TRAFFIC IMPACT ANALYSIS

FOR

BRENTWOOD SUBDIVISION

Prepared for:

St. Tammany Parish
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6-22-16

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INTRODUCTION

The proposed Brentwood Subdivision is located in the Southwest portion of St. Tammany Parish, near Mandeville (see **Figure 1**). The site is located near the intersection of Sharp Rd. and Westwood Dr. (see **Figure 2**). The roadway that will be impacted by the development is Sharp Rd., it is a two-lane asphalt road with a 35-mile per hour speed limit. The proposed development will have one entrance/exit on Sharp Rd. The traffic impacts associated with the proposed development are determined by comparing existing and future level of service (LOS) of nearby intersections with the project. The major tasks performed include counts of existing traffic, generation of project traffic, estimation of non-project traffic growth, and intersection LOS analysis. The study analysis area consists of the existing intersections of Sharp Rd. @ Asbury Dr., Sharp Rd. @ Hwy. 59, and Sharp Rd. @ Project Entrance/Exit.

PROPOSED PROJECT

Project Description

The proposed Brentwood Subdivision has a proposal of 102 single family residential lots. The project is located near the intersection of Sharp Rd. and Westwood Dr., along Sharp Rd. There will be one entrance to the development on Sharp Rd. The entrance will be a boulevard entrance with one inbound and two outbound lanes with an unsignalized stop sign control. We assume traffic leaving onto Sharp Rd. will be 70% right turns, west and 30% left turns, east.

Project Traffic Generation Estimates

Trip generation estimates are based on *Trip Generation, 9th Edition* published by the Institute of Transportation Engineers. Land Use type 210, Single-Family Detached Housing, was used to determine the number of trips generated by the proposed development since it best represented the type use within the development. These numbers may vary due to other local factors that cannot be accounted for. **Table 1** lists the trips generated for the proposed 102 lot single-family detached housing subdivision.

TABLE 1- Trips Generated by 102-lot Single-Family Detached Housing

Trip Type	Entering	Exiting
Avg. Vehicle Trips on a Weekday	535	535
Avg. Vehicle Trips on a Weekday Peak Hour between 7 & 9 a.m.	20	61
Avg. Vehicle Trips on a Weekday Peak Hour between 4 & 6 p.m.	67	40
Avg. Vehicle Trips on a Weekday A.M. Peak Hour of Generator	22	62
Avg. Vehicle Trips on a Weekday P.M. Peak Hour of Generator	70	39
Avg. Vehicle Trips on a Saturday	517	517
Avg. Vehicle Trips on a Saturday Peak Hour of Generator	54	46
Avg. Vehicle Trips on a Sunday	440	440
Avg. Vehicle Trips on a Sunday Peak Hour of Generator	49	43

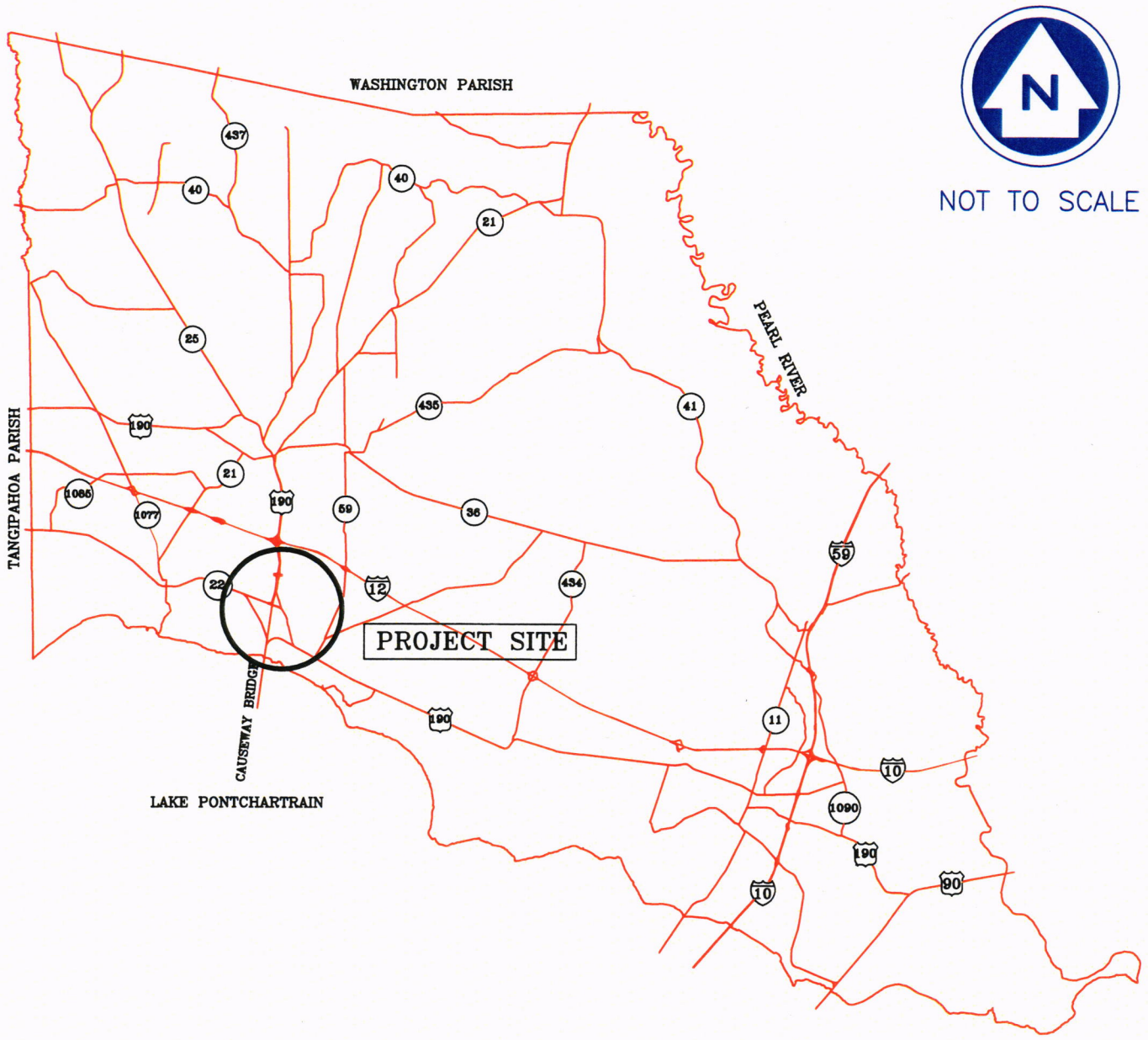


FIGURE 1
PROJECT SITE

BRENTWOOD SUBDIVISION
SECTION 39, T-7-S, R-11-E
ST. TAMMANY PARISH, LA

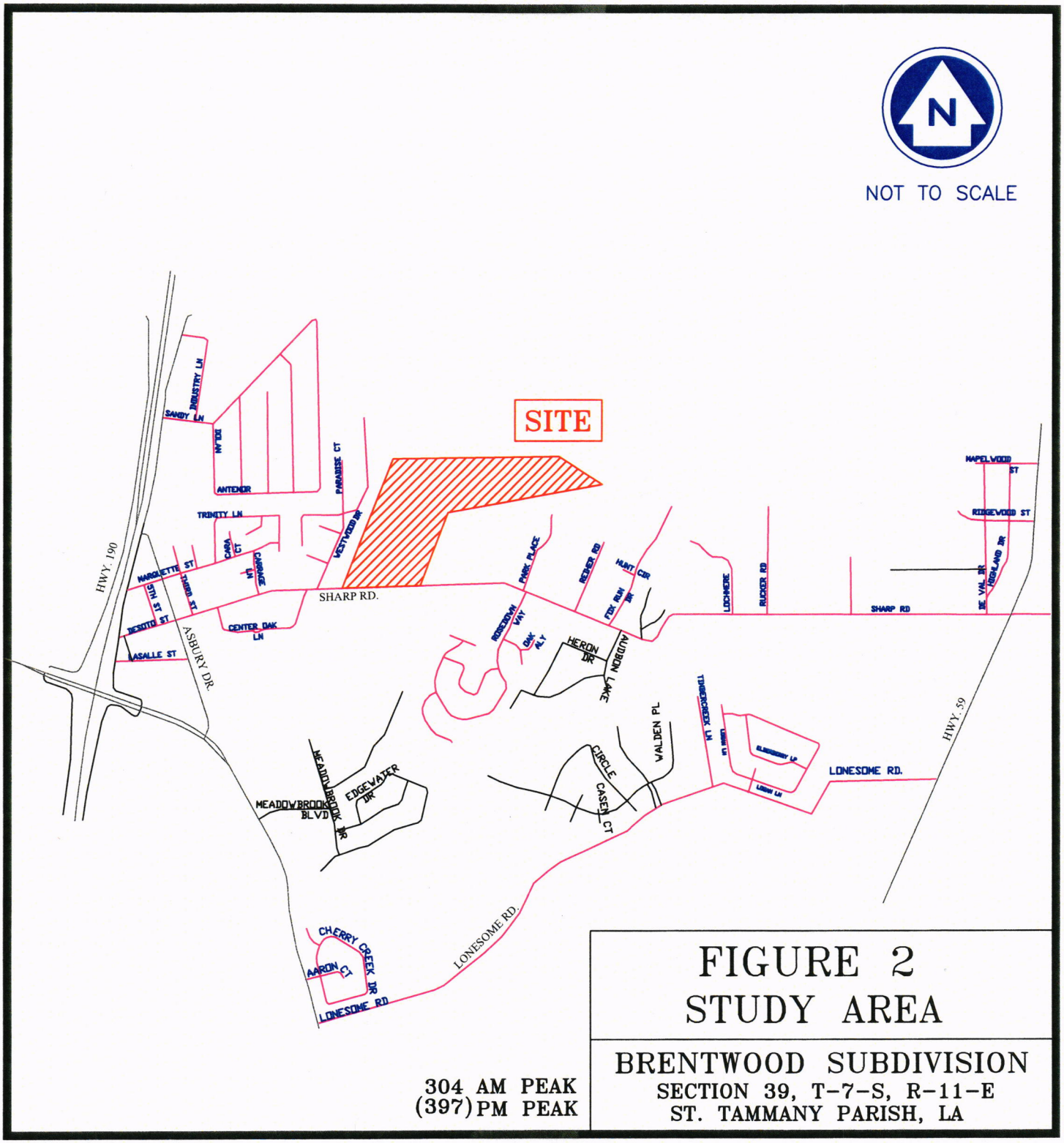


FIGURE 2
STUDY AREA

BRENTWOOD SUBDIVISION
SECTION 39, T-7-S, R-11-E
ST. TAMMANY PARISH, LA

304 AM PEAK
(397) PM PEAK

EXISTING AND FUTURE TRAFFIC CONDITIONS

Existing and Projected Future Traffic Volumes

The existing peak hour counts are used as the basis for all of the existing condition capacity analyses. The AM peak traffic count is 354 vehicles per hour (vph) on Sharp Rd., and the PM peak traffic count is 494 vph. The AM peak occurred from 7 to 8 am and the PM peak occurred from 5 to 6 pm. The peak hour volumes are a worst case scenario for roadways during AM and PM hours. The majority of the AM and PM hours have far less volumes than the peak hours. Summaries of the existing traffic are illustrated in **Figure 3**.

Referring back to Table 1, for the AM peak hour there are 84 trips estimated, 22 entering and 62 exiting. The PM peak hour has 109 trips estimated, 70 trips entering and 39 exiting.

Total traffic volumes at the study intersections are estimated for the project scenarios by combining existing traffic counts with anticipated future traffic growth. The future traffic growth accounts for traffic growth at the study intersections due to local and regional development other than the project. The future projected calculations are year 2017. We assume our project will take 1 year to "build-out". We use a population growth of 3% per year taken from St. Tammany Engineering Department. Summaries of the existing traffic are illustrated in **Figure 4**, Brentwood Subdivision added trips are illustrated in **Figure 5**, and future traffic is illustrated in **Figure 6.**

Capacity Analysis

In order to determine the effect that this development would have on the selected intersections, a capacity analysis was run for both the existing and future conditions. Capacity analyses were performed using the *Highway Capacity Manual (HCM)* procedures in the *HCS+* software.

The level of service (LOS) was first determined for the existing conditions at the peak AM & PM hours at the study intersections. The growth factor trips were combined to existing trips to evaluate the conditions in the future. The trips from Brentwood Subdivision were added to the growth factor trips to evaluate the future conditions.

Sharp Rd. @ Hwy. 59

The signalized controlled intersection was analyzed for the existing and future conditions. The four-way intersection contains signals in each direction. Northbound and Southbound on Sharp Rd. provides a dedicated left turn lane with a protected left turn arrow. Currently DOTD is studying the intersection and has plans for a roundabout. These improvements will help mitigate delays at the intersection. The following tables summarize the intersection:

TABLE 2-Summary of intersection LOS- Sharp Rd. @ Hwy. 59 (AM Peak)

	Without Project (Existing AM)		With Project (Future AM)	
	LOS	**Delay**	**LOS**	**Delay**
NB Hwy. 59	C	21.8s	C	22.5s
SB Hwy. 59	C	29.6s	C	31.5s
EB Sharp Rd.	D	41.4s	D	42.7s
WB Sharp Rd.	D	36.7s	D	36.8s

TABLE 3-Summary of intersection LOS- Sharp Rd. @ Hwy. 59 (PM Peak)

	Without Project (Existing PM)		With Project (Future PM)	
	LOS	**Delay**	**LOS**	**Delay**
NB Hwy. 59	C	25.4s	C	26.5s
SB Hwy. 59	D	42.1s	D	50.5s
EB Sharp Rd.	D	53.8s	D	54.0s
WB Sharp Rd.	D	36.7s	D	36.9s

Sharp Rd. @ Asbury Dr.

The signalized controlled intersection was analyzed for the existing and future conditions. The four-way intersection contains signals in each direction. Southbound on Asbury Dr. the signal contains a protected left turn arrow. The intersection has minimal delays both presently and with the projected conditions. No improvements are necessary. The following tables summarize the intersection:

TABLE 4-Summary of intersection LOS- Sharp Rd. @ Asbury Dr. (AM Peak)

	Without Project (Existing AM)		With Project (Future AM)	
	LOS	**Delay**	**LOS**	**Delay**
NB Asbury Dr.	C	20.0s	C	20.3.s
SB Asbury Dr.	B	12.5s	B	12.7s
EB Desoto St.	B	17.1s	B	17.2s
WB Sharp Rd.	C	24.7s	C	29.3s

TABLE 5-Summary of intersection LOS- Sharp Rd. @ Asbury Dr. (PM Peak)

	Without Project (Existing PM)		With Project (Future PM)	
	LOS	**Delay**	**LOS**	**Delay**
NB Asbury Dr.	C	26.8s	C	31.1s
SB Asbury Dr.	B	14.1s	B	15.2s
EB Desoto St.	B	17.6s	B	17.8s
WB Sharp Rd.	C	21.1s	C	22.3s

Sharp Rd. @ Entrance/Exit

The stop sign controlled intersection was analyzed for the future conditions. The "T" intersection has one stop sign on the southbound exit. The main entrance will be a boulevard entrance with one inbound and two outbound lanes. Minimal delays are calculated with the projected conditions. The following table summarizes the intersection:

TABLE 6-Summary of intersection LOS- Sharp Rd. @ Entrance/Exit

	AM Peak		PM Peak	
	LOS	**Delay**	**LOS**	**Delay**
SB Exit	B	10.3s	B	10.8s
EB Sharp Rd.	A	7.7s	A	7.7s

CONCLUSION

This report has looked at the impact of the proposed Brentwood Subdivision, a 102 lot, single family residential development located on Sharp Rd. The future calculations including future growth and this project are for the year 2017. The entrance to the development on Sharp Rd. has minimal delays for vehicles entering and exiting the site in future conditions. Turn lane warrants were run for the future conditions at the project entrance and Sharp Rd. The analysis shows that the project does not warrant turn lanes. The majority of intersections examined were acceptable with some delays in both present and future conditions.

