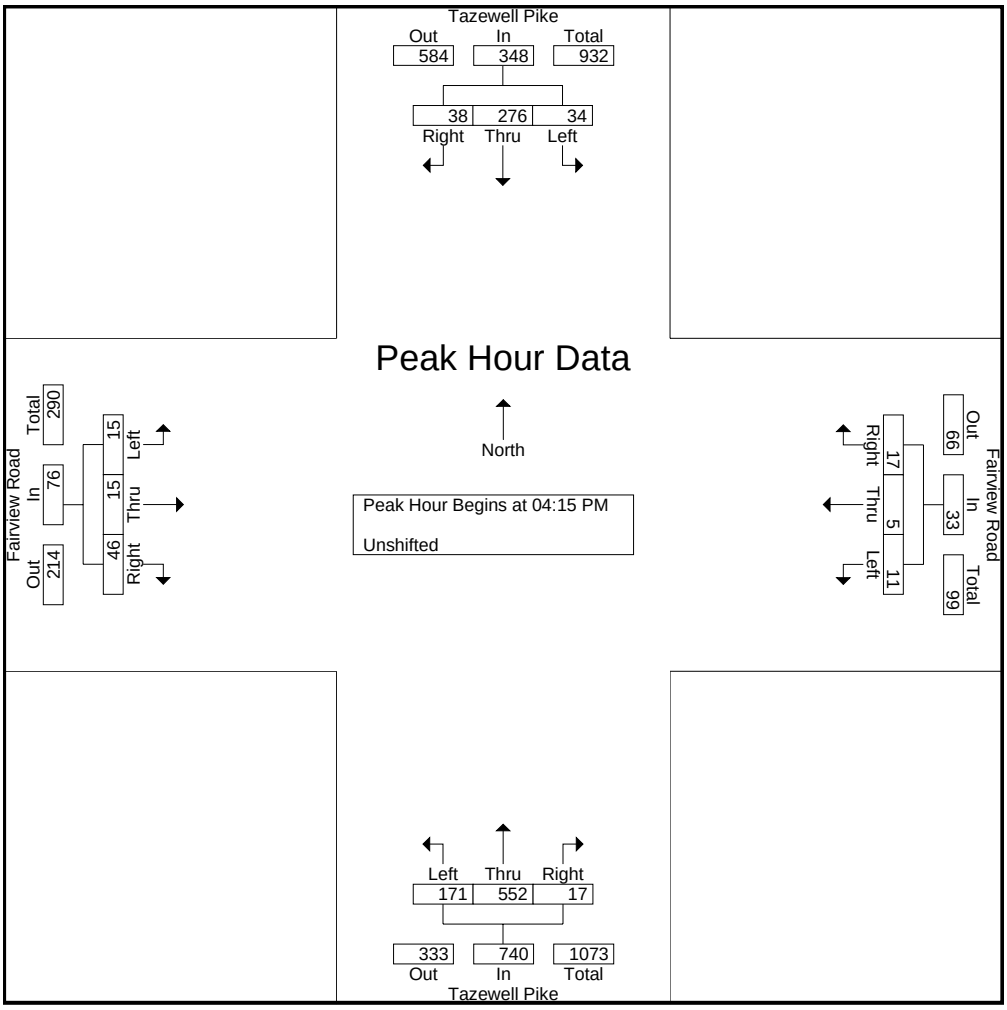


Wilbur Smith Associates

1100 Marion Street Suite 200
Knoxville, TN 37921

File Name : Tazewell Pike with Fairview Road
Site Code : 00000001
Start Date : 7/19/2007
Page No : 4

	Tazewell Pike Southbound				Fairview Road Westbound				Tazewell Pike Northbound				Fairview Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	5	58	9	72	1	0	2	3	18	**190**	4	**212**	**5**	3	9	17	304
04:30 PM	**13**	**74**	8	95	**6**	1	**5**	**12**	29	149	**6**	184	4	2	7	13	304
04:45 PM	11	74	**14**	**99**	4	**2**	5	11	**67**	113	5	185	4	**6**	14	**24**	**319**
05:00 PM	5	70	7	82	0	2	5	7	57	100	2	159	2	4	**16**	22	270
Total Volume	34	276	38	348	11	5	17	33	171	552	17	740	15	15	46	76	1197
% App. Total	9.8	79.3	10.9		33.3	15.2	51.5		23.1	74.6	2.3		19.7	19.7	60.5		
PHF	.654	.932	.679	.879	.458	.625	.850	.688	.638	.726	.708	.873	.750	.625	.719	.792	.938



TRAFFIC ANALYSES

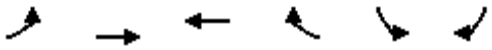
2007 EXISTING

TRAFFIC CONDITIONS

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	324	179	151	370	37	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)	352	195	164	402	40	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)				1240		
pX, platoon unblocked						
vC, conflicting volume			547		1180	449
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			547		1180	449
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			84		77	98
cM capacity (veh/h)			1023		177	610

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	547	566	55
Volume Left	0	164	40
Volume Right	195	0	15
cSH	1700	1023	219
Volume to Capacity	0.32	0.16	0.25
Queue Length 95th (ft)	0	14	24
Control Delay (s)	0.0	4.0	26.9
Lane LOS		A	D
Approach Delay (s)	0.0	4.0	26.9
Approach LOS			D

Intersection Summary			
Average Delay	3.2		
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)	39	299	239	2	17	282
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	42	325	260	2	18	307
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			1140			
pX, platoon unblocked						
vC, conflicting volume	262				671	261
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	262				671	261
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				95	61
cM capacity (veh/h)	1302				408	778

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	367	262	325
Volume Left	42	0	18
Volume Right	0	2	307
cSH	1302	1700	740
Volume to Capacity	0.03	0.15	0.44
Queue Length 95th (ft)	3	0	56
Control Delay (s)	1.2	0.0	13.6
Lane LOS	A		B
Approach Delay (s)	1.2	0.0	13.6
Approach LOS			B

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	330	0	0	51	0	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)	359	0	0	55	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			359		414	359
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			359		414	359
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	100
cM capacity (veh/h)			1200		595	686

Direction, Lane #	EB 1	WB 1	NE 1
Volume Total	359	55	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1200	1700
Volume to Capacity	0.21	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		20.7%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	3	181	23	8	22	30	175	7	11	481	5
Sign Control		Stop			Stop			Free			Free	
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	3	197	25	9	24	33	190	8	12	523	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)											977	
pX, platoon unblocked												
vC, conflicting volume	837	812	526	1007	811	194	528			198		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	837	812	526	1007	811	194	528			198		
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 %	100	99	64	82	97	97	97			99		
cM capacity (veh/h)	264	300	552	136	301	847	1039			1375		

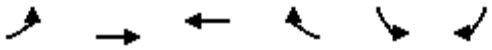
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	201	58	230	540
Volume Left	1	25	33	12
Volume Right	197	24	8	5
cSH	542	239	1039	1375
Volume to Capacity	0.37	0.24	0.03	0.01
Queue Length 95th (ft)	43	23	2	1
Control Delay (s)	15.5	24.8	1.5	0.3
Lane LOS	C	C	A	A
Approach Delay (s)	15.5	24.8	1.5	0.3
Approach LOS	C	C		

Intersection Summary				
Average Delay	4.9			
Intersection Capacity Utilization	52.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	436	72	19	336	108	80
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)	474	78	21	365	117	87
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				1240		
pX, platoon unblocked						
vC, conflicting volume			552		920	513
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			552		920	513
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		60	85
cM capacity (veh/h)			1018		295	561

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	552	386	204
Volume Left	0	21	117
Volume Right	78	0	87
cSH	1700	1018	369
Volume to Capacity	0.32	0.02	0.55
Queue Length 95th (ft)	0	2	80
Control Delay (s)	0.0	0.7	26.2
Lane LOS		A	D
Approach Delay (s)	0.0	0.7	26.2
Approach LOS			D

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	135	381	304	33	28	51
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	147	414	330	36	30	55
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			1140			
pX, platoon unblocked						
vC, conflicting volume	366				1056	348
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	366				1056	348
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	88				86	92
cM capacity (veh/h)	1192				219	695

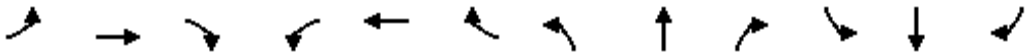
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	561	366	86
Volume Left	147	0	30
Volume Right	0	36	55
cSH	1192	1700	392
Volume to Capacity	0.12	0.22	0.22
Queue Length 95th (ft)	10	0	21
Control Delay (s)	3.2	0.0	16.7
Lane LOS	A		C
Approach Delay (s)	3.2	0.0	16.7
Approach LOS			C

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	91	0	0	188	0	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)	99	0	0	204	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			99		303	99
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			99		303	99
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	100
cM capacity (veh/h)			1494		688	957

Direction, Lane #	EB 1	WB 1	NE 1
Volume Total	99	204	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1494	1700
Volume to Capacity	0.06	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	13.2%	ICU Level of Service	A
Analysis Period (min)	15		



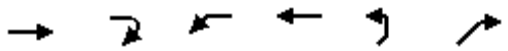
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	15	46	11	5	17	171	552	17	34	276	38
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	16	50	12	5	18	186	600	18	37	300	41
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											977	
pX, platoon unblocked												
vC, conflicting volume	1397	1385	321	1434	1396	609	341			618		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1397	1385	321	1434	1396	609	341			618		
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 %	83	86	93	85	95	96	85			96		
cM capacity (veh/h)	94	117	720	80	115	495	1218			962		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	83	36	804	378
Volume Left	16	12	186	37
Volume Right	50	18	18	41
cSH	216	153	1218	962
Volume to Capacity	0.38	0.23	0.15	0.04
Queue Length 95th (ft)	42	22	13	3
Control Delay (s)	31.6	35.6	3.5	1.3
Lane LOS	D	E	A	A
Approach Delay (s)	31.6	35.6	3.5	1.3
Approach LOS	D	E		

Intersection Summary				
Average Delay	5.5			
Intersection Capacity Utilization	73.3%	ICU Level of Service	D	
Analysis Period (min)	15			

2007 MITIGATED

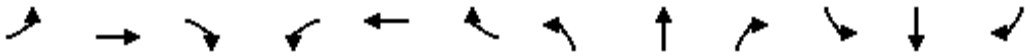
TRAFFIC CONDITIONS



Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	330	0	0	51	0	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)	359	0	0	55	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	916					
pX, platoon unblocked						
vC, conflicting volume			359		414	359
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			359		414	359
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	100
cM capacity (veh/h)			1200		595	686

Direction, Lane #	EB 1	WB 1	NE 1
Volume Total	359	55	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1200	1700
Volume to Capacity	0.21	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		20.7%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	3	181	23	8	22	30	175	7	11	481	5
Sign Control		Stop			Stop			Free			Free	
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	3	197	25	9	24	33	190	8	12	523	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)											977	
pX, platoon unblocked												
vC, conflicting volume	833	812	526	1004	811	194	528			198		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	833	812	526	1004	811	194	528			198		
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 %	100	99	64	82	97	97	97			99		
cM capacity (veh/h)	265	300	552	136	301	847	1039			1375		

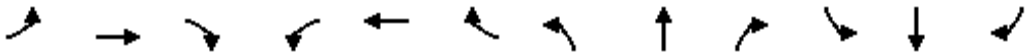
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	201	58	33	198	8	532
Volume Left	1	25	33	0	8	4
Volume Right	197	24	0	8	0	5
cSH	542	240	1039	1700	1375	1375
Volume to Capacity	0.37	0.24	0.03	0.12	0.01	0.01
Queue Length 95th (ft)	43	23	2	0	1	1
Control Delay (s)	15.5	24.7	8.6	0.0	7.6	0.2
Lane LOS	C	C	A		A	A
Approach Delay (s)	15.5	24.7	1.2		0.3	
Approach LOS	C	C				

Intersection Summary				
Average Delay	4.8			
Intersection Capacity Utilization	49.7%	ICU Level of Service		A
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	39	313	195	4	255	2	54	304
v/c Ratio	0.12	0.76	0.42	0.01	0.73	0.01	0.32	0.79
Control Delay	15.3	44.0	12.3	19.0	46.1	22.0	35.2	44.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.3	44.0	12.3	19.0	46.1	22.0	35.2	44.5
Queue Length 50th (ft)	11	161	21	1	132	0	22	140
Queue Length 95th (ft)	28	#297	81	9	#254	6	57	#294
Internal Link Dist (ft)		252			254		163	147
Turn Bay Length (ft)	200		100	100		100		
Base Capacity (vph)	320	452	497	758	383	327	317	398
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.69	0.39	0.01	0.67	0.01	0.17	0.76

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	288	179	4	235	2	37	2	11	17	128	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5	7.5		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	0.85		0.97			0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96			1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583		1742			1736	
Flt Permitted	0.60	1.00	1.00	0.95	1.00	1.00		0.96			1.00	
Satd. Flow (perm)	1120	1863	1583	1770	1863	1583		1742			1736	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	313	195	4	255	2	40	2	12	18	139	147
RTOR Reduction (vph)	0	0	111	0	0	2	0	11	0	0	35	0
Lane Group Flow (vph)	39	313	84	4	255	0	0	43	0	0	269	0
Turn Type	pm+pt		Perm	Prot		Perm	Split			Split		
Protected Phases	1!	6!		2!	5!		3	3		4	4	
Permitted Phases	6		6			5						
Actuated Green, G (s)	23.2	21.0	21.0	33.3	14.5	14.5		4.7			15.7	
Effective Green, g (s)	23.2	21.0	21.0	33.3	14.5	14.5		4.7			15.7	
Actuated g/C Ratio	0.28	0.25	0.25	0.40	0.17	0.17		0.06			0.19	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5	7.5		6.5			6.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	327	466	396	703	322	274		98			325	
v/s Ratio Prot	0.00	c0.17		0.00	c0.14			c0.02			c0.15	
v/s Ratio Perm	0.03		0.05			0.00						
v/c Ratio	0.12	0.67	0.21	0.01	0.79	0.00		0.44			0.83	
Uniform Delay, d1	22.5	28.3	24.9	15.3	33.3	28.7		38.3			32.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.2	3.8	0.3	0.0	12.5	0.0		3.1			15.8	
Delay (s)	22.6	32.1	25.2	15.3	45.8	28.7		41.4			48.6	
Level of Service	C	C	C	B	D	C		D			D	
Approach Delay (s)		29.0			45.2			41.4			48.6	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM Average Control Delay	38.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	83.9	Sum of lost time (s)	28.0
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

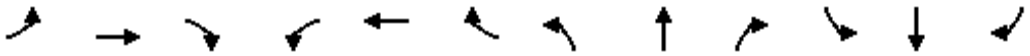
! Phase conflict between lane groups.

