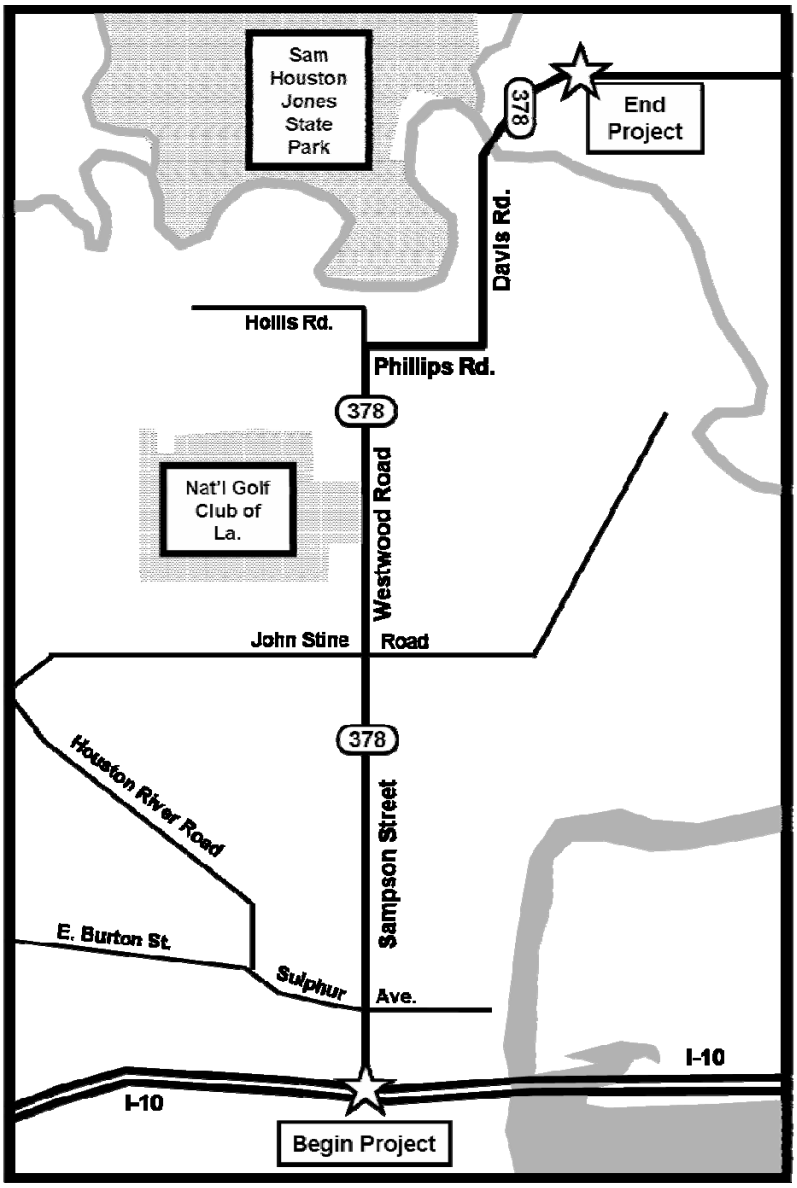
STAGE 0 FEASIBILITY STUDY
LA 378 Improvements
(Westlake to Moss Bluff)
Calcasieu Parish, LA
State Project No. H.009488.1



Prepared for the

LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

Final Report - March 2014

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Prepared for the

Louisiana Department of Transportation and Development

Prepared by:

in association with:

- **Urban Systems Associates, Inc.**
- **Coastal Environments, Inc.**

Final Report - March 2014

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CHAPTER I

BACKGROUND, PURPOSE AND NEED, AND REPORT ORGANIZATION

BACKGROUND

The Louisiana Department of Transportation and Development (LADOTD), in cooperation with Calcasieu Parish, determined the need for a Stage 0 Feasibility Study for improvements of LA 378 from its intersection with I-10 in Westlake, LA to its intersection with the LA 378 Spur in Moss Bluff, LA in Calcasieu Parish. The improvements studied would include not only the widening and improvement of LA 378 between the LA 378 spur in Moss Bluff and John Stine Road in Westlake, but also to explore ways of improving the five-lane LA 378 section in Westlake between John Stine Road and I-10.