We conclude that the proposed development adds minor delays and impact to the area. The analysis shows that the proposed development does not reduce the levels of service of the roadways past Parish standards to require any improvements. Keep in mind the peak hour volumes are a worst case scenario for the roadways that were evaluated. The majority of the AM and PM hours have far less volumes than the peak hour. The analysis shows minor impacts to the local roadways by this development.

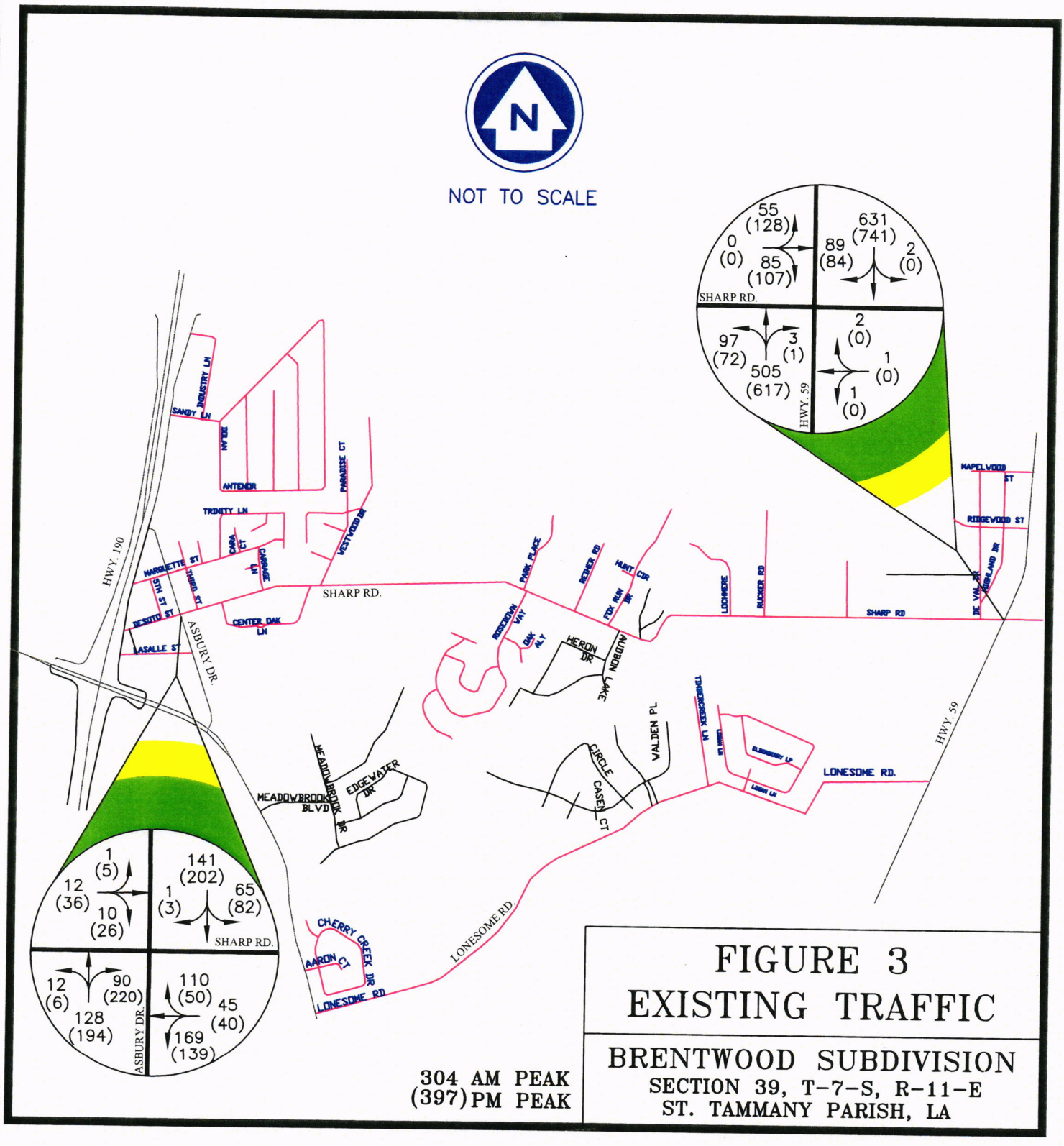


FIGURE 3
EXISTING TRAFFIC

BRENTWOOD SUBDIVISION
SECTION 39, T-7-S, R-11-E
ST. TAMMANY PARISH, LA

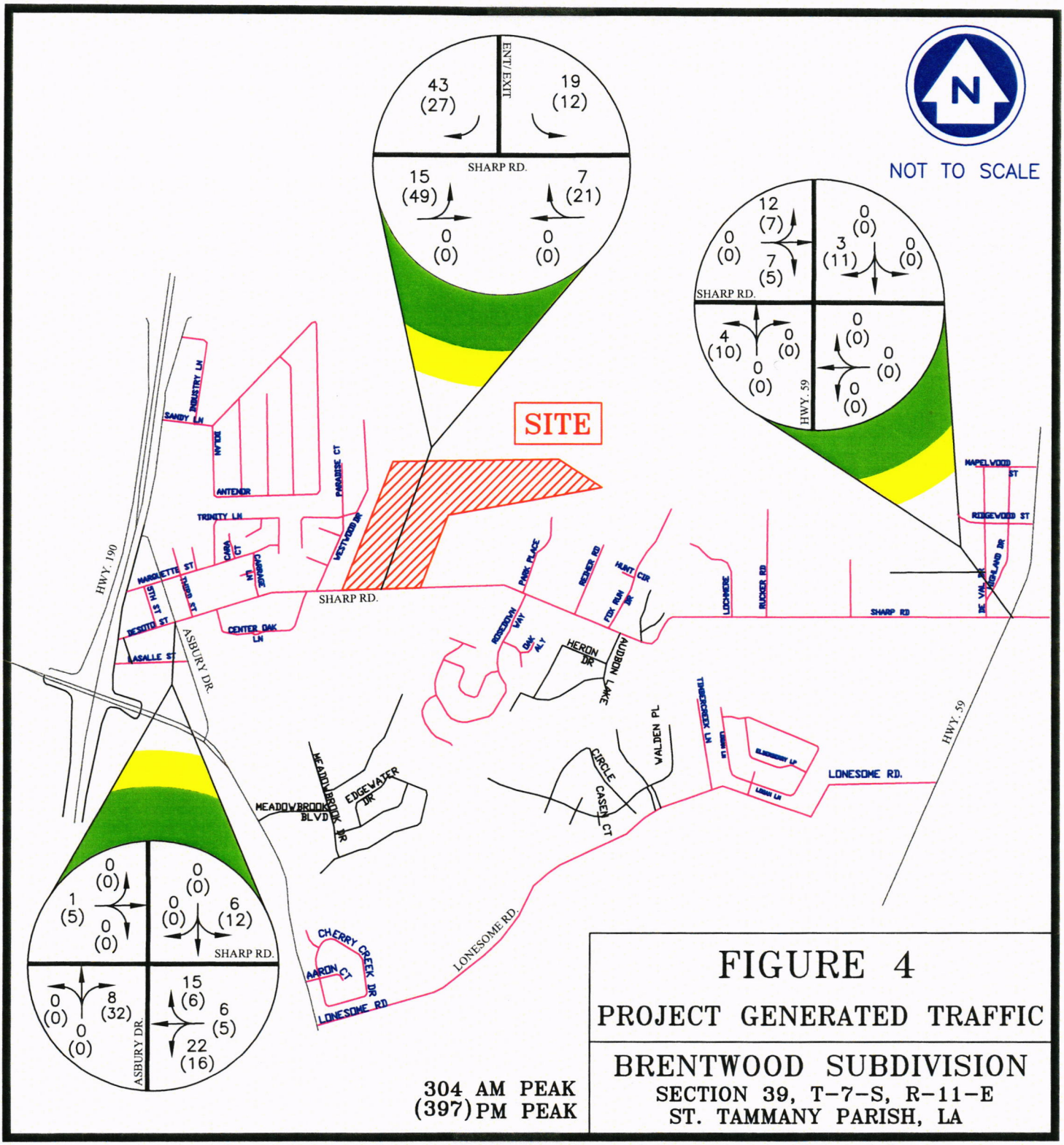


FIGURE 4

PROJECT GENERATED TRAFFIC

BRENTWOOD SUBDIVISION

SECTION 39, T-7-S, R-11-E
ST. TAMMANY PARISH, LA

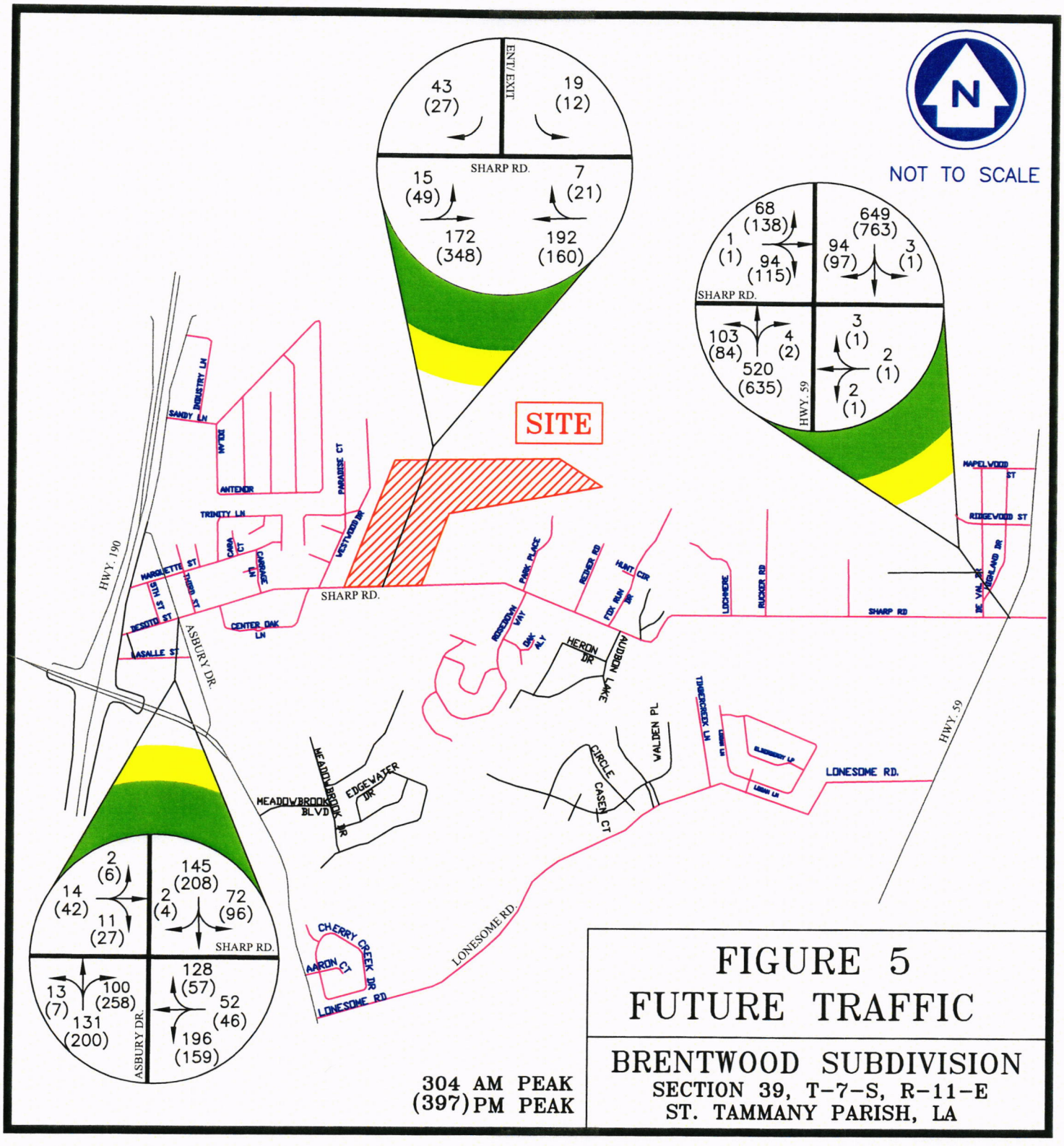
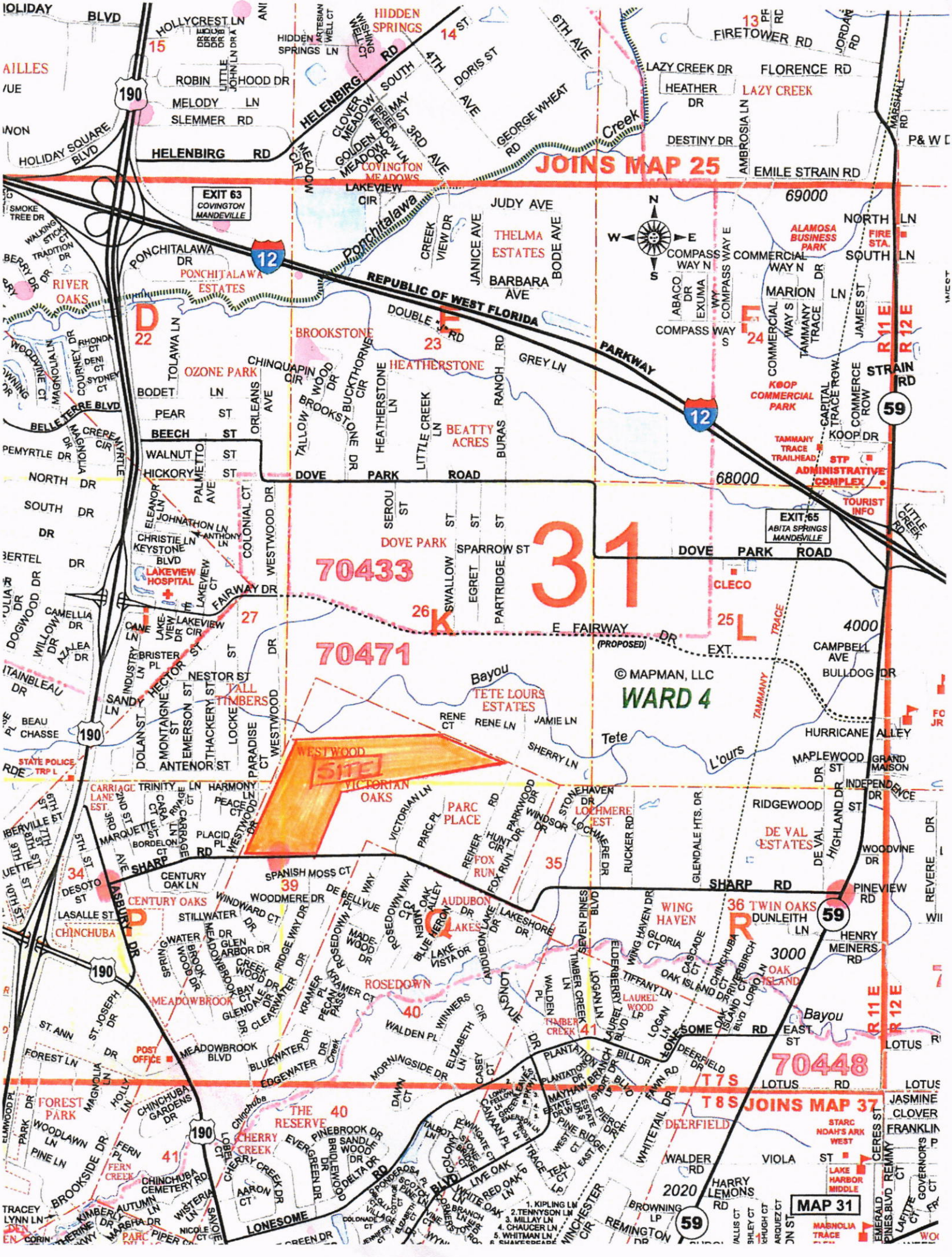
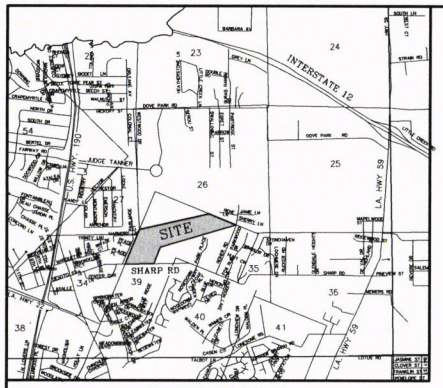