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	91	0	0	188	0	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)	99	0	0	204	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	910					
pX, platoon unblocked						
vC, conflicting volume			99		303	99
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			99		303	99
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	100
cM capacity (veh/h)			1494		688	957

Direction, Lane #	EB 1	WB 1	NE 1
Volume Total	99	204	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1494	1700
Volume to Capacity	0.06	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	13.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	15	46	11	5	17	171	552	17	34	276	38
Sign Control		Stop			Stop			Free			Free	
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)	16	16	50	12	5	18	186	600	18	37	300	41
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											977	
pX, platoon unblocked												
vC, conflicting volume	1388	1385	321	1413	1396	609	341			618		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1388	1385	321	1413	1396	609	341			618		
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 %	83	86	93	86	95	96	85			96		
cM capacity (veh/h)	96	117	720	83	115	495	1218			962		

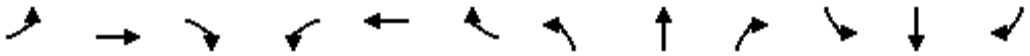
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	83	36	186	618	25	354
Volume Left	16	12	186	0	25	12
Volume Right	50	18	0	18	0	41
cSH	218	156	1218	1700	962	962
Volume to Capacity	0.38	0.23	0.15	0.36	0.04	0.04
Queue Length 95th (ft)	42	21	13	0	3	3
Control Delay (s)	31.3	34.8	8.5	0.0	8.9	0.7
Lane LOS	D	D	A		A	A
Approach Delay (s)	31.3	34.8	2.0		1.3	
Approach LOS	D	D				

Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	60.0%	ICU Level of Service	B	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	78	396	78	2	328	36	152	72
v/c Ratio	0.21	0.84	0.18	0.00	0.83	0.10	0.59	0.40
Control Delay	14.8	48.8	15.4	19.0	53.6	17.6	44.2	29.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.8	48.8	15.4	19.0	53.6	17.6	44.2	29.0
Queue Length 50th (ft)	19	208	14	1	177	5	77	19
Queue Length 95th (ft)	47	#404	52	5	#362	32	143	61
Internal Link Dist (ft)		252			254		163	147
Turn Bay Length (ft)	200		100	100		100		
Base Capacity (vph)	373	492	452	779	397	356	327	317
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.80	0.17	0.00	0.83	0.10	0.46	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	364	72	2	302	33	108	16	17	28	5	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5	7.5		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	0.85		0.98			0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96			0.98	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583		1765			1698	
Flt Permitted	0.56	1.00	1.00	0.95	1.00	1.00		0.96			0.98	
Satd. Flow (perm)	1048	1863	1583	1770	1863	1583		1765			1698	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	78	396	78	2	328	36	117	17	18	30	5	37
RTOR Reduction (vph)	0	0	34	0	0	19	0	5	0	0	34	0
Lane Group Flow (vph)	78	396	44	2	328	17	0	147	0	0	38	0
Turn Type	pm+pt		Perm	Prot		Perm	Split			Split		
Protected Phases	1!	6!		2!	5!		3	3		4	4	
Permitted Phases	6		6			5						
Actuated Green, G (s)	27.8	23.5	23.5	37.2	18.0	18.0		12.0			6.2	
Effective Green, g (s)	27.8	23.5	23.5	37.2	18.0	18.0		12.0			6.2	
Actuated g/C Ratio	0.32	0.27	0.27	0.42	0.21	0.21		0.14			0.07	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5	7.5		6.5			6.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	368	499	424	751	382	325		242			120	
v/s Ratio Prot	0.01	c0.21		0.00	c0.18			c0.08			c0.02	
v/s Ratio Perm	0.06		0.03			0.01						
v/c Ratio	0.21	0.79	0.10	0.00	0.86	0.05		0.61			0.31	
Uniform Delay, d1	21.4	29.8	24.2	14.6	33.6	28.0		35.6			38.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.3	8.5	0.1	0.0	17.1	0.1		4.3			1.5	
Delay (s)	21.7	38.3	24.3	14.6	50.8	28.1		39.9			40.2	
Level of Service	C	D	C	B	D	C		D			D	
Approach Delay (s)		34.0			48.3			39.9			40.2	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM Average Control Delay	39.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	87.7	Sum of lost time (s)	28.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

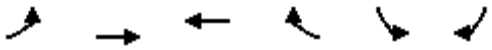
2010 BACKGROUND

TRAFFIC CONDITIONS

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	366	196	192	441	40	24
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)	398	213	209	479	43	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)				1240		
pX, platoon unblocked						
vC, conflicting volume			611		1401	504
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			611		1401	504
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			78		64	95
cM capacity (veh/h)			968		121	568

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	611	688	70
Volume Left	0	209	43
Volume Right	213	0	26
cSH	1700	968	172
Volume to Capacity	0.36	0.22	0.40
Queue Length 95th (ft)	0	20	45
Control Delay (s)	0.0	5.0	39.5
Lane LOS		A	E
Approach Delay (s)	0.0	5.0	39.5
Approach LOS			E

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	64	327	261	9	39	372
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	355	284	10	42	404
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			1140			
pX, platoon unblocked						
vC, conflicting volume	293				783	289
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	293				783	289
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				88	46
cM capacity (veh/h)	1268				342	751

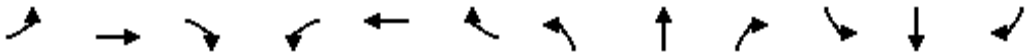
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	425	293	447
Volume Left	70	0	42
Volume Right	0	10	404
cSH	1268	1700	674
Volume to Capacity	0.05	0.17	0.66
Queue Length 95th (ft)	4	0	125
Control Delay (s)	1.8	0.0	20.2
Lane LOS	A		C
Approach Delay (s)	1.8	0.0	20.2
Approach LOS			C

Intersection Summary			
Average Delay	8.4		
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	388	0	0	65	0	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)	422	0	0	71	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			422		492	422
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			422		492	422
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	100
cM capacity (veh/h)			1137		536	632

Direction, Lane #	EB 1	WB 1	NE 1	NE 2
Volume Total	422	71	0	0
Volume Left	0	0	0	0
Volume Right	0	0	0	0
cSH	1700	1137	1700	1700
Volume to Capacity	0.25	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS			A	A
Approach Delay (s)	0.0	0.0	0.0	
Approach LOS			A	

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	23.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	3	225	25	9	24	42	191	8	12	526	5
Sign Control		Stop			Stop			Free			Free	
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	3	245	27	10	26	46	208	9	13	572	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)											977	
pX, platoon unblocked												
vC, conflicting volume	935	908	574	1150	907	212	577			216		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	935	908	574	1150	907	212	577			216		
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 %	100	99	53	69	96	97	95			99		
cM capacity (veh/h)	222	260	518	88	261	828	996			1353		

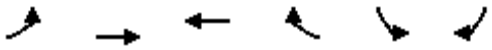
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	249	63	262	590
Volume Left	1	27	46	13
Volume Right	245	26	9	5
cSH	508	166	996	1353
Volume to Capacity	0.49	0.38	0.05	0.01
Queue Length 95th (ft)	66	41	4	1
Control Delay (s)	18.7	39.2	1.9	0.3
Lane LOS	C	E	A	A
Approach Delay (s)	18.7	39.2	1.9	0.3
Approach LOS	C	E		

Intersection Summary				
Average Delay	6.7			
Intersection Capacity Utilization	61.2%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	519	79	38	391	118	119
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)	564	86	41	425	128	129
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				1240		
pX, platoon unblocked						
vC, conflicting volume			650		1115	607
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			650		1115	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 %			96		42	74
cM capacity (veh/h)			936		220	496

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	650	466	258
Volume Left	0	41	128
Volume Right	86	0	129
cSH	1700	936	305
Volume to Capacity	0.38	0.04	0.84
Queue Length 95th (ft)	0	3	182
Control Delay (s)	0.0	1.3	57.2
Lane LOS		A	F
Approach Delay (s)	0.0	1.3	57.2
Approach LOS			F

Intersection Summary			
Average Delay	11.2		
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	221	416	332	59	43	97
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)	240	452	361	64	47	105
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			1140			
pX, platoon unblocked						
vC, conflicting volume	425				1326	393
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	425				1326	393
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	79				65	84
cM capacity (veh/h)	1134				135	656

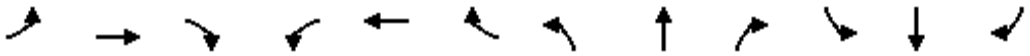
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	692	425	152
Volume Left	240	0	47
Volume Right	0	64	105
cSH	1134	1700	301
Volume to Capacity	0.21	0.25	0.51
Queue Length 95th (ft)	20	0	67
Control Delay (s)	4.8	0.0	28.6
Lane LOS	A		D
Approach Delay (s)	4.8	0.0	28.6
Approach LOS			D

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	117	0	0	237	0	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)	127	0	0	258	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			127		385	127
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			127		385	127
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	100
cM capacity (veh/h)			1459		618	923

Direction, Lane #	EB 1	WB 1	NE 1	NE 2
Volume Total	127	258	0	0
Volume Left	0	0	0	0
Volume Right	0	0	0	0
cSH	1700	1459	1700	1700
Volume to Capacity	0.07	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS			A	A
Approach Delay (s)	0.0	0.0	0.0	
Approach LOS			A	

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	15.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	16	68	12	5	19	218	603	19	37	302	42
Sign Control		Stop			Stop			Free			Free	
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)	17	17	74	13	5	21	237	655	21	40	328	46
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											977	
pX, platoon unblocked												
vC, conflicting volume	1595	1582	351	1654	1594	666	374			676		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1595	1582	351	1654	1594	666	374			676		
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 %	73	79	89	73	93	96	80			96		
cM capacity (veh/h)	64	83	692	48	82	460	1185			915		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	109	39	913	414
Volume Left	17	13	237	40
Volume Right	74	21	21	46
cSH	185	103	1185	915
Volume to Capacity	0.59	0.38	0.20	0.04
Queue Length 95th (ft)	80	39	19	3
Control Delay (s)	48.8	60.1	4.4	1.3
Lane LOS	E	F	A	A
Approach Delay (s)	48.8	60.1	4.4	1.3
Approach LOS	E	F		

Intersection Summary				
Average Delay	8.3			
Intersection Capacity Utilization	82.0%	ICU Level of Service	D	
Analysis Period (min)	15			

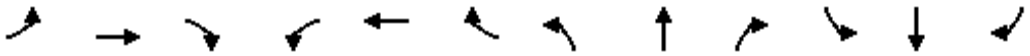
2010 BACKGROUND

MITIGATED TRAFFIC CONDITIONS

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	388	0	0	65	0	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)	422	0	0	71	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	924					
pX, platoon unblocked						
vC, conflicting volume			422		492	422
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			422		492	422
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	100
cM capacity (veh/h)			1137		536	632

Direction, Lane #	EB 1	WB 1	NE 1
Volume Total	422	71	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1137	1700
Volume to Capacity	0.25	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	23.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	3	225	25	9	24	42	191	8	12	526	5
Sign Control		Stop			Stop			Free			Free	
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	3	245	27	10	26	46	208	9	13	572	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)											977	
pX, platoon unblocked												
vC, conflicting volume	930	908	574	1147	907	212	577			216		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	930	908	574	1147	907	212	577			216		
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 %	100	99	53	69	96	97	95			99		
cM capacity (veh/h)	223	260	518	88	261	828	996			1353		

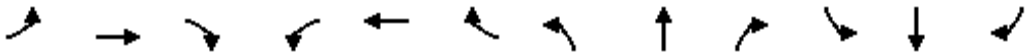
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	249	63	46	216	9	582
Volume Left	1	27	46	0	9	4
Volume Right	245	26	0	9	0	5
cSH	508	167	996	1700	1353	1353
Volume to Capacity	0.49	0.38	0.05	0.13	0.01	0.01
Queue Length 95th (ft)	66	40	4	0	1	1
Control Delay (s)	18.7	39.0	8.8	0.0	7.7	0.2
Lane LOS	C	E	A		A	A
Approach Delay (s)	18.7	39.0	1.5		0.3	
Approach LOS	C	E				

Intersection Summary				
Average Delay	6.6			
Intersection Capacity Utilization	62.4%	ICU Level of Service	B	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	57	342	213	4	279	10	68	424
v/c Ratio	0.19	0.87	0.48	0.01	0.85	0.03	0.40	0.97
Control Delay	18.3	58.9	16.8	21.8	61.4	21.2	41.6	69.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.3	58.9	16.8	21.8	61.4	21.2	41.6	69.3
Queue Length 50th (ft)	18	196	37	2	160	1	33	228
Queue Length 95th (ft)	42	#371	108	9	#314	16	74	#448
Internal Link Dist (ft)		252			254		163	147
Turn Bay Length (ft)	200		100	100		100		
Base Capacity (vph)	304	397	446	661	335	291	291	439
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.86	0.48	0.01	0.83	0.03	0.23	0.97

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	315	196	4	257	9	40	11	12	39	167	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5	7.5		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	0.85		0.97			0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97			1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583		1759			1736	
Flt Permitted	0.59	1.00	1.00	0.95	1.00	1.00		0.97			1.00	
Satd. Flow (perm)	1096	1863	1583	1770	1863	1583		1759			1736	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	342	213	4	279	10	43	12	13	42	182	200
RTOR Reduction (vph)	0	0	107	0	0	7	0	9	0	0	32	0
Lane Group Flow (vph)	57	342	106	4	279	3	0	59	0	0	392	0
Turn Type	pm+pt		Perm	Prot		Perm	Split			Split		
Protected Phases	1!	6!		2!	5!		3	3		4	4	
Permitted Phases	6		6			5						
Actuated Green, G (s)	24.1	20.9	20.9	33.5	15.8	15.8		7.1			21.1	
Effective Green, g (s)	24.1	20.9	20.9	33.5	15.8	15.8		7.1			21.1	
Actuated g/C Ratio	0.26	0.22	0.22	0.36	0.17	0.17		0.08			0.23	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5	7.5		6.5			6.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	308	419	356	638	317	269		134			394	
v/s Ratio Prot	0.01	c0.18		0.00	c0.15			c0.03			c0.23	
v/s Ratio Perm	0.04		0.07			0.00						
v/c Ratio	0.19	0.82	0.30	0.01	0.88	0.01		0.44			1.00	
Uniform Delay, d1	26.3	34.2	29.9	19.0	37.6	32.1		41.0			35.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.3	11.6	0.5	0.0	23.5	0.0		2.3			43.9	
Delay (s)	26.6	45.8	30.4	19.1	61.1	32.1		43.3			79.8	
Level of Service	C	D	C	B	E	C		D			E	
Approach Delay (s)		38.7			59.5			43.3			79.8	
Approach LOS		D			E			D			E	

Intersection Summary			
HCM Average Control Delay	55.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	92.9	Sum of lost time (s)	28.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

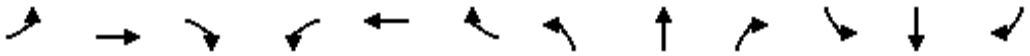
! Phase conflict between lane groups.

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	388	0	0	65	0	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)	422	0	0	71	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	915					
pX, platoon unblocked						
vC, conflicting volume			422		492	422
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			422		492	422
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	100
cM capacity (veh/h)			1137		536	632

Direction, Lane #	EB 1	WB 1	NE 1
Volume Total	422	71	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1137	1700
Volume to Capacity	0.25	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

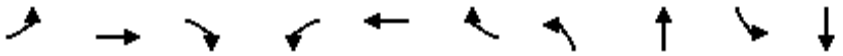
Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		23.8%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	3	225	25	9	24	42	191	8	12	526	5
Sign Control		Stop			Stop			Free			Free	
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	3	245	27	10	26	46	208	9	13	572	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)											977	
pX, platoon unblocked												
vC, conflicting volume	930	908	574	1147	907	212	577			216		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	930	908	574	1147	907	212	577			216		
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 %	100	99	53	69	96	97	95			99		
cM capacity (veh/h)	223	260	518	88	261	828	996			1353		

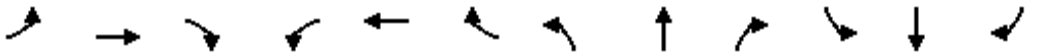
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	249	63	46	216	9	582
Volume Left	1	27	46	0	9	4
Volume Right	245	26	0	9	0	5
cSH	508	167	996	1700	1353	1353
Volume to Capacity	0.49	0.38	0.05	0.13	0.01	0.01
Queue Length 95th (ft)	66	40	4	0	1	1
Control Delay (s)	18.7	39.0	8.8	0.0	7.7	0.2
Lane LOS	C	E	A		A	A
Approach Delay (s)	18.7	39.0	1.5		0.3	
Approach LOS	C	E				

Intersection Summary				
Average Delay	6.6			
Intersection Capacity Utilization	62.4%	ICU Level of Service	B	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	57	342	213	4	279	10	43	25	42	382
v/c Ratio	0.10	0.48	0.29	0.01	0.49	0.05	0.24	0.05	0.10	0.64
Control Delay	7.0	14.2	3.7	9.0	18.0	15.2	18.6	10.5	13.8	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	14.2	3.7	9.0	18.0	15.2	18.6	10.5	13.8	17.2
Queue Length 50th (ft)	7	53	0	1	65	0	9	2	8	70
Queue Length 95th (ft)	22	176	40	4	138	12	35	17	30	173
Internal Link Dist (ft)		252			254			163		147
Turn Bay Length (ft)	200		100	100		100				
Base Capacity (vph)	551	834	826	567	950	450	228	656	551	731
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.41	0.26	0.01	0.29	0.02	0.19	0.04	0.08	0.52

Intersection Summary



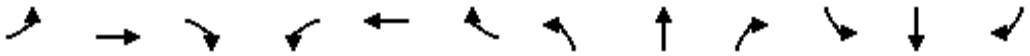
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	315	196	4	257	9	40	11	12	39	167	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	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	0.85	1.00	0.92		1.00	0.92	
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)	1770	1863	1583	1770	1863	1583	1770	1717		1770	1716	
Flt Permitted	0.57	1.00	1.00	0.53	1.00	1.00	0.32	1.00		0.74	1.00	
Satd. Flow (perm)	1069	1863	1583	982	1863	1583	604	1717		1380	1716	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	342	213	4	279	10	43	12	13	42	182	200
RTOR Reduction (vph)	0	0	138	0	0	10	0	9	0	0	55	0
Lane Group Flow (vph)	57	342	75	4	279	0	43	16	0	42	327	0
Turn Type	pm+pt		Perm	pm+pt		custom	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		5	4			8		
Actuated Green, G (s)	20.0	16.6	16.6	17.2	16.2	1.0	12.8	12.8		13.8	13.8	
Effective Green, g (s)	20.0	16.6	16.6	17.2	16.2	1.0	12.8	12.8		13.8	13.8	
Actuated g/C Ratio	0.42	0.35	0.35	0.36	0.34	0.02	0.27	0.27		0.29	0.29	
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	501	652	554	373	637	33	163	464		402	500	
v/s Ratio Prot	c0.01	c0.18		0.00	0.15			0.01			c0.19	
v/s Ratio Perm	0.04		0.05	0.00		0.00	0.07			0.03		
v/c Ratio	0.11	0.52	0.13	0.01	0.44	0.01	0.26	0.03		0.10	0.65	
Uniform Delay, d1	8.2	12.3	10.5	9.6	12.1	22.7	13.6	12.7		12.3	14.7	
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	0.1	0.8	0.1	0.0	0.5	0.1	0.9	0.0		0.1	3.1	
Delay (s)	8.3	13.0	10.6	9.7	12.6	22.8	14.5	12.8		12.4	17.8	
Level of Service	A	B	B	A	B	C	B	B		B	B	
Approach Delay (s)		11.7			12.9			13.8			17.3	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	13.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	47.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	117	0	0	237	0	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)	127	0	0	258	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	918					
pX, platoon unblocked						
vC, conflicting volume			127		385	127
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			127		385	127
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	100
cM capacity (veh/h)			1459		618	923