PROJECT HISTORY

Since the early part of the new century, there has been a desire to improve route LA 378 between Westlake and Moss Bluff. By 2006, the Metropolitan Planning Organization for the region, the Imperial Calcasieu Regional Planning & Development Commission (IMCAL), had the project listed in its Metropolitan Transportation Plan and intended to have it placed in the Transportation Improvement Program as a DEMO funded project. A preliminary feasibility report was completed by Meyer Engineers in March, 2006 which explored possible improvements between John Stine Road and Sam Houston Jones Parkway. The project at hand began in earnest with a Resolution by the Calcasieu Parish Police Jury in September 2011 that requested that the LADOTD perform a feasibility study for widening LA 378 between John Stine Road and the LA 378 spur.

As a result of this request in the summer of 2012, the LADOTD issued a task order for N-Y Associates, Inc., under its existing Stage 0 Statewide Retainer Contract, to complete a Stage 0 Feasibility Study.

PROJECT PURPOSE AND NEED

The purpose of this project is to improve traffic operations along LA 378 between the LA 378 spur in Moss Bluff and I-10 in Westlake. This would primarily be accomplished by converting the two-lane sections in the north to four-lane sections, but would also involve realignment of and physical improvements to the widened section, as well as improvements to the southern

section of LA 378 between John Stine Road and I-10. The improvements should lessen current and future anticipated congestion.

The need for this project is as follows:

- The route serves as an access route to the petrochemical industry in Westlake. Further growth is expected in the area with the development of the SASOL plant and other future industrial growth, further exacerbating the congestion.
- Traffic volumes along the roadway have increased tremendously over the last few decades, from below 5,000 vehicles per day in 1980 to around 15,000 vehicles currently. The route is highly congested during peak-hour times.
- LA 378 has a Level of Service below the minimum desired for an Urban Arterial roadway as defined in the Louisiana Department of Transportation and Development (LADOTD) design guidelines.
- Existing driveway spacing is significantly less than the current spacing requirements according to the LADOTD Access Connections Policy. Implementing access management practices like reducing driveway density, driveway sharing for adjacent land uses and eliminating driveways in the functional area of intersections could improve traffic operations along the corridor by reducing conflict points and improving mobility for through traffic.
- Additionally, LA 378 is a hurricane evacuation route and an industrial emergency evacuation route for residents of the Westlake area.

It is also important to enhance the overall transportation system by providing roadway network continuity, and improving mobility by increasing capacity to meet to meet current and future traffic demands. Improving roadway safety is also a priority.

PROJECT DESCRIPTION

The project currently consists of four (4) alternatives: Alternatives A1, A2, B and C. Alternatives A1 and A2 differ in one optional feature, A-1 has a curve at the current intersection of Phillips Road and Davis Road, while A-2 features a roundabout at the Phillips Road and Davis Road intersection. Additionally, each Alternative can be divided into two segments of improvement: a southerly section, from I-10 to John Stine Road, where LA 378 is already a five-lane facility, and a northerly section, between John Stine Road and Sam Houston Jones Parkway, where the current two lane roadway would be widened and realigned. **As such, it is possible to implement one alternative for the southern section, and a different one for the northern section.**

The alternatives are presented in *Chapter II* and are described in **Section E** of the *Checklist for Stage 0, Preliminary Scope and Budget Worksheet* found in the Appendices. These alternatives were developed in close coordination with LADOTD staff.