FIGURE 5
FUTURE TRAFFIC

BRENTWOOD SUBDIVISION
SECTION 39, T-7-S, R-11-E
ST. TAMMANY PARISH, LA


JOINS MAP 25
JOINS MAP 37
MAP 31
© MAPMAN, LLC
WARD 4
31
70433
70471
70448
EXIT 63
COVINGTON
MANDEVILLE
EXIT 65
ABITA SPRINGS
MANDEVILLE
REPUBLIC OF WEST FLORIDA PARKWAY
DOVE PARK ROAD
HELENBIRG RD
HOLIDAY BLVD
SHARP RD
LOTUS RD
EMILE STRAIN RD
FIRETOWER RD
FLORENCE RD
LAZY CREEK
DESTINY DR
NORTH LN
SOUTH LN
MARION LN
COMPASS WAY N
COMPASS WAY S
COMMERCIAL WAY N
COMMERCIAL WAY S
ALAMOSA BUSINESS PARK
FIRE STA.
KOOP COMMERCIAL PARK
KOOP DR
STRAIN RD
TAMMANY TRACE TRAILHEAD
STP ADMINISTRATIVE COMPLEX
TOURIST INFO
CLECO
LAKEVIEW HOSPITAL
STATE POLICE TRP L
POST OFFICE
PONCHITALAWA ESTATES
RIVER OAKS
BROOKSTONE
HEATHERSTONE
OZONE PARK
BEATTY ACRES
DOVE PARK
TALL TIMBERS
TETE LOURS ESTATES
VICTORIAN OAKS
WESTWOOD SITE
PARC PLACE
LOCHMERE EST.
DE VAL ESTATES
WING HAVEN
AUDUBON LAKES
ROSEDOWN
MEADOWBROOK
CENTURY OAKS
CHINCHUBA
FOREST PARK
THE RESERVE
CHERRY CREEK
CHINCHUBA GARDENS
CHINCHUBA CEMETERY RD
THELMA ESTATES
BARBARA AVE
JUDY AVE
JANICE AVE
BODE AVE
CREEK VIEW DR
LAKEVIEW CIR
COVINGTON MEADOWS
GOLDEN MEADOW DR
CLOVER MEADOW
BRIER MEADOW LN
MEADOW CIR
HIDDEN SPRINGS
HIDDEN SPRINGS LN
WISHING WELL CT
ROBIN HOOD DR
LITTLE JOHN LN
MELODY LN
SLEMMER RD
HOLLYCREST LN
SMOKE TREE DR
WALKING STICK CT
TRADITION DR
BERRY DR
PONCHITALAWA DR
RHONDA CT
DENI CT
SYDNEY CT
COURNEY DR
WOODVINE CT
MAGNOLIA LN
WINING DR
BELLE TERRE BLVD
CREPE MYRTLE CIR
PEMYRTLE DR
NORTH DR
SOUTH DR
BERTEL DR
DOGWOOD DR
WILLOW DR
AZALEA DR
CAMELLIA DR
ITAINBLEAU DR
BEAU CHASSE
TOLAWA LN
PEAR ST
BEECH ST
WALNUT ST
HICKORY ST
PALMETTO AVE
ELEANOR LN
JOHNATHON LN
ANTHONY LN
CHRISTIE LN
KEYSTONE BLVD
COLONIAL CT
WESTWOOD DR
LAKEVIEW CT
FAIRWAY DR
CANE LN
LAKEVIEW DR
INDUSTRY LN
BRISTER PL
HECTOR ST
NESTOR ST
SANDY LN
DOLAN ST
MONTAIGNE ST
EMERSON ST
THACKERY ST
LOCKE ST
PARADISE CT
ANTENOR ST
CHINQUAPIN CIR
BUCKTHORNE CIR
HEATHERSTONE LN
LITTLE CREEK LN
TALLOW WOOD DR
BROOKSTONE DR
ORLEANS AVE
RANOH RD
BURAS
GREY LN
DOUBLE T RD
SEROU ST
SWALLOW
EGRET
PARTRIDGE
SPARROW ST
E FAIRWAY DR (PROPOSED) EXT.
TRACE
TAMMANY
CAMPBELL AVE
BULLDOG DR
HURRICANE ALLEY
MAPLEWOOD DR
GRAND MAISON
INDEPENDENCE DR
RIDGEWOOD ST
HIGHLAND DR
WOODVINE DR
PINEVIEW RD
HENRY MEINERS RD
OAK ISLAND
LOTUS
EAST ST
LONESOME RD
DEERFIELD
WHITETAIL DR
WALDER RD
VIOLA ST
HARRY LEMONS RD
BROWNING LP
REMINGTON DR
WINCHESTER CIR
STARC NOAH'S ARK WEST
LAKE HARBOR MIDDLE
MAGNOLIA TRACE
EMERALD PINES BLVD
CERES ST
CLOVER
FRANKLIN
JASMINE
GOVERNOR'S
LAFITTE
REMMY CT
LOTUS
Bayou
Tete
L'ours
Creek
Ponchitalawa
R 11 E
R 12 E
T 7 S
T 8 S
69000
68000
4000
3000
2020
1. KIPLING LN
2. TENNYSON LN
3. MILLAY LN
4. CHAUCER LN
5. WHITMAN LN
6. SHAKESPEARE



LEGAL DESCRIPTION

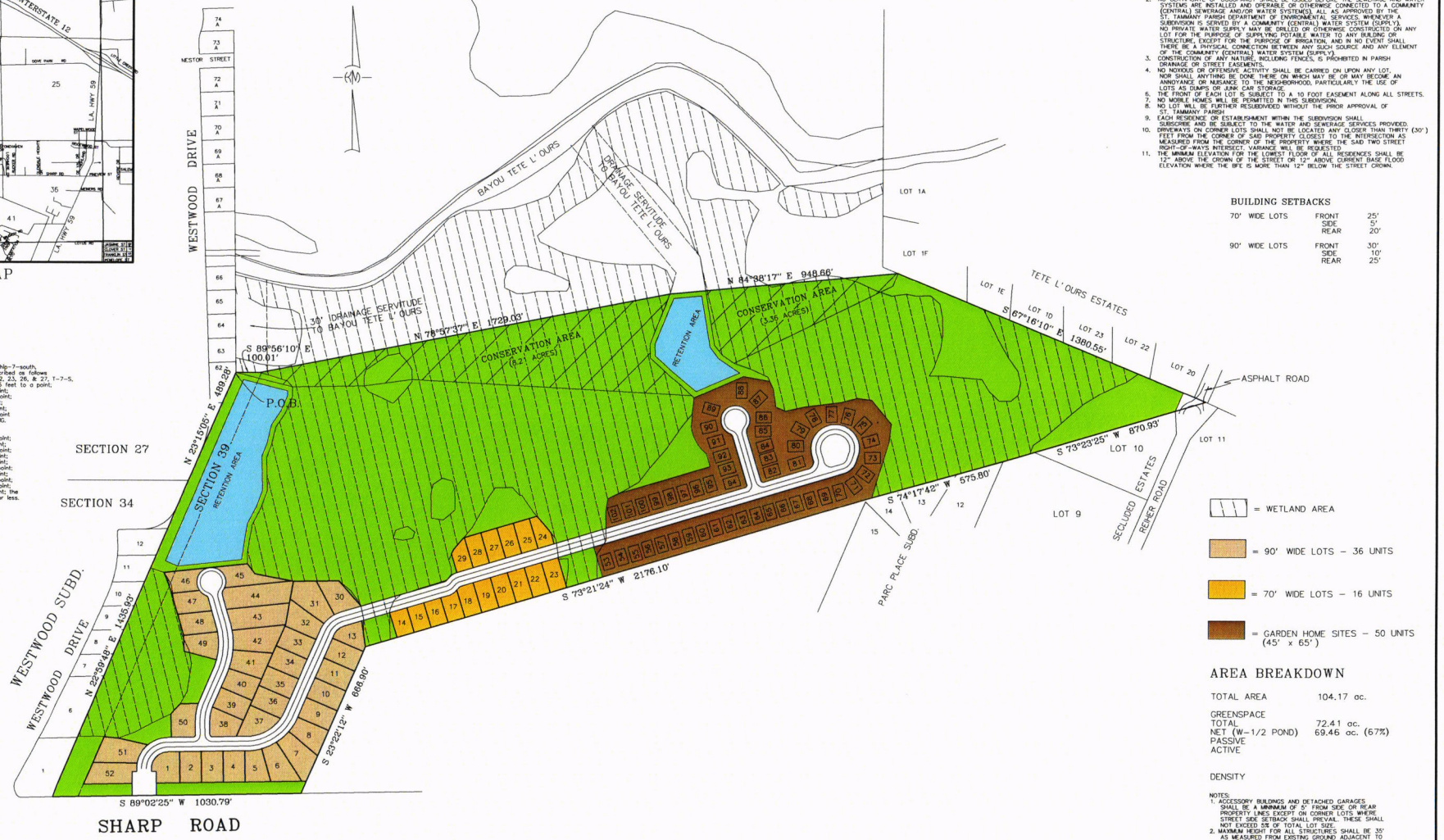
A certain parcel of ground situated in Section 39, Township-7-south, Range-11-East, St. Tammany Parish, Louisiana and more fully described as follows:
Commence at the Section Corner common to Sections 22, 23, 26, & 27, T-7-S, R-11-E, and measure South 00°05' 01" East a distance of 726.35 feet to a point;
Thence South 89°10' 05" West a distance of 107.20 feet to a point;
Thence South 02°00' 00" East a distance of 1,228.22 feet to a point;
Thence South 88°00' 00" East a distance of 66.15 feet to a point;
Thence South 00°05' 05" East a distance of 704.48 feet to a point;
Thence South 00°36' 53" East a distance of 2,170.96 feet to a point
Thence South 89°56' 10" East 100.01' to the POINT OF BEGINNING.
From the POINT OF BEGINNING measure
South 89°56' 10" East a distance of 100.01 feet to a point;
Thence North 78°57' 37" East a distance of 1,729.03 feet to a point;
Thence North 84°38' 17" East a distance of 948.66 feet to a point;
Thence South 67°16' 10" East a distance of 1,380.55 feet to a point;
Thence South 73°23' 25" West a distance of 870.93 feet to a point;
Thence South 74°17' 42" West a distance of 575.80 feet to a point;
Thence South 73°21' 24" West a distance of 2,176.10 feet to a point;
Thence South 23°22' 12" West a distance of 666.90 feet to a point;
Thence South 89°02' 25" West a distance of 1,030.79 feet to a point;
Thence North 22°59' 48" East a distance of 1,435.93 feet to a point;
Thence North 23°15' 05" East a distance of 489.28 feet to a point; the POINT OF BEGINNING, and containing 104.17 acre(s) of land, more or less.

MINIMUM RESTRICTIVE COVENANTS

1. EACH LOT WILL NOT HAVE MORE THAN ONE DWELLING.
2. NO CERTIFICATE OF OCCUPANCY SHALL BE ISSUED BEFORE THE SEWERAGE AND WATER SYSTEMS ARE INSTALLED AND OPERABLE OR OTHERWISE CONNECTED TO A COMMUNITY (CENTRAL) SEWERAGE AND/OR WATER SYSTEM(S), ALL AS APPROVED BY THE ST. TAMMANY PARISH DEPARTMENT OF ENVIRONMENTAL SERVICES. WHENEVER A SUBDIVISION IS SERVED BY A COMMUNITY (CENTRAL) WATER SYSTEM (SUPPLY), NO PRIVATE WATER SUPPLY MAY BE DRILLED OR OTHERWISE CONSTRUCTED ON ANY LOT FOR THE PURPOSE OF SUPPLYING POTABLE WATER TO ANY BUILDING OR STRUCTURE, EXCEPT FOR THE PURPOSE OF IRRIGATION, AND IN NO EVENT SHALL THERE BE A PHYSICAL CONNECTION BETWEEN ANY SUCH SOURCE AND ANY ELEMENT OF THE COMMUNITY (CENTRAL) WATER SYSTEM (SUPPLY).
3. CONSTRUCTION OF ANY NATURE, INCLUDING FENCES, IS PROHIBITED IN PARISH DRAINAGE OR STREET EASEMENTS.
4. NO NOXIOUS OR OFFENSIVE ACTIVITY SHALL BE CARRIED ON UPON ANY LOT, NOR SHALL ANYTHING BE DONE THERE ON WHICH MAY BE OR MAY BECOME AN ANNOYANCE OR NUISANCE TO THE NEIGHBORHOOD, PARTICULARLY THE USE OF LOTS AS DUMPS OR JUNK CAR STORAGE.
6. THE FRONT OF EACH LOT IS SUBJECT TO A 10 FOOT EASEMENT ALONG ALL STREETS.
7. NO MOBILE HOMES WILL BE PERMITTED IN THIS SUBDIVISION.
8. NO LOT WILL BE FURTHER RESUBDIVIDED WITHOUT THE PRIOR APPROVAL OF ST. TAMMANY PARISH.
9. EACH RESIDENCE OR ESTABLISHMENT WITHIN THE SUBDIVISION SHALL SUBSCRIBE AND BE SUBJECT TO THE WATER AND SEWERAGE SERVICES PROVIDED.
10. DRIVEWAYS ON CORNER LOTS SHALL NOT BE LOCATED ANY CLOSER THAN THIRTY (30') FEET FROM THE CORNER OF SAID PROPERTY CLOSEST TO THE INTERSECTION AS MEASURED FROM THE CORNER OF THE PROPERTY WHERE THE SAID TWO STREET RIGHT-OF-WAYS INTERSECT. VARIANCE WILL BE REQUESTED.
11. THE MINIMUM ELEVATION FOR THE LOWEST FLOOR OF ALL RESIDENCES SHALL BE 12" ABOVE THE CROWN OF THE STREET OR 12" ABOVE CURRENT BASE FLOOD ELEVATION WHERE THE BFE IS MORE THAN 12" BELOW THE STREET CROWN.

