LAI ENGINEERING

Building Relationships Through Performance

Traffic Impact Study Report
The Columns at Peachtree City
Fayette County, GA
LAI # 6175
March 25, 2008

Civil, Survey & Transportation

1800 Parkway Place, Suite 720
Marietta, GA 30067
770-423-0807

www.LAIengineering.com

LAI ENGINEERING

City Copy

RECEIVED MAR 2 6 2008

The Columns at Peachtree City
Traffic Impact Study
Peachtree City, Georgia

For:

Capital City Development

Prepared by:

Project L-6175

March 25, 2008

Table of Contents

Executive Summary 3

I. Introduction 5

II. Area Conditions 6

III. Traffic Data 9

IV. Projected Traffic 9

Trip Generation 9
Trip Distribution and Assignment 11
Traffic Growth Rate 11

V. Traffic Analysis 18

Traffic Signal Warrants Analysis 18
Capacity Analyses 19

VI. Conclusion & Recommendations 21

List of Figures

Figure 1. Location Map 6

Figure 2. Existing Intersection Plan 7

Figure 3. Site Plan 8

Figure 4. 2007 PN Peak Hour Traffic and ADT 10

Figure 5. Primary % Trip Distribution - PM Peak 12

Figure 6. Pass-by % Trip Distribution - PM Peak 13

Figure 7. Primary Trips - PM Peak 14

Figure 8. Pass-by Trips - PM Peak 15

Figure 9. Total Site Generated Trips - PM Peak 16

Figure 10. Total 2009 PM Peak Projected Traffic 17

Figure 11. Recommended Lane Configurations. 22

List of Tables

Table 1. Synchro Capacity Analysis 4

Table 2. PM Peak Trip Generation Projections 9

Table 3. Traffic Signal Warrant Analysis 19

Table 4. Unsignalized Intersection Level of Service Criteria 20

Table 5. Synchro Capacity Analysis for Existing and Future Traffic Conditions 20

Appendices

Appendix A: Traffic Counts

Appendix B: Trip Generation

Appendix C: Signal Warrant Analyses

Appendix D: Capacity Analyses

Executive Summary

LAI Engineering (LAI) has been retained by Capital City Development to prepare a traffic impact study for The Columns at Peachtree City Shopping Center development. The developer proposes to construct the shopping center on the south side of State Route 54 between McDuff Parkway and Planterra Way/Rankin Road in Peachtree City, Georgia (see Figure 1). The proposed site will consist of 185,000 square feet of retail development of which 175,000 square feet will be developed by Capital City and 10,000 square feet of retail developed by others.

Both developments will utilize an existing roadway currently known as Line Creek Drive, on SR 54 as their main access point into the site as shown in Figure 2. The access point will be a fully accessible driveway aligned with an existing driveway located on the north side of SR 54. Left turns will access the site by means of an existing Type B median opening. The proposed site is scheduled to be completely developed by 2009.

The purpose of this report is to document the impact the proposed development will have on traffic operations within the study area and recommended improvements to the intersections in the development area.

LAI conducted capacity analyses to establish an existing level-of-service (LOS) for McDuff Parkway at SR 54 and Planterra Way/Rankin Road at SR 54 intersections. LAI then conducted capacity analyses under projected traffic conditions to show the future LOS at the existing and proposed intersections within the study area under a no-build and build scenario. The projected conditions comprised of existing background volumes projected two years at a growth rate of 3% to the build out year 2009 without and with the estimated site generated trips.

LAI utilized Synchro 7.0 to conduct the capacity analyses under the current and projected conditions during the PM peak period. The results of the analyses indicate that the LOS at each intersection within the study area operate at LOS C or better under existing conditions. The projected analysis show that the intersections within the study area will operate at a LOS D or better for future conditions with the recommended improvements as summarized in Table 1. The standard LOS required for the intersection is D.

LAI conducted a signal warrants analysis for the intersections of State Route 54 and Driveway 1 (Line Creek Drive). Based upon projected background traffic and future projected trips generated by the proposed development, the study intersections met Warrants 1, 2 and 3 under future build-out traffic conditions.

LAI recommends:

State Route 54 and Driveway 1(Line Creek Drive) intersection:

- Traffic Signal is recommended at the intersection
- NB - One separate right turn lane and a shared thru/left lane
- SB - No improvements needed
- EB - No improvements needed
- WB - No improvements needed

State Route 54 and McDuff Parkway
- No improvements recommended

State Route 54 and Planterra Way
- No improvements recommended

Underline - Recommended new lane

Table 1. Intersection Level of Service and Delay/vehicle (in sec) comparison for the existing and future recommended traffic conditions - PM Peak hour

Road Name / Intersection	Existing Conditions		Projected No-Build		Projected Build	
	LOS (Delay)		LOS (Delay)		LOS (Delay)	
	PM Peak	Traffic Control	PM Peak	Traffic Control	PM Peak	Traffic Control
State Route 54 and McDuff Parkway	B (13.3 sec)	Signalized	B (15.5 sec)	Signalized	B (17.0 sec)	Signalized
State Route 54 and Driveway 1	NA	Stop Sign	NA	Stop Sign	F (441.5 sec)	Un-signalized
					B (16.1 sec)	Signalized
State Route 54 and Planterra Way / Rankin Road	C (34.1 sec)	Signalized	D (37.1 sec)	Signalized	D (41.3 sec)	Signalized

I. Introduction

LAI Engineering (LAI) has been retained by Capital City Development to prepare a traffic impact study for The Columns at Peachtree City Shopping Center development. The developer proposes to construct the shopping center on the south side of State Route 54 between McDuff Parkway and Planterra Way/Rankin Road in Peachtree City, Georgia (see Figure 1). The proposed site will consist of 185,000 square feet of retail development of which 175,000 square feet will be developed by Capital City and 10,000 square feet of retail developed by others.

Both developments will utilize an existing roadway currently known as Line Creek Drive, on SR 54 as their main access point into the site as shown in Figure 2. The access point will be a fully accessible driveway aligned with an existing driveway located on the north side of SR 54. Left turns will access the site by means of an existing Type B median opening. The proposed site is scheduled to be completely developed by 2009.

The purpose of this report is to document the impact the proposed development will have on traffic operations within the study area and recommended improvements to the intersections in the development area. The study area was established and agreed to by GDOT's District Traffic Operations office.

LAI conducted capacity analyses to establish an existing level-of-service (LOS) for McDuff Parkway at SR 54 and Planterra Way/Rankin Road at SR 54 intersections. LAI then conducted capacity analyses under projected traffic conditions to show the future LOS at the existing and proposed intersections within the study area under a no-build and build scenario. The projected conditions comprised of existing background volumes projected two years at a growth rate of 3% to the build out year 2009 along with the estimated site generated trips.

LAI conducted a signal warrants analysis for the intersections of State Route 54 and Driveway 1. Based upon projected background traffic and future projected trips generated by the proposed development, the study intersections met Warrants 1, 2 and 3 under future build-out traffic conditions.

Recommendations were made for the required improvements needed to maintain an acceptable Level of Service (LOS) in accordance with the traffic impact requirements of Peachtree City, Fayette County, and Georgia Department of Transportation (GDOT).

The traffic impact study includes:

- A preliminary site investigation to gather existing data,
- Site traffic generation for the proposed development,
- Site traffic assignment for driveway access,
- Signal warrant analysis for the intersection of State Route 54 and Driveway 1,
- Capacity analysis to determine existing and proposed future Level of Service (LOS),
- Recommendations and conclusion.

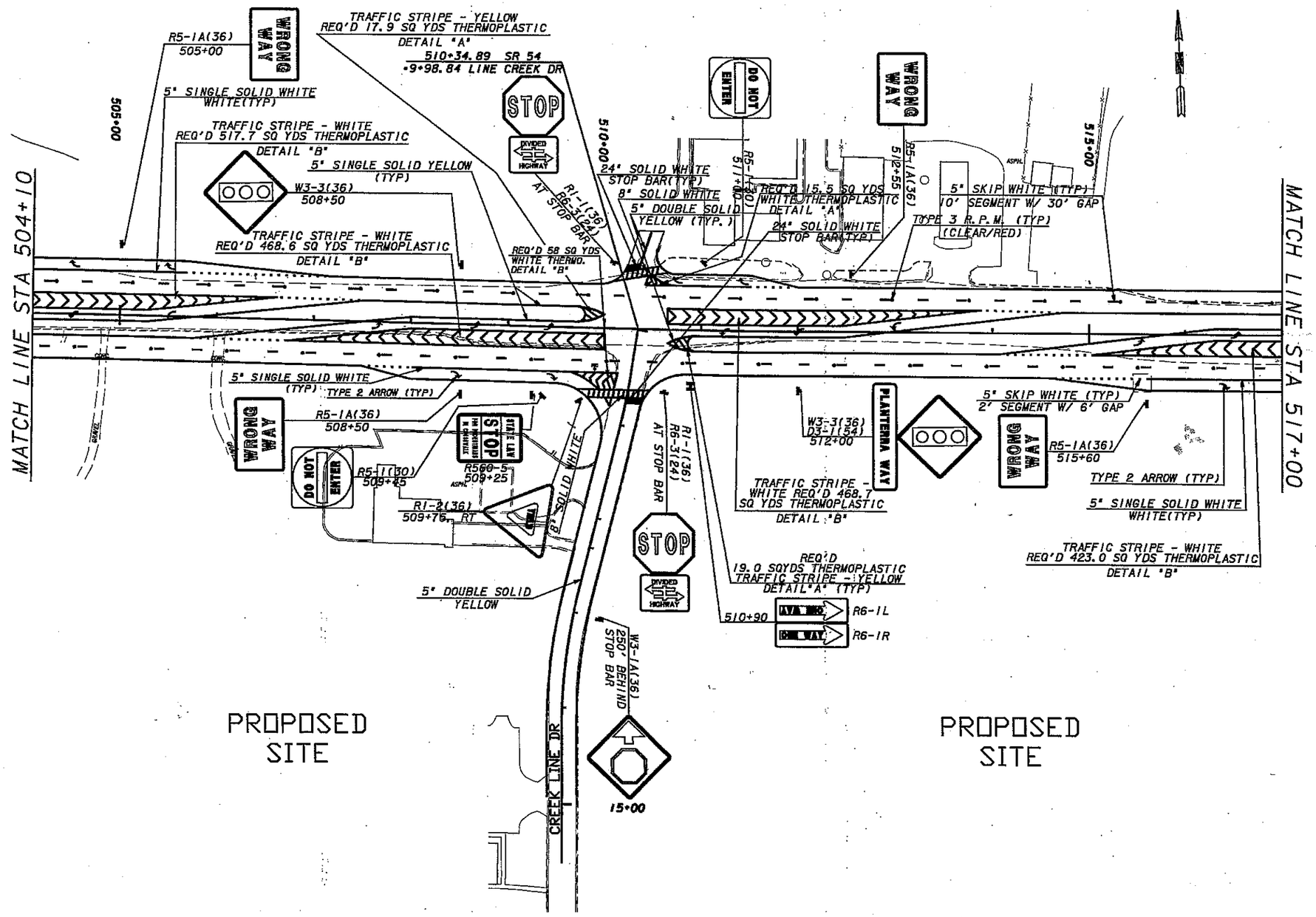


FIGURE 2 - EXISTING INTERSECTION PLAN

SOURCE: GEORGIA DEPARTMENT OF TRANSPORATION

REVISIONS

The Columns at Peachtree City
PREPARED FOR
Capital City Development
Peachtree City, GA
FAYETTE COUNTY

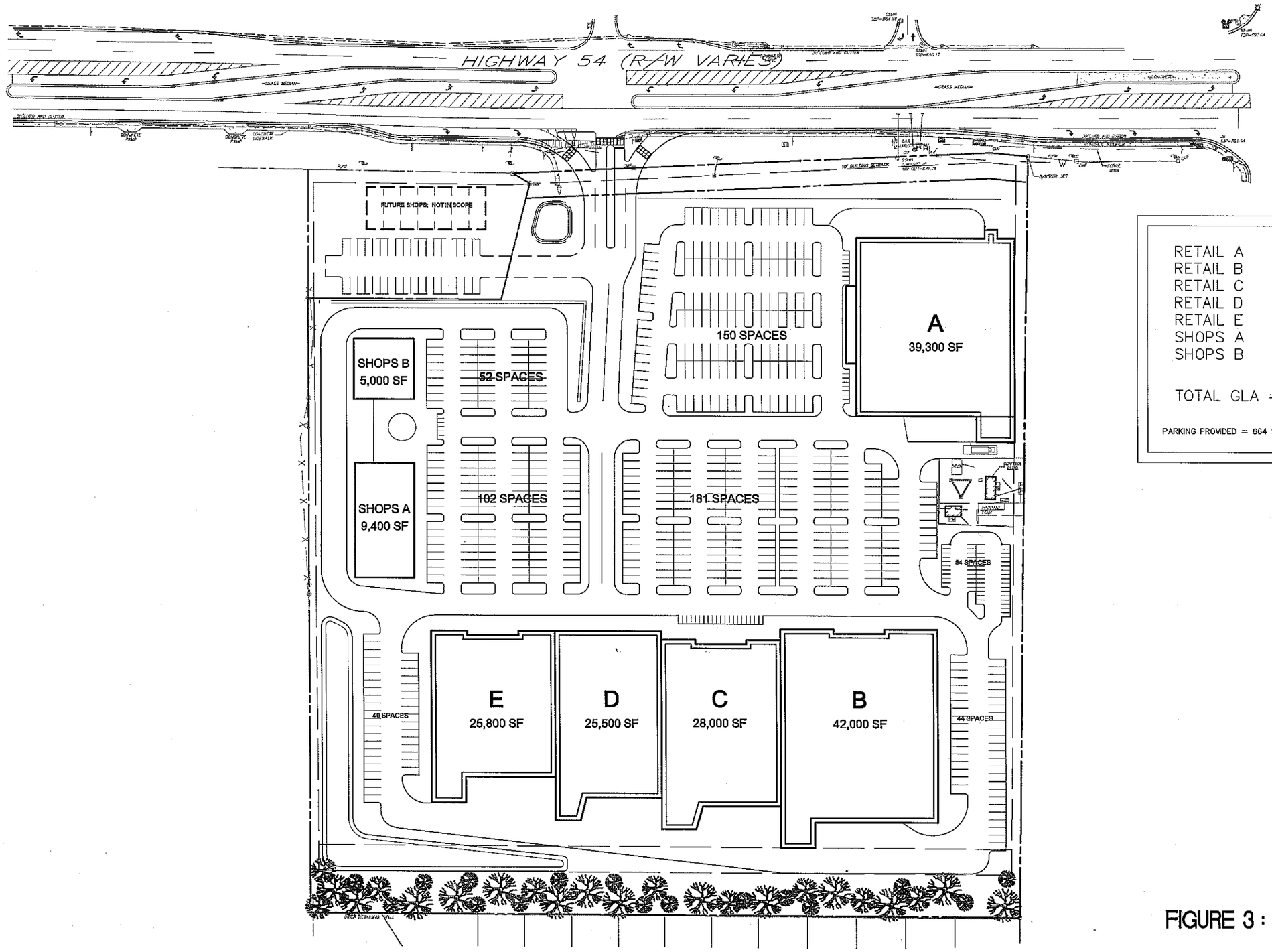
LAI ENGINEERING
PARKWAY CENTER -
1800 PARKWAY PL. - STE. 720
MARIETTA, GA 30067
PHONE: 770.423.0807
FAX: 770.423.1262
WWW.LAIENGINEERING.COM