REPORT ORGANIZATION

CHAPTER I – BACKGROUND, PURPOSE AND NEED, AND REPORT ORGANIZATION

CHAPTER II - ENGINEERING FEASIBILITY STUDY

This chapter begins with an in-depth look at the development process of feasible alternatives for the improvement of LA 378 from I-10 to the LA 378 Spur. The geometric analysis of these alternatives to determine construction feasibility in accordance with LADOTD design criteria is reviewed. Traffic analyses are also summarized. The full traffic study is presented in a separate stand-alone report.

This chapter then fully describes the alternatives. First presented are the design criteria and design concepts of the alternatives. The conceptual construction cost for each alternative is then described, including methodology and final estimates.

The chapter ends with a presentation of the design concepts as plan view layouts on aerial base maps at 1"= 200' scale, including all roadway geometry as well as apparent existing and proposed right-of-way. Typical sections are also presented.

CHAPTER III - ENVIRONMENTAL INVENTORY

The Environmental Inventory chapter identifies and maps all major environmental concerns, issues, and sites within the study area. The Inventory is based on secondary data such as field surveys, U.S. Geological Surveys, EPA and state databases, soil surveys, National Wetland Inventory maps, infrared photography, aerial photography, cultural resources data, wildlife areas, literary research, and coordination and interviews with local, state and federal agencies and officials. Both text descriptions and maps are used to provide a brief environmental inventory of the study area. The chapter concludes with a section listing areas of environmental concern or constraint and a comparative matrix of the alternatives.

CHAPTER IV – AGENCY COMMENTS/COORDINATION AND PUBLIC PARTICIPATION

This chapter describes the coordination efforts associated with development of the project including contacts such as those made with LADOTD, FHWA, and other agencies and elected officials. The public participation component of the project is also described and includes documentation of the public meeting held on September 18, 2013.

APPENDICES

The *Checklist for Stage 0, Preliminary Scope and Budget Worksheet* and *Stage 0 Environmental Checklist* are included as **Appendix A.** A set of existing site pictures is included as **Appendix B**. Hard copies of Public Meeting Addenda including copies of newspaper advertisements, public meeting sign-in sheets, agenda and handouts from the public meeting, and all written/e-mail comments received from citizens and interested parties are presented as **Appendix C. Appendix D**, the stand-alone *Traffic Study*, is presented under separate cover.

CHAPTER II

ENGINEERING FEASIBILITY STUDY

This chapter begins with an in-depth look at the development process of feasible alternatives for the improvement of LA 378 from I-10 to the LA 378 Spur. The geometric analysis of these alternatives to determine construction feasibility in accordance with LADOTD design criteria is reviewed. Traffic analyses are also summarized. The full traffic study is presented in a separate stand-alone report.

This chapter then fully describes the alternatives. First presented are the design criteria and design concepts of the alternatives. The conceptual construction cost for each alternative is then described, including methodology and final estimates.

The chapter ends with a presentation of the design concepts as plan view layouts on aerial base maps at 1"= 200' scale, including all roadway geometry as well as apparent existing and proposed right-of-way. Typical sections are also presented.

ALTERNATIVE DEVELOPMENT PROCESS

EXISTING GEOMETRIC CONDITIONS

The development of alternatives began with an assessment of existing conditions. A vicinity map indicating the project corridor is presented in **Figure II-1** on the following page.