BUILDING SETBACKS

70' WIDE LOTS	FRONT	25'
	SIDE	5'
	REAR	20'
90' WIDE LOTS	FRONT	30'
	SIDE	10'
	REAR	25'



= WETLAND AREA

= 90' WIDE LOTS - 36 UNITS

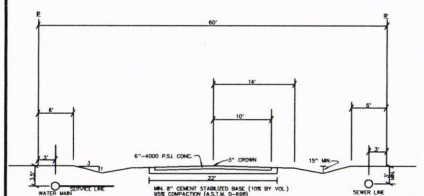
= 70' WIDE LOTS - 16 UNITS

= GARDEN HOME SITES - 50 UNITS (45' x 65')

AREA BREAKDOWN

TOTAL AREA	104.17 ac.
GREENSPACE	
TOTAL	72.41 ac.
NET (W-1/2 POND)	69.46 ac. (67%)
PASSIVE	
ACTIVE	
DENSITY	

NOTES:
1. ACCESSORY BUILDINGS AND DETACHED GARAGES SHALL BE A MINIMUM OF 5' FROM SIDE OR REAR PROPERTY LINES EXCEPT ON CORNER LOTS WHERE STREET SIDE SETBACK SHALL PREVAIL. THESE SHALL NOT EXCEED 5% OF TOTAL LOT SIZE.
2. MAXIMUM HEIGHT FOR ALL STRUCTURES SHALL BE 35' AS MEASURED FROM EXISTING GROUND ADJACENT TO THE STRUCTURE.
3. THIS DEVELOPMENT WILL BE PROVIDED WITH CENTRAL SEWER AND WATER SERVICES. EXISTING FACILITIES LOCATED OFF SITE



TYPICAL STREET SECTION
SCALE 1"=10'

BRENTWOOD

104.17 ACRES IN
SECTION 39, T-7-S, R-11-E,
ST. TAMMANY PARISH, LA.

REVISIONS	
MARK:	DATE:

KELLY J. McHUGH & ASSOC., INC.
CIVIL ENGINEERS & LAND SURVEYORS
845 GALVEZ ST. — MANDEVILLE, LA.
626-5611

SCALE:	1" = 200'	DATE:	05-03-16
DRAWN:	DRJ	JOB NO:	16-035
CHECKED:		DWG. NO.:	

Trip Generation
Single-Family Detached Housing (210)
Average Vehicle Trips vs. Dwelling Units

Job: Brentwood
Calculated By: MJM
Date: 5/22/2016

Lots: 102

T = trips generated X = # of dwellings

Weekday:

ln(T) = 0.92 ln(X) + 2.72 T = 1070

Entering = 50% = 535
Exiting = 50% = 535

Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 & 9 a.m.:

T = 0.70(X) + 9.74 T = 81

Entering = 25% = 20
Exiting = 75% = 61

Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 & 6 p.m.:

ln(T) = 0.90 ln(X) + 0.51 T = 107

Entering = 63% = 67
Exiting = 37% = 40

Weekday, A.M. Peak Hour of Generator:

T = 0.70(X) + 12.12 T = 84

Entering = 26% = 22
Exiting = 74% = 62

Weekday, P.M. Peak Hour of Generator:

ln(T) = 0.88 ln(X) + 0.62 T = 109

Entering = 64% = 70
Exiting = 36% = 39

Saturday:

$\ln(T) = 0.93 \ln(X) + 2.64$ T = 1034

Entering =	50% =	517
Exiting =	50% =	517

Saturday, Peak Hour of Generator

$T = 0.89(X) + 8.77$ T = 100

Entering =	54% =	54
Exiting =	46% =	46

Sunday:

$T = 8.63(X) - 0.63$ T = 880

Entering =	50% =	440
Exiting =	50% =	440

Sunday, Peak Hour of Generator:

$\ln(T) = 0.91 \ln(X) + 0.31$ T = 92

Entering =	53% =	49
Exiting =	47% =	43

All trips generated using Trip Generation 9th Edition Volume 2 by Institute of Transportation Engineers.

Appendix A

Level-Of-Service Criteria

LOS A describes operations with very low control delay, up to 10 sec 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 operations with control delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good 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 sec 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 sec 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 sec 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 rations. Individual cycle failures are frequent occurrences.

LOS F describes operations with control delay in excess of 80 sec per vehicle. This level, considered to be 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 ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.

Levels-of-Service for Signalized Intersections[2]

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during ideal conditions: in the absence of traffic control, in the absence of geometric delay, in the absence of any incidents, and when there are no other vehicles on the road. For signalized intersections only the portion of total delay attributed to the control facility is qualified. This delay is called *control delay*. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Control delay may also be referred to as signal delay.

Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle, typically for a 15-minute analysis period. The criteria are given below:

LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS	
Level of Service	Control Delay per Vehicle (sec)
A	≤ 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

[2] Source: *Highway Capacity Manual – Special Report 209*, Transportation Research Board, updated 12/97.

Levels-of-Service for Unsignalized (TWSC) Intersections[1]

The level of service for a two-way stop-control (TWSC) intersection is determined by the computed or measured control delay and is defined for each minor movement. Level of service is not defined for the intersection as a whole. LOS criteria are given below:

LEVEL-OF-SERVICE CRITERIA FOR TWSC INTERSECTIONS	
Level of Service	Control Delay per Vehicle (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Average control delay less than 10 sec per vehicle is defined as LOS A. Follow-up times of less than 5 sec per vehicle have been measured when there is no conflicting traffic for a minor-street movement, so control delays of less than 10 sec per vehicle are appropriate for low flow conditions.

The LOS criteria for TWSC intersections are somewhat different than the criteria for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection would be designed to carry higher traffic volumes than an unsignalized intersection. In addition, a number of driver behavior considerations combine to make delays at signalized intersections less onerous than delays at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, whereas drivers on the minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay

[1] Source: *Highway Capacity Manual – Special Report 209*, Transportation Research Board, updated 12/97.

experienced by individual drivers at an unsignalized intersection versus that at signalized intersections. For these reasons, it is considered that the control delay threshold for any given level would be less for an unsignalized intersection than it would be for a signalized intersection.

Appendix B

"Existing Conditions" Capacity Calculations

SHORT REPORT

General Information		Site Information	
Analyst	*MJM*	Intersection	*Hwy. 59 @ Sharp Rd.*
Agency or Co.	*Kelly McHugh & Assoc.*	Area Type	*All other areas*
Date Performed	*6/7/2016*	Jurisdiction	*St. Tammany*
Time Period	*Existing AM*	Analysis Year	*2016*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*		*L*	*TR*	
Volume (vph)	*55*	*0*	*85*	*1*	*1*	*2*	*97*	*505*	*3*	*2*	*631*	*89*
% Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
PHF	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*
Pretimed/Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*		*A*	*A*	
Startup Lost Time		*2.0*			*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Extension of Effective Green		*2.0*			*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Arrival Type		*3*			*3*		*3*	*3*		*3*	*3*	
Unit Extension		*3.0*			*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*10*	*0*	*0*	*2*	*0*	*0*	*3*	*0*	*0*	*10*
Lane Width		*12.0*			*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/Hour												
Bus Stops/Hour		*0*			*0*		*0*	*0*		*0*	*0*	
Minimum Pedestrian Time		*3.2*			*3.2*			*3.2*			*3.2*	

Phasing	EW Perm	02	03	04	NS Perm	Excl. Left	07	08
Timing	G = *25.0*	G =	G =	G =	G = *60.0*	G = *15.0*	G =	G =
	Y = *6*	Y =	Y =	Y =	Y = *6*	Y = *6*	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *118.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		*139*			*2*		*103*	*537*		*2*	*755*	
Lane Group Capacity		*315*			*364*		*459*	*947*		*618*	*932*	
v/c Ratio		*0.44*			*0.01*		*0.22*	*0.57*		*0.00*	*0.81*	
Green Ratio		*0.21*			*0.21*		*0.69*	*0.51*		*0.69*	*0.51*	
Uniform Delay d_1		*40.4*			*36.7*		*26.4*	*20.0*		*13.2*	*24.2*	
Delay Factor k		*0.11*			*0.11*		*0.11*	*0.16*		*0.11*	*0.35*	
Incremental Delay d_2		*1.0*			*0.0*		*0.2*	*0.8*		*0.0*	*5.4*	
PF Factor		*1.000*			*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	
Control Delay		*41.4*			*36.7*		*26.6*	*20.8*		*13.2*	*29.7*	
Lane Group LOS		*D*			*D*		*C*	*C*		*B*	*C*	
Approach Delay	*41.4*			*36.7*			*21.8*			*29.6*		
Approach LOS	*D*			*D*			*C*			*C*		
Intersection Delay	*27.4*			Intersection LOS						*C*		

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SHORT REPORT

General Information		Site Information	
Analyst	MJM	Intersection	Hwy. 59 @ Sharp Rd.
Agency or Co.	Kelly McHugh & Assoc.	Area Type	All other areas
Date Performed	6/7/2016	Jurisdiction	St. Tammany
Time Period	Existing PM	Analysis Year	2016

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Lane Group		LTR			LTR		L	TR		L	TR	
Volume (vph)	128	1	107	1	1	1	72	617	1	1	741	84
% Heavy Vehicles	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A		A	A	
Startup Lost Time		2.0			2.0		2.0	2.0		2.0	2.0	
Extension of Effective Green		2.0			2.0		2.0	2.0		2.0	2.0	
Arrival Type		3			3		3	3		3	3	
Unit Extension		3.0			3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	20	0	0	0	0	0	0	0	0	10
Lane Width		12.0			12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour		0			0		0	0		0	0	
Minimum Pedestrian Time		3.2			3.2			3.2			3.2	

Phasing	EW Perm	02	03	04	NS Perm	Excl. Left	07	08
Timing	G = 25.0	G =	G =	G =	G = 60.0	G = 15.0	G =	G =
	Y = 6	Y =	Y =	Y =	Y = 6	Y = 6	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 118.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		230			3		77	657		1	867	
Lane Group Capacity		305			351		380	947		529	934	
v/c Ratio		0.75			0.01		0.20	0.69		0.00	0.93	
Green Ratio		0.21			0.21		0.69	0.51		0.69	0.51	
Uniform Delay d_1		43.6			36.7		34.8	22.0		17.6	27.0	
Delay Factor k		0.31			0.11		0.11	0.26		0.11	0.44	
Incremental Delay d_2		10.2			0.0		0.3	2.2		0.0	15.1	
PF Factor		1.000			1.000		1.000	1.000		1.000	1.000	
Control Delay		53.8			36.7		35.0	24.2		17.6	42.1	
Lane Group LOS		D			D		D	C		B	D	
Approach Delay	53.8			36.7			25.4			42.1		
Approach LOS	D			D			C			D		
Intersection Delay	36.8			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	*MJM*	Intersection	*Sharp Rd. @ Asbury Dr.*
Agency or Co.	*Kelly McHugh & Assoc.*	Area Type	*All other areas*
Date Performed	*6/6/2016*	Jurisdiction	*St. Tammany*
Time Period	*Existing AM*	Analysis Year	*2016*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	*0*	*1*	*0*	*0*	*1*	*0*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LTR*			*LTR*			*LTR*	
Volume (vph)	*1*	*12*	*10*	*169*	*45*	*110*	*12*	*128*	*90*	*65*	*141*	*1*
% Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
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*
Pretimed/Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup Lost Time		*2.0*			*2.0*			*2.0*			*2.0*	
Extension of Effective Green		*2.0*			*2.0*			*2.0*			*2.0*	
Arrival Type		*3*			*3*			*3*			*3*	
Unit Extension		*3.0*			*3.0*			*3.0*			*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*10*	*0*	*0*	*10*	*0*	*0*	*10*	*0*	*0*	*1*
Lane Width		*12.0*			*12.0*			*12.0*			*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/Hour												
Bus Stops/Hour		*0*			*0*			*0*			*0*	
Minimum Pedestrian Time		*3.2*			*3.2*			*3.2*			*3.2*	

Phasing	EW Perm	02	03	04	NS Perm	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *30.0*	G = *5.0*	G =	G =
	Y = *6*	Y =	Y =	Y =	Y = *6*	Y = *6*	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *83.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		*14*			*342*			*239*			*224*	
Lane Group Capacity		*661*			*531*			*627*			*808*	
v/c Ratio		*0.02*			*0.64*			*0.38*			*0.28*	
Green Ratio		*0.36*			*0.36*			*0.36*			*0.49*	
Uniform Delay d_1		*17.1*			*22.1*			*19.6*			*12.3*	
Delay Factor k		*0.11*			*0.22*			*0.11*			*0.11*	
Incremental Delay d_2		*0.0*			*2.7*			*0.4*			*0.2*	
PF Factor		*1.000*			*1.000*			*1.000*			*1.000*	
Control Delay		*17.1*			*24.7*			*20.0*			*12.5*	
Lane Group LOS		*B*			*C*			*C*			*B*	
Approach Delay	*17.1*			*24.7*			*20.0*			*12.5*		
Approach LOS	*B*			*C*			*C*			*B*		
Intersection Delay	*19.9*			Intersection LOS						*B*		

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SHORT REPORT

General Information		Site Information	
Analyst	*MJM*	Intersection	*Sharp Rd. @ Asbury Dr.*
Agency or Co.	*Kelly McHugh & Assoc.*	Area Type	*All other areas*
Date Performed	*6/6/2016*	Jurisdiction	*St. Tammany*
Time Period	*Existing PM*	Analysis Year	*2016*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	*0*	*1*	*0*	*0*	*1*	*0*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LTR*			*LTR*			*LTR*	
Volume (vph)	*5*	*36*	*26*	*139*	*40*	*50*	*6*	*194*	*220*	*82*	*202*	*3*
% Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
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*
Pretimed/Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup Lost Time		*2.0*			*2.0*			*2.0*			*2.0*	
Extension of Effective Green		*2.0*			*2.0*			*2.0*			*2.0*	
Arrival Type		*3*			*3*			*3*			*3*	
Unit Extension		*3.0*			*3.0*			*3.0*			*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*10*	*0*	*0*	*10*	*0*	*0*	*10*	*0*	*0*	*1*
Lane Width		*12.0*			*12.0*			*12.0*			*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/Hour												
Bus Stops/Hour		*0*			*0*			*0*			*0*	
Minimum Pedestrian Time		*3.2*			*3.2*			*3.2*			*3.2*	

Phasing	EW Perm	02	03	04	NS Perm	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *30.0*	G = *5.0*	G =	G =
	Y = *6*	Y =	Y =	Y =	Y = *6*	Y = *6*	Y =	Y =