Direction, Lane #	EB 1	WB 1	NE 1
Volume Total	127	258	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1459	1700
Volume to Capacity	0.07	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	15.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	16	68	12	5	19	218	603	19	37	302	42
Sign Control		Stop			Stop			Free			Free	
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)	17	17	74	13	5	21	237	655	21	40	328	46
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											977	
pX, platoon unblocked												
vC, conflicting volume	1584	1582	351	1631	1594	666	374			676		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1584	1582	351	1631	1594	666	374			676		
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 %	73	79	89	74	93	96	80			96		
cM capacity (veh/h)	65	83	692	50	82	460	1185			915		

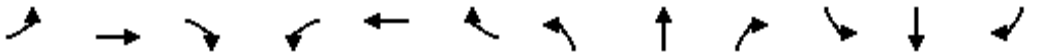
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	109	39	237	676	27	387
Volume Left	17	13	237	0	27	13
Volume Right	74	21	0	21	0	46
cSH	187	106	1185	1700	915	915
Volume to Capacity	0.58	0.37	0.20	0.40	0.04	0.04
Queue Length 95th (ft)	79	37	19	0	3	3
Control Delay (s)	48.2	58.0	8.8	0.0	9.1	0.8
Lane LOS	E	F	A		A	A
Approach Delay (s)	48.2	58.0	2.3		1.3	
Approach LOS	E	F				

Intersection Summary				
Average Delay	6.9			
Intersection Capacity Utilization	65.6%	ICU Level of Service	C	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	132	433	86	2	359	64	202	138
v/c Ratio	0.34	0.92	0.20	0.00	0.94	0.18	0.77	0.61
Control Delay	17.9	64.2	18.3	21.0	73.8	19.2	59.8	42.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.9	64.2	18.3	21.0	73.8	19.2	59.8	42.5
Queue Length 50th (ft)	41	272	20	1	229	14	121	62
Queue Length 95th (ft)	81	#491	63	6	#433	52	#232	124
Internal Link Dist (ft)		252			254		163	147
Turn Bay Length (ft)	200		100	100		100		
Base Capacity (vph)	387	470	433	681	383	355	289	296
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.92	0.20	0.00	0.94	0.18	0.70	0.47

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	121	398	79	2	330	59	118	49	19	43	23	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5	7.5		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	0.85		0.99			0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97			0.98	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583		1780			1713	
Flt Permitted	0.55	1.00	1.00	0.95	1.00	1.00		0.97			0.98	
Satd. Flow (perm)	1018	1863	1583	1770	1863	1583		1780			1713	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	132	433	86	2	359	64	128	53	21	47	25	66
RTOR Reduction (vph)	0	0	34	0	0	30	0	4	0	0	33	0
Lane Group Flow (vph)	132	433	52	2	359	34	0	198	0	0	105	0
Turn Type	pm+pt		Perm	Prot		Perm	Split			Split		
Protected Phases	1!	6!		2!	5!		3	3		4	4	
Permitted Phases	6		6			5						
Actuated Green, G (s)	32.0	24.9	24.9	38.1	20.3	20.3		14.4			11.1	
Effective Green, g (s)	32.0	24.9	24.9	38.1	20.3	20.3		14.4			11.1	
Actuated g/C Ratio	0.32	0.25	0.25	0.39	0.21	0.21		0.15			0.11	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5	7.5		6.5			6.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	384	470	399	683	383	326		260			193	
v/s Ratio Prot	0.02	c0.23		0.00	c0.19			c0.11			c0.06	
v/s Ratio Perm	0.09		0.03			0.02						
v/c Ratio	0.34	0.92	0.13	0.00	0.94	0.10		0.76			0.54	
Uniform Delay, d1	24.4	35.9	28.5	18.6	38.6	31.8		40.5			41.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.5	23.5	0.1	0.0	30.2	0.1		12.3			3.1	
Delay (s)	24.9	59.4	28.7	18.6	68.7	32.0		52.8			44.5	
Level of Service	C	E	C	B	E	C		D			D	
Approach Delay (s)		48.4			63.0			52.8			44.5	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM Average Control Delay	53.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	98.7	Sum of lost time (s)	28.0
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

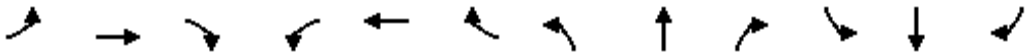
! Phase conflict between lane groups.

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	117	0	0	237	0	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)	127	0	0	258	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	923					
pX, platoon unblocked						
vC, conflicting volume			127		385	127
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			127		385	127
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	100
cM capacity (veh/h)			1459		618	923

Direction, Lane #	EB 1	WB 1	NE 1
Volume Total	127	258	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1459	1700
Volume to Capacity	0.07	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

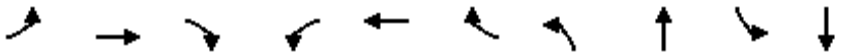
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	15.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	16	68	12	5	19	218	603	19	37	302	42
Sign Control		Stop			Stop			Free			Free	
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)	17	17	74	13	5	21	237	655	21	40	328	46
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											977	
pX, platoon unblocked												
vC, conflicting volume	1584	1582	351	1631	1594	666	374			676		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1584	1582	351	1631	1594	666	374			676		
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 %	73	79	89	74	93	96	80			96		
cM capacity (veh/h)	65	83	692	50	82	460	1185			915		

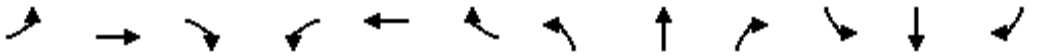
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	109	39	237	676	27	387
Volume Left	17	13	237	0	27	13
Volume Right	74	21	0	21	0	46
cSH	187	106	1185	1700	915	915
Volume to Capacity	0.58	0.37	0.20	0.40	0.04	0.04
Queue Length 95th (ft)	79	37	19	0	3	3
Control Delay (s)	48.2	58.0	8.8	0.0	9.1	0.8
Lane LOS	E	F	A		A	A
Approach Delay (s)	48.2	58.0	2.3		1.3	
Approach LOS	E	F				

Intersection Summary				
Average Delay	6.9			
Intersection Capacity Utilization	65.6%	ICU Level of Service	C	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	132	433	86	2	359	64	128	74	47	91
v/c Ratio	0.21	0.39	0.09	0.00	0.42	0.08	0.44	0.18	0.15	0.20
Control Delay	5.8	10.4	4.4	7.5	15.3	4.4	22.8	14.0	17.0	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.8	10.4	4.4	7.5	15.3	4.4	22.8	14.0	17.0	8.6
Queue Length 50th (ft)	13	59	2	0	80	0	30	12	10	5
Queue Length 95th (ft)	38	214	28	3	170	20	83	43	36	36
Internal Link Dist (ft)		252			254			163		147
Turn Bay Length (ft)	200		100	100		100				
Base Capacity (vph)	633	1122	981	617	1077	942	445	624	478	643
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.39	0.09	0.00	0.33	0.07	0.29	0.12	0.10	0.14

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	121	398	79	2	330	59	118	49	19	43	23	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	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	0.85	1.00	0.96		1.00	0.89	
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)	1770	1863	1583	1770	1863	1583	1770	1783		1770	1660	
Flt Permitted	0.47	1.00	1.00	0.51	1.00	1.00	0.70	1.00		0.71	1.00	
Satd. Flow (perm)	879	1863	1583	951	1863	1583	1300	1783		1320	1660	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	132	433	86	2	359	64	128	53	21	47	25	66
RTOR Reduction (vph)	0	0	36	0	0	37	0	18	0	0	54	0
Lane Group Flow (vph)	132	433	50	2	359	27	128	56	0	47	37	0
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4			8		
Actuated Green, G (s)	27.8	22.8	22.8	21.4	20.6	20.6	7.8	7.8		8.8	8.8	
Effective Green, g (s)	27.8	22.8	22.8	21.4	20.6	20.6	7.8	7.8		8.8	8.8	
Actuated g/C Ratio	0.57	0.47	0.47	0.44	0.43	0.43	0.16	0.16		0.18	0.18	
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	597	878	746	434	793	674	210	287		240	302	
v/s Ratio Prot	c0.02	c0.23		0.00	0.19			0.03			0.02	
v/s Ratio Perm	0.10		0.03	0.00		0.02	c0.10			0.04		
v/c Ratio	0.22	0.49	0.07	0.00	0.45	0.04	0.61	0.20		0.20	0.12	
Uniform Delay, d1	4.9	8.8	7.0	7.5	9.9	8.1	18.9	17.6		16.8	16.6	
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	0.2	0.4	0.0	0.0	0.4	0.0	4.9	0.3		0.4	0.2	
Delay (s)	5.0	9.3	7.0	7.5	10.3	8.1	23.8	17.9		17.2	16.8	
Level of Service	A	A	A	A	B	A	C	B		B	B	
Approach Delay (s)		8.1			10.0			21.7			16.9	
Approach LOS		A			A			C			B	

Intersection Summary			
HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	48.4	Sum of lost time (s)	13.0
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

2010 PROJECTED

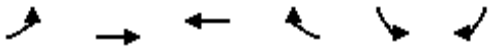
TRAFFIC CONDITIONS

WITH PROPOSED DEVELOPMENT

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	366	216	212	441	101	85
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)	398	235	230	479	110	92
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				1240		
pX, platoon unblocked						
vC, conflicting volume			633		1455	515
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			633		1455	515
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			76		0	83
cM capacity (veh/h)			950		108	560

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	633	710	202
Volume Left	0	230	110
Volume Right	235	0	92
cSH	1700	950	172
Volume to Capacity	0.37	0.24	1.18
Queue Length 95th (ft)	0	24	271
Control Delay (s)	0.0	5.5	178.8
Lane LOS		A	F
Approach Delay (s)	0.0	5.5	178.8
Approach LOS			F

Intersection Summary			
Average Delay	25.9		
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	90	361	273	9	39	381
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	392	297	10	42	414
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			1140			
pX, platoon unblocked						
vC, conflicting volume	307				890	302
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	307				890	302
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				85	44
cM capacity (veh/h)	1254				289	738

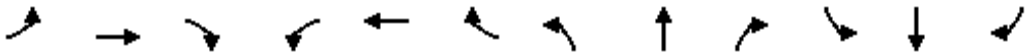
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	490	307	457
Volume Left	98	0	42
Volume Right	0	10	414
cSH	1254	1700	645
Volume to Capacity	0.08	0.18	0.71
Queue Length 95th (ft)	6	0	146
Control Delay (s)	2.3	0.0	22.9
Lane LOS	A		C
Approach Delay (s)	2.3	0.0	22.9
Approach LOS			C

Intersection Summary			
Average Delay	9.2		
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	388	40	17	65	121	52
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)	422	43	18	71	132	57
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			465		551	443
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			465		551	443
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		73	91
cM capacity (veh/h)			1096		487	614

Direction, Lane #	EB 1	WB 1	NE 1	NE 2
Volume Total	465	89	132	57
Volume Left	0	18	132	0
Volume Right	43	0	0	57
cSH	1700	1096	487	614
Volume to Capacity	0.27	0.02	0.27	0.09
Queue Length 95th (ft)	0	1	27	8
Control Delay (s)	0.0	1.8	15.1	11.5
Lane LOS		A	C	B
Approach Delay (s)	0.0	1.8	14.0	
Approach LOS			B	

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	36.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	3	277	25	9	24	59	191	8	12	526	5
Sign Control		Stop			Stop			Free			Free	
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	3	301	27	10	26	64	208	9	13	572	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)											977	
pX, platoon unblocked												
vC, conflicting volume	972	945	574	1243	943	212	577			216		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	972	945	574	1243	943	212	577			216		
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	99	42	54	96	97	94			99		
cM capacity (veh/h)	206	243	518	59	243	828	996			1353		

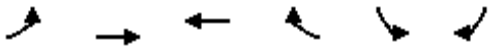
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	305	63	280	590
Volume Left	1	27	64	13
Volume Right	301	26	9	5
cSH	509	119	996	1353
Volume to Capacity	0.60	0.53	0.06	0.01
Queue Length 95th (ft)	98	63	5	1
Control Delay (s)	22.1	65.4	2.5	0.3
Lane LOS	C	F	A	A
Approach Delay (s)	22.1	65.4	2.5	0.3
Approach LOS	C	F		

Intersection Summary				
Average Delay	9.5			
Intersection Capacity Utilization	74.7%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	519	146	106	391	156	157
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)	564	159	115	425	170	171
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				1240		
pX, platoon unblocked						
vC, conflicting volume			723		1299	643
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			723		1299	643
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			87		0	64
cM capacity (veh/h)			879		155	473

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	723	540	340
Volume Left	0	115	170
Volume Right	159	0	171
cSH	1700	879	234
Volume to Capacity	0.43	0.13	1.46
Queue Length 95th (ft)	0	11	494
Control Delay (s)	0.0	3.4	266.5
Lane LOS		A	F
Approach Delay (s)	0.0	3.4	266.5
Approach LOS			F

Intersection Summary			
Average Delay	57.7		
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	237	438	371	59	43	126
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)	258	476	403	64	47	137
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			1140			
pX, platoon unblocked						
vC, conflicting volume	467				1427	435
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	467				1427	435
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	76				59	78
cM capacity (veh/h)	1094				114	621

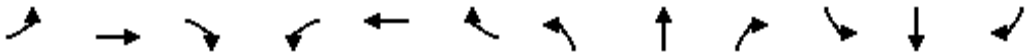
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	734	467	184
Volume Left	258	0	47
Volume Right	0	64	137
cSH	1094	1700	291
Volume to Capacity	0.24	0.27	0.63
Queue Length 95th (ft)	23	0	99
Control Delay (s)	5.2	0.0	36.3
Lane LOS	A		E
Approach Delay (s)	5.2	0.0	36.3
Approach LOS			E

Intersection Summary			
Average Delay	7.6		
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	117	135	58	237	76	33
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)	127	147	63	258	83	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			274		584	201
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			274		584	201
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		82	96
cM capacity (veh/h)			1289		451	840

Direction, Lane #	EB 1	WB 1	NE 1	NE 2
Volume Total	274	321	83	36
Volume Left	0	63	83	0
Volume Right	147	0	0	36
cSH	1700	1289	451	840
Volume to Capacity	0.16	0.05	0.18	0.04
Queue Length 95th (ft)	0	4	17	3
Control Delay (s)	0.0	1.9	14.8	9.5
Lane LOS		A	B	A
Approach Delay (s)	0.0	1.9	13.2	
Approach LOS			B	

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	16	100	12	5	19	276	603	19	37	302	42
Sign Control		Stop			Stop			Free			Free	
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)	17	17	109	13	5	21	300	655	21	40	328	46
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											977	
pX, platoon unblocked												
vC, conflicting volume	1721	1708	351	1815	1720	666	374			676		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1721	1708	351	1815	1720	666	374			676		
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 %	65	73	84	59	91	96	75			96		
cM capacity (veh/h)	49	65	692	32	64	460	1185			915		

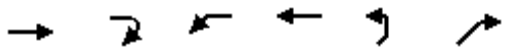
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	143	39	976	414
Volume Left	17	13	300	40
Volume Right	109	21	21	46
cSH	184	72	1185	915
Volume to Capacity	0.78	0.54	0.25	0.04
Queue Length 95th (ft)	130	57	25	3
Control Delay (s)	71.4	102.1	5.4	1.3
Lane LOS	F	F	A	A
Approach Delay (s)	71.4	102.1	5.4	1.3
Approach LOS	F	F		

Intersection Summary			
Average Delay	12.8		
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		

2010 PROJECTED MITIGATED

TRAFFIC CONDITIONS

WITH PROPOSED DEVELOPMENT



Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	388	40	17	65	121	52
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)	422	43	18	71	132	57
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type	None			TWLTL		
Median storage veh)				2		
Upstream signal (ft)	916					
pX, platoon unblocked						
vC, conflicting volume			465		551	443
vC1, stage 1 conf vol					443	
vC2, stage 2 conf vol					108	
vCu, unblocked vol			465		551	443
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		79	91
cM capacity (veh/h)			1096		616	614

Direction, Lane #	EB 1	WB 1	NE 1
Volume Total	465	89	188
Volume Left	0	18	132
Volume Right	43	0	57
cSH	1700	1096	881
Volume to Capacity	0.27	0.02	0.21
Queue Length 95th (ft)	0	1	20
Control Delay (s)	0.0	1.8	12.1
Lane LOS		A	B
Approach Delay (s)	0.0	1.8	12.1
Approach LOS			B