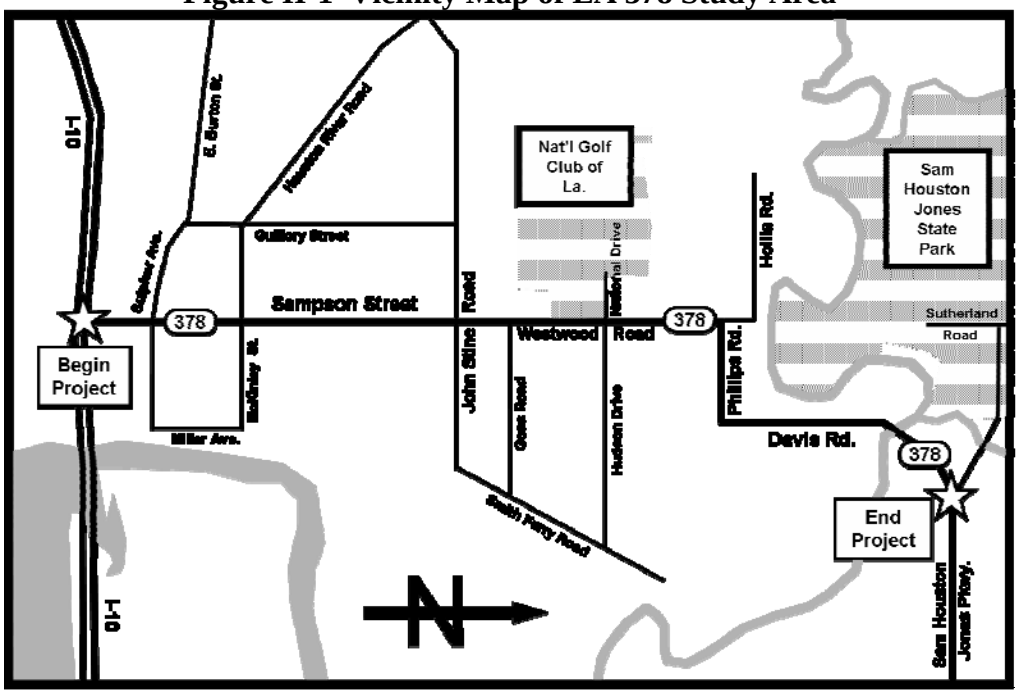
The following provides a description of the individual roadways included in the study area.

LA 378

Sampson Street

Sampson Street is the named segment of LA 378 in the southern part of the study area. It is a five-lane roadway (four travel lanes with a continuous center turn lane) that runs due north-south between its southern terminus at I-10 and its northern end at John Stine Road.

Figure II-1 Vicinity Map of LA 378 Study Area



Westwood Road

Westwood Road is a named segment of existing LA 378 in the middle portion part of the study area. It is a two-lane roadway between John Stine Road and Hollis Road running due north/south. Only the portion between John Stine Road and Phillips Road is on the state system as LA 378; the portion between Phillips Road and Hollis Road is currently a local road.

Phillips Road

Phillips Road is the named segment of existing LA 378 in the middle portion part of the study area. It is a short stretch of two-lane road running due east/west between Westwood Road and Davis Road.

Davis Road

Davis Road is the named segment of existing LA 378 in the northern portion part of the study area. It is a two-lane roadway between Goss Road on the south, and Sam Houston Jones Parkway on the north, and generally runs due north/south except at the northern end, where it curves to the east to transition to the Sam Houston Jones Parkway. Only the portion between Phillips Road and the Sam Houston Jones Parkway is on the state system as LA 378; the southern portion of Davis Road between Phillips Road and Goss Road is currently a local road. Davis Road is the location of the LA 378 crossing of the West Fork of the Calcasieu River (with a moveable lift bridge).

Sam Houston Jones Parkway

The Parkway is the named segment of existing LA 378 in the northern portion part of the study area serving Moss Bluff. It includes both the main LA 378 parkway which transitions from Davis Road as well as the LA 378 spur which branches off to the west and connects to Sutherland Road. The spur section is a two-lane roadway, while the mainline of LA 378 is a five-lane roadway and extends about 2 ½ miles east to US 171 (N. Martin Luther King Hwy.)

Other (Intersecting) Roads

Sulphur Avenue (LA 379)

Sulphur Avenue is the first major roadway intersecting with the Sampson Street portion LA 378 north of I-10, and the intersection is presently signalized with several dedicated turning lanes. On the east side of LA 378, Sulphur Avenue extends for about seven blocks (less than 2000 ft.), while on the west side it extends for about the same distance before transitioning into E. Burton Street. Sulphur Avenue is a two-lane street signed as LA 379 for most of its length, between Guillory Street on the west and Miller Avenue on the east.