Duration of Analysis (hrs) = *0.25* | Cycle Length C = *83.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		*61*			*237*			*446*			*311*	
Lane Group Capacity		*633*			*506*			*623*			*690*	
v/c Ratio		*0.10*			*0.47*			*0.72*			*0.45*	
Green Ratio		*0.36*			*0.36*			*0.36*			*0.49*	
Uniform Delay d_1		*17.5*			*20.4*			*22.8*			*13.7*	
Delay Factor k		*0.11*			*0.11*			*0.28*			*0.11*	
Incremental Delay d_2		*0.1*			*0.7*			*3.9*			*0.5*	
PF Factor		*1.000*			*1.000*			*1.000*			*1.000*	
Control Delay		*17.6*			*21.1*			*26.8*			*14.1*	
Lane Group LOS		*B*			*C*			*C*			*B*	
Approach Delay	*17.6*			*21.1*			*26.8*			*14.1*		
Approach LOS	*B*			*C*			*C*			*B*		
Intersection Delay	*21.2*			Intersection LOS						*C*		

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Appendix C

"Future Conditions"
Capacity Calculations

BRENTWOOD

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

SHARP RD. & ENT/EXIT - FUTURE AM

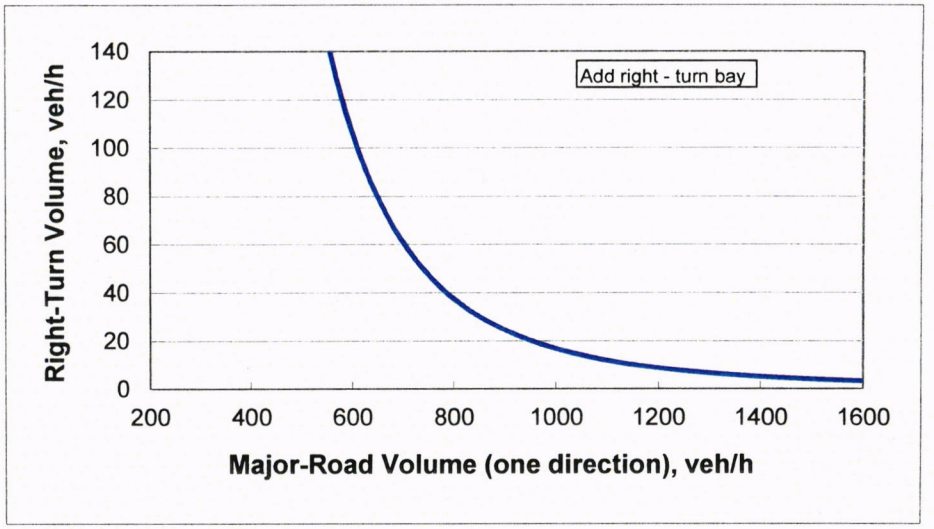
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	35
Major-road volume (one direction), veh/h:	199
Right-turn volume, veh/h:	7

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	5858
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



BRENTWOOD

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

SHARP RD. @ ENT/EXIT - FUTURE PM

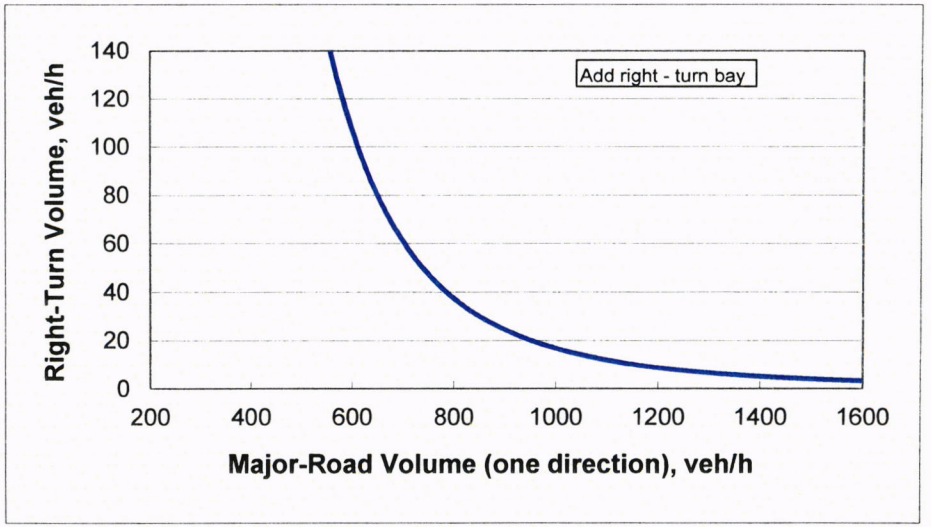
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	35
Major-road volume (one direction), veh/h:	181
Right-turn volume, veh/h:	21

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	8270
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



BRENTWOOD

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

SHARP RD. @ ENT/EXIT - FUTURE AM

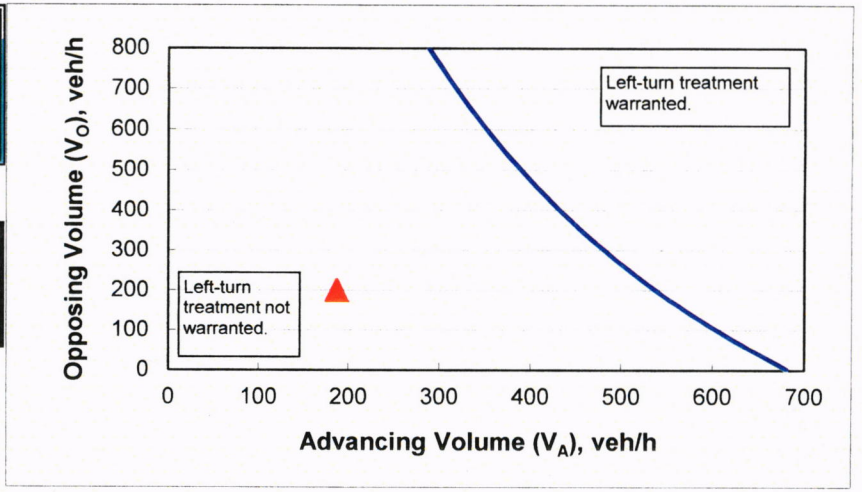
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	8%
Advancing volume (V_A), veh/h:	187
Opposing volume (V_O), veh/h:	199

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	537
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

BRENTWOOD

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

SHARP RD. @ ENT/EXIT - FUTURE PM

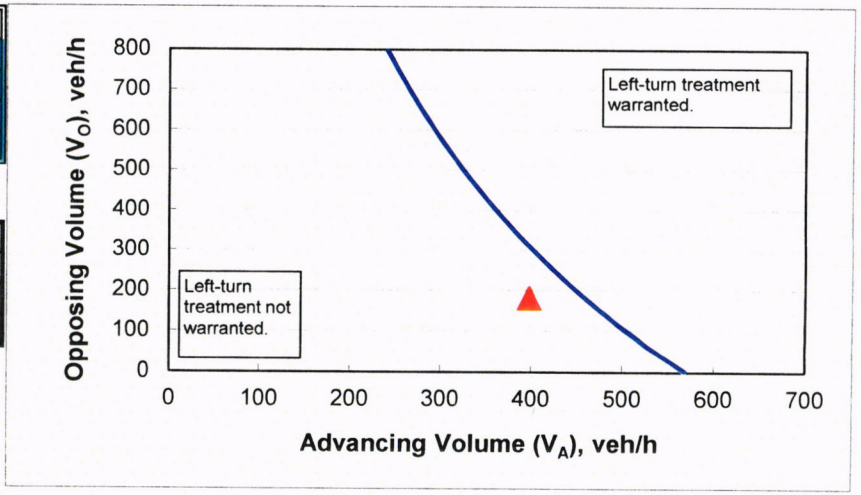
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	12%
Advancing volume (V_A), veh/h:	397
Opposing volume (V_O), veh/h:	181

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	458
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

SHORT REPORT

General Information		Site Information	
Analyst	*MJM*	Intersection	*Hwy. 59 @ Sharp Rd.*
Agency or Co.	*Kelly McHugh & Assoc.*	Area Type	*All other areas*
Date Performed	*6/7/2016*	Jurisdiction	*St. Tammany*
Time Period	*Future AM*	Analysis Year	*2016*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*		*L*	*TR*	
Volume (vph)	*68*	*1*	*94*	*2*	*2*	*3*	*103*	*520*	*4*	*3*	*649*	*94*
% Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
PHF	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*
Pretimed/Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*		*A*	*A*	
Startup Lost Time		*2.0*			*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Extension of Effective Green		*2.0*			*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Arrival Type		*3*			*3*		*3*	*3*		*3*	*3*	
Unit Extension		*3.0*			*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*10*	*0*	*0*	*2*	*0*	*0*	*3*	*0*	*0*	*10*
Lane Width		*12.0*			*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/Hour												
Bus Stops/Hour		*0*			*0*		*0*	*0*		*0*	*0*	
Minimum Pedestrian Time		*3.2*			*3.2*			*3.2*			*3.2*	

Phasing	EW Perm	02	03	04	NS Perm	Excl. Left	07	08
Timing	G = *25.0*	G =	G =	G =	G = *60.0*	G = *15.0*	G =	G =
	Y = *6*	Y =	Y =	Y =	Y = *6*	Y = *6*	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *118.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		*162*			*5*		*110*	*554*		*3*	*779*	
Lane Group Capacity		*312*			*354*		*442*	*947*		*605*	*931*	
v/c Ratio		*0.52*			*0.01*		*0.25*	*0.59*		*0.00*	*0.84*	
Green Ratio		*0.21*			*0.21*		*0.69*	*0.51*		*0.69*	*0.51*	
Uniform Delay d_1		*41.2*			*36.8*		*28.5*	*20.3*		*13.7*	*24.8*	
Delay Factor k		*0.13*			*0.11*		*0.11*	*0.18*		*0.11*	*0.37*	
Incremental Delay d_2		*1.5*			*0.0*		*0.3*	*0.9*		*0.0*	*6.8*	
PF Factor		*1.000*			*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	
Control Delay		*42.7*			*36.8*		*28.8*	*21.2*		*13.7*	*31.6*	
Lane Group LOS		*D*			*D*		*C*	*C*		*B*	*C*	
Approach Delay		*42.7*			*36.8*			*22.5*			*31.5*	
Approach LOS		*D*			*D*			*C*			*C*	
Intersection Delay		*28.9*			Intersection LOS						*C*	

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SHORT REPORT

General Information		Site Information	
Analyst	*MJM*	Intersection	*Hwy. 59 @ Sharp Rd.*
Agency or Co.	*Kelly McHugh & Assoc.*	Area Type	*All other areas*
Date Performed	*6/7/2016*	Jurisdiction	*St. Tammany*
Time Period	*Future PM*	Analysis Year	*2016*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*		*L*	*TR*	
Volume (vph)	*138*	*1*	*115*	*1*	*1*	*1*	*84*	*635*	*2*	*1*	*763*	*97*
% Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
PHF	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*	*0.94*
Pretimed/Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*		*A*	*A*	
Startup Lost Time		*2.0*			*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Extension of Effective Green		*2.0*			*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Arrival Type		*3*			*3*		*3*	*3*		*3*	*3*	
Unit Extension		*3.0*			*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*40*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*10*
Lane Width		*12.0*			*12.0*		*12.0*	*12.0*		*12.0*	*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/Hour												
Bus Stops/Hour		*0*			*0*		*0*	*0*		*0*	*0*	
Minimum Pedestrian Time		*3.2*			*3.2*			*3.2*			*3.2*	

Phasing	EW Perm	02	03	04	NS Perm	Excl. Left	07	08
Timing	G = *25.0*	G =	G =	G =	G = *60.0*	G = *15.0*	G =	G =
	Y = *6*	Y =	Y =	Y =	Y = *6*	Y = *6*	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *118.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		*228*			*3*		*89*	*678*		*1*	*905*	
Lane Group Capacity		*302*			*352*		*378*	*947*		*514*	*933*	
v/c Ratio		*0.75*			*0.01*		*0.24*	*0.72*		*0.00*	*0.97*	
Green Ratio		*0.21*			*0.21*		*0.69*	*0.51*		*0.69*	*0.51*	
Uniform Delay d_1		*43.6*			*36.7*		*37.3*	*22.4*		*18.5*	*28.1*	
Delay Factor k		*0.31*			*0.11*		*0.11*	*0.28*		*0.11*	*0.48*	
Incremental Delay d_2		*10.4*			*0.0*		*0.3*	*2.6*		*0.0*	*22.4*	
PF Factor		*1.000*			*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	
Control Delay		*54.0*			*36.7*		*37.6*	*25.0*		*18.5*	*50.5*	
Lane Group LOS		*D*			*D*		*D*	*C*		*B*	*D*	
Approach Delay	*54.0*			*36.7*			*26.5*			*50.5*		
Approach LOS	*D*			*D*			*C*			*D*		
Intersection Delay	*41.2*			Intersection LOS						*D*		

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SHORT REPORT

General Information		Site Information	
Analyst	*MJM*	Intersection	*Sharp Rd. @ Asbury Dr.*
Agency or Co.	*Kelly McHugh & Assoc.*	Area Type	*All other areas*
Date Performed	*6/6/2016*	Jurisdiction	*St. Tammany*
Time Period	*Future AM*	Analysis Year	*2016*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	*0*	*1*	*0*	*0*	*1*	*0*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LTR*			*LTR*			*LTR*	
Volume (vph)	*2*	*14*	*11*	*196*	*53*	*128*	*13*	*132*	*100*	*72*	*145*	*2*
% Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
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*
Pretimed/Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup Lost Time		*2.0*			*2.0*			*2.0*			*2.0*	
Extension of Effective Green		*2.0*			*2.0*			*2.0*			*2.0*	
Arrival Type		*3*			*3*			*3*			*3*	
Unit Extension		*3.0*			*3.0*			*3.0*			*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*10*	*0*	*0*	*10*	*0*	*0*	*10*	*0*	*0*	*1*
Lane Width		*12.0*			*12.0*			*12.0*			*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/Hour												
Bus Stops/Hour		*0*			*0*			*0*			*0*	
Minimum Pedestrian Time		*3.2*			*3.2*			*3.2*			*3.2*	

Phasing	EW Perm	02	03	04	NS Perm	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *30.0*	G = *5.0*	G =	G =
	Y = *6*	Y =	Y =	Y =	Y = *6*	Y = *6*	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *83.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		*18*			*399*			*255*			*237*	
Lane Group Capacity		*646*			*530*			*624*			*792*	
v/c Ratio		*0.03*			*0.75*			*0.41*			*0.30*	
Green Ratio		*0.36*			*0.36*			*0.36*			*0.49*	
Uniform Delay d_1		*17.1*			*23.2*			*19.9*			*12.5*	
Delay Factor k		*0.11*			*0.31*			*0.11*			*0.11*	
Incremental Delay d_2		*0.0*			*6.0*			*0.4*			*0.2*	
PF Factor		*1.000*			*1.000*			*1.000*			*1.000*	
Control Delay		*17.1*			*29.3*			*20.3*			*12.7*	
Lane Group LOS		*B*			*C*			*C*			*B*	
Approach Delay	*17.1*			*29.3*			*20.3*			*12.7*		
Approach LOS	*B*			*C*			*C*			*B*		
Intersection Delay	*22.2*			Intersection LOS			*C*					