ENGINEERING

JOB NO: 676
DWG NAME:
FIGURE 2
PAGE: 7
DATE: 03/19/2008

Copyright © 2007

DT ISSUED FOR CONSTRUCTION



RETAIL A	39,300 SF
RETAIL B	42,000 SF
RETAIL C	28,000 SF
RETAIL D	25,500 SF
RETAIL E	25,800 SF
SHOPS A	9,400 SF
SHOPS B	5,000 SF

TOTAL GLA = 175,000 SF

PARKING PROVIDED = 664 SPACES (3.7 PER 1000 SF)

FIGURE 3 : SITE PLAN

REVISIONS

The Columns at Peachtree City
PREPARED FOR
Capital City Development
Peachtree City, GA

LAI ENGINEERING
PARKWAY CENTER -
1800 PARKWAY PL. - STE. 720
MARIETTA, GA 30067
PHONE: 770.423.0807
FAX: 770.423.1262
WWW.LAIENGINEERING.COM

LAI ENGINEERING

JOB NO.: 6175
DWG NAME:
SITE PLAN
SHEET:
8
DATE: 03/19/2008

Copyright © 2008

NOT ISSUED FOR CONSTRUCTION

II. Area Conditions

The study area encompasses State Route 54 from McDuff Parkway west of the site to Planterra Way / Rankin Road east of the site as designated by the Georgia Department of Transportation and Peachtree City.

Currently, State Route 54 is a 4-lane divided roadway, functionally classified by GDOT as an urban principal arterial traveling east and west with a posted speed limit of 45 miles per hour within the study area. The land uses along this route are primarily commercial.

Planterra Way south of SR 54 is a 2-lane divided roadway functionally classified by GDOT as an urban collector street. Rankin Road north of SR 54 is also a 2-lane divided roadway that serves the businesses north of SR 54. The posted speed limit on Planterra Way and Rankin Road is 35 miles per hour within the study area. The land uses along Planterra Way and Rankin Road are mostly residential and light commercial use. The intersection of Planterra Way / Rankin Road at SR 54 is signalized.

McDuff Parkway T's into SR 54 from the north is a 2-lane divided roadway functionally classified by GDOT as an urban local street with a posted speed limit of 35 miles per hour within the study area. The land uses along this route are mainly residential. The intersection of McDuff Parkway at SR 54 is signalized.

Line Creek Drive south of SR 54 is currently an unsignalized dead-end road that leads to an abandoned businesses park. Line Creek Drive's intersection will be utilized as the proposed site's driveway as shown on the Site Plan in Figure 3.

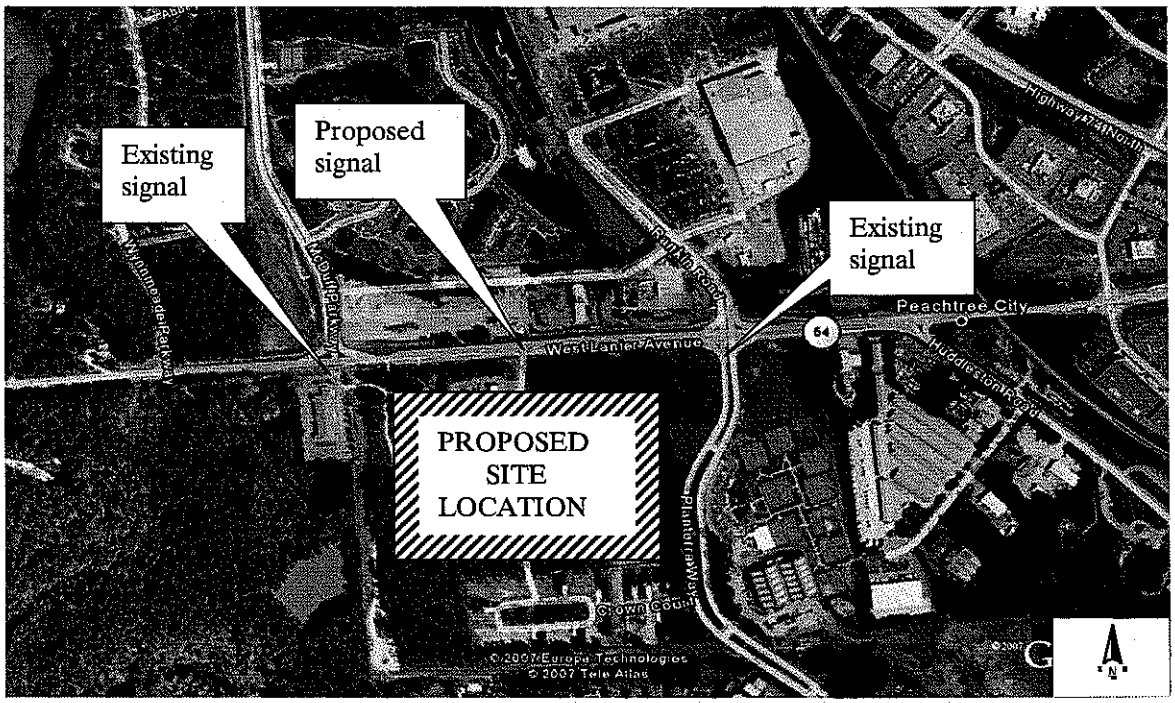


Figure1. Location Map

III. Traffic Data

LAI Engineering collected peak period turning movement counts (TMC) and 24-hour counts for the study area. The TMC's were collected on a weekday during the PM peak hour periods of 4:00 pm to 6:00 pm in January 2007 at the study intersections. Twenty-four hour traffic counts were collected on State Route 54 during the same period along the frontage of the proposed site.

The total average daily trips (ADT) on State Route 54 are 32,200 vpd, with 16,200 vpd in the eastbound direction and 16,000 vpd in the westbound direction (See Figure 4). Copies of the traffic counts are included in Appendix A.

IV. Projected Traffic

LAI Engineering used The Columns at Peachtree City Development site plan to develop traffic projections for the study area. The proposed shopping center development will have 175,000 square feet of retail space developed by Capital City and 10,000 square feet of retail developed by others. Both developments are scheduled for build out in the year of 2009.

Trip Generation

LAI developed trip generation projections for the proposed site using Microtrans Trip Generation software (See Appendix B). This software estimates traffic trips for land uses in accordance with the Institute of Transportation Engineers (ITE) Trip Generation, 7th Edition, 2003.

The proposed trips to the site are divided into primary and pass-by trips. Primary trips are trips made for the specific purpose of visiting the site. Pass-by trips are intermediate stops on the way from an origin to a primary trip destination without route diversion. Pass-by trips are attracted from traffic passing the site on an adjacent street that offers direct access to the generator. The pass-by rate for the proposed development is in accordance with the ITE's pass-by rates. The pass-by trips are added to the site driveways but are not added as new trips to the adjacent street system. Table 2 shows the PM trip generation estimates for the site.

Table 2. PM Peak Trip Generation Projections

Land Use	PROPOSED DEVELOPMENT		
	Primary Trips	Pass-by Trips	Total Trips
Shopping Center - LUC 820 (185,000 S.F)			
Enter	225	108	333
Exit	244	117	361
Total Trips	469	225	694

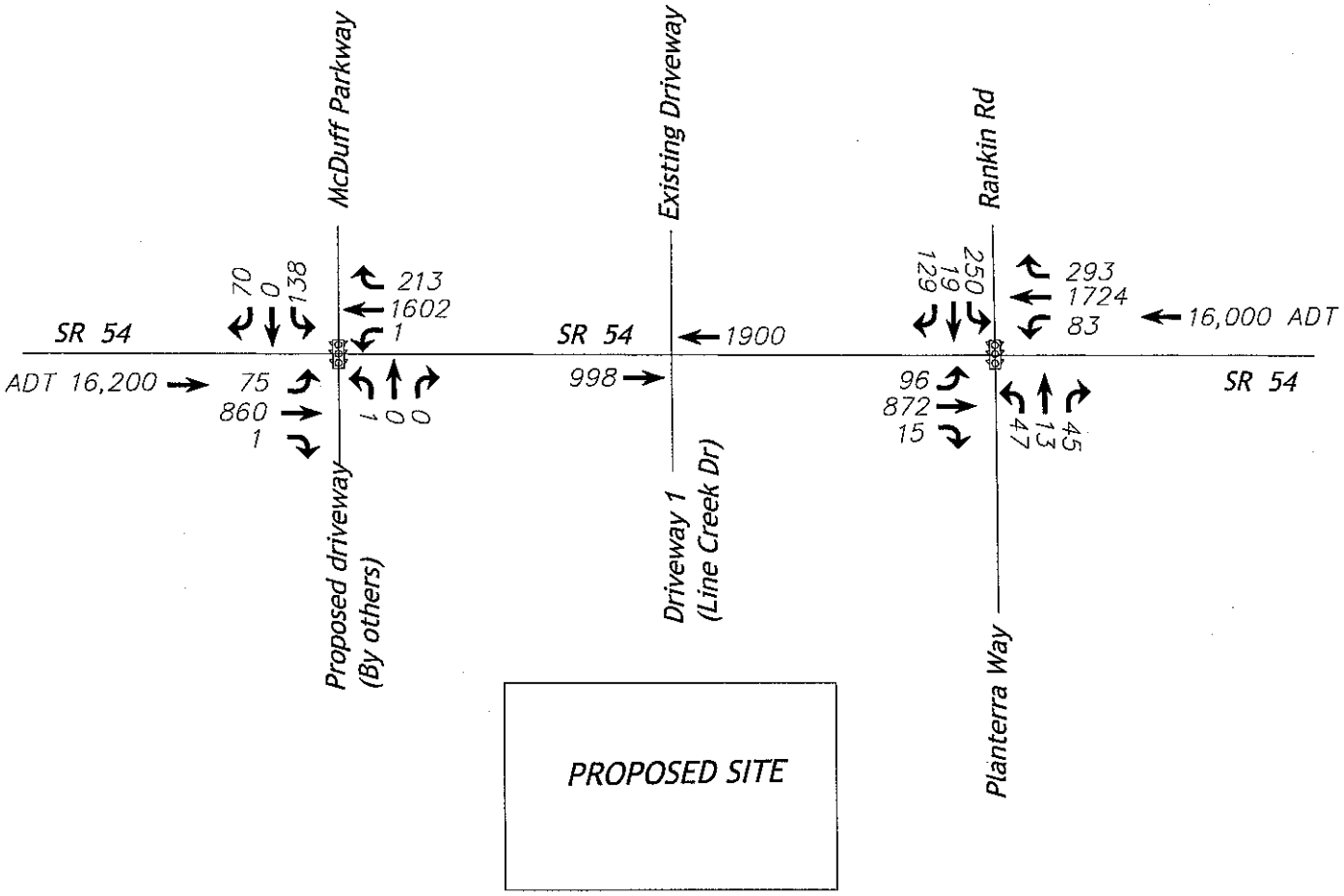


FIGURE 4. 2007 PM PEAK HOUR TRAFFIC & ADT

LAI ENGINEERING
PARKWAY CENTER
1800 PARKWAY PL. - STE. 720
MARIETTA, GA 30067
PHONE: 770.423.0807
FAX: 770.423.1262
WWW.LAIENGINEERING.COM

The Columns at Peachtree City

Prepared For

CAPITAL CITY DEVELOPMENT

Peachtree City, GA

DATE: 03/19/2007 JOB NO: 6175 DWG NAME: SHEET: 10

NOT FOR CONSTRUCTION

Copyright © 2007

Trip Distribution and Assignment

The next step in forecasting traffic is distributing and assigning the trips generated by the development to the proposed and existing intersections in the study area. This is accomplished by applying percentages to the intersections representing traffic movements. The percentage of site traffic assigned to the intersections was based upon existing traffic conditions, proposed land use, and the layout of the site. Trip distributions specific to proposed land use were utilized.

Primary trips are predicted to use the site as their final destination and they exit the site in the opposite direction they enter the site. Pass-by trips are predicted to use the site as a stop on their way to their final destination and they exit the site in the same direction from which they enter the site. Figures 5 and 6 show the percentage of trips proposed to use each of the driveways for primary and pass-by trips for the proposed development, respectively. The site traffic generation's trips entering and exiting the site is multiplied by the percentages to assign trips to the proposed development as shown in Figure 7 and 8. Figures 9 and 10 show the total site generated trips and total projected volume, respectively.

Traffic Growth Rate

LAI utilized an annual traffic growth rate of 3% approved in the Georgia Department of Transportation (GDOT) widening and reconstruction of SR 54 project in 2003.

LAI projected the background traffic volumes on the adjacent streets two years to the build out year 2009 at an annual growth rate of 3%. However, LAI did not project the traffic exiting and entering the Rankin Road. Rankin Road, as shown on the location map serves the use of a retail development and has no connectivity to other adjacent roads. Although the traffic volumes on Rankin Road may fluctuate daily, the traffic volumes will never grow as the adjacent street network would. The volumes will only increase if the land use Rankin Road serves increases.