McKinley Street

McKinley Street is the second signalized intersection along Sampson Street. It is a local two-lane street running east/west for about the same length as Sulphur Avenue.

John Stine Road

John Stine Road is the third signalized intersection along LA 378 and is the current transition between five-lane Sampson Street and two-lane Westwood Road. It is a local two-lane street running generally east/west between Smith Ferry Road and Houston River Road (LA 379).

Hudson Drive / National Drive

This east-west roadway bisected by Westwood Road is named Hudson Drive on the east, with the newer National Drive (entrance road to the National Golf Club of Louisiana) on the west. Both are two-lane roadways and their intersection with LA 378 is not signalized.

Hollis Road

This east/west running roadway acts as an extension of Westwood Road and intersects it at a 90 degree angle just south of the West Fork of the Calcasieu River. It extends westward from Westwood Road for a little over a mile before coming to an end at Canyon Road.

EXISTING UTILITIES

Water

Starting from the south end of the project limits at Sulphur Avenue, the City of Westlake has a 12" water main on the east side of Sampson Street heading north, crossing to the west side of Sampson Street, just south of Tillman Street. The 12" water main continues northward, crossing to the east side just south of Mulberry Street. The 12" water main continues northward to John Stine Road. On the north side of John Stine Road, it turns to follow the north side of John Stine Road as a 6" water line. On the south side of John Stine Road, the 12" water line crosses to the west side of Sampson Street and turns north. On the north side of John Stine Road, it ties into the Water Works District 4 system.

Between Sulphur Avenue and John Stine Road, 6" water lines serve the side streets. These are on the south side of Lee Street, the north side of Guidry Street, the south side of Martha Street, the south side of McKinley Street, the south side of Wehrt Street, the north side of Krause Street, the north side of Mulberry Street, the south side of Shafer Street, the south side of Shady Street to the east, on the north side of Shafer Street to the west, the north side of Bee Tree Street to the east, on the south side of Bee Tree Street to the west, on the north side of Live Oak Street to the east, on the south side of Live Oak Street to the west, on the south side of Garden Drive to the east and on the north side of Garden Drive to the west.

On the north side of John Stine Road the water main is owned by Water Works District 4, whose service extends to the West Fork Calcasieu River. The 12" water main continues northward on the east side of Westwood Road to Hollis Road. On the north side of Phillips Road, the 12" water line turns east to Davis Road. The 12" water line connects to the water tower just before Davis Road. The existing water line along Davis Road is on the west side as a 4" water line. That line is to be increased to a 6" water line to satisfy the 10 State Standards in the future. This 4" line extends to Barrett Lane to service that subdivision.

North of the West Fork Calcasieu River, water service is provided by Water Works District 1. There is an 8" water line on the south side of LA 378 Spur (Sam Houston Jones Parkway). At the intersection with LA 378, a 4" water line runs back to the West Fork Calcasieu River Bridge. A service line runs under the bridge but does not cross the river. At the intersection with LA 378, a 12" water line continues eastward on the north side of Sam Houston Jones Parkway.

Sewer

The City of Westlake has a gravity sewer line running down the center lane of Sampson Street. On the south side of Tillman Street, it offsets to the west of the roadway in the right-of-way. On the south side of Schaffer Street, the sewer line offsets back to the centerline of Sampson Street and continues with a sewer manhole to a sewer lift station on the west side of the roadway. The sewer line continues northward crossing John Stine. On the north side of John Stine Road, the sewer line continues west and east. A short distance east, the sewer line turns north to the south side of Goss Road. On the south side of Goss Road, the sewer line turns west crossing Westwood Road.