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SHORT REPORT

General Information		Site Information	
Analyst	*MJM*	Intersection	*Sharp Rd. @ Asbury Dr.*
Agency or Co.	*Kelly McHugh & Assoc.*	Area Type	*All other areas*
Date Performed	*6/6/2016*	Jurisdiction	*St. Tammany*
Time Period	*Future PM*	Analysis Year	*2016*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	*0*	*1*	*0*	*0*	*1*	*0*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LTR*			*LTR*			*LTR*	
Volume (vph)	*6*	*43*	*27*	*159*	*47*	*57*	*7*	*200*	*258*	*96*	*208*	*4*
% Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
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*
Pretimed/Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup Lost Time		*2.0*			*2.0*			*2.0*			*2.0*	
Extension of Effective Green		*2.0*			*2.0*			*2.0*			*2.0*	
Arrival Type		*3*			*3*			*3*			*3*	
Unit Extension		*3.0*			*3.0*			*3.0*			*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*10*	*0*	*0*	*10*	*0*	*0*	*10*	*0*	*0*	*1*
Lane Width		*12.0*			*12.0*			*12.0*			*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/Hour												
Bus Stops/Hour		*0*			*0*			*0*			*0*	
Minimum Pedestrian Time		*3.2*			*3.2*			*3.2*			*3.2*	

Phasing	EW Perm	02	03	04	NS Perm	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *30.0*	G = *5.0*	G =	G =
	Y = *6*	Y =	Y =	Y =	Y = *6*	Y = *6*	Y =	Y =
Duration of Analysis (hrs) = *0.25*						Cycle Length C = *83.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		*72*			*275*			*495*			*333*	
Lane Group Capacity		*629*			*503*			*620*			*632*	
v/c Ratio		*0.11*			*0.55*			*0.80*			*0.53*	
Green Ratio		*0.36*			*0.36*			*0.36*			*0.49*	
Uniform Delay d_1		*17.7*			*21.1*			*23.8*			*14.4*	
Delay Factor k		*0.11*			*0.15*			*0.34*			*0.13*	
Incremental Delay d_2		*0.1*			*1.3*			*7.3*			*0.8*	
PF Factor		*1.000*			*1.000*			*1.000*			*1.000*	
Control Delay		*17.7*			*22.3*			*31.1*			*15.2*	
Lane Group LOS		*B*			*C*			*C*			*B*	
Approach Delay	*17.7*			*22.3*			*31.1*			*15.2*		
Approach LOS	*B*			*C*			*C*			*B*		
Intersection Delay	*23.7*			Intersection LOS						*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MJM*
Agency/Co.	*Kelly McHugh & Assoc.*
Date Performed	*6/7/2016*
Analysis Time Period	*Future AM*

Site Information

Intersection	*Sharp Rd. @ Ent/Exit*
Jurisdiction	*St. Tammany*
Analysis Year	*2016*

Project Description *Brentwood Subdivision*

East/West Street: *Sharp Rd.* | North/South Street: *Ent/Exit*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*15*	*172*			*192*	*7*
Peak-Hour Factor, PHF	*0.96*	*0.96*	*1.00*	*1.00*	*0.96*	*0.96*
Hourly Flow Rate, HFR (veh/h)	*15*	*179*	*0*	*0*	*200*	*7*
Percent Heavy Vehicles	*2*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*19*		*43*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.96*	*1.00*	*0.96*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*19*	*0*	*44*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (veh/h)	*15*						*63*	
C (m) (veh/h)	*1364*						*747*	
v/c	*0.01*						*0.08*	
95% queue length	*0.03*						*0.28*	
Control Delay (s/veh)	*7.7*						*10.3*	
LOS	*A*						*B*	
Approach Delay (s/veh)	--	--				*10.3*		
Approach LOS	--	--				*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MJM*
Agency/Co.	*Kelly McHugh & Assoc.*
Date Performed	*6/7/2016*
Analysis Time Period	*Future PM*

Site Information

Intersection	*Sharp Rd. @ Ent/Exit*
Jurisdiction	*St. Tammany*
Analysis Year	*2016*

Project Description *Brentwood Subdivision*

East/West Street: *Sharp Rd.* | North/South Street: *Ent/Exit*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*49*	*348*			*160*	*21*
Peak-Hour Factor, PHF	*0.96*	*0.96*	*1.00*	*1.00*	*0.96*	*0.96*
Hourly Flow Rate, HFR (veh/h)	*51*	*362*	*0*	*0*	*166*	*21*
Percent Heavy Vehicles	*2*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*12*		*27*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.96*	*1.00*	*0.96*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*12*	*0*	*28*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (veh/h)	*51*						*40*	
C (m) (veh/h)	*1387*						*664*	
v/c	*0.04*						*0.06*	
95% queue length	*0.11*						*0.19*	
Control Delay (s/veh)	*7.7*						*10.8*	
LOS	*A*						*B*	
Approach Delay (s/veh)	--	--				*10.8*		
Approach LOS	--	--				*B*		

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Appendix D

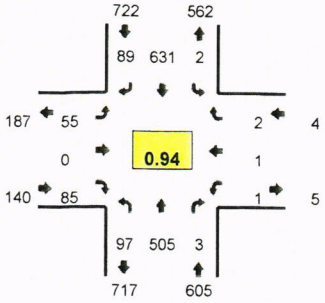
Existing Traffic Counts

Type of peak hour being reported: Intersection Peak

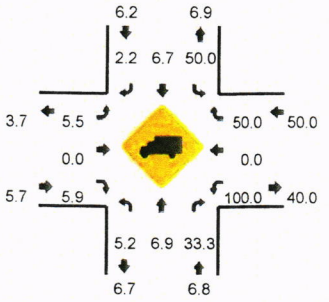
Method for determining peak hour: Total Entering Volume

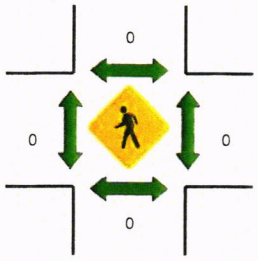
LOCATION: Hwy 59 -- Sharp Rd/Pineview Rd
CITY/STATE: Mandeville, LA

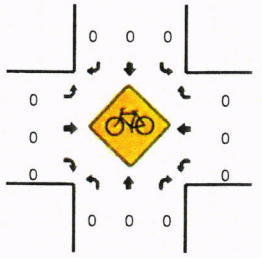
QC JOB #: 13811203
DATE: Tue, May 17 2016

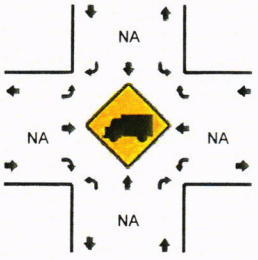


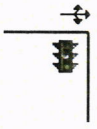
Peak-Hour: 7:45 AM -- 8:45 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

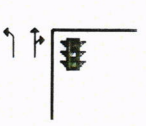


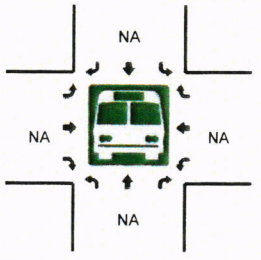












15-Min Count Period Beginning At	Hwy 59 (Northbound)				Hwy 59 (Southbound)				Sharp Rd/Pineview Rd (Eastbound)				Sharp Rd/Pineview Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	16	119	1	0	0	120	13	0	12	0	15	0	0	1	0	0	297	
7:15 AM	24	87	0	0	2	115	24	0	6	0	8	0	1	0	0	0	267	
7:30 AM	19	122	0	0	1	137	19	0	8	0	17	0	1	0	0	0	324	
7:45 AM	27	143	0	0	0	162	15	0	12	0	31	0	0	0	0	0	390	1278
8:00 AM	18	137	0	0	1	136	19	0	19	0	18	0	1	0	0	0	349	1330
8:15 AM	16	116	2	0	0	172	22	0	13	0	21	0	0	0	0	0	362	1425
8:30 AM	36	109	1	0	1	161	33	0	11	0	15	0	0	1	2	0	370	1471
8:45 AM	34	113	0	0	0	154	33	0	12	0	16	0	0	0	1	0	363	1444

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	108	572	0	0	0	648	60	0	48	0	124	0	0	0	0	0	1560
Heavy Trucks	12	32	0		0	36	0		0	0	8		0	0	0		88
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 5/25/2016 8:04 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

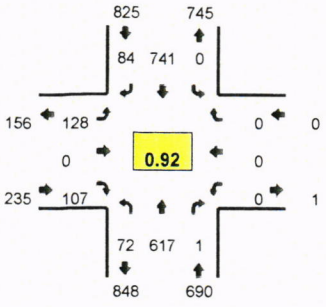
Type of peak hour being reported: Intersection Peak

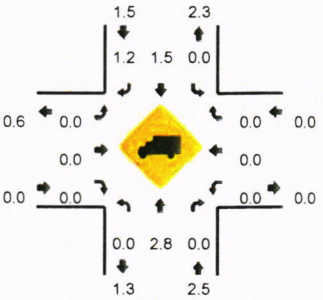
Method for determining peak hour: Total Entering Volume

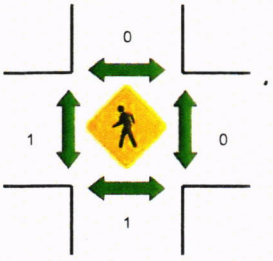
LOCATION: Hwy 59 -- Sharp Rd/Pineview Rd
CITY/STATE: Mandeville, LA

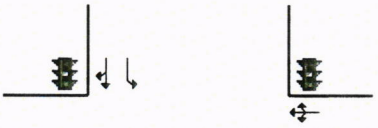
QC JOB #: 13811204
DATE: Tue, May 17 2016

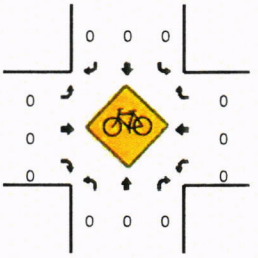
Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

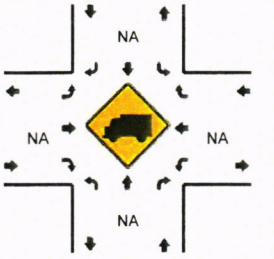


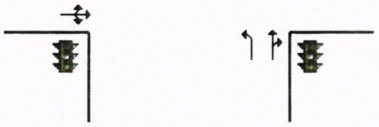


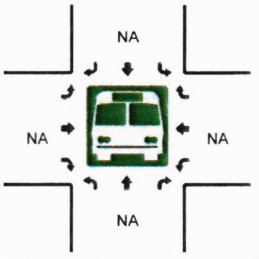












15-Min Count Period Beginning At	Hwy 59 (Northbound)				Hwy 59 (Southbound)				Sharp Rd/Pineview Rd (Eastbound)				Sharp Rd/Pineview Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	29	191	0	0	0	173	36	0	24	0	16	0	0	0	0	0	469	
4:15 PM	25	132	1	0	1	136	30	0	18	0	23	0	0	0	1	0	367	
4:30 PM	20	161	0	0	0	139	23	0	20	0	25	0	1	0	0	0	389	
4:45 PM	21	147	0	0	0	178	27	0	29	0	23	0	0	0	0	0	425	1650
5:00 PM	20	163	0	0	0	194	22	0	45	0	33	0	0	0	0	0	477	1658
5:15 PM	20	157	0	0	0	183	19	0	27	0	21	0	0	0	0	0	427	1718
5:30 PM	11	150	1	0	0	186	16	0	27	0	30	0	0	0	0	0	421	1750
5:45 PM	19	186	0	0	0	146	15	0	19	0	26	0	0	0	0	0	411	1736

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	80	652	0	0	0	776	88	0	180	0	132	0	0	0	0	0	1908
Heavy Trucks	0	8	0		0	12	0		0	0	0		0	0	0		20
Pedestrians		4				0				4				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

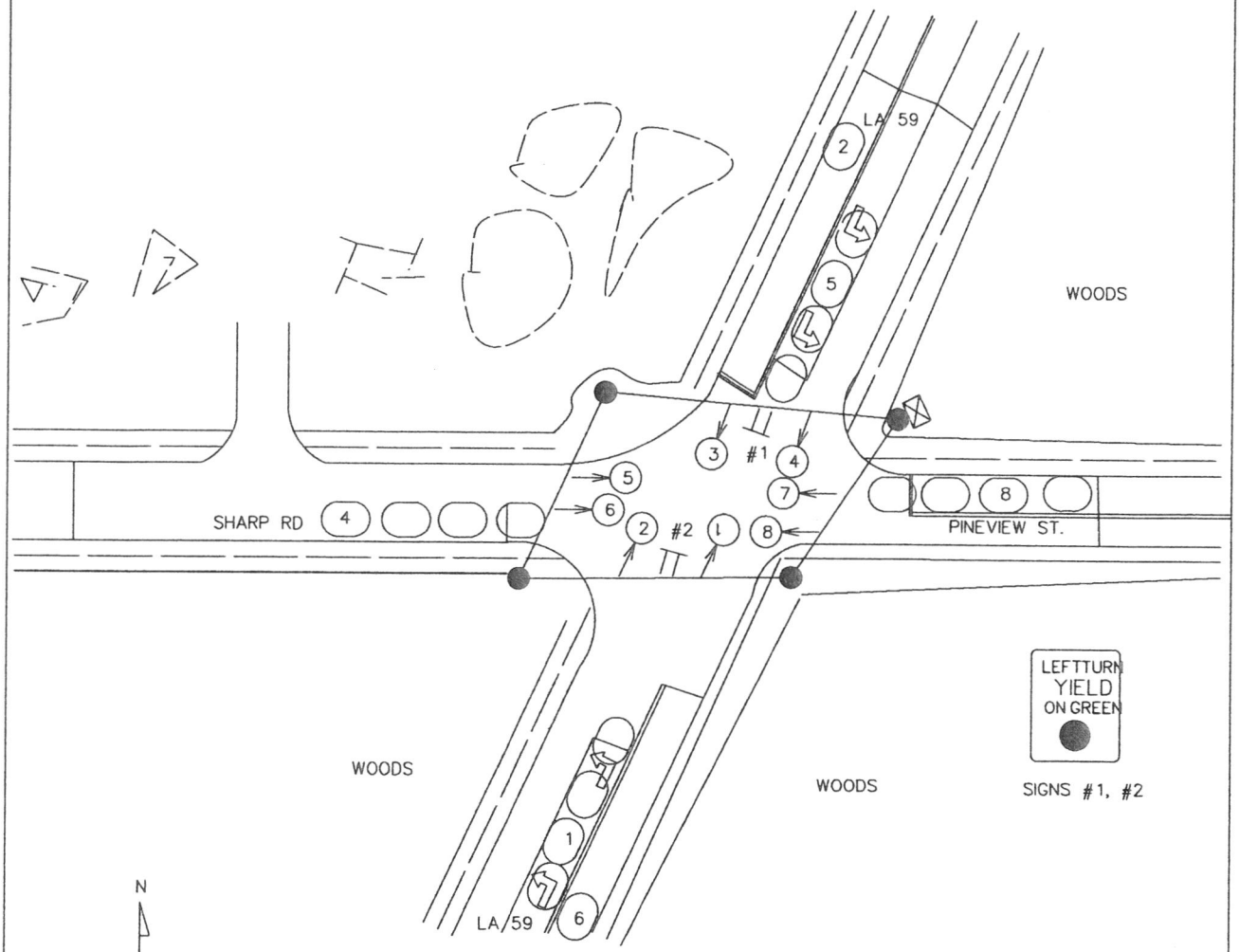
Report generated on 5/25/2016 8:04 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