Intersection Summary			
Average Delay		3.3	
Intersection Capacity Utilization		36.2%	ICU Level of Service
Analysis Period (min)		15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	3	277	25	9	24	59	191	8	12	526	5
Sign Control		Stop			Stop			Free			Free	
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	3	301	27	10	26	64	208	9	13	572	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)											977	
pX, platoon unblocked												
vC, conflicting volume	967	945	574	1241	943	212	577			216		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	967	945	574	1241	943	212	577			216		
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	99	42	54	96	97	94			99		
cM capacity (veh/h)	207	243	518	59	243	828	996			1353		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	305	63	64	216	9	582
Volume Left	1	27	64	0	9	4
Volume Right	301	26	0	9	0	5
cSH	509	119	996	1700	1353	1353
Volume to Capacity	0.60	0.53	0.06	0.13	0.01	0.01
Queue Length 95th (ft)	98	62	5	0	1	1
Control Delay (s)	22.1	65.0	8.9	0.0	7.7	0.2
Lane LOS	C	F	A		A	A
Approach Delay (s)	22.1	65.0	2.0		0.3	
Approach LOS	C	F				

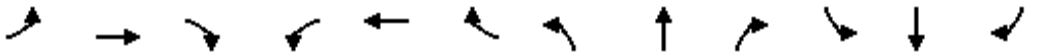
Intersection Summary				
Average Delay	9.4			
Intersection Capacity Utilization	72.2%	ICU Level of Service	C	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	57	342	235	17	279	10	201	433
v/c Ratio	0.20	0.92	0.54	0.03	0.95	0.04	0.78	1.00
Control Delay	21.8	73.0	19.8	25.2	85.1	25.8	61.1	81.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.8	73.0	19.8	25.2	85.1	25.8	61.1	81.9
Queue Length 50th (ft)	22	227	51	8	189	2	121	~289
Queue Length 95th (ft)	47	#397	130	24	#353	17	#223	#485
Internal Link Dist (ft)		252			254		163	147
Turn Bay Length (ft)	200		100	100		100		
Base Capacity (vph)	282	377	437	604	295	257	280	432
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.91	0.54	0.03	0.95	0.04	0.72	1.00

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	315	216	16	257	9	101	37	47	39	176	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5	7.5		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	0.85		0.97			0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97			1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583		1751			1738	
Flt Permitted	0.59	1.00	1.00	0.95	1.00	1.00		0.97			1.00	
Satd. Flow (perm)	1096	1863	1583	1770	1863	1583		1751			1738	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	342	235	17	279	10	110	40	51	42	191	200
RTOR Reduction (vph)	0	0	116	0	0	6	0	12	0	0	29	0
Lane Group Flow (vph)	57	342	119	17	279	4	0	189	0	0	404	0
Turn Type	pm+pt		Perm	Prot		Perm	Split			Split		
Protected Phases	1!	6!		2!	5!		3	3		4	4	
Permitted Phases	6		6			5						
Actuated Green, G (s)	25.2	22.0	22.0	35.1	16.3	16.3		14.4			23.8	
Effective Green, g (s)	25.2	22.0	22.0	35.1	16.3	16.3		14.4			23.8	
Actuated g/C Ratio	0.24	0.21	0.21	0.34	0.16	0.16		0.14			0.23	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5	7.5		6.5			6.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	285	392	333	595	291	247		241			396	
v/s Ratio Prot	0.01	c0.18		0.01	c0.15			c0.11			c0.23	
v/s Ratio Perm	0.04		0.08			0.00						
v/c Ratio	0.20	0.87	0.36	0.03	0.96	0.02		0.78			1.02	
Uniform Delay, d1	31.1	39.9	35.2	23.3	43.8	37.3		43.5			40.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.3	18.8	0.7	0.1	41.1	0.0		15.3			50.2	
Delay (s)	31.4	58.6	35.9	23.4	84.9	37.3		58.8			90.6	
Level of Service	C	E	D	C	F	D		E			F	
Approach Delay (s)		47.8			79.9			58.8			90.6	
Approach LOS		D			E			E			F	

Intersection Summary			
HCM Average Control Delay	67.2	HCM Level of Service	E
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	104.5	Sum of lost time (s)	28.0
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	388	40	17	65	121	52
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)	422	43	18	71	132	57
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type	None			TWLTL		
Median storage veh)				2		
Upstream signal (ft)	917					
pX, platoon unblocked						
vC, conflicting volume			465		551	443
vC1, stage 1 conf vol					443	
vC2, stage 2 conf vol					108	
vCu, unblocked vol			465		551	443
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		79	91
cM capacity (veh/h)			1096		616	614

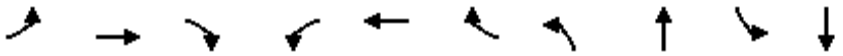
Direction, Lane #	EB 1	WB 1	NE 1
Volume Total	465	89	188
Volume Left	0	18	132
Volume Right	43	0	57
cSH	1700	1096	881
Volume to Capacity	0.27	0.02	0.21
Queue Length 95th (ft)	0	1	20
Control Delay (s)	0.0	1.8	12.1
Lane LOS		A	B
Approach Delay (s)	0.0	1.8	12.1
Approach LOS			B

Intersection Summary			
Average Delay		3.3	
Intersection Capacity Utilization		36.2%	ICU Level of Service
Analysis Period (min)		15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	3	277	25	9	24	59	191	8	12	526	5
Sign Control		Stop			Stop			Free			Free	
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	3	301	27	10	26	64	208	9	13	572	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)											977	
pX, platoon unblocked												
vC, conflicting volume	967	945	574	1241	943	212	577			216		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	967	945	574	1241	943	212	577			216		
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	99	42	54	96	97	94			99		
cM capacity (veh/h)	207	243	518	59	243	828	996			1353		

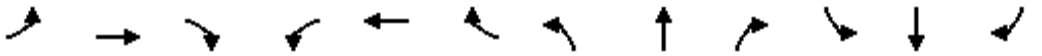
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	305	63	64	216	9	582
Volume Left	1	27	64	0	9	4
Volume Right	301	26	0	9	0	5
cSH	509	119	996	1700	1353	1353
Volume to Capacity	0.60	0.53	0.06	0.13	0.01	0.01
Queue Length 95th (ft)	98	62	5	0	1	1
Control Delay (s)	22.1	65.0	8.9	0.0	7.7	0.2
Lane LOS	C	F	A		A	A
Approach Delay (s)	22.1	65.0	2.0		0.3	
Approach LOS	C	F				

Intersection Summary				
Average Delay	9.4			
Intersection Capacity Utilization	72.2%	ICU Level of Service	C	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	57	342	235	17	279	10	110	91	42	391
v/c Ratio	0.11	0.57	0.35	0.05	0.51	0.06	0.45	0.14	0.08	0.56
Control Delay	8.7	20.1	5.1	9.6	20.2	16.0	22.7	8.7	13.9	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.7	20.1	5.1	9.6	20.2	16.0	22.7	8.7	13.9	15.6
Queue Length 50th (ft)	10	76	2	3	83	0	26	8	8	76
Queue Length 95th (ft)	24	189	47	11	149	12	80	38	30	183
Internal Link Dist (ft)		252			254			163		147
Turn Bay Length (ft)	200		100	100		100				
Base Capacity (vph)	505	722	750	537	897	419	280	725	555	774
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.47	0.31	0.03	0.31	0.02	0.39	0.13	0.08	0.51

Intersection Summary



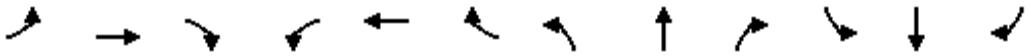
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	315	216	16	257	9	101	37	47	39	176	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	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	0.85	1.00	0.92		1.00	0.92	
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)	1770	1863	1583	1770	1863	1583	1770	1706		1770	1720	
Flt Permitted	0.58	1.00	1.00	0.45	1.00	1.00	0.37	1.00		0.70	1.00	
Satd. Flow (perm)	1089	1863	1583	832	1863	1583	687	1706		1300	1720	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	342	235	17	279	10	110	40	51	42	191	200
RTOR Reduction (vph)	0	0	155	0	0	10	0	34	0	0	46	0
Lane Group Flow (vph)	57	342	80	17	279	0	110	57	0	42	345	0
Turn Type	pm+pt		Perm	pm+pt		custom	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		5	4			8		
Actuated Green, G (s)	19.7	16.3	16.3	18.9	16.9	2.0	18.1	18.1		19.1	19.1	
Effective Green, g (s)	19.7	16.3	16.3	18.9	16.9	2.0	18.1	18.1		19.1	19.1	
Actuated g/C Ratio	0.37	0.31	0.31	0.35	0.32	0.04	0.34	0.34		0.36	0.36	
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	445	569	483	330	590	59	233	578		465	615	
v/s Ratio Prot	c0.01	c0.18		0.00	0.15			0.03			c0.20	
v/s Ratio Perm	0.04		0.05	0.02		0.00	0.16			0.03		
v/c Ratio	0.13	0.60	0.17	0.05	0.47	0.01	0.47	0.10		0.09	0.56	
Uniform Delay, d1	11.0	15.8	13.6	11.4	14.7	24.7	13.9	12.1		11.4	13.8	
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	0.1	1.8	0.2	0.1	0.6	0.0	1.5	0.1		0.1	1.2	
Delay (s)	11.1	17.6	13.7	11.4	15.3	24.8	15.4	12.1		11.5	15.0	
Level of Service	B	B	B	B	B	C	B	B		B	B	
Approach Delay (s)		15.6			15.4			13.9			14.6	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	53.4	Sum of lost time (s)	14.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	117	135	58	237	76	33
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)	127	147	63	258	83	36
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	927					
pX, platoon unblocked						
vC, conflicting volume			274		584	201
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			274		584	201
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		82	96
cM capacity (veh/h)			1289		451	840

Direction, Lane #	EB 1	WB 1	NE 1
Volume Total	274	321	118
Volume Left	0	63	83
Volume Right	147	0	36
cSH	1700	1289	646
Volume to Capacity	0.16	0.05	0.18
Queue Length 95th (ft)	0	4	17
Control Delay (s)	0.0	1.9	13.2
Lane LOS		A	B
Approach Delay (s)	0.0	1.9	13.2
Approach LOS			B

Intersection Summary			
Average Delay		3.1	
Intersection Capacity Utilization		44.3%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	16	100	12	5	19	276	603	19	37	302	42
Sign Control		Stop			Stop			Free			Free	
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)	17	17	109	13	5	21	300	655	21	40	328	46
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											977	
pX, platoon unblocked	0.99	0.99	0.99	0.99	0.99		0.99					
vC, conflicting volume	1710	1708	351	1792	1720	666	374			676		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1713	1710	339	1795	1722	666	362			676		
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 %	65	73	84	60	91	96	75			96		
cM capacity (veh/h)	49	64	696	32	63	460	1184			915		

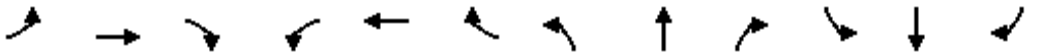
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	143	39	300	676	27	387
Volume Left	17	13	300	0	27	13
Volume Right	109	21	0	21	0	46
cSH	184	73	1184	1700	915	915
Volume to Capacity	0.78	0.53	0.25	0.40	0.04	0.04
Queue Length 95th (ft)	131	56	25	0	3	3
Control Delay (s)	71.9	100.0	9.1	0.0	9.1	0.8
Lane LOS	F	F	A		A	A
Approach Delay (s)	71.9	100.0	2.8		1.3	
Approach LOS	F	F				

Intersection Summary				
Average Delay	11.1			
Intersection Capacity Utilization	67.5%	ICU Level of Service	C	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	132	433	159	45	359	64	284	170
v/c Ratio	0.36	0.98	0.36	0.07	0.97	0.19	0.97	0.70
Control Delay	19.3	77.3	19.3	22.6	83.0	19.5	88.9	51.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.3	77.3	19.3	22.6	83.0	19.5	88.9	51.5
Queue Length 50th (ft)	44	284	41	19	237	14	184	91
Queue Length 95th (ft)	82	#497	101	45	#433	52	#362	162
Internal Link Dist (ft)		252			254		163	147
Turn Bay Length (ft)	200		100	100		100		
Base Capacity (vph)	369	444	440	648	369	344	293	287
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.98	0.36	0.07	0.97	0.19	0.97	0.59

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	121	398	146	41	330	59	156	65	40	43	52	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5	7.5		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	0.85		0.98			0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97			0.99	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583		1772			1741	
Flt Permitted	0.55	1.00	1.00	0.95	1.00	1.00		0.97			0.99	
Satd. Flow (perm)	1018	1863	1583	1770	1863	1583		1772			1741	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	132	433	159	45	359	64	170	71	43	47	57	66
RTOR Reduction (vph)	0	0	62	0	0	30	0	6	0	0	23	0
Lane Group Flow (vph)	132	433	97	45	359	34	0	278	0	0	147	0
Turn Type	pm+pt		Perm	Prot		Perm	Split			Split		
Protected Phases	1!	6!		2!	5!		3	3		4	4	
Permitted Phases	6		6			5						
Actuated Green, G (s)	31.6	24.4	24.4	37.4	20.2	20.2		16.5			13.0	
Effective Green, g (s)	31.6	24.4	24.4	37.4	20.2	20.2		16.5			13.0	
Actuated g/C Ratio	0.31	0.24	0.24	0.37	0.20	0.20		0.16			0.13	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5	7.5		6.5			6.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	368	445	378	648	369	313		286			222	
v/s Ratio Prot	0.03	c0.23		0.03	c0.19			c0.16			c0.08	
v/s Ratio Perm	0.09		0.06			0.02						
v/c Ratio	0.36	0.97	0.26	0.07	0.97	0.11		0.97			0.66	
Uniform Delay, d1	26.3	38.5	31.5	21.0	40.7	33.6		42.6			42.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.6	35.4	0.4	0.2	39.4	0.2		45.4			7.3	
Delay (s)	26.9	74.0	31.8	21.2	80.1	33.7		88.0			49.7	
Level of Service	C	E	C	C	F	C		F			D	
Approach Delay (s)		56.1			68.1			88.0			49.7	
Approach LOS		E			E			F			D	

Intersection Summary			
HCM Average Control Delay	64.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	102.1	Sum of lost time (s)	28.0
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	117	135	58	237	76	33
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)	127	147	63	258	83	36
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	924					
pX, platoon unblocked						
vC, conflicting volume			274		584	201
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			274		584	201
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		82	96
cM capacity (veh/h)			1289		451	840

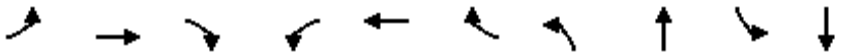
Direction, Lane #	EB 1	WB 1	NE 1
Volume Total	274	321	118
Volume Left	0	63	83
Volume Right	147	0	36
cSH	1700	1289	646
Volume to Capacity	0.16	0.05	0.18
Queue Length 95th (ft)	0	4	17
Control Delay (s)	0.0	1.9	13.2
Lane LOS		A	B
Approach Delay (s)	0.0	1.9	13.2
Approach LOS			B

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	16	100	12	5	19	276	603	19	37	302	42
Sign Control		Stop			Stop			Free			Free	
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)	17	17	109	13	5	21	300	655	21	40	328	46
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											977	
pX, platoon unblocked	0.99	0.99	0.99	0.99	0.99		0.99					
vC, conflicting volume	1710	1708	351	1792	1720	666	374			676		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1713	1710	339	1795	1722	666	362			676		
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 %	65	73	84	60	91	96	75			96		
cM capacity (veh/h)	49	64	696	32	63	460	1184			915		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	143	39	300	676	27	387
Volume Left	17	13	300	0	27	13
Volume Right	109	21	0	21	0	46
cSH	184	73	1184	1700	915	915
Volume to Capacity	0.78	0.53	0.25	0.40	0.04	0.04
Queue Length 95th (ft)	131	56	25	0	3	3
Control Delay (s)	71.9	100.0	9.1	0.0	9.1	0.8
Lane LOS	F	F	A		A	A
Approach Delay (s)	71.9	100.0	2.8		1.3	
Approach LOS	F	F				