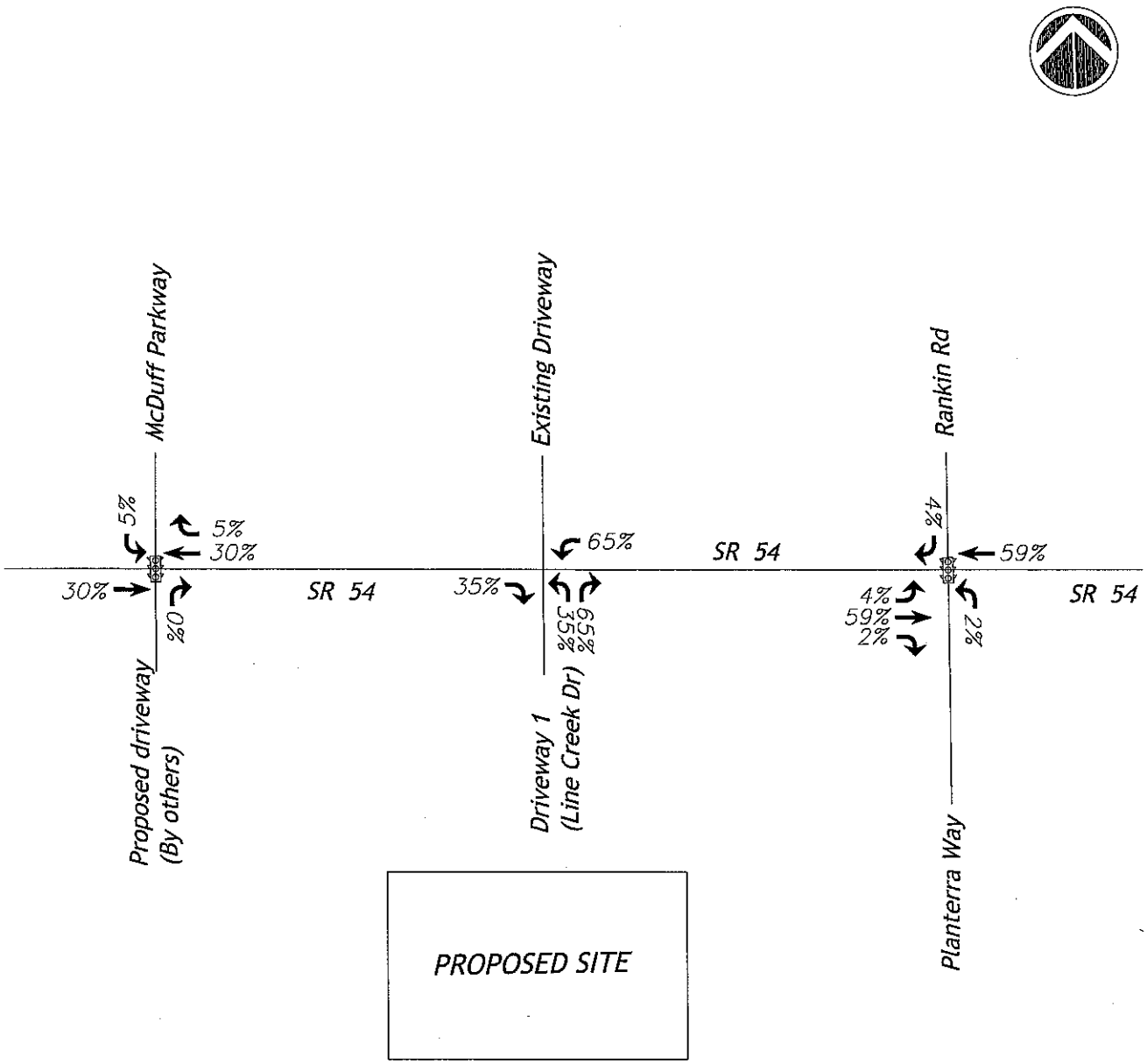


FIGURE 5. PRIMARY % TRIP DISTRIBUTION - PM PEAK

LAI ENGINEERING
PARKWAY CENTER
1800 PARKWAY PL. - STE. 720
MARIETTA, GA 30067
PHONE: 770.423.0807
FAX: 770.423.1262
WWW.LAIENGINEERING.COM

The Columns at Peachtree City

Prepared For

CAPITAL CITY DEVELOPMENT

Peachtree City, GA

DATE: 03/19/2008 JOB NO.: 6175 DWG NAME: SHEET: 12

NOT FOR CONSTRUCTION

Copyright © 2007

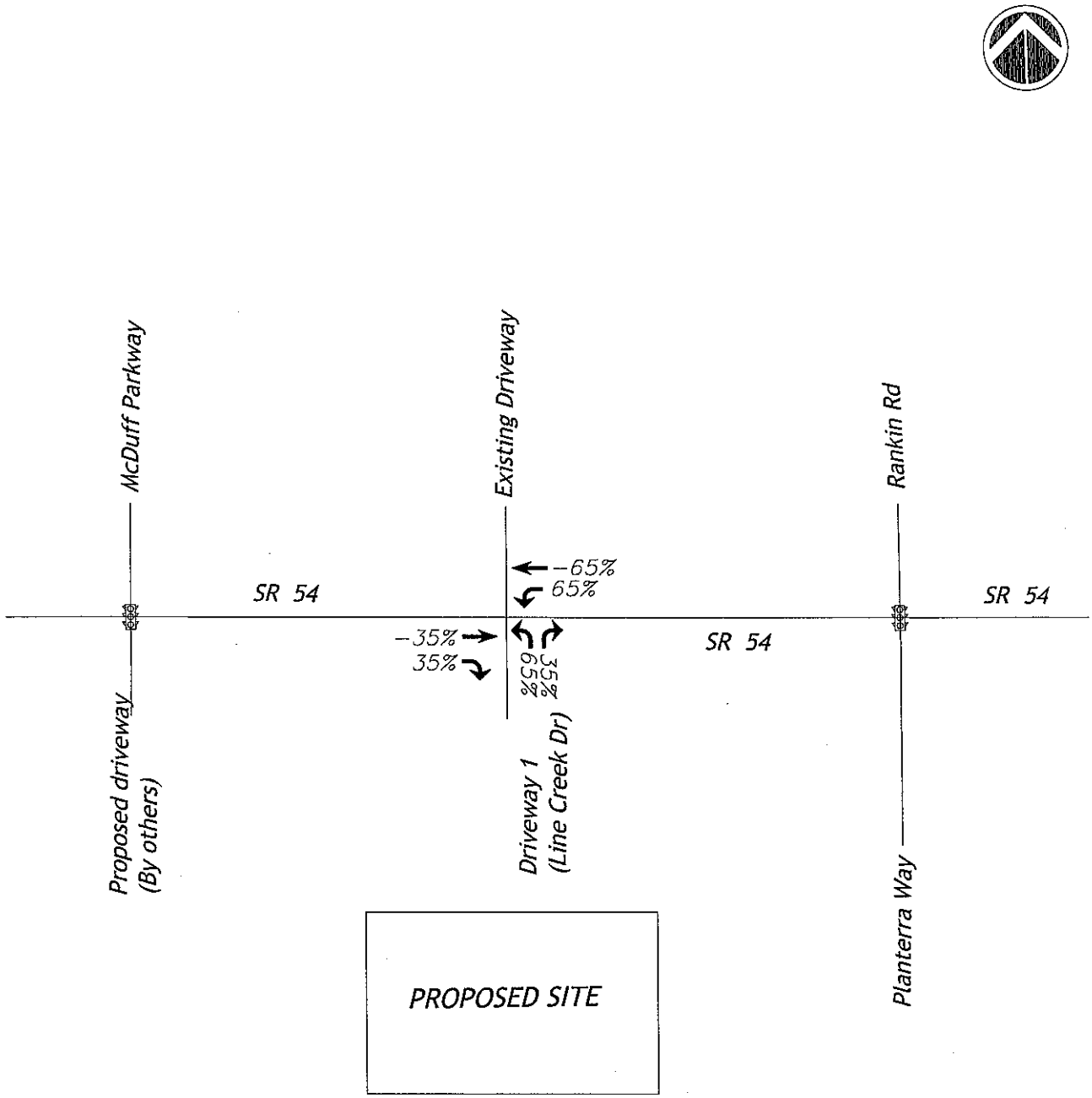


FIGURE 6. PASS-BY % TRIP DISTRIBUTION - PM PEAK

LAI ENGINEERING
PARKWAY CENTER
1800 PARKWAY PL. - STE. 720
MARIETTA, GA 30067
PHONE: 770.423.0807
FAX: 770.423.1262
WWW.LAIENGINEERING.COM

The Columns at Peachtree City

Prepared For

CAPITAL CITY DEVELOPMENT

Peachtree City, GA

DATE: 03/19/2008 JOB NO.: 6175 DWG NAME: SHEET: 13

NOT FOR CONSTRUCTION

Copyright © 2007

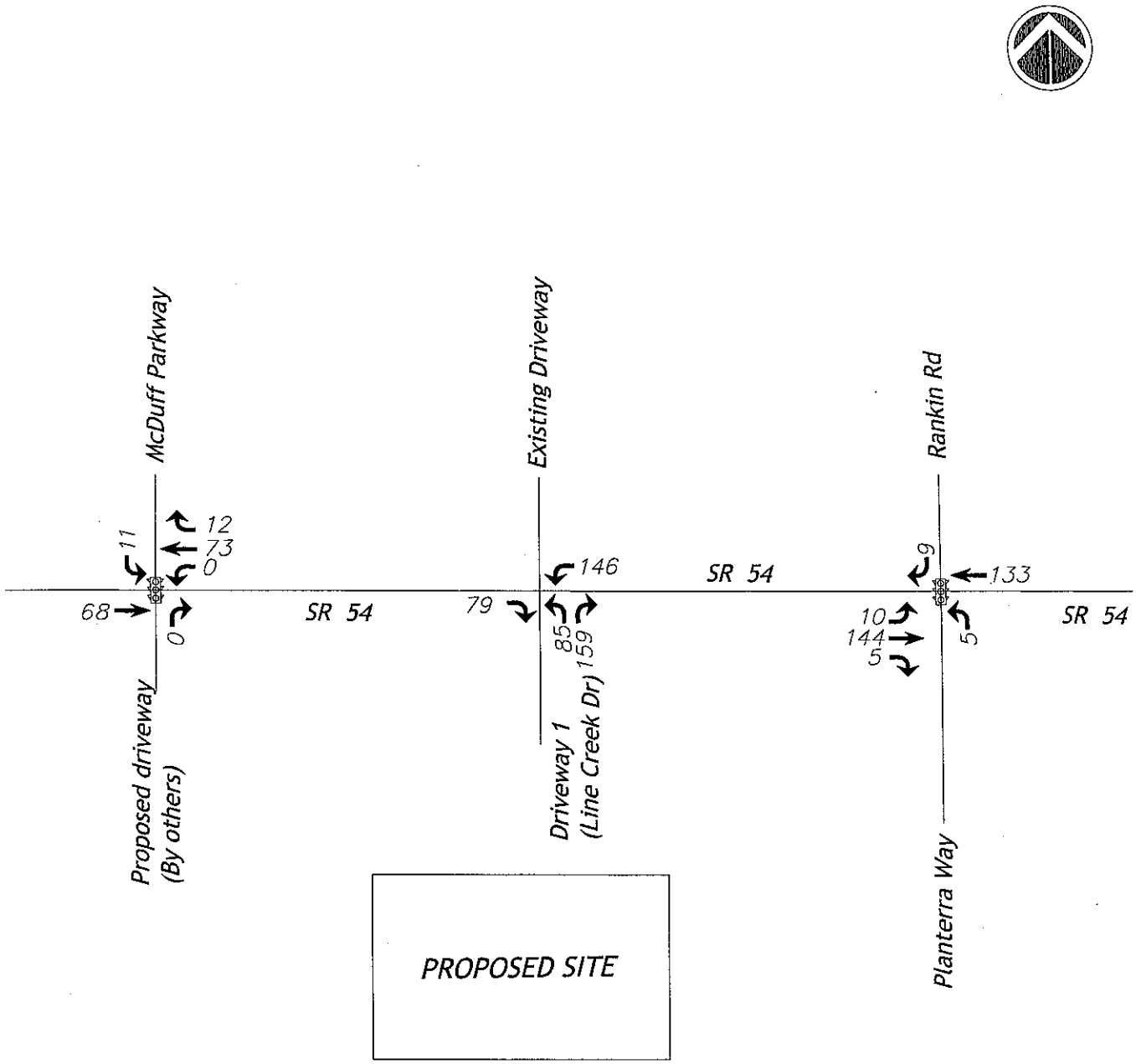


FIGURE 7. PRIMARY TRIPS - PM PEAK

LAI ENGINEERING
PARKWAY CENTER
1800 PARKWAY PL. - STE. 720
MARIETTA, GA 30067
PHONE: 770.423.0807
FAX: 770.423.1262
WWW.LAIENGINEERING.COM

The Columns at Peachtree City

Prepared For

CAPITAL CITY DEVELOPMENT

Peachtree City, GA

DATE: 03/19/2008 JOB NO.: 6175 DWG NAME: SHEET: 14

NOT FOR CONSTRUCTION

Copyright © 2007

FIGURE 8. PASS-BY TRIPS - PM PEAK

LAI ENGINEERING
PARKWAY CENTER
1800 PARKWAY PL. - STE. 720
MARIETTA, GA 30067
PHONE: 770.423.0807
FAX: 770.423.1262
WWW.LAIENGINEERING.COM