North of this, sewerage is provided by individual mechanical systems for the remainder of the project limits with the exception of a short section in front of the Pinederosa Park.

Gas

The City of Westlake has a 2" gas line on the east side of Sampson Street heading north, crossing to the west side of Sampson Street, just south of Goss Road. The 2" gas line extends northward, crossing to the east side just south of Landry Road. The 2" gas line extends eastward, turning northward at Cox Road to the north side of W. Wayside Dr. The 2" gas line turns west along W. Wayside Drive and turns north on the east side of Westwood Road. At the intersection of Phillips Road, the 2" line extends north and also east on the south side of Phillips Road. The 2" gas line heading north ends at Hollis Road. The 2" line on the south side of Phillips Road extends to Davis Drive where it turns north and south. The 2" gas line extends north along the west side of Davis Road to end service at Barrett Lane, the last subdivision on the south side of the bridge over the West Fork Calcasieu River.

On the north side of the West Fork Calcasieu River, a 2" gas line begins on the south side of Dennis Lane to LA 378, heading northeast on the northwest side a short distance before crossing to the opposite side of Davis Road and turning west on the south side of LA 378 towards Moss Bluff.

Electric

Entergy provides power on the south side of the West Fork Calcasieu River, from approximately Villa Drive southward but not on the north side of the West Fork Calcasieu River.

Between Sampson Street and John Stine Road, Entergy's power lines alternate from side to side. Their power lines cross John Stine Road on the west side of Westwood Road and continue north on that side to Hollis Road. Entergy's power lines also follow the side streets in this area to Davis Road. At Davis Road, Entergy's power lines continue northward on the east side to end near Villa Drive.

Beauregard Electric Co-op, Inc. (BECI) provides power on both sides of the West Fork Calcasieu River. On the south side of West Fork Calcasieu River, BECI power lines are along Hollis Road and extend east in a servitude to Davis Road). Their power lines continue northward on the west side of Davis Road to the River, crossing Davis Road for service to the bridge. At the river, their power lines turn west to cross the river upstream of the bridge on the west side of Davis Lane. Their power lines run back to the bridge, running parallel to the top bank of the river and under the bridge. Their lines also follow the north side of Davis Lane to Davis Road, than follow the north side of LA 378 to the intersection of the LA 378/ LA 378 Spur. On the west side of the intersection, the power lines cross LA 378 to the south side, and split to also cross LA 378 to the north side of the LA 378 Spur to the state park. The power lines continue east on the south side of LA 378 to the project limits.

Telephone and Communication Lines

Telephone and communication lines follow both sides of Sampson Street and both sides of Westwood Road. Telephone and communication lines follow both sides of Phillips Road. Telephone and communication lines follow the west side of Davis Road as aerial and underground to the West Fork Calcasieu River. On the north side of the river, telephone and communication lines are located on the power poles along LA 378. In addition, there are underground communication lines on the north side of Davis Road between Dennis Lane and LA 378 Spur.

Street Lights

Between Sampson Street and John Stine Road, street lights are hung from various power poles on each side of the street. North of John Stine Road, there are no street lights.

EXISTING TRAFFIC CONDITIONS

One of the first steps in the feasibility study was to determine existing traffic conditions. Existing traffic volume, speed, classification and travel time data was collected within the project study area. The majority of the traffic count data was collected in September 2012.