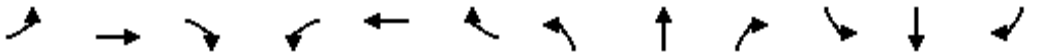
Intersection Summary				
Average Delay	11.1			
Intersection Capacity Utilization	67.5%	ICU Level of Service	C	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	132	433	159	45	359	64	170	114	47	123
v/c Ratio	0.22	0.50	0.20	0.10	0.40	0.24	0.56	0.25	0.15	0.26
Control Delay	6.7	19.3	6.0	6.8	15.6	10.8	26.5	13.3	17.2	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	19.3	6.0	6.8	15.6	10.8	26.5	13.3	17.2	10.5
Queue Length 50th (ft)	15	115	7	6	88	1	48	18	12	14
Queue Length 95th (ft)	41	#271	45	19	178	31	107	54	35	50
Internal Link Dist (ft)		252			254			163		147
Turn Bay Length (ft)	200		100	100		100				
Base Capacity (vph)	620	865	803	639	1054	514	409	597	436	629
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.50	0.20	0.07	0.34	0.12	0.42	0.19	0.11	0.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	121	398	146	41	330	59	156	65	40	43	52	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	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	0.85	1.00	0.94		1.00	0.92	
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)	1770	1863	1583	1770	1863	1583	1770	1757		1770	1713	
Flt Permitted	0.55	1.00	1.00	0.37	1.00	1.00	0.68	1.00		0.68	1.00	
Satd. Flow (perm)	1018	1863	1583	695	1863	1583	1263	1757		1273	1713	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	132	433	159	45	359	64	170	71	43	47	57	66
RTOR Reduction (vph)	0	0	79	0	0	55	0	34	0	0	52	0
Lane Group Flow (vph)	132	433	80	45	359	9	170	80	0	47	71	0
Turn Type	pm+pt		Perm	pm+pt		custom	Perm			Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		5	4			8		
Actuated Green, G (s)	23.8	18.8	18.8	25.2	20.5	4.7	9.3	9.3		10.3	10.3	
Effective Green, g (s)	23.8	18.8	18.8	25.2	20.5	4.7	9.3	9.3		10.3	10.3	
Actuated g/C Ratio	0.48	0.38	0.38	0.51	0.41	0.09	0.19	0.19		0.21	0.21	
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	562	703	598	453	767	149	236	328		263	354	
v/s Ratio Prot	c0.02	c0.23		0.01	0.19			0.05			0.04	
v/s Ratio Perm	0.09		0.05	0.04		0.01	c0.13			0.04		
v/c Ratio	0.23	0.62	0.13	0.10	0.47	0.06	0.72	0.24		0.18	0.20	
Uniform Delay, d1	7.3	12.6	10.2	6.6	10.7	20.5	19.0	17.3		16.3	16.3	
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	0.2	1.6	0.1	0.1	0.5	0.2	10.3	0.4		0.3	0.3	
Delay (s)	7.6	14.2	10.3	6.7	11.1	20.7	29.3	17.6		16.6	16.6	
Level of Service	A	B	B	A	B	C	C	B		B	B	
Approach Delay (s)		12.1			12.0			24.6			16.6	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	49.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

2007 EXISTING

TRAFFIC CONDITIONS

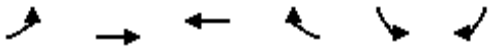
WITH PROPOSED DEVELOPMENT

PHASE 1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	324	191	163	370	73	50
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)	352	208	177	402	79	54
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				1240		
pX, platoon unblocked						
vC, conflicting volume			560		1212	456
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			560		1212	456
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			82		52	91
cM capacity (veh/h)			1011		166	604

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	560	579	134
Volume Left	0	177	79
Volume Right	208	0	54
cSH	1700	1011	235
Volume to Capacity	0.33	0.18	0.57
Queue Length 95th (ft)	0	16	79
Control Delay (s)	0.0	4.3	38.7
Lane LOS		A	E
Approach Delay (s)	0.0	4.3	38.7
Approach LOS			E

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	55	320	246	2	17	288
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	60	348	267	2	18	313
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			1140			
pX, platoon unblocked						
vC, conflicting volume	270				736	268
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	270				736	268
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				95	59
cM capacity (veh/h)	1294				368	770

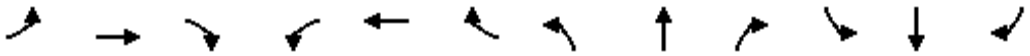
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	408	270	332
Volume Left	60	0	18
Volume Right	0	2	313
cSH	1294	1700	726
Volume to Capacity	0.05	0.16	0.46
Queue Length 95th (ft)	4	0	60
Control Delay (s)	1.6	0.0	14.1
Lane LOS	A		B
Approach Delay (s)	1.6	0.0	14.1
Approach LOS			B

Intersection Summary			
Average Delay		5.2	
Intersection Capacity Utilization		61.7%	ICU Level of Service B
Analysis Period (min)		15	

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	330	24	11	51	72	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)	359	26	12	55	78	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			385		451	372
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			385		451	372
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		86	95
cM capacity (veh/h)			1174		560	674

Direction, Lane #	EB 1	WB 1	NE 1	NE 2
Volume Total	385	67	78	34
Volume Left	0	12	78	0
Volume Right	26	0	0	34
cSH	1700	1174	560	674
Volume to Capacity	0.23	0.01	0.14	0.05
Queue Length 95th (ft)	0	1	12	4
Control Delay (s)	0.0	1.5	12.5	10.6
Lane LOS		A	B	B
Approach Delay (s)	0.0	1.5	11.9	
Approach LOS			B	

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	29.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	3	212	23	8	22	41	175	7	11	481	5
Sign Control		Stop			Stop			Free			Free	
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	3	230	25	9	24	45	190	8	12	523	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)											977	
pX, platoon unblocked												
vC, conflicting volume	861	836	526	1065	835	194	528			198		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	861	836	526	1065	835	194	528			198		
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 %	100	99	58	78	97	97	96			99		
cM capacity (veh/h)	252	287	552	111	288	847	1039			1375		

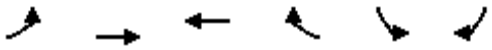
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	235	58	242	540
Volume Left	1	25	45	12
Volume Right	230	24	8	5
cSH	542	203	1039	1375
Volume to Capacity	0.43	0.28	0.04	0.01
Queue Length 95th (ft)	54	28	3	1
Control Delay (s)	16.6	29.5	1.9	0.3
Lane LOS	C	D	A	A
Approach Delay (s)	16.6	29.5	1.9	0.3
Approach LOS	C	D		

Intersection Summary				
Average Delay	5.8			
Intersection Capacity Utilization	59.0%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	436	114	61	336	131	103
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)	474	124	66	365	142	112
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				1240		
pX, platoon unblocked						
vC, conflicting volume			598		1034	536
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			598		1034	536
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		41	79
cM capacity (veh/h)			979		240	545

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	598	432	254
Volume Left	0	66	142
Volume Right	124	0	112
cSH	1700	979	318
Volume to Capacity	0.35	0.07	0.80
Queue Length 95th (ft)	0	5	164
Control Delay (s)	0.0	2.0	49.3
Lane LOS		A	E
Approach Delay (s)	0.0	2.0	49.3
Approach LOS			E

Intersection Summary			
Average Delay	10.4		
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	145	394	328	33	28	69
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	158	428	357	36	30	75
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			1140			
pX, platoon unblocked						
vC, conflicting volume	392				1118	374
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	392				1118	374
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	86				85	89
cM capacity (veh/h)	1166				198	672

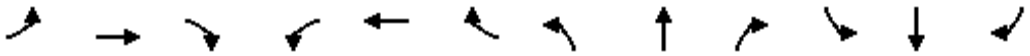
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	586	392	105
Volume Left	158	0	30
Volume Right	0	36	75
cSH	1166	1700	397
Volume to Capacity	0.14	0.23	0.27
Queue Length 95th (ft)	12	0	26
Control Delay (s)	3.4	0.0	17.3
Lane LOS	A		C
Approach Delay (s)	3.4	0.0	17.3
Approach LOS			C

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	91	83	36	188	46	20
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)	99	90	39	204	50	22
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			189		427	144
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			189		427	144
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		91	98
cM capacity (veh/h)			1385		568	903

Direction, Lane #	EB 1	WB 1	NE 1	NE 2
Volume Total	189	243	50	22
Volume Left	0	39	50	0
Volume Right	90	0	0	22
cSH	1700	1385	568	903
Volume to Capacity	0.11	0.03	0.09	0.02
Queue Length 95th (ft)	0	2	7	2
Control Delay (s)	0.0	1.4	11.9	9.1
Lane LOS		A	B	A
Approach Delay (s)	0.0	1.4	11.1	
Approach LOS			B	

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	35.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	15	66	11	5	17	207	552	17	34	276	38
Sign Control		Stop			Stop			Free			Free	
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)	16	16	72	12	5	18	225	600	18	37	300	41
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											977	
pX, platoon unblocked												
vC, conflicting volume	1475	1463	321	1534	1474	609	341			618		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1475	1463	321	1534	1474	609	341			618		
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 %	80	84	90	81	95	96	82			96		
cM capacity (veh/h)	80	101	720	63	99	495	1218			962		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	104	36	843	378
Volume Left	16	12	225	37
Volume Right	72	18	18	41
cSH	225	127	1218	962
Volume to Capacity	0.46	0.28	0.18	0.04
Queue Length 95th (ft)	56	27	17	3
Control Delay (s)	34.2	44.1	4.1	1.3
Lane LOS	D	E	A	A
Approach Delay (s)	34.2	44.1	4.1	1.3
Approach LOS	D	E		

Intersection Summary				
Average Delay	6.7			
Intersection Capacity Utilization	76.5%	ICU Level of Service	D	
Analysis Period (min)	15			

2007 EXISTING

TRAFFIC CONDITIONS

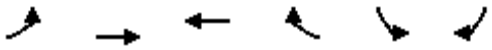
WITH PROPOSED DEVELOPMENT

PHASE 2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	324	198	170	370	93	70
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)	352	215	185	402	101	76
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				1240		
pX, platoon unblocked						
vC, conflicting volume			567		1232	460
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			567		1232	460
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			82		37	87
cM capacity (veh/h)			1005		160	601

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	567	587	177
Volume Left	0	185	101
Volume Right	215	0	76
cSH	1700	1005	233
Volume to Capacity	0.33	0.18	0.76
Queue Length 95th (ft)	0	17	134
Control Delay (s)	0.0	4.5	56.9
Lane LOS		A	F
Approach Delay (s)	0.0	4.5	56.9
Approach LOS			F

Intersection Summary			
Average Delay	9.6		
Intersection Capacity Utilization	77.4%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	63	331	250	2	17	290
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	360	272	2	18	315
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			1140			
pX, platoon unblocked						
vC, conflicting volume	274				770	273
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	274				770	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 %	95				95	59
cM capacity (veh/h)	1289				349	766

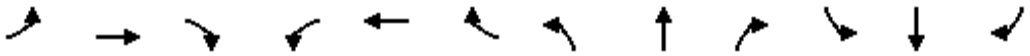
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	428	274	334
Volume Left	68	0	18
Volume Right	0	2	315
cSH	1289	1700	718
Volume to Capacity	0.05	0.16	0.46
Queue Length 95th (ft)	4	0	62
Control Delay (s)	1.7	0.0	14.3
Lane LOS	A		B
Approach Delay (s)	1.7	0.0	14.3
Approach LOS			B

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	330	38	16	51	112	48
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)	359	41	17	55	122	52
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			400		470	379
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			400		470	379
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		78	92
cM capacity (veh/h)			1159		544	668

Direction, Lane #	EB 1	WB 1	NE 1	NE 2
Volume Total	400	73	122	52
Volume Left	0	17	122	0
Volume Right	41	0	0	52
cSH	1700	1159	544	668
Volume to Capacity	0.24	0.02	0.22	0.08
Queue Length 95th (ft)	0	1	21	6
Control Delay (s)	0.0	2.0	13.5	10.8
Lane LOS		A	B	B
Approach Delay (s)	0.0	2.0	12.7	
Approach LOS			B	

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	3	229	23	8	22	46	175	7	11	481	5
Sign Control		Stop			Stop			Free			Free	
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	3	249	25	9	24	50	190	8	12	523	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)											977	
pX, platoon unblocked												
vC, conflicting volume	872	847	526	1094	846	194	528			198		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	872	847	526	1094	846	194	528			198		
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 %	100	99	55	75	97	97	95			99		
cM capacity (veh/h)	246	282	552	100	282	847	1039			1375		

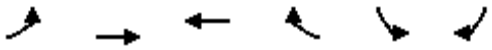
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	253	58	248	540
Volume Left	1	25	50	12
Volume Right	249	24	8	5
cSH	543	186	1039	1375
Volume to Capacity	0.47	0.31	0.05	0.01
Queue Length 95th (ft)	61	31	4	1
Control Delay (s)	17.3	32.8	2.1	0.3
Lane LOS	C	D	A	A
Approach Delay (s)	17.3	32.8	2.1	0.3
Approach LOS	C	D		

Intersection Summary				
Average Delay	6.3			
Intersection Capacity Utilization	63.1%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	436	135	82	336	144	116
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)	474	147	89	365	157	126
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				1240		
pX, platoon unblocked						
vC, conflicting volume			621		1091	547
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			621		1091	547
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		27	77
cM capacity (veh/h)			960		216	537

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	621	454	283
Volume Left	0	89	157
Volume Right	147	0	126
cSH	1700	960	294
Volume to Capacity	0.37	0.09	0.96
Queue Length 95th (ft)	0	8	240
Control Delay (s)	0.0	2.7	81.6
Lane LOS		A	F
Approach Delay (s)	0.0	2.7	81.6
Approach LOS			F

Intersection Summary			
Average Delay	17.9		
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	151	402	340	33	28	78
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	164	437	370	36	30	85
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			1140			
pX, platoon unblocked						
vC, conflicting volume	405				1153	388
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	405				1153	388
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	86				84	87
cM capacity (veh/h)	1153				187	661

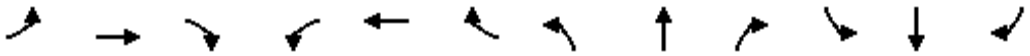
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	601	405	115
Volume Left	164	0	30
Volume Right	0	36	85
cSH	1153	1700	396
Volume to Capacity	0.14	0.24	0.29
Queue Length 95th (ft)	12	0	30
Control Delay (s)	3.6	0.0	17.8
Lane LOS	A		C
Approach Delay (s)	3.6	0.0	17.8
Approach LOS			C

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	91	126	54	188	71	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)	99	137	59	204	77	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			236		489	167
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			236		489	167
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		85	96
cM capacity (veh/h)			1331		514	877

Direction, Lane #	EB 1	WB 1	NE 1	NE 2
Volume Total	236	263	77	34
Volume Left	0	59	77	0
Volume Right	137	0	0	34
cSH	1700	1331	514	877
Volume to Capacity	0.14	0.04	0.15	0.04
Queue Length 95th (ft)	0	3	13	3
Control Delay (s)	0.0	2.1	13.2	9.3
Lane LOS		A	B	A
Approach Delay (s)	0.0	2.1	12.0	
Approach LOS			B	

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	15	77	11	5	17	225	552	17	34	276	38
Sign Control		Stop			Stop			Free			Free	
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)	16	16	84	12	5	18	245	600	18	37	300	41
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											977	
pX, platoon unblocked												
vC, conflicting volume	1514	1502	321	1585	1514	609	341			618		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1514	1502	321	1585	1514	609	341			618		
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 %	78	83	88	78	94	96	80			96		
cM capacity (veh/h)	74	93	720	55	92	495	1218			962		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	116	36	863	378
Volume Left	16	12	245	37
Volume Right	84	18	18	41
cSH	228	115	1218	962
Volume to Capacity	0.51	0.31	0.20	0.04
Queue Length 95th (ft)	66	30	19	3
Control Delay (s)	36.2	50.0	4.4	1.3
Lane LOS	E	E	A	A
Approach Delay (s)	36.2	50.0	4.4	1.3
Approach LOS	E	E		

Intersection Summary				
Average Delay	7.4			
Intersection Capacity Utilization	78.2%	ICU Level of Service	D	
Analysis Period (min)	15			

2007 MITIGATED

TRAFFIC CONDITIONS

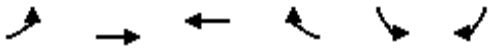
WITH PROPOSED DEVELOPMENT

PHASE 2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	324	198	170	370	93	70
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)	352	215	185	402	101	76
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						6
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				1240		
pX, platoon unblocked						
vC, conflicting volume			567		1232	460
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			567		1232	460
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			82		37	87
cM capacity (veh/h)			1005		160	601

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	567	587	177
Volume Left	0	185	101
Volume Right	215	0	76
cSH	1700	1005	280
Volume to Capacity	0.33	0.18	0.63
Queue Length 95th (ft)	0	17	99
Control Delay (s)	0.0	4.5	39.3
Lane LOS		A	E
Approach Delay (s)	0.0	4.5	39.3
Approach LOS			E

Intersection Summary			
Average Delay	7.2		
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	63	331	250	2	17	290
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	360	272	2	18	315
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			1140			
pX, platoon unblocked						
vC, conflicting volume	274				770	273
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	274				770	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 %	95				95	59
cM capacity (veh/h)	1289				349	766

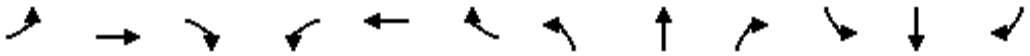
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	428	274	334
Volume Left	68	0	18
Volume Right	0	2	315
cSH	1289	1700	718
Volume to Capacity	0.05	0.16	0.46
Queue Length 95th (ft)	4	0	62
Control Delay (s)	1.7	0.0	14.3
Lane LOS	A		B
Approach Delay (s)	1.7	0.0	14.3
Approach LOS			B

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	330	38	16	51	112	48
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)	359	41	17	55	122	52
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			400		470	379
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			400		470	379
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		78	92
cM capacity (veh/h)			1159		544	668

Direction, Lane #	EB 1	WB 1	NE 1	NE 2
Volume Total	400	73	122	52
Volume Left	0	17	122	0
Volume Right	41	0	0	52
cSH	1700	1159	544	668
Volume to Capacity	0.24	0.02	0.22	0.08
Queue Length 95th (ft)	0	1	21	6
Control Delay (s)	0.0	2.0	13.5	10.8
Lane LOS		A	B	B
Approach Delay (s)	0.0	2.0	12.7	
Approach LOS			B	