SHTB1

CONTROL SECTION 28103	HIGHWAY 59	PARISH ST TAMMANY	TSI NO.724	SHEET 2 OF

SHTB1



- WOOD POLE
- METAL POLE
- SPAN WIRE
- CONTROLLER
- STOP LINE
- PED CROSS WALK
- #2 SPAN WIRE SIGN & NO.
- #3 GROUND MOUNT SIGN & NO.
- #3 OVERHEAD SIGN & NO.
- L4 LOOP DETECTOR & NO.
- PEDESTAL MOUNT SIGNAL & NO.
- SIGNAL FACE & NO.
- PEDESTRIAN SIGNAL & NO.
- PED BUTTON & SIGN
- PARALLEL PARKING

EXISTING SPEED LIMITS

LA 59 – 45MPH

SHARP RD. – 35MPH

SIGNAL FACES	2,4–8					1,3				
TOTALS	6					2				
R = RED Y = YELLOW G = GREEN G = GREEN ARROW Y = YELLOW ARROW DK = DARK 12" = 12" DIA. LENS W = WALK DW = DON'T WALK FDW = FLASHING DON'T WALK	12" R 12" Y 12" G LED					12" R 12" Y 12" 12" G LED				PED

CONTROL SEC 281-03	HIGHWA LA 59	PARIS ST. TAMMANY	TSI N 724	SHEET OF

CONTROLLER PROGRAMMING DATA

111	INTERVAL TIMES							
PHASE	1	2	3	4	5	6	7	8
MIN GRN	5	20	10	5	5	20	10	5
GAP, EXT	2.0	6.0	2.0	3.0	2.0	6.0	2.0	3.0
MAX 1	15	60	30	25	15	16	30	25
MAX 2	40	40	40	40	40	40	40	40
YELLOW	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
RED	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
WALK								
PED CLR								
ADD INIT		3.0				3.0		
TT REDUC		40				40		
TB INIT		20				20		
MIN GAP		6.0				6.0		
MX IN GR								
WALK 2								
PED CLR 2								
MAX 3								
MAX EXT								

114	RECALLS		
PH	TYPE	PH	TYPE
1	MEM OFF	5	MEM OFF
2	MIN	6	MIN
3	MEM OFF	7	MEM OFF
4	MEM OFF	8	MEM OFF

SELECTION: MIN PED & MIN MEM ON
MAX PED & MAX MEM OFF

22	PLAN CY / OFT							
PLAN	CYCLE	L–	S–	DWL	OFT 1	2	3	4
1	N/A							
2								
3								
4								

115	ROTATION	PAIR	1/2	3/4	5/6	7/8
RESERVICE YES/NO			NO	NO	NO	NO
REVERSE PH'S YES/NO			NO	NO	NO	NO
CONDIT'L SERVICE YES/NO			NO	NO	NO	NO
INHIBIT BACKUP YES/NO			NO	NO	NO	NO

23	FORCE OFFS AND YIELD POINTS							
PLAN 1	1	2	3	4	5	6	7	8
PRIM FO								
VEH YLD								
PLAN 2	1	2	3	4	5	6	7	8
PRIM FO	N/A							
VEH YLD								
PLAN 3	1	2	3	4	5	6	7	8
PRIM FO								
VEH YLD								
PLAN 4	1	2	3	4	5	6	7	8
PRIM FO								
VEH YLD								

112	BARRIER PHASES							
PHASE	1	2	3	4	5	6	7	8
BARRIER 1	1	1			1	1		
BARRIER 2			1	1			1	1
BARRIER 3								
BARRIER 4								

116	PHASE OPTIONS							
PHASE	1	2	3	4	5	6	7	8
PED PROTECT								
NON ACTUATE 1								
NON ACTUATE 2								
LAST CAR PASS		1				1		
REST IN WALK								
DON'T SKIP								
SOFT RECALL								
SELECT MAX 2								
SEL PED TIM 2								
FLASHING WALK								
OMIT			1				1	
DUAL ENTRY				1				1
SIMUL. GAP								

44	WEEKDAYS								
#	BEG	END	DAY	TIME	CMD	COR	O	PL	CD
1	/	/	N/A						
2	/	/							
3	/	/							
4	/	/							
5	/	/							
6	/	/							
7	/	/							
8	/	/							
9	/	/							
10	/	/							
11	/	/							
12	/	/							
13	/	/							
14	/	/							

SHTA1

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT — SHTA1

TRAFFIC AND PLANNING SECTION — **TRAFFIC SIGNAL INVENTORY** — SHEET OF

INTERSECTION: LA 59 @ SHARP RD. / PINEVIEW STREET — TSI: 00724

DISTRICT: 62 — PARISH: ST TAMMANY 052 — CITY: MANDEVILLE 0810

TYPE SIGNAL: VOLUME DENSITY, ISOLATED VD — INSTALLATION DATE: 7/24/97 — LATEST REVISION DATE: 9/9/00

PROPOSED 7/31/02

FACES \ INTERVALS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	FL
1	G	Y	R			R	~~G~~ R	~~↵~~ R	R													Y
2	G	Y	R			R			R													Y
3	G	Y	R			R	~~G~~ R	~~↵~~ R	R													Y
4	G	Y	R			R			R													Y
5			R	G	Y	R			R													R
6			R	G	Y	R			R													R
7			R	G	Y	R			R													R
8			R	G	Y	R			R													R
9																						
10																						
11																						
12																						
13																						
14																						
15																						
16																						
17																						
18																						
19																						
20																						

HOURS OF FLASHING OPERATION = EMERGENCY

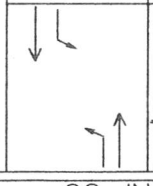
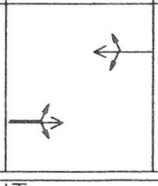
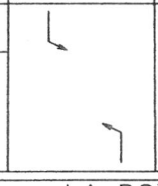
HOURS OF FREE OPERATION = 0000 - 2400 S-S

PLAN																							OS1
TIME																							OS2
FORCE OFF																							OS3
CYCLE LENGTH =			TIMES OF OPERATION =																				OS4

PLAN																							OS1
TIME																							OS2
FORCE OFF																							OS3
CYCLE LENGTH =			TIMES OF OPERATION =																				OS4

PLAN																							OS1
TIME																							OS2
FORCE OFF																							OS3
CYCLE LENGTH =			TIMES OF OPERATION =																				OS4

PHASING SEQUENCE

A	B	C	
			

SIGNAL WARRANTS: 02—INT MAINTAINED BY: LA DOTD CONTROLLER MANUF: NAZTEC SYSTEM # :

MASTER/SECONDARY: NONE MASTER AT TSI # NONE COORDINATED WITH TSI #'s NONE

REMARKS:

INTERSECTION LA 59 @ SHARP RD/PINEVIEW STREET	PARISH ST TAMMANY	TSI NO. 724

ACTUATED CONTROLLER TIMING DATA								
FUNCTION	A	B	C	D	E	F	G	H
ACTIVE PHASES (ON/OFF)								
MINIMUM GREEN	20	5	5					
PASSAGE	6	3	2					
MAX. INTERVAL I	60	25	15					
MAX. INTERVAL II								
YELLOW CLEARANCE	5	5	5					
RED CLEARANCE	1	1	1					
TIME BEFORE REDUCTION	20							
TIME TO REDUCE	40							
MINIMUM GAP	6				10-SECOND		DELAY	
ADDED INITIAL	3				1,4,5,8			
WALK								
PED CLEAR								
RECALL (L,NL.SR.ML,MX)	L	NL*	NLX					
DETECTOR # UNDER PHASE								

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Asbury Dr -- Sharp Rd/Desoto St

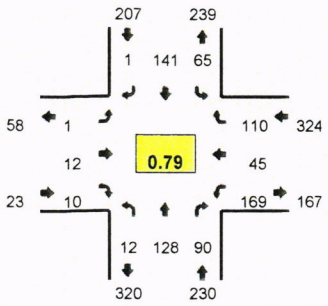
CITY/STATE: Mandeville, LA

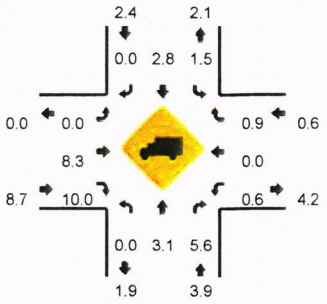
QC JOB #: 13811201

DATE: Tue, May 17 2016

Peak-Hour: 8:00 AM -- 9:00 AM

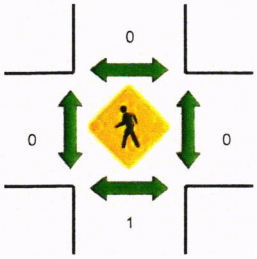
Peak 15-Min: 8:45 AM -- 9:00 AM

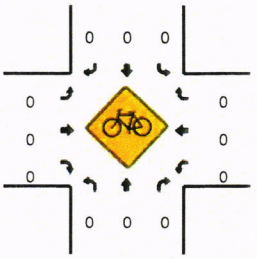


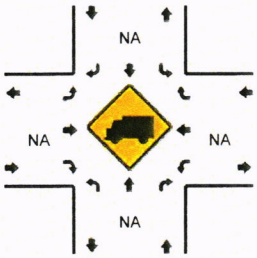


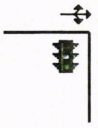
Quality Counts

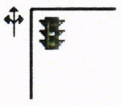
TRANSPORTATION DATA COLLECTION SERVICES

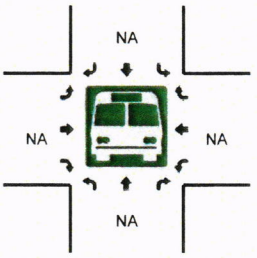












15-Min Count Period Beginning At	Asbury Dr (Northbound)				Asbury Dr (Southbound)				Sharp Rd/Desoto St (Eastbound)				Sharp Rd/Desoto St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	21	15	0	6	29	0	0	0	2	3	0	26	13	31	0	147	
7:15 AM	6	30	13	0	8	17	0	0	0	4	3	0	31	11	28	0	151	
7:30 AM	1	39	16	0	16	16	0	0	1	1	3	0	42	15	36	0	186	
7:45 AM	4	33	12	0	17	16	0	0	0	4	0	0	31	11	18	0	146	630
8:00 AM	5	33	17	0	13	34	1	0	0	5	3	0	34	8	18	0	171	654
8:15 AM	4	29	16	0	11	24	0	0	1	3	1	0	42	14	28	0	173	676
8:30 AM	2	29	22	0	17	35	0	0	0	1	4	0	43	15	25	0	193	683
8:45 AM	1	37	35	0	24	48	0	0	0	3	2	0	50	8	39	0	247	784

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	148	140	0	96	192	0	0	0	12	8	0	200	32	156	0	988
Heavy Trucks	0	4	0		4	0	0		0	0	0		0	0	0		8
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 5/25/2016 8:04 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

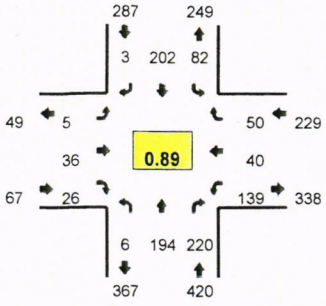
Type of peak hour being reported: Intersection Peak

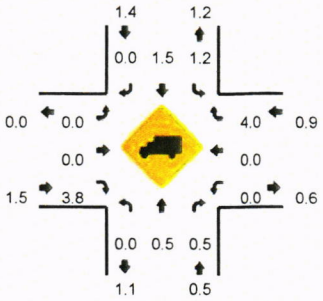
Method for determining peak hour: Total Entering Volume

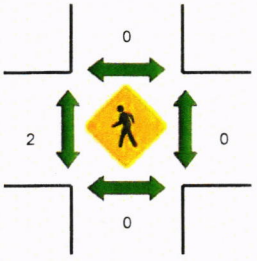
LOCATION: Asbury Dr -- Sharp Rd/Desoto St
CITY/STATE: Mandeville, LA

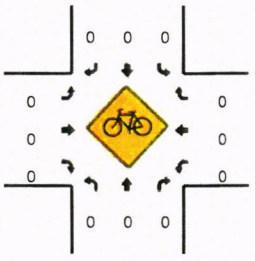
QC JOB #: 13811202
DATE: Tue, May 17 2016

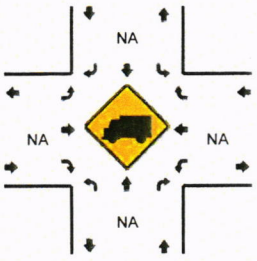
Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

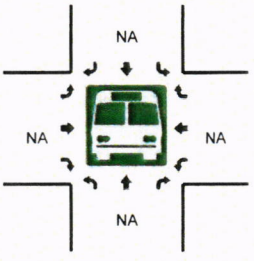












15-Min Count Period Beginning At	Asbury Dr (Northbound)				Asbury Dr (Southbound)				Sharp Rd/Desoto St (Eastbound)				Sharp Rd/Desoto St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	46	57	0	23	26	1	0	2	10	5	0	39	10	14	0	238	
4:15 PM	1	45	46	0	19	48	2	0	4	6	3	0	45	13	18	0	250	
4:30 PM	1	49	36	0	22	52	0	0	1	8	9	0	27	6	10	0	221	
4:45 PM	1	54	65	0	24	41	0	0	0	9	7	0	25	12	11	0	249	958
5:00 PM	3	46	73	0	17	61	1	0	0	13	7	0	42	9	11	0	283	1003
5:15 PM	1	31	64	0	14	45	0	0	2	5	3	0	32	12	13	0	222	975
5:30 PM	4	54	55	0	21	43	1	0	1	13	4	0	28	6	13	0	243	997
5:45 PM	3	36	51	0	24	43	0	0	1	9	7	0	28	6	13	0	221	969

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	184	292	0	68	244	4	0	0	52	28	0	168	36	44	0	1132
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