The Columns at Peachtree City

Prepared For

CAPITAL CITY DEVELOPMENT

Peachtree City, GA

DATE: 03/19/2008 JOB NO.: 6175 DWG NAME: SHEET: 15

NOT FOR CONSTRUCTION

Copyright © 2007

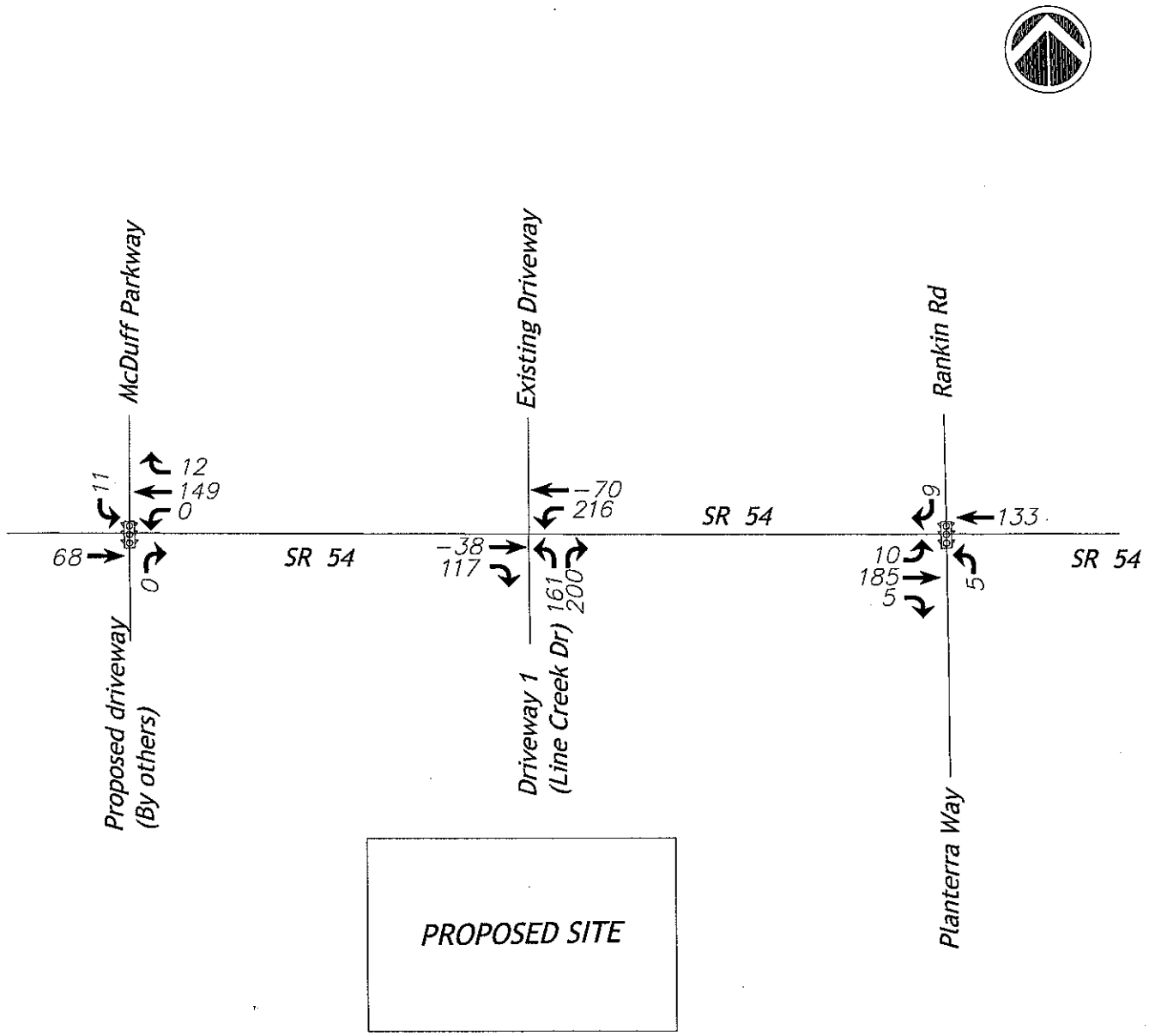


FIGURE 9. TOTAL SITE GENERATED TRIPS - PM PEAK

LAI ENGINEERING
PARKWAY CENTER
1800 PARKWAY PL. - STE. 720
MARIETTA, GA 30067
PHONE: 770.423.0807
FAX: 770.423.1262
WWW.LAIENGINEERING.COM

The Columns at Peachtree City

Prepared For

CAPITAL CITY DEVELOPMENT

Peachtree City, GA

DATE: 03/19/2008 JOB NO.: 6175 DWG NAME: SHEET: 16

NOT FOR CONSTRUCTION

Copyright © 2007

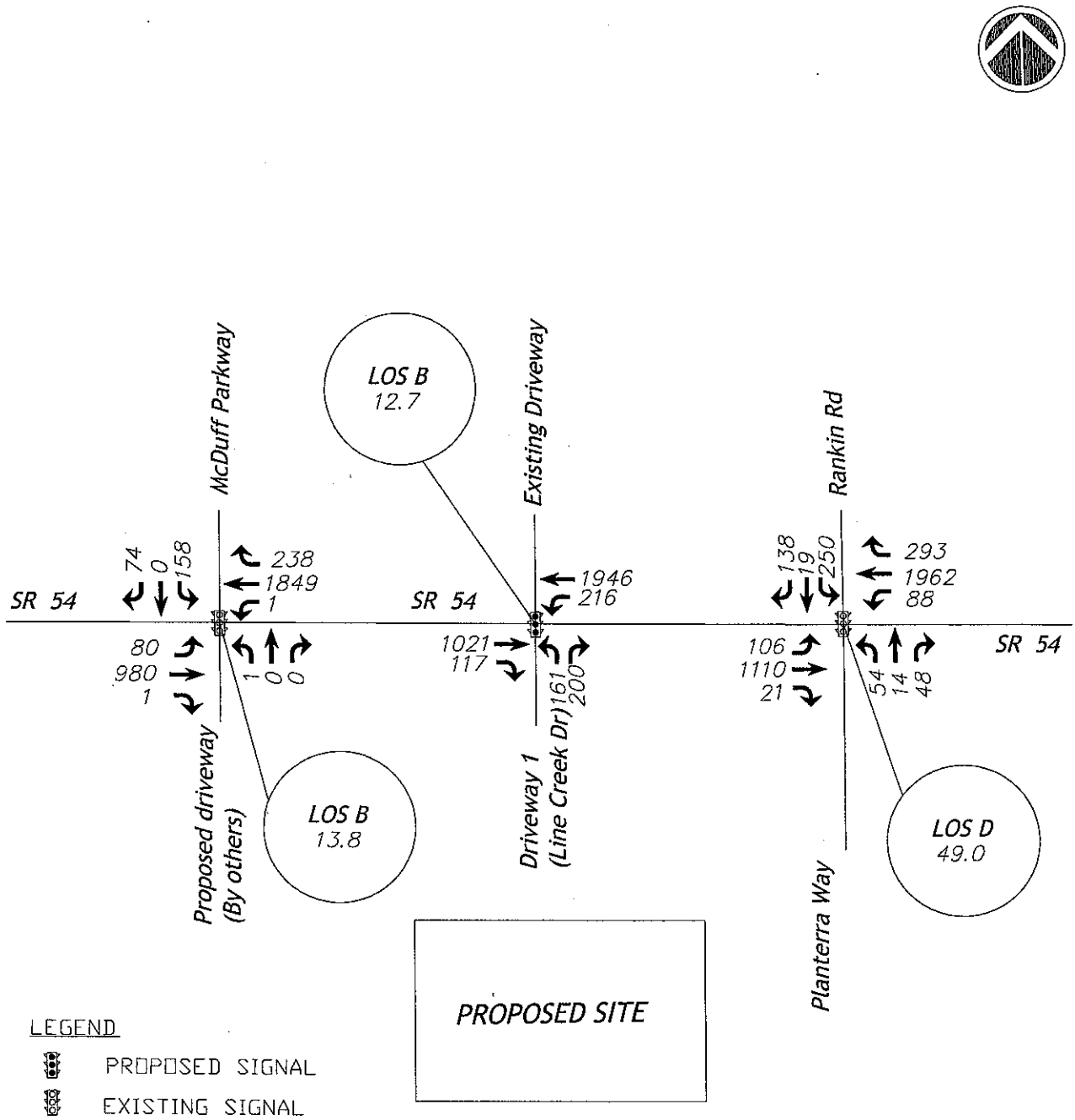


FIGURE 10. TOTAL 2009 PM PEAK PROJECTED TRAFFIC

LAI ENGINEERING
PARKWAY CENTER
1800 PARKWAY PL. - STE. 720
MARIETTA, GA 30067
PHONE: 770.423.0807
FAX: 770.423.1262
WWW.LAIENGINEERING.COM

The Columns at Peachtree City

Prepared For

CAPITAL CITY DEVELOPMENT

Peachtree City, GA

DATE: 03/19/2008 JOB NO.: 6175 DWG NAME: SHEET: 17

NOT FOR CONSTRUCTION

Copyright © 2007

V. Traffic Analysis

Traffic Signal Warrants Analysis

A traffic signal warrant investigation must be conducted to determine whether the installation of a traffic control signal is justified at a particular location. The Manual on Uniform Traffic Control Devices (MUTCD) 2003 Edition, explains the methodology for conducting an investigation. The MUTCD describes eight warrants that may be considered and four of them are applicable to our investigations.

Warrant 1 - Eight-Hour Vehicular Volume

The Minimum Vehicular Volume, Condition A, is intended for application where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

The Interruption of Continuous Traffic, Condition B, is intended for application where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street.

Warrant 1 is met if the requirements for Condition A or Condition B are fulfilled for any eight hours of an average day or if a Combination of Warrants, 80% of Condition A and 80% of Condition B, is fulfilled for any eight hours of an average day.

Warrant 2 - Four-Hour Vehicular Volume

The Four-Hour Vehicular Volume signal warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal. Warrant 2 is met if the requirements are met for any four hours of an average day.

Warrant 3 - Peak Hour

The Peak Hour signal warrant is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street. This signal warrant shall be applied only in unusual cases. Such cases include, but are not limited to, office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.

LAI prepared an analysis of the traffic signal warrants found in the MUTCD for intersections of State Route 54 and Driveway 1 using the 2003 version of PC-Warrants. This software compares traffic volumes and accident experience at an intersection with the traffic signal warrants found in the MUTCD.

Appendix C shows a printout of the results. Table 3 summarizes the results of the traffic signal warrants analysis conducted.

Table 3. Traffic Signal Warrants Analysis

MUTCD (2003) Warrant		
Number	Condition	State Route 54 @ Driveway 1
1	8-Hour Vehicular Volume	Satisfied
2	4-Hour Vehicular Volume	Satisfied
3	Peak Hour	Satisfied
Should a signal be considered further?		Yes

Capacity Analyses

The capacity analyses were conducted using projected PM peak hour volumes as discussed above. LAI utilized *Synchro* version 7.0 software to analyze the study intersections for the PM peak hour conditions. *Synchro* documents procedures to determine the Levels of Service (LOS) ranging from "A", the best, to "F", the worst, for intersections. An intersection's LOS is based upon the delay per vehicle for various movements within the intersection. Delay is a measure of quality of service to the road user.

Signalized intersection analyses include calculating the amount of control delay experienced by vehicles based upon the capacity of each approach and the volume of traffic being served (v/c ratio). Once the delay per vehicle is determined each intersection is classified by its' LOS. Below is a description of each LOS category:

LOS A describes operations with very low control delay, up to 10 seconds per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LOS B describes operation with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with food progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.

LOS C describes operations with control delay greater than 20 and up to 35 seconds of delay per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

LOS D describes operations with control delay greater than 35 and up to 55 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with control delay greater than 55 and up to 80 seconds per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with control delay in excess of 80 seconds per vehicle. This level, considered unacceptable to most drivers, often occurs with over-saturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratio above 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.

The LOS for a two-way, stop-controlled (TWSC) intersection is determined by the computed control delay and is defined for each minor movement. The LOS criteria for unsignalized intersections are shown in Table 4.

Table 4. Unsignalized Intersection Level of Service Criteria

LOS	Delay Range (seconds/vehicle)
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

Table 5 shows the delay and LOS for each intersection within the study area during the PM peak hour. A copy of the Synchro capacity analyses is included in Appendix D.

Table 5. Intersection Level of Service (LOS) and Delay/vehicle (in sec) comparison for the existing and future recommended traffic conditions

Road Name / Intersection	Existing Conditions		Projected No-Build		Projected Build	
	LOS (Delay)		LOS (Delay)		LOS (Delay)	
	PM Peak	Traffic Control	PM Peak	Traffic Control	PM Peak	Traffic Control
SR 54 and McDuff Parkway	B (13.3 sec)	Signalized	B (15.5 sec)	Signalized	B (17.0 sec)	Signalized
SR 54 and Driveway 1	NA	Stop Sign	NA	Stop Sign	F (441.5 sec)	Un-signalized
					B (16.1 sec)	Signalized
SR 54 and Planterra Way / Rankin Road	C (34.1 sec)	Signalized	D (37.1 sec)	Signalized	D (41.3 sec)	Signalized

LAI conducted capacity analyses of the existing intersections to establish current operating LOS at SR 54 and McDuff intersection and SR 54 at Planterra Way/Rankin Road intersection. LAI then conducted capacity analyses of those same intersections with projected background traffic under a no-build scenario. This capacity analysis shows the intersection operating LOS without the site generated traffic added. LAI next conducted capacity analyses of all the intersections within the study area with the projected background traffic and the site generated trips added under a build condition. The results of the analyses show that the two existing intersections will operate at the same LOS in the projected year 2009, under the no-build and build conditions with a slightly higher intersection delay, respectively. The proposed SR 54 and Driveway 1 will operate better as a signalized intersection with traffic projections for the year 2009 along with the recommended intersection improvements.

VI. Conclusion & Recommendations

LAI conducted a signal warrant analyses at the intersections of State Route 54 and Driveway 1. Based on projected background volumes and future trips generated by the proposed development, the intersection met Warrants 1, 2 and 3 for proposed conditions at the State Route 54 and Driveway 1 intersection. LAI recommends installing a traffic signal at the study intersection.