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	3	229	23	8	22	46	175	7	11	481	5
Sign Control		Stop			Stop			Free			Free	
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	3	249	25	9	24	50	190	8	12	523	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)											977	
pX, platoon unblocked												
vC, conflicting volume	872	847	526	1094	846	194	528			198		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	872	847	526	1094	846	194	528			198		
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 %	100	99	55	75	97	97	95			99		
cM capacity (veh/h)	246	282	552	100	282	847	1039			1375		

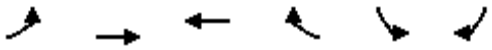
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	253	58	248	540
Volume Left	1	25	50	12
Volume Right	249	24	8	5
cSH	543	186	1039	1375
Volume to Capacity	0.47	0.31	0.05	0.01
Queue Length 95th (ft)	61	31	4	1
Control Delay (s)	17.3	32.8	2.1	0.3
Lane LOS	C	D	A	A
Approach Delay (s)	17.3	32.8	2.1	0.3
Approach LOS	C	D		

Intersection Summary				
Average Delay	6.3			
Intersection Capacity Utilization	63.1%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	436	135	82	336	144	116
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)	474	147	89	365	157	126
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						6
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				1240		
pX, platoon unblocked						
vC, conflicting volume			621		1091	547
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			621		1091	547
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		27	77
cM capacity (veh/h)			960		216	537

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	621	454	283
Volume Left	0	89	157
Volume Right	147	0	126
cSH	1700	960	390
Volume to Capacity	0.37	0.09	0.73
Queue Length 95th (ft)	0	8	140
Control Delay (s)	0.0	2.7	37.2
Lane LOS		A	E
Approach Delay (s)	0.0	2.7	37.2
Approach LOS			E

Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	151	402	340	33	28	78
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	164	437	370	36	30	85
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			1140			
pX, platoon unblocked						
vC, conflicting volume	405				1153	388
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	405				1153	388
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	86				84	87
cM capacity (veh/h)	1153				187	661

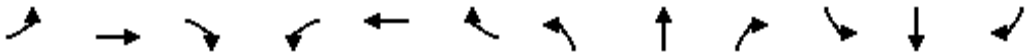
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	601	405	115
Volume Left	164	0	30
Volume Right	0	36	85
cSH	1153	1700	396
Volume to Capacity	0.14	0.24	0.29
Queue Length 95th (ft)	12	0	30
Control Delay (s)	3.6	0.0	17.8
Lane LOS	A		C
Approach Delay (s)	3.6	0.0	17.8
Approach LOS			C

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	91	126	54	188	71	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)	99	137	59	204	77	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			236		489	167
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			236		489	167
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		85	96
cM capacity (veh/h)			1331		514	877

Direction, Lane #	EB 1	WB 1	NE 1	NE 2
Volume Total	236	263	77	34
Volume Left	0	59	77	0
Volume Right	137	0	0	34
cSH	1700	1331	514	877
Volume to Capacity	0.14	0.04	0.15	0.04
Queue Length 95th (ft)	0	3	13	3
Control Delay (s)	0.0	2.1	13.2	9.3
Lane LOS		A	B	A
Approach Delay (s)	0.0	2.1	12.0	
Approach LOS			B	

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	15	77	11	5	17	225	552	17	34	276	38
Sign Control		Stop			Stop			Free			Free	
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)	16	16	84	12	5	18	245	600	18	37	300	41
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											977	
pX, platoon unblocked												
vC, conflicting volume	1514	1502	321	1585	1514	609	341			618		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1514	1502	321	1585	1514	609	341			618		
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 %	78	83	88	78	94	96	80			96		
cM capacity (veh/h)	74	93	720	55	92	495	1218			962		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	116	36	863	378
Volume Left	16	12	245	37
Volume Right	84	18	18	41
cSH	228	115	1218	962
Volume to Capacity	0.51	0.31	0.20	0.04
Queue Length 95th (ft)	66	30	19	3
Control Delay (s)	36.2	50.0	4.4	1.3
Lane LOS	E	E	A	A
Approach Delay (s)	36.2	50.0	4.4	1.3
Approach LOS	E	E		

Intersection Summary				
Average Delay	7.4			
Intersection Capacity Utilization	78.2%	ICU Level of Service	D	
Analysis Period (min)	15			

2007 EXISTING

TRAFFIC CONDITIONS

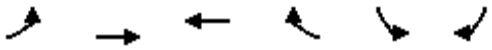
WITH PROPOSED DEVELOPMENT

PHASE 3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	324	199	171	370	98	75
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)	352	216	186	402	107	82
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				1240		
pX, platoon unblocked						
vC, conflicting volume			568		1234	460
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			568		1234	460
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			81		33	86
cM capacity (veh/h)			1004		159	601

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	568	588	188
Volume Left	0	186	107
Volume Right	216	0	82
cSH	1700	1004	233
Volume to Capacity	0.33	0.19	0.81
Queue Length 95th (ft)	0	17	151
Control Delay (s)	0.0	4.5	63.4
Lane LOS		A	F
Approach Delay (s)	0.0	4.5	63.4
Approach LOS			F

Intersection Summary			
Average Delay	10.9		
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	65	334	251	2	17	291
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)	71	363	273	2	18	316
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			1140			
pX, platoon unblocked						
vC, conflicting volume	275				778	274
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	275				778	274
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				95	59
cM capacity (veh/h)	1288				345	765

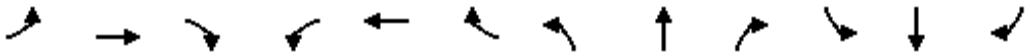
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	434	275	335
Volume Left	71	0	18
Volume Right	0	2	316
cSH	1288	1700	717
Volume to Capacity	0.05	0.16	0.47
Queue Length 95th (ft)	4	0	62
Control Delay (s)	1.8	0.0	14.4
Lane LOS	A		B
Approach Delay (s)	1.8	0.0	14.4
Approach LOS			B

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	330	40	18	51	121	52
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)	359	43	20	55	132	57
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			402		475	380
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			402		475	380
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		76	92
cM capacity (veh/h)			1156		539	667

Direction, Lane #	EB 1	WB 1	NE 1	NE 2
Volume Total	402	75	132	57
Volume Left	0	20	132	0
Volume Right	43	0	0	57
cSH	1700	1156	539	667
Volume to Capacity	0.24	0.02	0.24	0.08
Queue Length 95th (ft)	0	1	24	7
Control Delay (s)	0.0	2.2	13.8	10.9
Lane LOS		A	B	B
Approach Delay (s)	0.0	2.2	12.9	
Approach LOS			B	

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	33.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	3	233	23	8	22	48	175	7	11	481	5
Sign Control		Stop			Stop			Free			Free	
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	3	253	25	9	24	52	190	8	12	523	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)											977	
pX, platoon unblocked												
vC, conflicting volume	876	852	526	1103	851	194	528			198		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	876	852	526	1103	851	194	528			198		
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 %	100	99	54	74	97	97	95			99		
cM capacity (veh/h)	244	280	552	97	280	847	1039			1375		

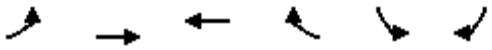
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	258	58	250	540
Volume Left	1	25	52	12
Volume Right	253	24	8	5
cSH	543	181	1039	1375
Volume to Capacity	0.47	0.32	0.05	0.01
Queue Length 95th (ft)	63	32	4	1
Control Delay (s)	17.5	33.8	2.2	0.3
Lane LOS	C	D	A	A
Approach Delay (s)	17.5	33.8	2.2	0.3
Approach LOS	C	D		

Intersection Summary				
Average Delay	6.5			
Intersection Capacity Utilization	64.6%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	436	140	87	336	146	118
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)	474	152	95	365	159	128
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				1240		
pX, platoon unblocked						
vC, conflicting volume			626		1104	550
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			626		1104	550
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			90		25	76
cM capacity (veh/h)			956		210	535

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	626	460	287
Volume Left	0	95	159
Volume Right	152	0	128
cSH	1700	956	289
Volume to Capacity	0.37	0.10	0.99
Queue Length 95th (ft)	0	8	257
Control Delay (s)	0.0	2.8	90.9
Lane LOS		A	F
Approach Delay (s)	0.0	2.8	90.9
Approach LOS			F

Intersection Summary			
Average Delay	19.9		
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	152	403	343	33	28	80
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)	165	438	373	36	30	87
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			1140			
pX, platoon unblocked						
vC, conflicting volume	409				1159	391
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	409				1159	391
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	86				84	87
cM capacity (veh/h)	1150				185	658

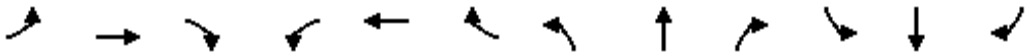
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	603	409	117
Volume Left	165	0	30
Volume Right	0	36	87
cSH	1150	1700	396
Volume to Capacity	0.14	0.24	0.30
Queue Length 95th (ft)	13	0	31
Control Delay (s)	3.6	0.0	17.9
Lane LOS	A		C
Approach Delay (s)	3.6	0.0	17.9
Approach LOS			C

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	91	136	58	188	76	33
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)	99	148	63	204	83	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			247		503	173
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			247		503	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 %			95		84	96
cM capacity (veh/h)			1319		503	871

Direction, Lane #	EB 1	WB 1	NE 1	NE 2
Volume Total	247	267	83	36
Volume Left	0	63	83	0
Volume Right	148	0	0	36
cSH	1700	1319	503	871
Volume to Capacity	0.15	0.05	0.16	0.04
Queue Length 95th (ft)	0	4	15	3
Control Delay (s)	0.0	2.2	13.6	9.3
Lane LOS		A	B	A
Approach Delay (s)	0.0	2.2	12.3	
Approach LOS			B	

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	40.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	15	79	11	5	17	229	552	17	34	276	38
Sign Control		Stop			Stop			Free			Free	
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)	16	16	86	12	5	18	249	600	18	37	300	41
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											977	
pX, platoon unblocked												
vC, conflicting volume	1523	1511	321	1596	1522	609	341			618		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1523	1511	321	1596	1522	609	341			618		
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 %	78	82	88	78	94	96	80			96		
cM capacity (veh/h)	73	92	720	54	90	495	1218			962		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	118	36	867	378
Volume Left	16	12	249	37
Volume Right	86	18	18	41
cSH	228	112	1218	962
Volume to Capacity	0.52	0.32	0.20	0.04
Queue Length 95th (ft)	68	31	19	3
Control Delay (s)	36.8	51.3	4.5	1.3
Lane LOS	E	F	A	A
Approach Delay (s)	36.8	51.3	4.5	1.3
Approach LOS	E	F		

Intersection Summary				
Average Delay	7.6			
Intersection Capacity Utilization	78.5%	ICU Level of Service	D	
Analysis Period (min)	15			

2007 MITIGATED

TRAFFIC CONDITIONS

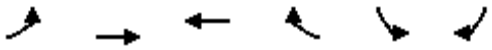
WITH PROPOSED DEVELOPMENT

PHASE 3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	324	199	171	370	98	75
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)	352	216	186	402	107	82
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						6
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				1240		
pX, platoon unblocked						
vC, conflicting volume			568		1234	460
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			568		1234	460
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			81		33	86
cM capacity (veh/h)			1004		159	601

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	568	588	188
Volume Left	0	186	107
Volume Right	216	0	82
cSH	1700	1004	280
Volume to Capacity	0.33	0.19	0.67
Queue Length 95th (ft)	0	17	110
Control Delay (s)	0.0	4.5	41.7
Lane LOS		A	E
Approach Delay (s)	0.0	4.5	41.7
Approach LOS			E

Intersection Summary			
Average Delay	7.8		
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	65	334	251	2	17	291
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)	71	363	273	2	18	316
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			1140			
pX, platoon unblocked						
vC, conflicting volume	275				778	274
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	275				778	274
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				95	59
cM capacity (veh/h)	1288				345	765

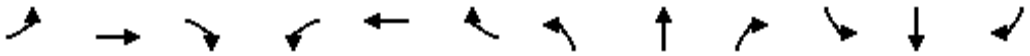
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	434	275	335
Volume Left	71	0	18
Volume Right	0	2	316
cSH	1288	1700	717
Volume to Capacity	0.05	0.16	0.47
Queue Length 95th (ft)	4	0	62
Control Delay (s)	1.8	0.0	14.4
Lane LOS	A		B
Approach Delay (s)	1.8	0.0	14.4
Approach LOS			B

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	330	40	18	51	121	52
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)	359	43	20	55	132	57
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			402		475	380
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			402		475	380
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		76	92
cM capacity (veh/h)			1156		539	667

Direction, Lane #	EB 1	WB 1	NE 1	NE 2
Volume Total	402	75	132	57
Volume Left	0	20	132	0
Volume Right	43	0	0	57
cSH	1700	1156	539	667
Volume to Capacity	0.24	0.02	0.24	0.08
Queue Length 95th (ft)	0	1	24	7
Control Delay (s)	0.0	2.2	13.8	10.9
Lane LOS		A	B	B
Approach Delay (s)	0.0	2.2	12.9	
Approach LOS			B	

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	33.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	3	233	23	8	22	48	175	7	11	481	5
Sign Control		Stop			Stop			Free			Free	
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	3	253	25	9	24	52	190	8	12	523	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			4									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											977	
pX, platoon unblocked												
vC, conflicting volume	876	852	526	976	851	194	528			198		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	876	852	526	976	851	194	528			198		
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 %	100	99	54	79	97	97	95			99		
cM capacity (veh/h)	244	280	552	118	280	847	1039			1375		

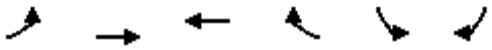
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	258	58	250	540
Volume Left	1	25	52	12
Volume Right	253	24	8	5
cSH	562	213	1039	1375
Volume to Capacity	0.46	0.27	0.05	0.01
Queue Length 95th (ft)	60	26	4	1
Control Delay (s)	17.0	28.1	2.2	0.3
Lane LOS	C	D	A	A
Approach Delay (s)	17.0	28.1	2.2	0.3
Approach LOS	C	D		

Intersection Summary				
Average Delay	6.0			
Intersection Capacity Utilization	54.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	436	140	87	336	146	118
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)	474	152	95	365	159	128
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						6
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				1240		
pX, platoon unblocked						
vC, conflicting volume			626		1104	550
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			626		1104	550
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			90		25	76
cM capacity (veh/h)			956		210	535

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	626	460	287
Volume Left	0	95	159
Volume Right	152	0	128
cSH	1700	956	380
Volume to Capacity	0.37	0.10	0.75
Queue Length 95th (ft)	0	8	152
Control Delay (s)	0.0	2.8	39.9
Lane LOS		A	E
Approach Delay (s)	0.0	2.8	39.9
Approach LOS			E

Intersection Summary			
Average Delay	9.3		
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	152	403	343	33	28	80
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)	165	438	373	36	30	87
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			1140			
pX, platoon unblocked						
vC, conflicting volume	409				1159	391
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	409				1159	391
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	86				84	87
cM capacity (veh/h)	1150				185	658

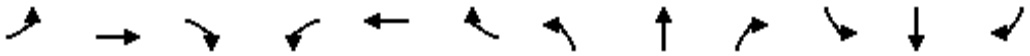
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	603	409	117
Volume Left	165	0	30
Volume Right	0	36	87
cSH	1150	1700	396
Volume to Capacity	0.14	0.24	0.30
Queue Length 95th (ft)	13	0	31
Control Delay (s)	3.6	0.0	17.9
Lane LOS	A		C
Approach Delay (s)	3.6	0.0	17.9
Approach LOS			C

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations						
Volume (veh/h)	91	136	58	188	76	33
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)	99	148	63	204	83	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			247		503	173
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			247		503	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 %			95		84	96
cM capacity (veh/h)			1319		503	871

Direction, Lane #	EB 1	WB 1	NE 1	NE 2
Volume Total	247	267	83	36
Volume Left	0	63	83	0
Volume Right	148	0	0	36
cSH	1700	1319	503	871
Volume to Capacity	0.15	0.05	0.16	0.04
Queue Length 95th (ft)	0	4	15	3
Control Delay (s)	0.0	2.2	13.6	9.3
Lane LOS		A	B	A
Approach Delay (s)	0.0	2.2	12.3	
Approach LOS			B	

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	40.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	15	79	11	5	17	229	552	17	34	276	38
Sign Control		Stop			Stop			Free			Free	
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)	16	16	86	12	5	18	249	600	18	37	300	41
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			4									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											977	
pX, platoon unblocked												
vC, conflicting volume	1523	1511	321	1553	1522	609	341			618		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1523	1511	321	1553	1522	609	341			618		
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 %	78	82	88	79	94	96	80			96		
cM capacity (veh/h)	73	92	720	58	90	495	1218			962		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	118	36	867	378
Volume Left	16	12	249	37
Volume Right	86	18	18	41
cSH	300	118	1218	962
Volume to Capacity	0.40	0.30	0.20	0.04
Queue Length 95th (ft)	45	29	19	3
Control Delay (s)	28.3	48.4	4.5	1.3
Lane LOS	D	E	A	A
Approach Delay (s)	28.3	48.4	4.5	1.3
Approach LOS	D	E		