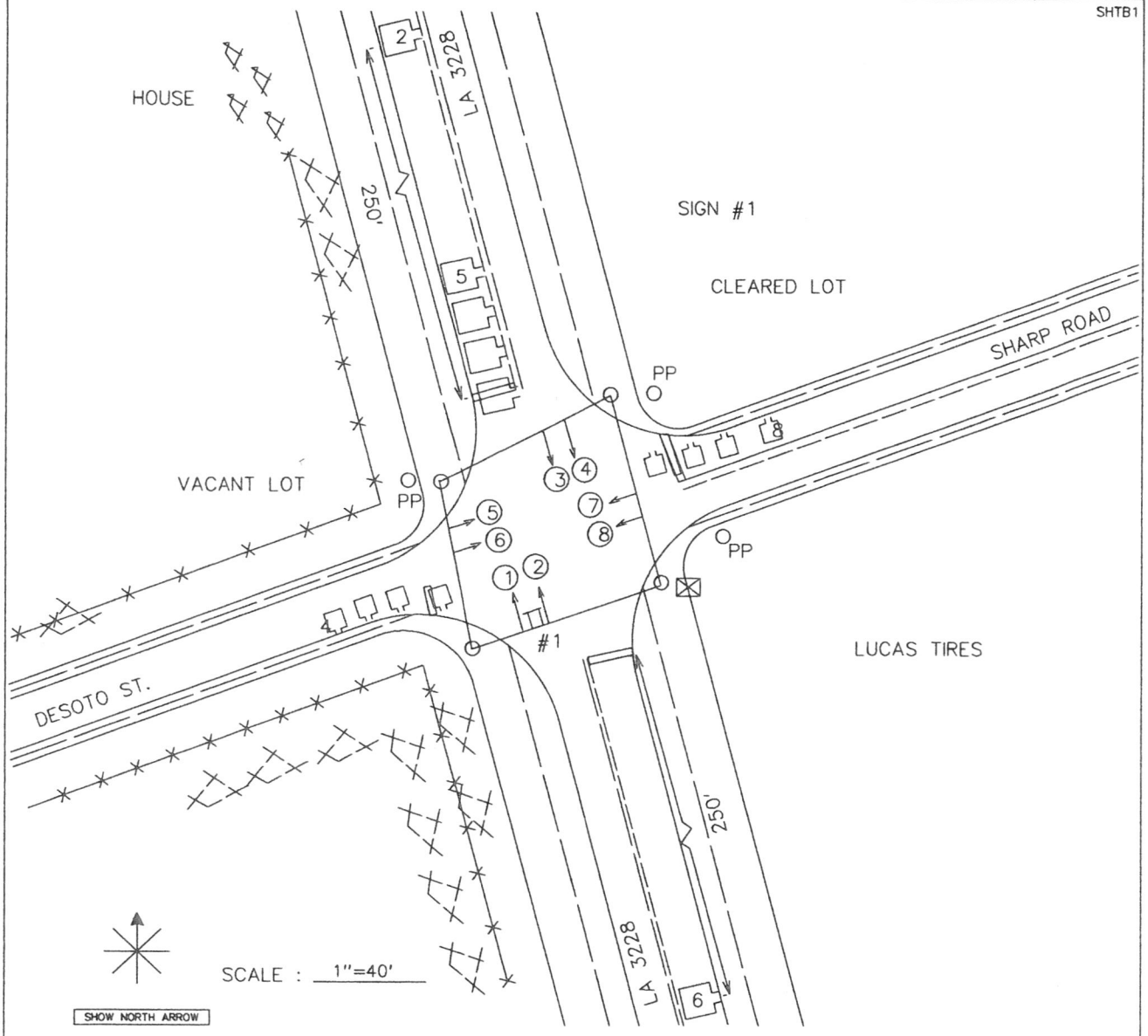
Report generated on 5/25/2016 8:04 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

SHTB 1

CONTROL SECTION 852-32	HIGHWAY LA 3228	PARISH ST. TAMMANY 52	TSI NO. 0738	SHEET 2 OF

SHTB1



- WOOD POLE
- METAL POLE
- SPAN WIRE
- CONTROLLER
- STOP LINE
- PED CROSS WALK
- #2 SPAN WIRE SIGN & NO.
- #3 GROUND MOUNT SIGN & NO.
- #3 OVERHEAD SIGN & NO.
- L4 LOOP DETECTOR & NO.
- (2) PEDESTAL MOUNT SIGNAL & NO.
- (2) SIGNAL FACE & NO.
- (2) PEDESTRIAN SIGNAL & NO.
- PED BUTTON & SIGN
- PARALLEL PARKING

EXISTING SPEED LIMITS

LA 3228 – 40MPH

SIGNAL FACES	1,3–8					2				
TOTALS	7					1				
R = RED Y = YELLOW G = GREEN G = GREEN ARROW Y = YELLOW ARROW DK = DARK 12" = 12" DIA. LENS W = WALK DW = DON'T WALK FDW = FLASHING DON'T WALK	R 12" Y 12" G 12" LED					R 12" 12" Y 12" 12" G 12" LED				PED

CONTROL SECTI 882-32	HIGHW LA 3228	PARISH ST. TAMMANY	TSI N 738	SHEET	OF

CONTROLLER PROGRAMMING DATA

111	INTERVAL TIMES							
PHASE	1	2	3	4	5	6	7	8
MIN GRN	10	20	10	5	5	20	10	5
GAP, EXT	2.0	5.0	2.0	3.0	2.0	5.0	2.0	3.0
MAX 1	30	50	30	25	25	50	30	25
MAX 2	40	60	40	35	35	60	40	35
YELLOW	4.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0
RED	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
WALK								
PED CLR								
ADD INIT		3.0				3.0		
TT REDUC		30				30		
TB INIT		20				20		
MIN GAP		2.0				2.0		
MX IN GR								
WALK 2								
PED CLR 2								
MAX 3								
MAX EXT								

115	ROTATION	PAIR	1/2	3/4	5/6	7/8
RESERVICE YES/NO			NO	NO	NO	NO
REVERSE PH'S YES/NO			NO	NO	YES	NO
CONDIT'L SERVICE YES/NO			NO	NO	NO	NO
INHIBIT BACKUP YES/NO			NO	NO	NO	NO

112	BARRIER PHASES							
PHASE	1	2	3	4	5	6	7	8
BARRIER 1	1	1			1	1		
BARRIER 2			1	1			1	1
BARRIER 3								
BARRIER 4								

116	PHASE OPTIONS							
PHASE	1	2	3	4	5	6	7	8
PED PROTECT								
NON ACTUATE 1								
NON ACTUATE 2								
LAST CAR PASS		1				1		
REST IN WALK								
DON'T SKIP								
SOFT RECALL								
SELECT MAX 2								
SEL PED TIM 2								
FLASHING WALK								
OMIT	1		1				1	
DUAL ENTRY				1				1
SIMUL. GAP								

114	RECALLS		
PH	TYPE	PH	TYPE
1	MEM OFF	5	MEM OFF
2	MIN	6	MIN
3	MEM OFF	7	MEM OFF
4	MEM OFF	8	MEM OFF

SELECTION: MIN, PED & MIN, MEM ON, MAX, PED & MAX, MEM OFF

22	PLAN CY / OFT						
PLAN	CYCLE	L– S–	DWL	OFT 1	2	3	4
1		N/A					
2							
3							
4							

23	FORCE OFFS AND YIELD POINTS								
PLAN 1	1	2	3	4	5	6	7	8
PRIM FO								
VEH YLD								
PLAN 2	1	2	3	4	5	6	7	8
PRIM FO								
VEH YLD								
PLAN 3	1	2	3	4	5	6	7	8
PRIM FO								
VEH YLD								
PLAN 4	1	2	3	4	5	6	7	8
PRIM FO								
VEH YLD								

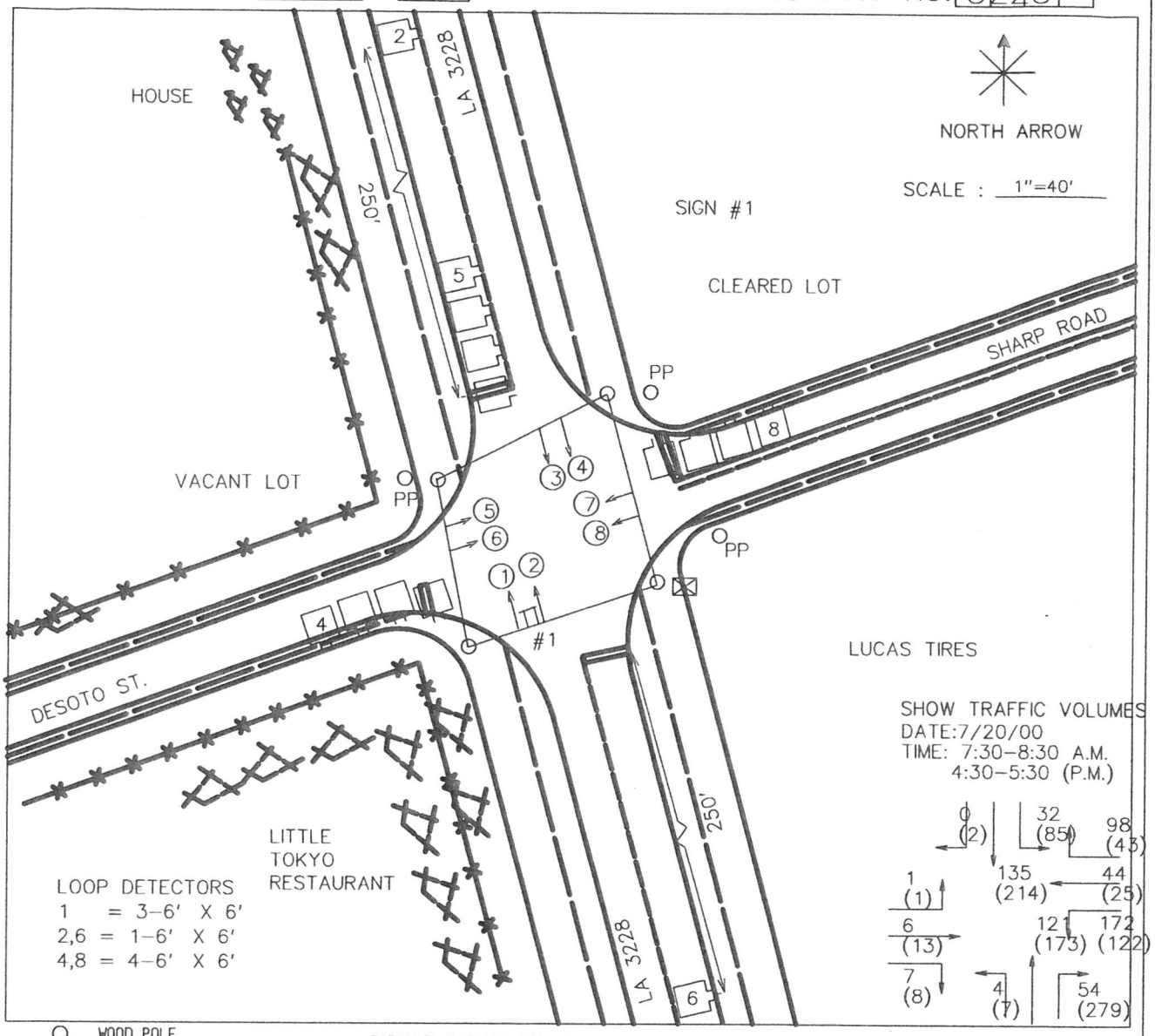
N/A

44	WEEKDAYS								
#	BEG	END	DAY	TIME	CMD	COR	O	PL	CD
1	/	/							
2	/	/							
3	/	/							
4	/	/							
5	/	/							
6	/	/							
7	/	/							
8	/	/							
9	/	/							
10	/	/							
11	/	/							
12	/	/							
13	/	/							
14	/	/							

N/A

CONTROL SECTION 852 – 32

HIGHWAY NO. 3228



SHOW TRAFFIC VOLUMES
DATE:7/20/00
TIME: 7:30–8:30 A.M.
4:30–5:30 (P.M.)

WOOD POLE
METAL POLE
SPAN WIRE
SIGNAL FACE & NO.
PEDESTRIAN SIGNAL & NO.
LOOP DETECTOR

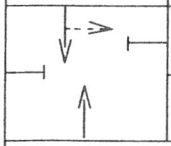
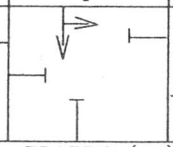
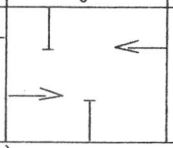
PARALLEL PARKING STALLS
ANGLE PARKING STALLS
STOP LINE
CROSS WALK
BUILDING AREA

CONTROLLER
GROUND MOUNTED SIGN & NO.
OVERHEAD SIGN & NO.
PEDESTAL SIGNAL & NO.

EXISTING SPEED LIMITS

LA 3228– 40 MPH

SIGNAL PHASING SEQUENCE

A	B	C	D	E	F	G	H
							

SIGNAL WARRANT: TRAFFIC (01) MAINTENANCE RESPONSIBILITY: DEPARTMENT CONTROLLER TYPE: NAZTEC

OTHER SIGNALS WITHIN SYSTEM (NOS.) : MASTER CONTROLLER LOCATION (NO.) :

REMARKS:

LOUISIANA DEPARTMENT OF TRANSPORTATION

TRAFFIC AND PLANNING SECTION

TRAFFIC SIGNAL INVENTORY

INTERSECTION LA 3228 @ SHARP ROAD AND DESOTO STREET NO. 00738

DISTRICT 62 PARISH ST. TAMMANY 052 CITY MANDEVILLE 0810

TYPE SIGNAL VOLUME DENSITY, ISOLATED VD INSTALLATION DATE : 5/23/0 LATEST REVISION DATE :

SIGNAL FACE NO.	INTERVAL 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21		FL
1	GG		G	GY		R			R														Y
2	GG		G	G ←	Y ←	R			R														Y
3	GY		R			R			R														Y
4	GY		R			R			R														Y
5			R			R	GY		R														R
6			R			R	GY		R														R
7			R			R	GY		R														R
8			R			R	GY		R														R
9																							
10																							
11																							
12																							
13																							
14																							
15																							
16																							

FLASH TIME OF OPERATION EMERGENCY

TIME SEC. / % — OS-1 ____ OS-2 ____ OS-3 ____

FORCE OFF (SEC) TIME OF OPERATION ____ DIAL NO. ____ TOTAL CYCLE LENGTH ____ SEC.

TIME SEC. / % — OS-1 ____ OS-2 ____ OS-3 ____

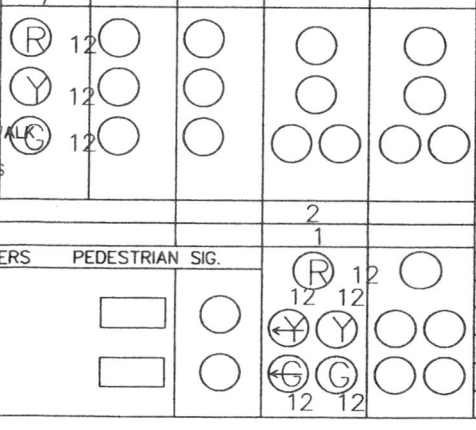
FORCE OFF (SEC) TIME OF OPERATION ____ DIAL NO. ____ TOTAL CYCLE LENGTH ____ SEC.

TIME SEC. / % — OS-1 ____ OS-2 ____ OS-3 ____

FORCE OFF (SEC) TIME OF OPERATION ____ DIAL NO. ____ TOTAL CYCLE LENGTH ____ SEC.

FACE NO.	SIGNAL FACE	INDICATIONS
TOTAL	1,3-8 / 7	

R=RED
Y=YELLOW
G=GREEN
← =ARROW
WA=WALK
WT=WAIT
DW=DON'T WALK
8=8" LENS
12=12" LENS



FUNCTION	A	B	C	D	E	F	G	H
ACTIVE PHASES (ON/OFF)								
MINIMUM GREEN	20.0	5.0	5.0					
PASSAGE	5.0	2.0	3.0					
MAX. INTERVAL I	50.0	25.0	25.0					
MAX. INTERVAL II	60.0	35.0	35.0					
YELLOW CLEARANCE	5.0	5.0	5.0					
RED CLEARANCE	1.0	1.0	1.0		10	SECOND	DELAY	
TIME BEFORE REDUCTION	00.0					# 1,4,8		
TIME TO REDUCE	30.0							
MINIMUM GAP	2.0							
ADDED INITIAL	3.0							
WALK								
PED CLEAR								
RECALL (L,NL,SR,ML,MX)		NL	NL					
DETECTOR # UNDER PHASE	2,6	1			4,8			