LAI analyses show that all of the intersections in the study area operate at a LOS D or better with the site projected (2009) traffic and recommended improvements. (See Figure 11)

The recommendations are as follows:

State Route 54 and Driveway 1 intersection:

<u>Traffic Signal is recommended at the intersection</u>
NB - <u>One separate right turn lane</u> and a shared thru/left lane
SB - No improvements needed
EB - No improvements needed
WB - No improvements needed

State Route 54 and McDuff Parkway
No improvements recommended

State Route 54 and Planterra Way
No improvements recommended

Underline - Recommended new lanes

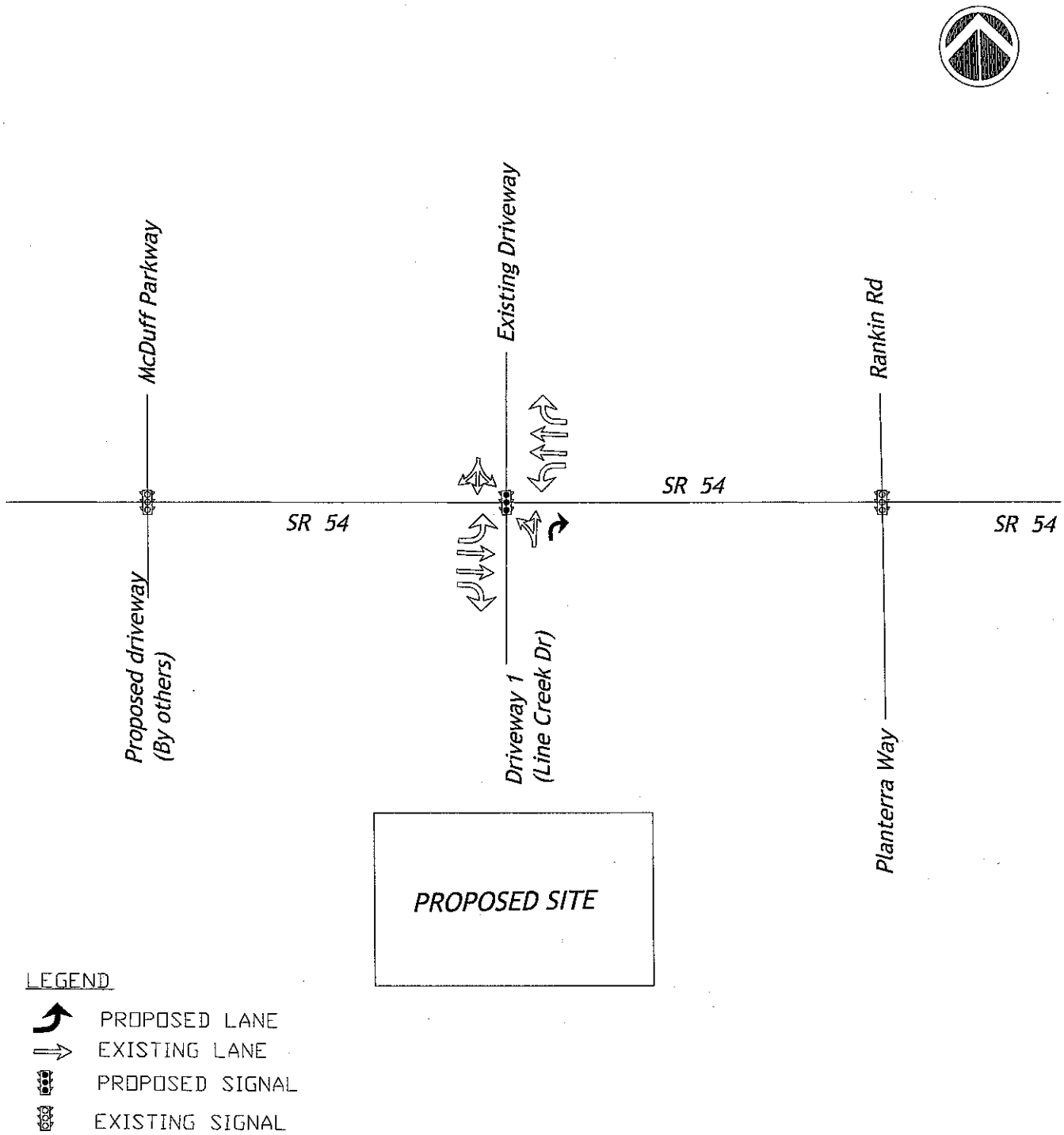


FIGURE 11. RECOMMENDED LANE CONFIGURATIONS

LAI ENGINEERING
PARKWAY CENTER
1800 PARKWAY PL. - STE. 720
MARIETTA, GA 30067
PHONE: 770.423.0807
FAX: 770.423.1262
WWW.LAIENGINEERING.COM

The Columns at Peachtree City

Prepared For

CAPITAL CITY DEVELOPMENT

Peachtree City, GA

DATE: 03/19/2008 JOB NO.: 6175 DWG NAME: SHEET: 22

NOT FOR CONSTRUCTION

Copyright © 2007

Appendix A: Traffic Counts

LAI ENGINEERING

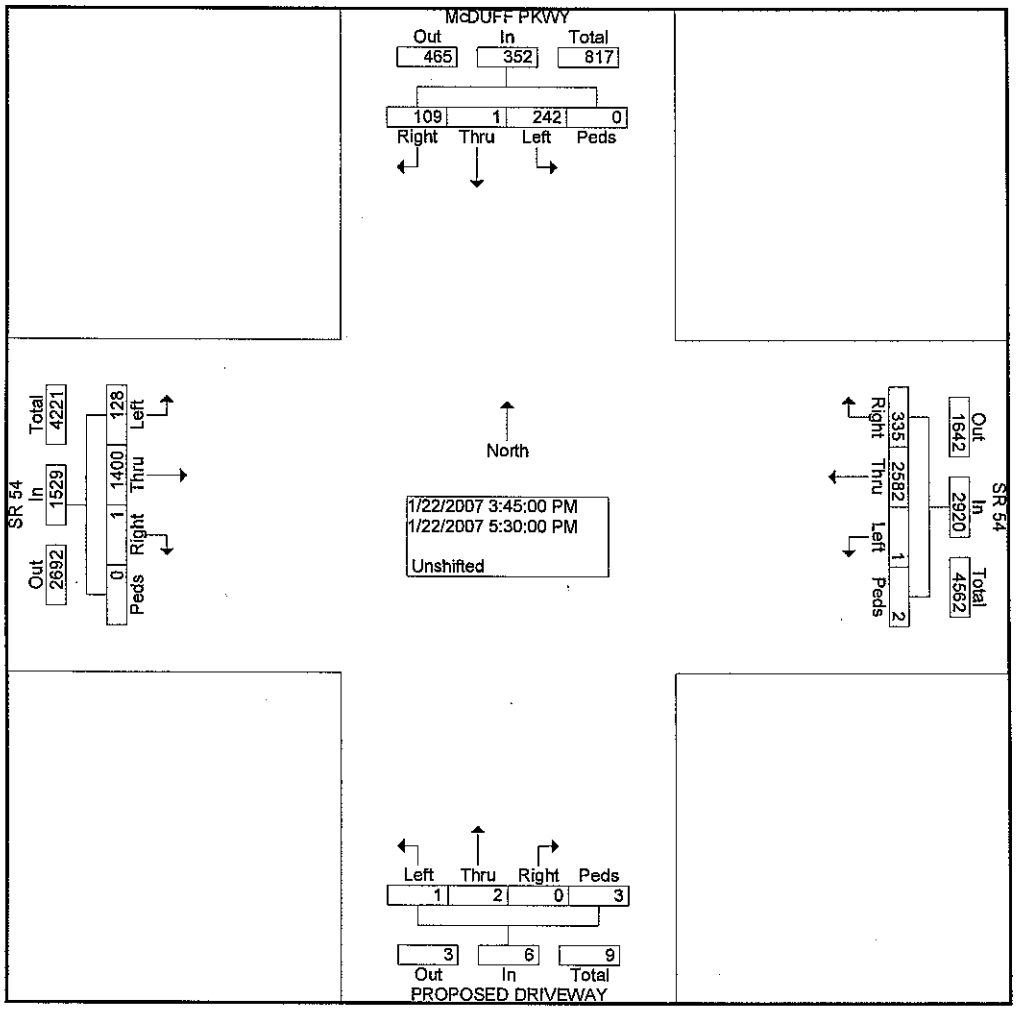
Atlanta - Birmingham
Ph. 770-423-0807 Fax 770-423-1262
www.laiengineering.com

The Columns at Peachtree City
Fayette County

File Name : PMSR54~2
Site Code : 00000000
Start Date : 1/22/2007
Page No : 1

Groups Printed- Unshifted

	McDUFF PKWY Southbound					SR 54 Westbound					PROPOSED DRIVEWAY Northbound					SR 54 Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
03:45 PM	10	0	0	0	10	0	42	6	0	48	0	0	0	3	3	5	18	0	0	23	84
Total	10	0	0	0	10	0	42	6	0	48	0	0	0	3	3	5	18	0	0	23	84
04:00 PM	22	0	12	0	34	0	309	40	1	350	0	0	0	0	0	9	159	0	0	168	552
04:15 PM	36	0	11	0	47	0	254	33	0	287	0	0	0	0	0	13	196	0	0	209	543
04:30 PM	36	1	16	0	53	0	375	43	0	418	0	2	0	0	2	26	167	0	0	193	666
04:45 PM	32	0	18	0	50	0	331	46	1	378	0	0	0	0	0	15	193	0	0	208	636
Total	126	1	57	0	184	0	1269	162	2	1433	0	2	0	0	2	63	715	0	0	7782397	
05:00 PM	44	0	21	0	65	0	456	46	0	502	0	0	0	0	0	25	199	0	0	224	791
05:15 PM	28	0	21	0	49	1	464	67	0	532	1	0	0	0	1	19	248	0	0	267	849
05:30 PM	34	0	10	0	44	0	351	54	0	405	0	0	0	0	0	16	220	1	0	237	686
Grand Total	242	1	109	0	352	1	2582	335	2	2920	1	2	0	3	6	128	1400	1	0	1529	4807
Apprch %	68.8	0.3	31.0	0.0		0.0	88.4	11.5	0.1		16.7	33.3	0.0	50.0		8.4	91.6	0.1	0.0		
Total %	5.0	0.0	2.3	0.0	7.3	0.0	53.7	7.0	0.0	60.7	0.0	0.0	0.0	0.1	0.1	2.7	29.1	0.0	0.0	31.8	



LAI ENGINEERING

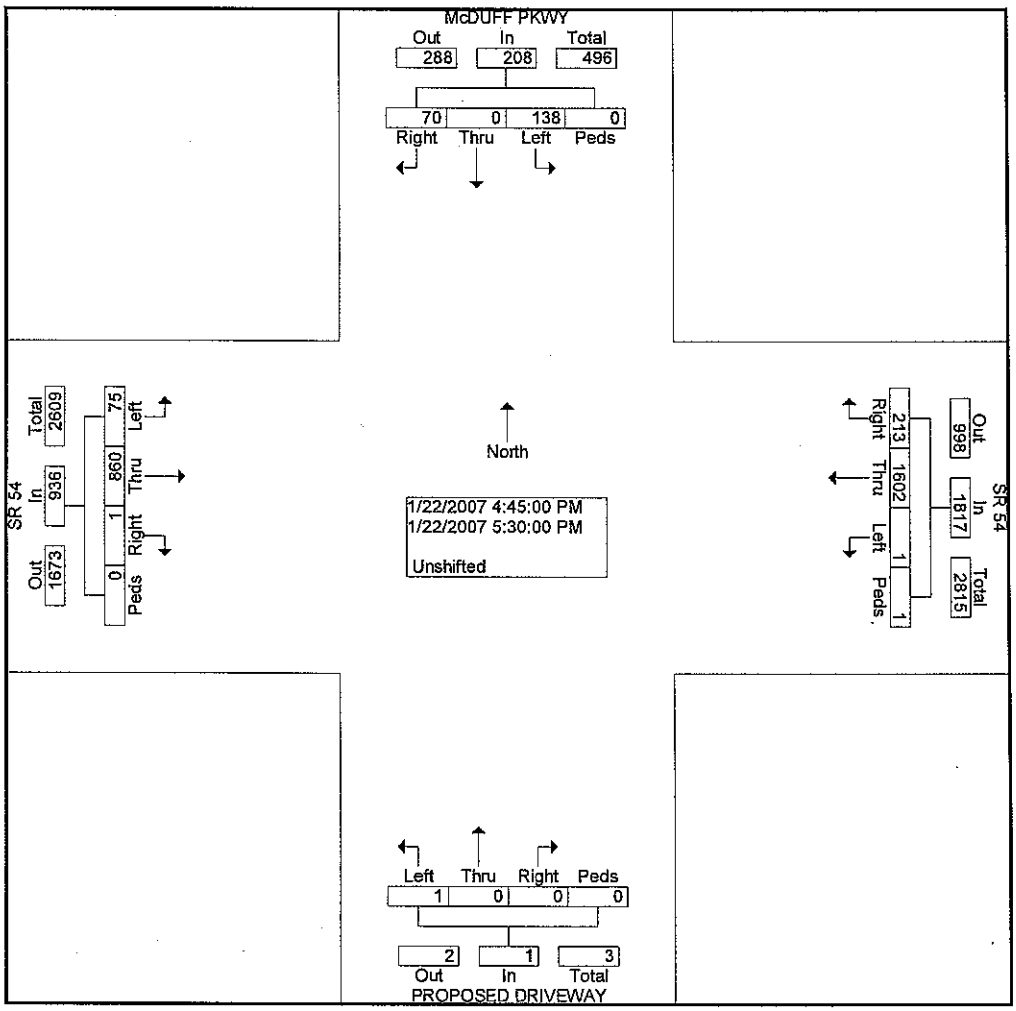
Atlanta - Birmingham

Ph. 770-423-0807 Fax 770-423-1262

www.laiengineering.com

File Name : PMSR54~2
Site Code : 00000000
Start Date : 1/22/2007
Page No : 2

	McDUFF PKWY Southbound					SR 54 Westbound					PROPOSED DRIVEWAY Northbound					SR 54 Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 03:45 PM to 05:30 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	138	0	70	0	208	1	1602	213	1	1817	1	0	0	0	1	75	860	1	0	936	2962
Percent	66.3	0.0	33.7	0.0		0.1	88.2	11.7	0.1		100.0	0.0	0.0	0.0		8.0	91.9	0.1	0.0		
05:15 Volume	28	0	21	0	49	1	464	67	0	532	1	0	0	0	1	19	248	0	0	267	849
Peak Factor																					0.872
High Int.	05:00 PM					05:15 PM					05:15 PM					05:15 PM					
Volume	44	0	21	0	65	1	464	67	0	532	1	0	0	0	1	19	248	0	0	267	
Peak Factor					0.800					0.854					0.250					0.876	