Intersection Summary				
Average Delay	6.8			
Intersection Capacity Utilization	80.0%	ICU Level of Service	D	
Analysis Period (min)	15			

SIGNAL WARRANTS

INTERSECTION:	**Emory Road (S.R. 131) & Fairview/Thompson School (2007)**
JOB NUMBER:	**101694**
DATE:	09/04/2007

		PEDESTRIANS GAPS/HOUR :	28
		SCHOOL CROSSING, 20 Xing (YES/NO):	NO
85TH PERCENTILE SPEED:	45	NEAREST SIGNALIZED INTERSECTION:	0
POPULATION:	350,000	IMPROVE PROGRESSION (YES/NO):	NO
NUMBER OF APPROACHES:	4	MAJOR ROUTES (YES/NO):	NO
LANES ON MAIN STREET:	1	WARRANTS IN 5 YRS (YES/NO):	NO
LANES ON MINOR STREET:	1		
		ALTERNATIVES TO A SIGNAL EXPLORED:	YES
		NUMBER OF ACCIDENTS:	0
		PEAK HOUR DELAY (VEH-HR):	0

	MAIN STREET			MINOR STREET								
		PERCENT	PERCENT								PEAK	
	MAIN	OF	OF	MINOR	MINIMUM VOLUME		INTERRUPTION		COMBINATION	4-HOUR	PEAK HOUR	
	STREET	WARRANT 1A	WARRANT 1B	STREET	WARRANT 1A		WARRANT 1B		WARRANT A&B	WARRANT 2	WARRANT 3B	
HOUR	VOLUME	350	525	VOLUME	105		53					
24-1	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
1-2	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
2-3	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
3-4	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
4-5	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
5-6	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
6-7	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
7-8	634	181%	121%	142	135%	YES	270%	YES	YES	118%	YES	63%	NO
8-9	481	137%	92%	97	92%	YES/NO	185%	YES/NO	YES	55%	NO	33%	NO
9-10	440	126%	84%	59	56%	NO	112%	NO	NO	31%	NO	19%	NO
10-11	455	130%	87%	60	57%	NO	114%	NO	NO	32%	NO	19%	NO
11-12	471	135%	90%	59	56%	NO	112%	NO	NO	33%	NO	20%	NO
12-13	382	109%	73%	59	56%	NO	112%	NO	NO	27%	NO	17%	NO
13-14	495	141%	94%	60	57%	NO	114%	YES/NO	NO	35%	NO	21%	NO
14-15	616	176%	117%	58	55%	NO	110%	YES	NO	46%	NO	25%	NO
15-16	722	206%	138%	100	95%	YES/NO	190%	YES	YES	104%	YES	53%	NO
16-17	786	225%	150%	148	141%	YES	282%	YES	YES	183%	YES	88%	NO
17-18	845	241%	161%	141	134%	YES	269%	YES	YES	176%	YES	94%	YES/NO
18-19	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
19-20	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
20-21	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
21-22	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
22-23	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
23-24	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO

SUMMARY

WARRANT		WARRANT DESCRIPTION	WARRANT OBTAINED?	HOURS	>=90% HOURS	PRIORITY POINTS
1	A	MINIMUM VOLUME:	NO	3	2	30
	B	INTERUPTION:	NO	5	2	45
	A & B	COMBINATION:	NO	5	N/A	40
2		FOUR-HOUR:	YES	4	0	56
3	A	PEAK HOUR DELAY:	NO	N/A	N/A	0
	B	PEAK HOUR VOLUME:	NO	0	1	0
4	(No data collected)	MINIMUM PED. VOLUMES:	N/A	N/A	N/A	N/A
5		SCHOOL CROSSING:	NO	N/A	N/A	0
6		CORD. SIGNAL SYSTEM:	NO	N/A	N/A	0
7		ACCIDENT EXPERIENCE:	NO	10	N/A	0
8		ROADWAY NETWORK:	NO	1	N/A	0
				PRIORITY VALUE		171

INTERSECTION:	**Emory Road (S.R. 131) & Fairview/Thompson School (2007 Background)**
JOB NUMBER:	**101694**
DATE:	09/04/2007

		PEDESTRIANS GAPS/HOUR :	28
		SCHOOL CROSSING, 20 Xing (YES/NO):	NO
85TH PERCENTILE SPEED:	45	NEAREST SIGNALIZED INTERSECTION:	0
POPULATION:	350,000	IMPROVE PROGRESSION (YES/NO):	NO
NUMBER OF APPROACHES:	4	MAJOR ROUTES (YES/NO):	NO
LANES ON MAIN STREET:	1	WARRANTS IN 5 YRS (YES/NO):	NO
LANES ON MINOR STREET:	1		
		ALTERNATIVES TO A SIGNAL EXPLORED:	YES
		NUMBER OF ACCIDENTS:	0
		PEAK HOUR DELAY (VEH-HR):	0

	MAIN STREET			MINOR STREET								
	MAIN STREET	PERCENT OF WARRANT 1A	PERCENT OF WARRANT 1B	MINOR STREET	MINIMUM VOLUME WARRANT 1A		INTERRUPTION WARRANT 1B		COMBINATION WARRANT A&B	4-HOUR WARRANT 2		PEAK PEAK HOUR WARRANT 3B	
HOUR	VOLUME	350	525	VOLUME	105		53						
24-1	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
1-2	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
2-3	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
3-4	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
4-5	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
5-6	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
6-7	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
7-8	649	185%	124%	228	217%	YES	434%	YES	YES	196%	YES	104%	YES
8-9	494	141%	94%	158	151%	YES	302%	YES/NO	YES	93%	YES/NO	55%	NO
9-10	455	130%	87%	99	94%	YES/NO	188%	NO	YES	53%	NO	32%	NO
10-11	470	134%	90%	91	87%	NO	173%	NO	YES	50%	NO	30%	NO
11-12	490	140%	93%	90	86%	NO	172%	YES/NO	YES	52%	NO	31%	NO
12-13	404	116%	77%	80	76%	NO	153%	NO	NO	38%	NO	24%	NO
13-14	517	148%	99%	78	75%	NO	149%	YES/NO	NO	49%	NO	28%	NO
14-15	637	182%	121%	75	72%	NO	143%	YES	NO	63%	NO	34%	NO
15-16	749	214%	143%	132	126%	YES	252%	YES	YES	148%	YES	73%	NO
16-17	822	235%	157%	165	157%	YES	315%	YES	YES	207%	YES	106%	YES
17-18	901	258%	172%	168	160%	YES	320%	YES	YES	210%	YES	126%	YES
18-19	50	14%	10%	59	56%	NO	113%	NO	NO	14%	NO	11%	NO
19-20	43	12%	8%	48	46%	NO	92%	NO	NO	11%	NO	9%	NO
20-21	39	11%	7%	36	34%	NO	68%	NO	NO	8%	NO	6%	NO
21-22	33	9%	6%	29	27%	NO	55%	NO	NO	7%	NO	5%	NO
22-23	27	8%	5%	22	21%	NO	42%	NO	NO	5%	NO	4%	NO
23-24	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO

SUMMARY

WARRANT		WARRANT DESCRIPTION	WARRANT OBTAINED?	HOURS	>=90% HOURS	PRIORITY POINTS
1	A	MINIMUM VOLUME:	NO	5	1	50
	B	INTERUPTION:	NO	5	3	45
	A & B	COMBINATION:	YES	8	N/A	64
2		FOUR-HOUR:	YES	4	1	56
3	A	PEAK HOUR DELAY:	NO	N/A	N/A	0
	B	PEAK HOUR VOLUME:	YES	3	0	144
4	(No data collected)	MINIMUM PED. VOLUMES:	N/A	N/A	N/A	N/A
5		SCHOOL CROSSING:	NO	N/A	N/A	0
6		CORD. SIGNAL SYSTEM:	NO	N/A	N/A	0
7		ACCIDENT EXPERIENCE:	NO	10	N/A	0
8		ROADWAY NETWORK:	NO	2	N/A	0
				PRIORITY VALUE		359

INTERSECTION:	**Emory Road (S.R. 131) & Fairview/Thompson School (2007 w SFU Dev)**
JOB NUMBER:	**101694**
DATE:	09/04/2007

		PEDESTRIANS GAPS/HOUR :	28
		SCHOOL CROSSING, 20 Xing (YES/NO):	NO
85TH PERCENTILE SPEED:	45	NEAREST SIGNALIZED INTERSECTION:	0
POPULATION:	350,000	IMPROVE PROGRESSION (YES/NO):	NO
NUMBER OF APPROACHES:	4	MAJOR ROUTES (YES/NO):	NO
LANES ON MAIN STREET:	1	WARRANTS IN 5 YRS (YES/NO):	NO
LANES ON MINOR STREET:	1		
		ALTERNATIVES TO A SIGNAL EXPLORED:	YES
		NUMBER OF ACCIDENTS:	0
		PEAK HOUR DELAY (VEH-HR):	0

	MAIN STREET			MINOR STREET								
	MAIN STREET VOLUME	PERCENT OF WARRANT 1A 350	PERCENT OF WARRANT 1B 525	MINOR STREET VOLUME	MINIMUM VOLUME WARRANT 1A 105		INTERRUPTION WARRANT 1B 53		COMBINATION WARRANT A&B	4-HOUR WARRANT 2		PEAK PEAK HOUR WARRANT 3B	
HOUR													
24-1	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
1-2	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
2-3	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
3-4	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
4-5	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
5-6	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
6-7	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO
7-8	674	192%	128%	235	223%	YES	447%	YES	YES	216%	YES	112%	YES
8-9	517	148%	98%	164	157%	YES	313%	YES/NO	YES	102%	YES	59%	NO
9-10	480	137%	91%	106	101%	YES	201%	YES/NO	YES	60%	NO	36%	NO
10-11	495	141%	94%	98	93%	YES/NO	186%	YES/NO	YES	57%	NO	34%	NO
11-12	523	149%	100%	99	94%	YES/NO	188%	YES/NO	YES	62%	NO	36%	NO
12-13	441	126%	84%	117	111%	YES	223%	NO	YES	61%	NO	37%	NO
13-14	554	158%	106%	118	112%	YES	225%	YES	YES	80%	NO	45%	NO
14-15	671	192%	128%	115	110%	YES	219%	YES	YES	105%	YES	55%	NO
15-16	793	227%	151%	160	152%	YES	305%	YES	YES	202%	YES	97%	YES/NO
16-17	881	252%	168%	216	205%	YES	410%	YES	YES	269%	YES	155%	YES
17-18	994	284%	189%	236	225%	YES	450%	YES	YES	295%	YES	214%	YES
18-19	133	38%	25%	108	103%	NO	206%	NO	NO	30%	NO	22%	NO
19-20	115	33%	22%	89	85%	NO	169%	NO	NO	24%	NO	17%	NO
20-21	103	29%	20%	69	66%	NO	131%	NO	NO	18%	NO	13%	NO
21-22	87	25%	17%	57	54%	NO	108%	NO	NO	15%	NO	11%	NO
22-23	71	20%	14%	44	42%	NO	84%	NO	NO	11%	NO	8%	NO
23-24	0	0%	0%	0	0%	NO	0%	NO	NO	0%	NO	0%	NO

SUMMARY

WARRANT		WARRANT DESCRIPTION	WARRANT OBTAINED?	HOURS	>=90% HOURS	PRIORITY POINTS
1	A	MINIMUM VOLUME:	YES	9	2	90
	B	INTERUPTION:	NO	6	4	54
	A & B	COMBINATION:	YES	11	N/A	88
2		FOUR-HOUR:	YES	6	0	84
3	A	PEAK HOUR DELAY:	NO	N/A	N/A	0
	B	PEAK HOUR VOLUME:	YES	3	1	144
4	(No data collected)	MINIMUM PED. VOLUMES:	N/A	N/A	N/A	N/A
5		SCHOOL CROSSING:	NO	N/A	N/A	0
6		CORD. SIGNAL SYSTEM:	NO	N/A	N/A	0
7		ACCIDENT EXPERIENCE:	NO	11	N/A	0
8		ROADWAY NETWORK:	NO	4	N/A	0
				PRIORITY VALUE		460

TURN-LANE WARRANTS

2007 Emory Rd at Fairview Rd LT=151

TABLE 5A

LEFT-TURN LANE VOLUME THRESHOLDS FOR TWO-LANE ROADWAYS WITH A PREVAILING SPEED OF 36 TO 45 MPH

(If the left-turn volume exceeds the table value a left -turn lane is needed)

370

OPPOSING VOLUME	THROUGH VOLUME PLUS RIGHT-TURN VOLUME *					
	100 - 149	150 - 199	200 - 249	250 - 299	300 - 349	350 - 399
100 - 149 150 - 199	250 200	180 140	140 105	110 90	80 70	70 60
200 - 249 250 - 299	160 130	115 100	85 75	75 65	65 60	55 50
300 - 349 350 - 399	110 100	90 80	70 65	60 55	55 50	45 40
400 - 449 450 - 499	90 80	70 65	60 55	50 45	45 40	35 30
500 - 549 550 - 599	70 65	60 55	45 40	35 35	35 30	25 25
600 - 649 650 - 699	60 55	45 35	35 35	30 30	25 25	25 20
700 - 749 750 or More	50 45	35 35	30 25	25 25	20 20	20 20

OPPOSING VOLUME	THROUGH VOLUME PLUS RIGHT-TURN VOLUME *					
	350 - 399	400 - 449	450 - 499	500 - 549	550 - 599	=/ > 600
100 - 149 150 - 199	70 60	60 55	50 45	45 40	40 35	35 30
200 - 249 250 - 299	55 50	50 45	40 35	35 30	30 30	30 30
300 - 349 350 - 399	45 40	40 35	35 30	30 25	25 25	25 20
400 - 449 450 - 499	35 30	30 25	30 25	25 20	20 20	20 20
500 - 549 550 - 599	25 25	25 20	20 20	20 20	20 20	15 15
600 - 649 650 - 699	25 20	20 20	20 20	20 20	20 20	15 15
700 - 749 750 or More	20 20	20 20	20 20	15 15	15 15	15 15

* Or through volume only if a right-turn lane exists

TABLE 5B 2007 Emory Rd @ Fairview Rd RT=179

RIGHT-TURN LANE VOLUME THRESHOLDS FOR TWO-LANE ROADWAYS WITH A PREVAILING SPEED OF 36 TO 45 MPH

RIGHT-TURN VOLUME	THROUGH VOLUME PLUS LEFT-TURN VOLUME *					
	<100	100 - 199	200 - 249	250 - 299	300 - 349	350 - 399
Fewer Than 25 25 - 49 50 - 99		179				
100 - 149 150 - 199						
200 - 249 250 - 299					Yes	Yes Yes
324 300 - 349 350 - 399		NO	Yes	Yes Yes	Yes Yes	Yes Yes
400 - 449 450 - 499		Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
500 - 549 550 - 599	Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
600 or More	Yes	Yes	Yes	Yes	Yes	Yes

RIGHT-TURN VOLUME	THROUGH VOLUME PLUS LEFT-TURN VOLUME *					
	350 - 399	400 - 449	450 - 499	500 - 549	550 - 600	+ / > 600
Fewer Than 25 25 - 49 50 - 99				Yes	Yes Yes	Yes Yes
100 - 149 150 - 199		Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
200 - 249 250 - 299	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
300 - 349 350 - 399	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
400 - 449 450 - 499	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
500 - 549 550 - 599	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
600 or More	Yes	Yes	Yes	Yes	Yes	Yes

* Or through volume only if a left-turn lane exists.