LAI ENGINEERING

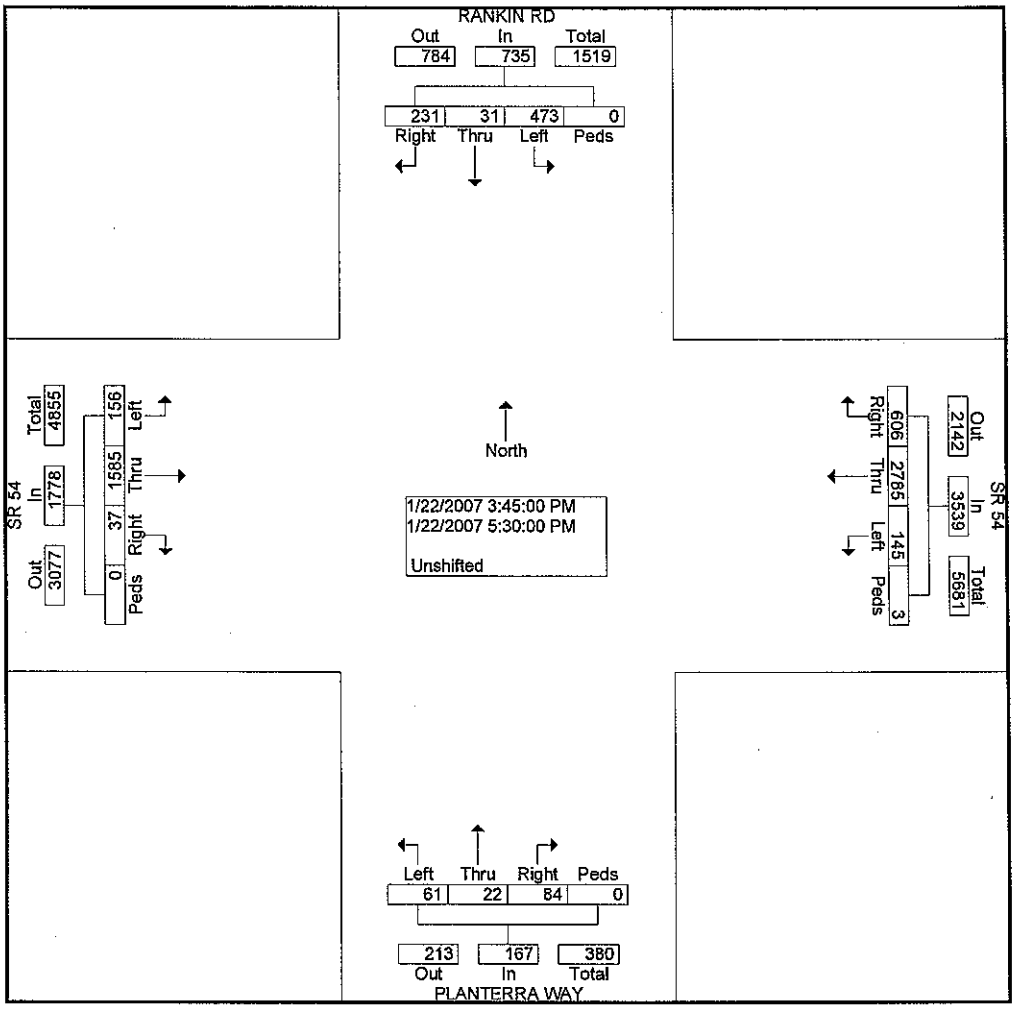
Atlanta - Birmingham
Ph. 770-423-0807 Fax 770-423-1262
www.laiengineering.com

The Columns at Peachtree City
Fayette County

File Name : PM SR 54 Planterra
Site Code : 00000000
Start Date : 1/22/2007
Page No : 1

Groups Printed- Unshifted

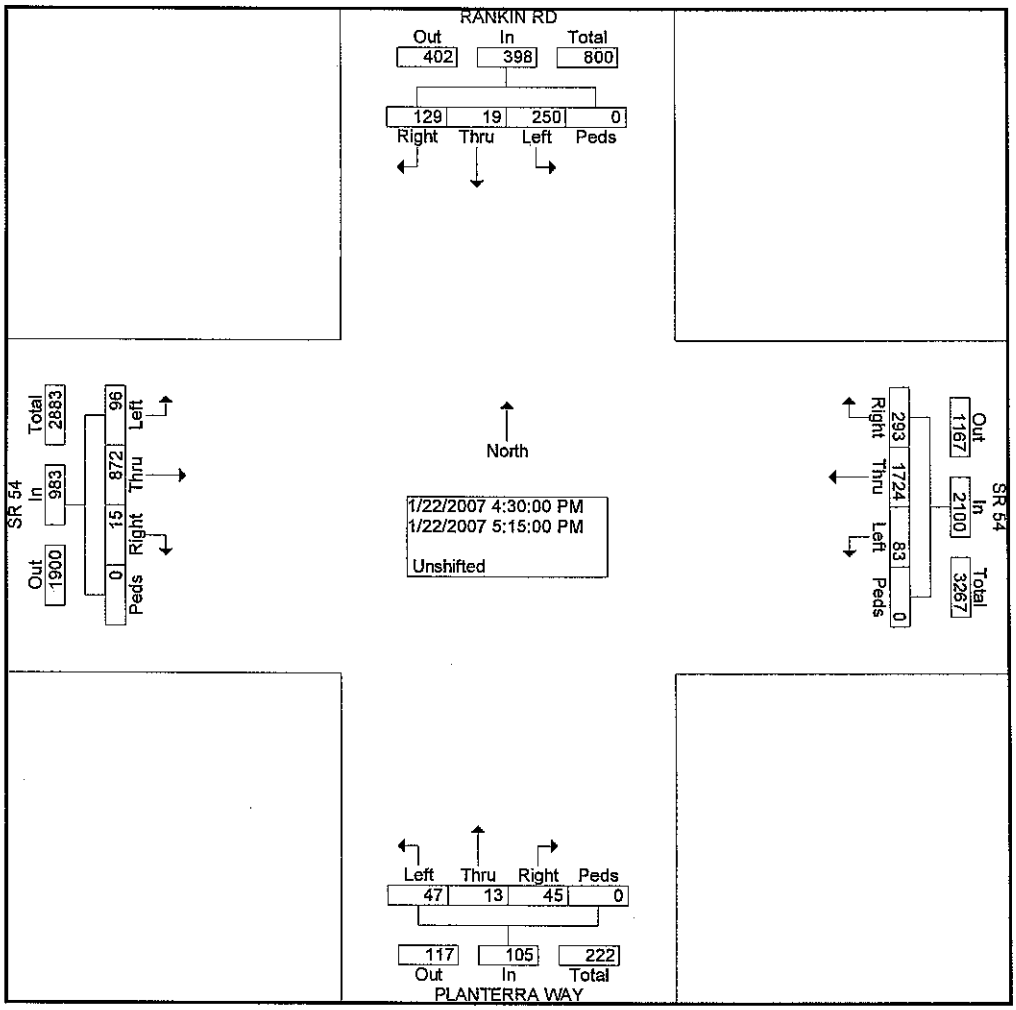
	RANKIN RD Southbound					SR 54 Westbound					PLANTERRA WAY Northbound					SR 54 Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
03:45 PM	33	2	15	0	50	1	84	22	0	107	3	1	1	0	5	10	70	3	0	83	245
Total	33	2	15	0	50	1	84	22	0	107	3	1	1	0	5	10	70	3	0	83	245
04:00 PM	58	3	28	0	89	19	340	110	1	470	2	2	9	0	13	23	200	2	0	225	797
04:15 PM	68	5	31	0	104	27	284	103	0	414	6	3	17	0	26	15	208	3	0	226	770
04:30 PM	90	8	35	0	133	23	376	67	0	466	8	0	8	0	16	22	192	2	0	216	831
04:45 PM	59	7	32	0	98	7	364	82	0	453	4	4	13	0	21	23	222	2	0	247	819
Total	275	23	126	0	424	76	1364	362	1	1803	20	9	47	0	76	83	822	9	0	914	3217
05:00 PM	52	2	33	0	87	22	495	65	0	582	23	5	11	0	39	26	206	5	0	237	945
05:15 PM	49	2	29	0	80	31	489	79	0	599	12	4	13	0	29	25	252	6	0	283	991
05:30 PM	64	2	28	0	94	15	353	78	2	448	3	3	12	0	18	12	235	14	0	261	821
Grand Total	473	31	231	0	735	145	2785	606	3	3539	61	22	84	0	167	156	1585	37	0	1778	6219
Apprch %	64.4	4.2	31.4	0.0		4.1	78.7	17.1	0.1		36.5	13.2	50.3	0.0		8.8	89.1	2.1	0.0		
Total %	7.6	0.5	3.7	0.0	11.8	2.3	44.8	9.7	0.0	56.9	1.0	0.4	1.4	0.0	2.7	2.5	25.5	0.6	0.0	28.6	



LAI ENGINEERING
Atlanta - Birmingham
Ph. 770-423-0807 Fax 770-423-1262
www.laiengineering.com

File Name : PM SR 54 Planterra
Site Code : 00000000
Start Date : 1/22/2007
Page No : 2

	RANKIN RD Southbound					SR 54 Westbound					PLANTERRA WAY Northbound					SR 54 Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 03:45 PM to 05:30 PM - Peak 1 of 1																					
Intersection	04:30 PM																				
Volume	250	19	129	0	398	83	1724	293	0	2100	47	13	45	0	105	96	872	15	0	983	3586
Percent	62.8	4.8	32.4	0.0		4.0	82.1	14.0	0.0		44.8	12.4	42.9	0.0		9.8	88.7	1.5	0.0		
05:15 Volume	49	2	29	0	80	31	489	79	0	599	12	4	13	0	29	25	252	6	0	283	991
Peak Factor																					0.905
High Int.	04:30 PM					05:15 PM					05:00 PM					05:15 PM					
Volume	90	8	35	0	133	31	489	79	0	599	23	5	11	0	39	25	252	6	0	283	
Peak Factor					0.748					0.876					0.673					0.868	



LAI ENGINEERING
Atlanta-Birmingham
Ph. 770-423-0807 Fax 770-423-1262
www.laiengineering.com

Date Printed: 25-Mar-08
Site Code: SR 54WB
Station ID:

Latitude: 0' 0.000 Undefined

Start Time	16-Jan-0 Tue	West bou
12:00 AM		113
01:00		54
02:00		41
03:00		29
04:00		40
05:00		115
06:00		389
07:00		731
08:00		749
09:00		740
10:00		766
11:00		**869**
12:00 PM		918
01:00		924
02:00		1116
03:00		1377
04:00		1581
05:00		**1802**
06:00		1232
07:00		751
08:00		660
09:00		492
10:00		306
11:00		197
Total		15992
AM Peak		11:00
Vol.		869
PM Peak		17:00
Vol.		1802

LAI ENGINEERING
Atlanta-Birmingham
Ph. 770-423-0807 Fax 770-423-1262
www.laiengineering.com

Date Printed: 25-Mar-08
Site Code: SR 54 Eastbound
Station ID:

Latitude: 0' 0.000 Undefined

Start Time	16-Jan-0 Tue	SR 54 E
12:00 AM		62
01:00		37
02:00		31
03:00		44
04:00		115
05:00		345
06:00		1055
07:00		**1777**
08:00		1658
09:00		1075
10:00		893
11:00		821
12:00 PM		964
01:00		951
02:00		1003
03:00		**1004**
04:00		942
05:00		995
06:00		929
07:00		564
08:00		343
09:00		294
10:00		198
11:00		93
Total		16193
AM Peak		07:00
Vol.		1777
PM Peak		15:00
Vol.		1004

Appendix B: Trip Generation

The Columns at Peachtree City
Summary of Trip Generation Calculation
For 185 T.G.L.A. of Shopping Center
March 25, 2008

	Average Rate	Standard Deviation	Adjustment Factor	Driveway Volume
Avg. Weekday 2-Way Volume	42.94	21.38	1.00	7944
7-9 AM Peak Hour Enter	0.63	0.00	1.00	117
7-9 AM Peak Hour Exit	0.40	0.00	1.00	74
7-9 AM Peak Hour Total	1.03	1.40	1.00	191
4-6 PM Peak Hour Enter	1.80	0.00	1.00	333
4-6 PM Peak Hour Exit	1.95	0.00	1.00	361
4-6 PM Peak Hour Total	3.75	2.75	1.00	694
Saturday 2-Way Volume	49.97	22.62	1.00	9244
Saturday Peak Hour Enter	2.58	0.00	1.00	477
Saturday Peak Hour Exit	2.39	0.00	1.00	442
Saturday Peak Hour Total	4.97	3.11	1.00	919

Note: A zero indicates no data available.
Source: Institute of Transportation Engineers
Trip Generation, 7th Edition, 2003.

TRIP GENERATION BY MICROTRANS

The Columns at Peachtree City
Summary of Pass-By Trips
For 185 T.G.L.A. of Shopping Center
March 25, 2008

	Driveway Volume	Pass-By Trips	Volume Added to Adjacent Streets
Average Weekday			
7-9 AM Peak Hour Enter	117	0	117
7-9 AM Peak Hour Exit	74	0	74
7-9 AM Peak Hour Total	191	0	191
4-6 PM Peak Hour Enter	333	108	225
4-6 PM Peak Hour Exit	361	117	244
4-6 PM Peak Hour Total	694	226	468
Saturday			
Saturday Peak Hour Enter	477	163	314
Saturday Peak Hour Exit	442	151	291
Saturday Peak Hour Total	919	314	605

Note: A zero indicates no data available.
Source: Institute of Transportation Engineers
Trip Generation Handbook, March, 2001

TRIP GENERATION BY MICROTRANS

Appendix C: Signal Warrant Analyses

LAI Engineering

McIntosh Village

SR 54 Peachtree City, GA

Study Name : McIntosh Village
Study Date : 02/19/07
Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Eastbound: SR 54
Number of Lanes: 2
Approach Speed: 45
Total Approach Volume: 18,458

Westbound: SR 54
Number of Lanes: 2
Approach Speed: 45
Total Approach Volume: 21,256

Minor Street Approaches

Northbound: Driveway 1
Number of Lanes: 1

Total Approach Volume: 1,815

Southbound:
Number of Lanes: 1

Total Approach Volume: 0

Warrant Summary (Rural values apply.)

Warrant 1 - Eight Hour Vehicular Volumes ..... Satisfied

Warrant 1A - Minimum Vehicular Volume ..... Satisfied
Required volumes reached for 10 hours, 8 are needed

Warrant 1B - Interruption of Continuous Traffic ..... Satisfied
Required volumes reached for 11 hours, 8 are needed

Warrant 1 A&B - Combination of Warrants ..... Satisfied
Required volumes reached for 11 hours, 8 are needed

Warrant 2 - Four Hour Volumes ..... Satisfied
Number of hours (11) volumes exceed minimum >= minimum required (4).

Warrant 3 - Peak Hour ..... Satisfied

Warrant 3A - Peak Hour Volumes ..... Satisfied
Volumes exceed minimums for at least one hour.

Warrant 3B - Peak Hour Delay ..... Satisfied
Number of hours (40) volumes exceed minimum >= required (1). Delay data not evaluated.

Warrant 4 - Pedestrian Volumes ..... Not Evaluated

Warrant 5 - School Crossing ..... Not Evaluated

Warrant 6 - Coordinated Signal System ..... Not Evaluated

Warrant 7 - Crash Experience ..... Not Evaluated

Warrant 8 - Roadway Network ..... Not Evaluated

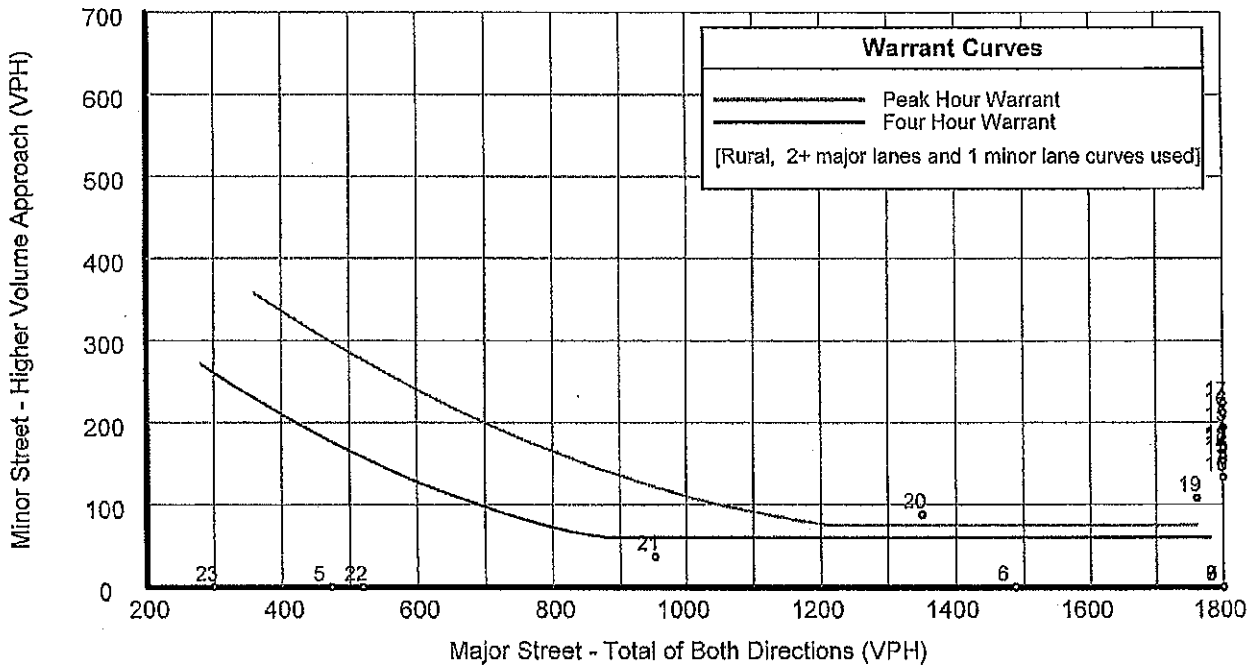
LAI Engineering

McIntosh Village

SR 54 Peachtree City, GA

Study Name : McIntosh Village
Study Date : 02/19/07
Page No. : 2

Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants (Maj Crit = Major Criteria, Min Crit = Minor Criteria):

Hour	Major	Higher Minor		War-1A			War-1B			War-1A&B		
Begin	Total	Vol	Dir	Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?
00:00	180	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
01:00	94	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
02:00	74	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
03:00	75	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
04:00	159	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---
05:00	473	0	NB	420-Yes	105-No	Major	630-No	52-No	---	504-No	84-No	---
06:00	1,488	0	NB	420-Yes	105-No	Major	630-Yes	52-No	Major	504-Yes	84-No	Major
07:00	2,583	0	NB	420-Yes	105-No	Major	630-Yes	52-No	Major	504-Yes	84-No	Major
08:00	2,479	0	NB	420-Yes	105-No	Major	630-Yes	52-No	Major	504-Yes	84-No	Major
09:00	1,869	0	NB	420-Yes	105-No	Major	630-Yes	52-No	Major	504-Yes	84-No	Major
10:00	2,281	133	NB	420-Yes	105-Yes	Both	630-Yes	52-Yes	Both	504-Yes	84-Yes	Both
11:00	2,313	171	NB	420-Yes	105-Yes	Both	630-Yes	52-Yes	Both	504-Yes	84-Yes	Both
12:00	2,511	167	NB	420-Yes	105-Yes	Both	630-Yes	52-Yes	Both	504-Yes	84-Yes	Both
13:00	2,452	153	NB	420-Yes	105-Yes	Both	630-Yes	52-Yes	Both	504-Yes	84-Yes	Both
14:00	2,859	159	NB	420-Yes	105-Yes	Both	630-Yes	52-Yes	Both	504-Yes	84-Yes	Both
15:00	3,175	194	NB	420-Yes	105-Yes	Both	630-Yes	52-Yes	Both	504-Yes	84-Yes	Both
16:00	3,328	212	NB	420-Yes	105-Yes	Both	630-Yes	52-Yes	Both	504-Yes	84-Yes	Both
17:00	3,656	224	NB	420-Yes	105-Yes	Both	630-Yes	52-Yes	Both	504-Yes	84-Yes	Both
18:00	2,783	169	NB	420-Yes	105-Yes	Both	630-Yes	52-Yes	Both	504-Yes	84-Yes	Both
19:00	1,761	108	NB	420-Yes	105-Yes	Both	630-Yes	52-Yes	Both	504-Yes	84-Yes	Both
20:00	1,350	88	NB	420-Yes	105-No	Major	630-Yes	52-Yes	Both	504-Yes	84-Yes	Both
21:00	953	37	NB	420-Yes	105-No	Major	630-Yes	52-No	Major	504-Yes	84-No	Major
22:00	519	0	NB	420-Yes	105-No	Major	630-No	52-No	---	504-Yes	84-No	Major
23:00	299	0	NB	420-No	105-No	---	630-No	52-No	---	504-No	84-No	---

Appendix D: Capacity Analyses

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	96	872	15	83	1724	293	47	13	45	250	19	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	180		225	160		300	0		0	0		0
Storage Lanes	1		1	1		1	0		1	1		0
Taper Length (ft)	130		100	130		95	25		25	25		25
Satd. Flow (prot)	1770	3406	1583	1770	3406	1583	0	1792	1583	1681	1573	0
Flt Permitted	0.066			0.226				0.962		0.950	0.989	
Satd. Flow (perm)	123	3406	1583	421	3406	1583	0	1792	1583	1681	1573	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			16			291			49		80	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		816			379			355			361	
Travel Time (s)		18.5			8.6			8.1			8.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	6%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)										17%		
Lane Group Flow (vph)	105	958	16	91	1895	322	0	66	49	228	210	0
Turn Type	pm+pt		Perm	pm+pt		Perm	Split		Perm	Split		
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases	6		6	2		2			4			
Total Split (s)	8.0	60.0	60.0	10.0	62.0	62.0	20.0	20.0	20.0	20.0	20.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Act Effct Green (s)	66.4	62.5	62.5	67.5	61.3	61.3		9.4	9.4	19.9	19.9	
Actuated g/C Ratio	0.60	0.57	0.57	0.61	0.56	0.56		0.09	0.09	0.18	0.18	
v/c Ratio	0.68	0.50	0.02	0.27	1.00	0.32		0.43	0.27	0.75	0.60	
Control Delay	40.4	17.2	6.0	11.0	46.1	3.2		55.6	16.7	58.9	32.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	40.4	17.2	6.0	11.0	46.1	3.2		55.6	16.7	58.9	32.9	
LOS	D	B	A	B	D	A		E	B	E	C	
Approach Delay		19.3			38.8			39.0			46.5	
Approach LOS		B			D			D			D	
Queue Length 50th (ft)	29	234	0	25	~773	10		45	0	156	85	
Queue Length 95th (ft)	#127	294	11	47	#912	53		87	36	#291	174	
Internal Link Dist (ft)		736			299			275			281	
Turn Bay Length (ft)	180		225	160		300						
Base Capacity (vph)	154	1934	906	334	1899	1011		261	272	304	350	
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	0.68	0.50	0.02	0.27	1.00	0.32		0.25	0.18	0.75	0.60	

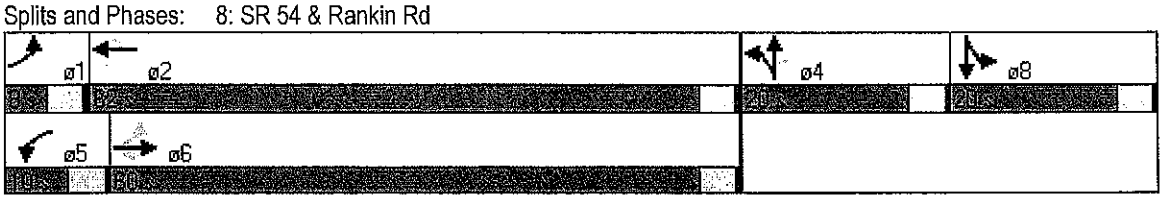
Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 34.3 Intersection LOS: C
Intersection Capacity Utilization 81.0% ICU Level of Service D
Analysis Period (min) 15

~ 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.

Splits and Phases: 8: SR 54 & Rankin Rd

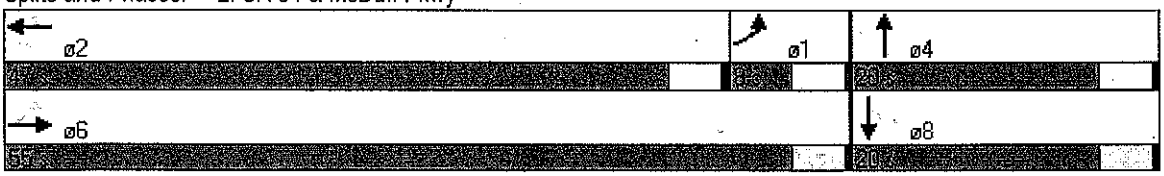


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	860	1	1	1602	213	1	0	0	138	0	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	230		0	225		255	0		0	0		0
Storage Lanes	1		0	1		1	0		0	1		0
Taper Length (ft)	115		25	130		155	25		25	25		25
Satd. Flow (prot)	1770	3406	0	1805	3406	1583	0	1805	0	1770	1583	0
Flt Permitted	0.079			0.262.				0.705		0.757		
Satd. Flow (perm)	147	3406	0	498	3406	1583	0	1340	0	1410	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						245					105	
Link Speed (mph)		45			30			30			30	
Link Distance (ft)		415			760			336			348	
Travel Time (s)		6.3			17.3			7.6			7.9	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	6%	0%	0%	6%	2%	0%	0%	0%	2%	0%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	990	0	1	1841	245	0	1	0	159	80	0
Turn Type	pm+pt			Perm		Perm	Perm			Perm		
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2		2	4			8		
Total Split (s)	8.0	55.0	0.0	47.0	47.0	47.0	20.0	20.0	0.0	20.0	20.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Act Effct Green (s)	54.1	54.1		47.7	47.7	47.7		12.9		12.9	12.9	
Actuated g/C Ratio	0.72	0.72		0.64	0.64	0.64		0.17		0.17	0.17	
v/c Ratio	0.45	0.40		0.00	0.85	0.22		0.00		0.65	0.22	
Control Delay	22.0	5.1		7.0	18.0	1.7		24.0		41.4	5.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay	22.0	5.1		7.0	18.0	1.7		24.0		41.4	5.1	
LOS	C	A		A	B	A		C		D	A	
Approach Delay		6.4			16.1			24.0			29.2	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)	10	80		0	346	0		0		69	0	
Queue Length 95th (ft)	34	118		2	#545	24		4		119	20	
Internal Link Dist (ft)		335			680			256			268	
Turn Bay Length (ft)	230			225		255						
Base Capacity (vph)	193	2455		316	2164	1095		286		301	420	
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	0.45	0.40		0.00	0.85	0.22		0.00		0.53	0.19	

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 14.0 Intersection LOS: B
Intersection Capacity Utilization 65.6% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: SR 54 & McDuff Pkwy