2007 Emory Rd at Thornton School Rd LT≥135

TABLE 5A

LEFT-TURN LANE VOLUME THRESHOLDS FOR TWO-LANE ROADWAYS WITH A PREVAILING SPEED OF 36 TO 45 MPH

(If the left-turn volume exceeds the table value a left -turn lane is needed)

OPPOSING VOLUME	THROUGH VOLUME PLUS RIGHT-TURN VOLUME *					
	100 - 149	150 - 199	200 - 249	250 - 299	300 - 349	350 - 399
100 - 149 150 - 199	250 200	180 140	140 105	110 90	80 70	70 60
200 - 249 250 - 299	160 130	115 100	85 75	75 65	65 60	55 50
300 - 349 350 - 399	110 100	90 80	70 65	60 55	55 50	45 40
400 - 449 450 - 499	90 80	70 65	60 55	50 45	45 40	35 30
500 - 549 550 - 599	70 65	60 55	45 40	35 35	35 30	25 25
600 - 649 650 - 699	60 55	45 35	35 35	30 30	25 25	25 20
700 - 749 750 or More	50 45	35 35	30 25	25 25	20 20	20 20

OPPOSING VOLUME	THROUGH VOLUME PLUS RIGHT-TURN VOLUME *					
	350 - 399	400 - 449	450 - 499	500 - 549	550 - 599	=/ > 600
100 - 149 150 - 199	70 60	60 55	50 45	45 40	40 35	35 30
200 - 249 250 - 299	55 50	50 45	40 35	35 30	30 30	30 30
300 - 349 350 - 399	45 40	40 35	35 30	30 25	25 25	25 20
400 - 449 450 - 499	35 30	30 25	30 25	25 20	20 20	20 20
500 - 549 550 - 599	25 25	25 20	20 20	20 20	20 20	15 15
600 - 649 650 - 699	25 20	20 20	20 20	20 20	20 20	15 15
700 - 749 750 or More	20 20	20 20	20 20	15 15	15 15	15 15

* Or through volume only if a right-turn lane exists

2001 Emory Rd @ Thompson School Rd RT = 33

TABLE 5B

RIGHT-TURN LANE VOLUME THRESHOLDS FOR TWO-LANE ROADWAYS WITH A PREVAILING SPEED OF 36 TO 45 MPH

RIGHT-TURN VOLUME	THROUGH VOLUME PLUS LEFT-TURN VOLUME *					
	<100	100 - 199	200 - 249	250 - 299	300 - 349	350 - 399
Fewer Than 25 25 - 49 233 50 - 99					NOX	
100 - 149 150 - 199						
200 - 249 250 - 299					Yes	Yes Yes
300 - 349 350 - 399			Yes	Yes Yes	Yes Yes	Yes Yes
400 - 449 450 - 499		Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
500 - 549 550 - 599	Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
600 or More	Yes	Yes	Yes	Yes	Yes	Yes

RIGHT-TURN VOLUME	THROUGH VOLUME PLUS LEFT-TURN VOLUME *					
	350 - 399	400 - 449	450 - 499	500 - 549	550 - 600	+ / > 600
Fewer Than 25 25 - 49 50 - 99				Yes	Yes Yes	Yes Yes
100 - 149 150 - 199		Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
200 - 249 250 - 299	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
300 - 349 350 - 399	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
400 - 449 450 - 499	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
500 - 549 550 - 599	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
600 or More	Yes	Yes	Yes	Yes	Yes	Yes

* Or through volume only if a left-turn lane exists.

2007
EXISTING LT WARRANTS
TAZWELL & FAIRVIEW

TABLE 5A

LEFT-TURN LANE VOLUME THRESHOLDS
FOR TWO-LANE ROADWAYS WITH A PREVAILING SPEED OF 36 TO 45 MPH

(If the left-turn volume exceeds the table value a left -turn lane is needed)

OPPOSING VOLUME	THROUGH VOLUME PLUS RIGHT-TURN VOLUME *					
	100 - 149	150 - 199	200 - 249	250 - 299	300 - 349	350 - 399
100 - 149	250	180	140	110	80	70
150 - 199	200	140	105	90	70	60
200 - 249	160	115	85	75	65	55
250 - 299	130	100	75	65	60	50
300 - 349	110	90	70	60	55	45
350 - 399	100	80	65	55	50	40
400 - 449	90	70	60	50	45	35
450 - 499	80	65	55	45	40	30
500 - 549	70	60	45	35	35	25
550 - 599	65	55	40	35	30	25
600 - 649	60	45	35	30	25	25
650 - 699	55	35	35	30	25	20
700 - 749	50	35	30	25	20	20
750 or More	45	35	25	25	20	20

OPPOSING VOLUME	THROUGH VOLUME PLUS RIGHT-TURN VOLUME *					
	350 - 399	400 - 449	450 - 499	500 - 549	550 - 599	=/ >600
100 - 149	70	60	50	45	40	35
150 - 199	60	55	45	40	35	30
200 - 249	55	50	40	35	30	30
250 - 299	50	45	35	30	30	30
300 - 349	45	40	35	30	25	25
350 - 399	40	35	30	25	25	20
400 - 449	35	30	30	25	20	20
450 - 499	30	25	25	20	20	20
500 - 549	25	25	20	20	20	15
550 - 599	25	20	20	20	20	15
600 - 649	25	20	20	20	20	15
650 - 699	20	20	20	20	20	15
700 - 749	20	20	20	15	15	15
750 or More	20	20	20	15	15	15

* Or through volume only if a right-turn lane exists

2007 Tazewell Pike @ Fairview Rd

TABLE 5B

RIGHT-TURN LANE VOLUME THRESHOLDS FOR TWO-LANE ROADWAYS WITH A PREVAILING SPEED OF 36 TO 45 MPH

RIGHT-TURN VOLUME	THROUGH VOLUME PLUS LEFT-TURN VOLUME *					
	<100	100 - 199	200 - 249	250 - 299	300 - 349	350 - 399
Fewer Than 25 25 - 49 ~39 50 - 99					No	
100 - 149 150 - 199						
200 - 249 250 - 299					Yes	Yes Yes
300 - 349 350 - 399			Yes	Yes Yes	Yes Yes	Yes Yes
400 - 449 450 - 499		Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
500 - 549 550 - 599	Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
600 or More	Yes	Yes	Yes	Yes	Yes	Yes

RIGHT-TURN VOLUME	THROUGH VOLUME PLUS LEFT-TURN VOLUME *					
	350 - 399	400 - 449	450 - 499	500 - 549	550 - 600	+ / > 600
Fewer Than 25 25 - 49 50 - 99				Yes	Yes Yes	Yes Yes
100 - 149 150 - 199		Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
200 - 249 250 - 299	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
300 - 349 350 - 399	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
400 - 449 450 - 499	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
500 - 549 550 - 599	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
600 or More	Yes	Yes	Yes	Yes	Yes	Yes

* Or through volume only if a left-turn lane exists.

TABLE 4B
RIGHT-TURN LANE VOLUME THRESHOLDS
FOR TWO-LANE ROADWAYS WITH A PREVAILING SPEED OF 35 MPH OR LESS

RIGHT-TURN VOLUME	THROUGH VOLUME PLUS LEFT-TURN VOLUME *					
	<100	100 - 199	200 - 249	250 - 299	300 - 349	350 - 399
Fewer Than 25 25 - 49 50 - 99						
100 - 149 150 - 199						
200 - 249 250 - 299						Yes
300 - 349 350 - 399				Yes	Yes Yes	Yes Yes
400 - 449 450 - 499			Yes Yes	Yes Yes	Yes Yes	Yes Yes
500 - 549 550 - 599		Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
600 or More	Yes	Yes	Yes	Yes	Yes	Yes

RIGHT-TURN VOLUME	THROUGH VOLUME PLUS LEFT-TURN VOLUME *					
	350 - 399	400 - 449	450 - 499	500 - 549	550 - 600	+ / > 600
Fewer Than 25 25 - 49 50 - 99					Yes	Yes Yes
100 - 149 150 - 199			Yes	Yes Yes	Yes Yes	Yes Yes
200 - 249 250 - 299	Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
300 - 349 350 - 399	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
400 - 449 450 - 499	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
500 - 549 550 - 599	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
600 or More	Yes	Yes	Yes	Yes	Yes	Yes

* Or through volume only if a left-turn lane exists.

SITE ACCESS
E. EMORY & THOMPSON SCHOOL
E. EMORY & FAIRVIEW
TAZWELL & FAIRVIEW

TABLE 4A

LEFT-TURN LANE VOLUME THRESHOLDS FOR TWO-LANE ROADWAYS WITH A PREVAILING SPEED OF 35 MPH OR LESS

(If the left-turn volume exceeds the table value a left -turn lane is needed)

OPPOSING VOLUME	THROUGH VOLUME PLUS RIGHT-TURN VOLUME *					
	100 - 149	150 - 199	200 - 249	250 - 299	300 - 349	350 - 399
100 - 149 150 - 199	300 245	235 200	185 160	145 130	120 110	100 90
200 - 249 250 - 299	205 175	170 150	140 125	115 105	100 90	80 70
300 - 349 350 - 399	155 135	135 120	110 100	95 85	80 70	65 60
400 - 449 450 - 499	120 105	105 90	90 80	75 70	65 60	55 50
500 - 549 550 - 599	95 85	80 70	70 65	65 60	55 50	50 45
600 - 649 650 - 699	75 70	65 60	60 55	55 50	45 40	40 35
700 - 749 750 or More	65 60	55 50	50 45	45 40	35 35	30 30

OPPOSING VOLUME	THROUGH VOLUME PLUS RIGHT-TURN VOLUME *					
	350 - 399	400 - 449	450 - 499	500 - 549	550 - 599	= / > 600
100 - 149 150 - 199	100 90	80 75	70 65	60 55	55 50	50 45
200 - 249 250 - 299	80 70	72 65	460 55	55 50	50 45	45 40
300 - 349 350 - 399	65 60	60 55	50 50	50 45	45 40	40 40
400 - 449 450 - 499	55 50	50 45	45 45	45 40	40 35	35 35
500 - 549 550 - 599	50 45	45 40	40 40	40 35	35 35	35 35
600 - 649 650 - 699	40 35	35 35	35 35	35 30	35 30	30 30
700 - 749 750 or More	30 30	30 30	30 30	30 30	30 30	30 30

* Or through volume only if a right-turn lane exists.

AUXILIARY LANE EVALUATION

Left-turn Analysis

TURN-LANE WARRANTS 2007 LEFT-TURN LANE ON EMORY ROAD FROM EDWARDS PLACE TIS

Eastbound

	AM Peak Hour	PM Peak Hour
Thru-Lanes =	1	1
Right-turn Lanes =	0	0
Left-turn Volume =	39	135
Thru Volume =	299	381
Average Thru Volume =	299	381
Right-turn Volume =	0	0
Thru + Right-turn Volume =	299	381
Opposing (TH+RT)Volume =	241	337
Threshold Volume =	75	45
Turn Lane Warranted =	No	Yes
Speed Limit =	45 mph	45 mph

Westbound

	AM Peak Hour	PM Peak Hour
Thru-Lanes =	1	1
Right-turn Lanes =	0	0
Left-turn Volume =	151	19
Thru Volume =	370	336
Average Thru Volume =	370	336
Right-turn Volume =	0	0
Thru + Right-turn Volume =	370	336
Opposing (TH+RT)Volume =	503	508
Threshold Volume =	25	35
Turn Lane Warranted =	Yes	No
Speed Limit =	45 mph	45 mph

Left-turn Analysis

TURN-LANE WARRANTS 2012 BACKGROUND LEFT-TURN LANE ON EMORY ROAD FROM EDWARDS PLACE TIS

	AM Peak Hour	PM Peak Hour
Eastbound		
Thru-Lanes =	1	1
Right-turn Lanes =	0	0
Left-turn Volume =	45	155
Thru Volume =	344	438
Average Thru Volume =	344	438
Right-turn Volume =	0	0
Thru + Right-turn Volume =	344	438
Opposing (TH+RT)Volume =	277	388
Threshold Volume =	60	35
Turn Lane Warranted =	No	Yes
Speed Limit =	45 mph	45 mph

	AM Peak Hour	PM Peak Hour
Westbound		
Thru-Lanes =	1	1
Right-turn Lanes =	0	0
Left-turn Volume =	174	22
Thru Volume =	426	386
Average Thru Volume =	426	386
Right-turn Volume =	0	0
Thru + Right-turn Volume =	426	386
Opposing (TH+RT)Volume =	579	584
Threshold Volume =	20	25
Turn Lane Warranted =	Yes	No
Speed Limit =	45 mph	45 mph

Left-turn Analysis

TURN-LANE WARRANTS 2012 BUILDOUT LEFT-TURN LANE ON EMORY ROAD FROM EDWARDS PLACE TIS

	AM Peak Hour	PM Peak Hour
Eastbound		
Thru-Lanes =	1	1
Right-turn Lanes =	0	0
Left-turn Volume =	66	227
Thru Volume =	344	438
Average Thru Volume =	344	438
Right-turn Volume =	0	0
Thru + Right-turn Volume =	344	438
Opposing (TH+RT)Volume =	284	410
Threshold Volume =	60	30
Turn Lane Warranted =	Yes	Yes
Speed Limit =	45 mph	45 mph
Westbound		
Thru-Lanes =	1	1
Right-turn Lanes =	0	0
Left-turn Volume =	201	40
Thru Volume =	463	411
Average Thru Volume =	463	411
Right-turn Volume =	0	0
Thru + Right-turn Volume =	463	411
Opposing (TH+RT)Volume =	591	625
Threshold Volume =	20	20
Turn Lane Warranted =	Yes	Yes
Speed Limit =	45 mph	45 mph

Right-turn Analysis

TURN-LANE WARRANTS 2007 RIGHT-TURN LANE ON EMORY ROAD FROM EDWARDS PLACE TIS

Eastbound

	AM Peak Hour	PM Peak Hour
Thru-Lanes =	1	1
Left-turn Lanes =		
Right-turn Volume =	179	72
Thru Volume =	324	436
Average Thru Volume =	324	436
Left-turn Volume =	0	0
Thru + Left-turn Volume =	324	436
Turn Lane Warranted =	No	No
Speed Limit =	45 mph	45 mph

Westbound

	AM Peak Hour	PM Peak Hour
Thru-Lanes =	1	1
Left-turn Lanes =		
Right-turn Volume =	2	33
Thru Volume =	239	304
Average Thru Volume =	239	304
Left-turn Volume =	0	0
Thru + Left-turn Volume =	239	304
Turn Lane Warranted =	No	No
Speed Limit =	45 mph	45 mph

Right-turn Analysis

TURN-LANE WARRANTS 2012 BACKGROUND RIGHT-TURN LANE ON EMORY ROAD FRO EDWARDS PLACE TIS

Eastbound

	AM Peak Hour	PM Peak Hour
Thru-Lanes =	1	1
Left-turn Lanes =		
Right-turn Volume =	206	83
Thru Volume =	373	501
Average Thru Volume =	373	501
Left-turn Volume =	0	0
Thru + Left-turn Volume =	373	501
Turn Lane Warranted =	Yes	Yes
Speed Limit =	45 mph	45 mph

Westbound

	AM Peak Hour	PM Peak Hour
Thru-Lanes =	1	1
Left-turn Lanes =		
Right-turn Volume =	2	38
Thru Volume =	275	350
Average Thru Volume =	275	350
Left-turn Volume =	0	0
Thru + Left-turn Volume =	275	350
Turn Lane Warranted =	No	No
Speed Limit =	45 mph	45 mph

Right-turn Analysis

TURN-LANE WARRANTS 2012 BUILDOUT RIGHT-TURN LANE ON EMORY ROAD FROM EDWARDS PLACE TIS

Eastbound

	AM Peak Hour	PM Peak Hour
Thru-Lanes =	1	1
Left-turn Lanes =		
Right-turn Volume =	206	83
Thru Volume =	385	542
Average Thru Volume =	385	542
Left-turn Volume =	0	0
Thru + Left-turn Volume =	385	542
Turn Lane Warranted =	Yes	Yes
Speed Limit =	45 mph	45 mph

Westbound

	AM Peak Hour	PM Peak Hour
Thru-Lanes =	1	1
Left-turn Lanes =		
Right-turn Volume =	9	60
Thru Volume =	275	350
Average Thru Volume =	275	350
Left-turn Volume =	0	0
Thru + Left-turn Volume =	275	350
Turn Lane Warranted =	No	No
Speed Limit =	45 mph	45 mph

Table 5A

LEFT-TURN LANE VOLUME THRESHOLDS FOR TWO-LANE ROADWAYS WITH A PREVAILING SPEED OF 36 TO 45 MPH

(If the left-turn volume exceeds the table value a left-turn lane is needed)

* Or through volume only if a right-turn lane exists.

OPPOSING VOLUME	LOWER THRESHOLD OF THE THROUGH VOLUME PLUS RIGHT-TURN VOLUMES*											
	0	100	150	200	250	300	350	400	450	500	550	600
149	600	250	180	140	110	80	70	60	50	45	40	35
199	600	200	140	105	90	70	60	55	45	40	35	30
249	600	160	115	85	75	65	55	50	40	35	30	30
299	999	130	100	75	65	60	50	45	35	30	30	30
349	999	110	90	70	60	55	45	40	35	30	25	25
399	999	100	80	65	55	50	40	35	30	25	25	20
449	999	90	70	60	50	45	35	30	30	25	20	20
499	999	80	65	55	45	40	30	25	25	20	20	20
549	999	70	60	45	35	35	25	25	20	20	20	15
599	999	65	55	40	35	30	25	20	20	20	20	15
649	999	60	45	35	30	25	25	20	20	20	20	15
699	999	55	35	35	30	25	20	20	20	20	20	15
749	999	50	35	30	25	20	20	20	20	15	15	15
750	999	45	35	25	25	20	20	20	20	15	15	15

Table 5B

RIGHT-TURN LANE VOLUME THRESHOLDS FOR TWO-LANE ROADWAYS WITH A PREVAILING SPEED OF 36 MPH TO 45 MPH

* Or through volume only if a left-turn lane exists.

RIGHT-TURN VOLUME	LOWER THRESHOLD OF THE THROUGH VOLUME PLUS LEFT-TURN VOLUMES*										
	0	100	200	250	300	350	400	450	500	550	= / > 601
25	No	No	No	No	No	No	No	No	No	No	No
49	No	No	No	No	No	No	No	No	No	Yes	Yes
99	No	No	No	No	No	No	No	No	Yes	Yes	Yes
149	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
199	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
249	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
299	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
349	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
399	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
449	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
499	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
549	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
599	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
600	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes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