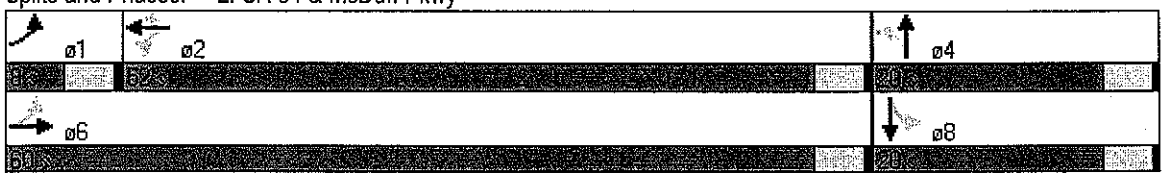


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	912	1	1	1700	226	1	0	0	146	0	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	230		0	225		255	0		0	0		0
Storage Lanes	1		0	1		1	0		0	1		0
Taper Length (ft)	115		25	130		155	25		25	25		25
Satd. Flow (prot)	1770	3406	0	1805	3406	1583	0	1805	0	1770	1583	0
Flt Permitted	0.073			0.273				0.702		0.757		
Satd. Flow (perm)	136	3406	0	519	3406	1583	0	1334	0	1410	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						260					96	
Link Speed (mph)		45			30			30			30	
Link Distance (ft)		415			760			336			348	
Travel Time (s)		6.3			17.3			7.6			7.9	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	6%	0%	0%	6%	2%	0%	0%	0%	2%	0%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	1049	0	1	1954	260	0	1	0	168	85	0
Turn Type	pm+pt			Perm		Perm	Perm			Perm		
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2		2	4			8		
Total Split (s)	8.0	60.0	0.0	52.0	52.0	52.0	20.0	20.0	0.0	20.0	20.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Act Effct Green (s)	58.5	58.5		51.4	51.4	51.4		13.5		13.5	13.5	
Actuated g/C Ratio	0.73	0.73		0.64	0.64	0.64		0.17		0.17	0.17	
v/c Ratio	0.46	0.42		0.00	0.89	0.23		0.00		0.71	0.24	
Control Delay	13.8	5.1		6.0	20.7	1.6		26.0		47.3	7.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay	13.8	5.1		6.0	20.7	1.6		26.0		47.3	7.2	
LOS	B	A		A	C	A		C		D	A	
Approach Delay		5.8			18.4			26.0			33.9	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)	11	93		0	435	0		0		79	0	
Queue Length 95th (ft)	38	125		2	#613	24		4		135	28	
Internal Link Dist (ft)		335			680			256			268	
Turn Bay Length (ft)	230			225		255						
Base Capacity (vph)	201	2491		333	2189	1110		267		282	393	
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	0.46	0.42		0.00	0.89	0.23		0.00		0.60	0.22	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 56 (70%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 15.5 Intersection LOS: B
Intersection Capacity Utilization 69.0% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: SR 54 & McDuff Pkwy



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	96	925	16	88	1829	293	50	14	48	250	19	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	180		225	160		300	0		0	0		0
Storage Lanes	1		1	1		1	0		1	1		0
Taper Length (ft)	130		100	130		95	25		25	25		25
Satd. Flow (prot)	1770	3406	1583	1770	3406	1583	0	1792	1583	1681	1573	0
Flt Permitted	0.059			0.204				0.962		0.950	0.989	
Satd. Flow (perm)	110	3406	1583	380	3406	1583	0	1792	1583	1681	1573	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			18			274			53		72	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		816			379			355			361	
Travel Time (s)		18.5			8.6			8.1			8.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	6%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)										17%		
Lane Group Flow (vph)	105	1016	18	97	2010	322	0	70	53	228	210	0
Turn Type	pm+pt		Perm	pm+pt		Perm	Split		Perm	Split		
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases	6		6	2		2			4			
Total Split (s)	8.0	70.0	70.0	10.0	72.0	72.0	20.0	20.0	20.0	20.0	20.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Act Effct Green (s)	73.5	68.7	68.7	75.9	69.9	69.9		10.0	10.0	21.3	21.3	
Actuated g/C Ratio	0.61	0.57	0.57	0.63	0.58	0.58		0.08	0.08	0.18	0.18	
v/c Ratio	0.78	0.52	0.02	0.31	1.01	0.31		0.47	0.29	0.76	0.62	
Control Delay	56.4	17.5	5.1	11.1	49.4	3.3		61.8	17.3	64.9	39.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	56.4	17.5	5.1	11.1	49.4	3.3		61.8	17.3	64.9	39.0	
LOS	E	B	A	B	D	A		E	B	E	D	
Approach Delay		20.9			41.7			42.6			52.5	
Approach LOS		C			D			D			D	
Queue Length 50th (ft)	31	254	0	27	~886	16		53	0	177	103	
Queue Length 95th (ft)	#98	314	11	49	#1024	58		98	39	#341	#214	
Internal Link Dist (ft)		736			299			275			281	
Turn Bay Length (ft)	180		225	160		300						
Base Capacity (vph)	134	1950	914	310	1985	1037		239	257	299	339	
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	0.78	0.52	0.02	0.31	1.01	0.31		0.29	0.21	0.76	0.62	

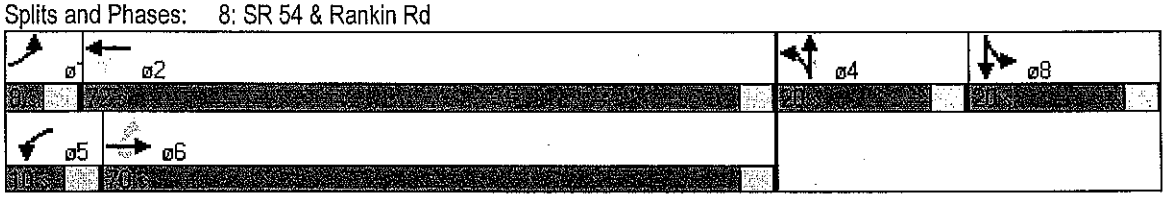
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 37.1 Intersection LOS: D
Intersection Capacity Utilization 84.1% ICU Level of Service E
Analysis Period (min) 15

~ 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.

Splits and Phases: 8: SR 54 & Rankin Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	980	1	1	1849	238	1	0	0	158	0	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	230		0	225		255	0		0	0		0
Storage Lanes	1		0	1		1	0		0	1		0
Taper Length (ft)	115		25	130		155	25		25	25		25
Satd. Flow (prot)	1770	3406	0	1805	3406	1583	0	1805	0	1770	1583	0
Flt Permitted	0.062			0.223				0.702		0.757		
Satd. Flow (perm)	115	3406	0	424	3406	1583	0	1334	0	1410	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						274					81	
Link Speed (mph)		45			30			30			30	
Link Distance (ft)		415			760			336			348	
Travel Time (s)		6.3			17.3			7.6			7.9	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	6%	0%	0%	6%	2%	0%	0%	0%	2%	0%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	1127	0	1	2125	274	0	1	0	182	85	0
Turn Type	pm+pt			Perm		Perm	Perm			Perm		
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2		2	4			8		
Total Split (s)	8.0	70.0	0.0	62.0	62.0	62.0	20.0	20.0	0.0	20.0	20.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Act Effct Green (s)	67.4	67.4		61.0	61.0	61.0		14.6		14.6	14.6	
Actuated g/C Ratio	0.75	0.75		0.68	0.68	0.68		0.16		0.16	0.16	
v/c Ratio	0.57	0.44		0.00	0.92	0.24		0.00		0.79	0.26	
Control Delay	34.4	5.1		5.0	15.3	1.0		31.0		61.0	10.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay	34.4	5.1		5.0	15.3	1.0		31.0		61.0	10.8	
LOS	C	A		A	B	A		C		E	B	
Approach Delay		7.3			13.7			31.0			45.0	
Approach LOS		A			B			C			D	
Queue Length 50th (ft)	12	111		0	183	0		1		99	2	
Queue Length 95th (ft)	#56	135		m0	#727	m13		5		#185	38	
Internal Link Dist (ft)		335			680			256			268	
Turn Bay Length (ft)	230			225		255						
Base Capacity (vph)	160	2549		287	2307	1161		237		251	348	
Starvation Cap Reductn	0	0		0	3	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	0.57	0.44		0.00	0.92	0.24		0.00		0.73	0.24	

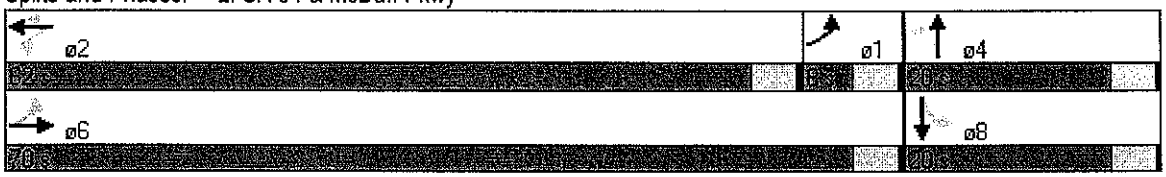
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 82 (91%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 13.8 Intersection LOS: B
Intersection Capacity Utilization 73.7% ICU Level of Service D
Analysis Period (min) 15

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: SR 54 & McDuff Pkwy



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1021	117	216	1946	0	161	0	200	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	210		160	185		90	0		0	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	130		45	150		45	25		25	25		25
Satd. Flow (prot)	1863	3406	1583	1770	3406	1863	0	1770	1583	0	1900	0
Flt Permitted				0.181				0.757				
Satd. Flow (perm)	1863	3406	1583	337	3406	1863	0	1410	1583	0	1900	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127						216			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		760			816			230			227	
Travel Time (s)		17.3			18.5			5.2			5.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	6%	2%	2%	6%	2%	2%	0%	2%	2%	0%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1110	127	235	2115	0	0	175	217	0	0	0
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	Perm		
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4		4	8		
Total Split (s)	8.0	54.0	54.0	16.0	62.0	62.0	20.0	20.0	20.0	20.0	20.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Act Effct Green (s)		54.4	54.4	67.5	67.5			14.5	14.5			
Actuated g/C Ratio		0.60	0.60	0.75	0.75			0.16	0.16			
v/c Ratio		0.54	0.13	0.59	0.83			0.77	0.50			
Control Delay		9.3	1.0	10.4	11.6			58.9	9.2			
Queue Delay		0.0	0.0	0.0	0.4			0.0	0.0			
Total Delay		9.3	1.0	10.4	12.0			58.9	9.2			
LOS		A	A	B	B			E	A			
Approach Delay		8.4			11.8			31.4				
Approach LOS		A			B			C				
Queue Length 50th (ft)		137	1	34	368			94	1			
Queue Length 95th (ft)		164	m8	64	489			#187	60			
Internal Link Dist (ft)		680			736			150			147	
Turn Bay Length (ft)			160	185								
Base Capacity (vph)		2057	1006	444	2556			251	459			
Starvation Cap Reductn		0	0	0	0			0	0			
Spillback Cap Reductn		0	0	0	111			0	0			
Storage Cap Reductn		0	0	0	0			0	0			
Reduced v/c Ratio		0.54	0.13	0.53	0.87			0.70	0.47			

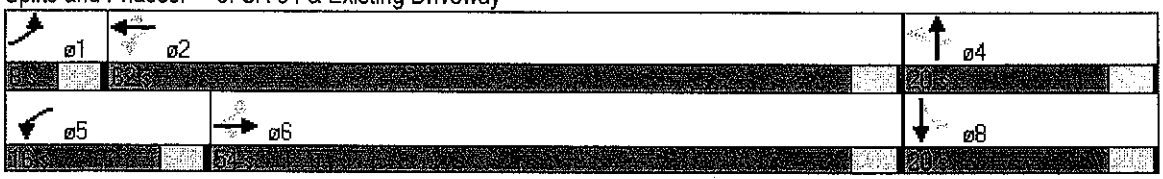
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 12.7 Intersection LOS: B
Intersection Capacity Utilization 76.0% ICU Level of Service D
Analysis Period (min) 15

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: SR 54 & Existing Driveway

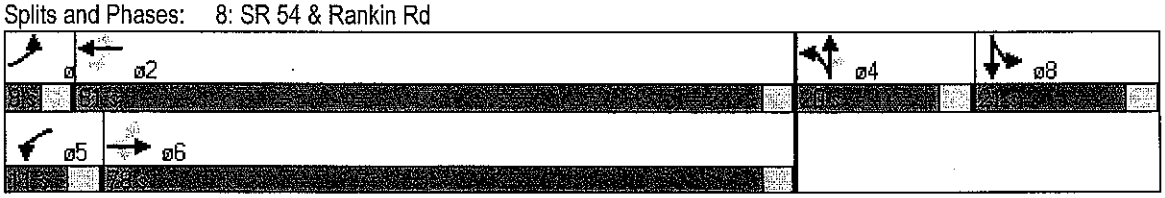


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	106	1110	21	88	1962	293	54	14	48	250	19	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	180		225	160		300	0		0	0		0
Storage Lanes	1		1	1		1	0		1	1		0
Taper Length (ft)	130		100	130		95	25		25	25		25
Satd. Flow (prot)	1770	3406	1583	1770	3406	1583	0	1792	1583	1681	1566	0
Flt Permitted	0.054			0.141				0.962		0.950	0.991	
Satd. Flow (perm)	101	3406	1583	263	3406	1583	0	1792	1583	1681	1566	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			23			251			53		78	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		816			379			355			361	
Travel Time (s)		18.5			8.6			8.1			8.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	6%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)										15%		
Lane Group Flow (vph)	116	1220	23	97	2156	322	0	74	53	234	214	0
Turn Type	pm+pt		Perm	pm+pt		Perm	Split		Perm	Split		
Protected Phases	1	6		5	2		4	4		8	8	
Permitted Phases	6		6	2		2			4			
Total Split (s)	8.0	78.0	78.0	11.0	81.0	81.0	20.0	20.0	20.0	21.0	21.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Act Effct Green (s)	78.1	74.1	74.1	83.9	77.0	77.0		10.7	10.7	22.3	22.3	
Actuated g/C Ratio	0.60	0.57	0.57	0.65	0.59	0.59		0.08	0.08	0.17	0.17	
v/c Ratio	1.04	0.63	0.03	0.39	1.07	0.31		0.50	0.30	0.81	0.64	
Control Delay	119.5	20.6	4.5	12.9	68.2	3.8		68.0	18.0	74.3	42.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	119.5	20.6	4.5	12.9	68.2	3.8		68.0	18.0	74.3	42.0	
LOS	F	C	A	B	E	A		E	B	E	D	
Approach Delay		28.7			58.1			47.2			58.9	
Approach LOS		C			E			D			E	
Queue Length 50th (ft)	~53	347	0	28	~1057	24		61	0	202	113	
Queue Length 95th (ft)	#135	418	13	49	#1191	65		109	40	#389	#238	
Internal Link Dist (ft)		736			299			275			281	
Turn Bay Length (ft)	180		225	160		300						
Base Capacity (vph)	112	1943	913	251	2017	1040		221	241	288	333	
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	1.04	0.63	0.03	0.39	1.07	0.31		0.33	0.22	0.81	0.64	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 49.0 Intersection LOS: D
Intersection Capacity Utilization 88.8% ICU Level of Service E
Analysis Period (min) 15

~ 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.

Splits and Phases: 8: SR 54 & Rankin Rd