Traffic Counts

Seven day twenty-four hour counts were collected along LA 378 with pneumatic tubes. Twenty-four hour turning movements with classification data was collected on each approach of the subject intersections using video data collection equipment. The subject intersections include the following existing signalized intersections:

- I-10 Service Road at I-10 Eastbound on ramp/off ramp
- Sampson Street (LA 378) at I-10 Westbound ramps
- Sampson Street (LA 378) at I-10 Eastbound ramps
- Westwood Road/Sampson Street (LA 378) at John Stine Road
- Sampson Street (LA 378) at McKinley Street
- Sampson Street (LA 378) at Sulphur Avenue (LA 379)
- Davis Road (LA 378) at Phillips Road (LA 378)

The subject intersections also included the following existing unsignalized intersections:

- Phillips Road (LA 378) at Hollis Road (LA 378)
- Westwood Road (LA 378) at Hudson Drive/National Drive
- Robert Road at Davis Road (LA 378)
- Sampson Street (LA 378) at Sam Houston Jones Parkway

The tube data was compared to the turning movement count data for accuracy and to provide input for capacity analysis and VISSIM modeling inputs.

Classification data from both the tube and turning movement counts was reviewed to determine heavy vehicle percentages. Reported percentages ranged from 0.25% to 6%. In general, the percentages were higher in the area between Sulphur Avenue and the southern project limits including the I-10 ramps, more predominantly in the AM peak. Five percent (5%) heavy vehicles was used for this area in the AM peak analysis including turning movements to and from Sulphur Avenue. Although the data indicated truck percentages as low as 0.25% in the northern section, a conservative value of two percent (2%) was selected for all PM peak analysis as well as for all movements north of Sulphur Avenue in the AM peak analysis.

The peak hours were determined to be 7:00 AM to 8:00 AM and 4:45 PM to 5:45 PM. **Figure II-2** presents the resulting 2013 peak hour intersection turning movement counts. This figure also presents the daily volumes at the tube count locations. These twenty-four hour counts were not adjusted using seasonal factors and are presented as measured.

Crash Data Review

Crash reports for both intersections and roadway segments within the study area were provided by LADOTD for 2009, 2010 and 2011. The crash reports were reviewed to identify correctible crash patterns for use in developing alternatives.

The following were identified during the review of intersection crash data:
I-10 Service Road: Left turn collisions involving left turning motorists from the I-10 Service Road eastbound onto LA 378 occurred during the permitted left turn phase.

I-10 Westbound Ramps: Left turn crashes involving left turning motorist from the LA 378 northbound onto the I-10 westbound ramps occurred during the permitted left turn phase.

Sulphur Avenue: Rear end collisions occurred within the channelized eastbound right turn lane on the Sulphur Avenue Motorists looking north for a gap in traffic could not see that the vehicle ahead of them stopped suddenly.

LA 378 at Mulberry Street: Collisions occurred due to the awkward skew angles and separation of the eastbound and westbound approaches of Mulberry Street.

John Stine Road: Right angle crashes occurred from motorist running the red indication and left turn crashes occurred on LA 378 northbound during the permitted left turn phase.

Sam Houston Jones Parkway: Right angle collisions involving left turning motorists into and out of Sam Houston Jones Parkway occurred from motorist attempting a left turn in an inadequate gap in the high speed LA 378 traffic. The Sam Houston Jones Parkway approach is located in the middle of a horizontal curve on LA 378.

The following were identified during the review of roadway segment crash data:

LA 378 north of Sulphur Avenue: Collisions occurred involving left turning vehicles using the center two-way left turn lane for access to and from the Burger King and Shell Gas Station just north of the Sulphur Avenue intersection.
LA 378 between Mulberry Street and Shady Lane: Collisions occurred on LA 378 in this section involving motorists using the center two-way left turn lane to access the various land uses.

Capacity Analysis Criteria

Capacity analyses were performed for the roadway segments and subject intersections within the project study area for each of the project scenarios. The various types of analyses performed for this study included two-lane highway, multi-lane highway, unsignalized and signalized intersection and roundabout. Roadway analysis was performed using Highway Capacity Software (HCS+) v 5.4. Signalized and unsignalized intersection and U-turn analyses were performed using Synchro 8.0 software. Roundabout analysis was conducted using SIDRA 5.1 with parameters based on the "*Roundabout Analysis: Required Settings and Standards for SIDRA 5.1*" brochure published by LADOTD.

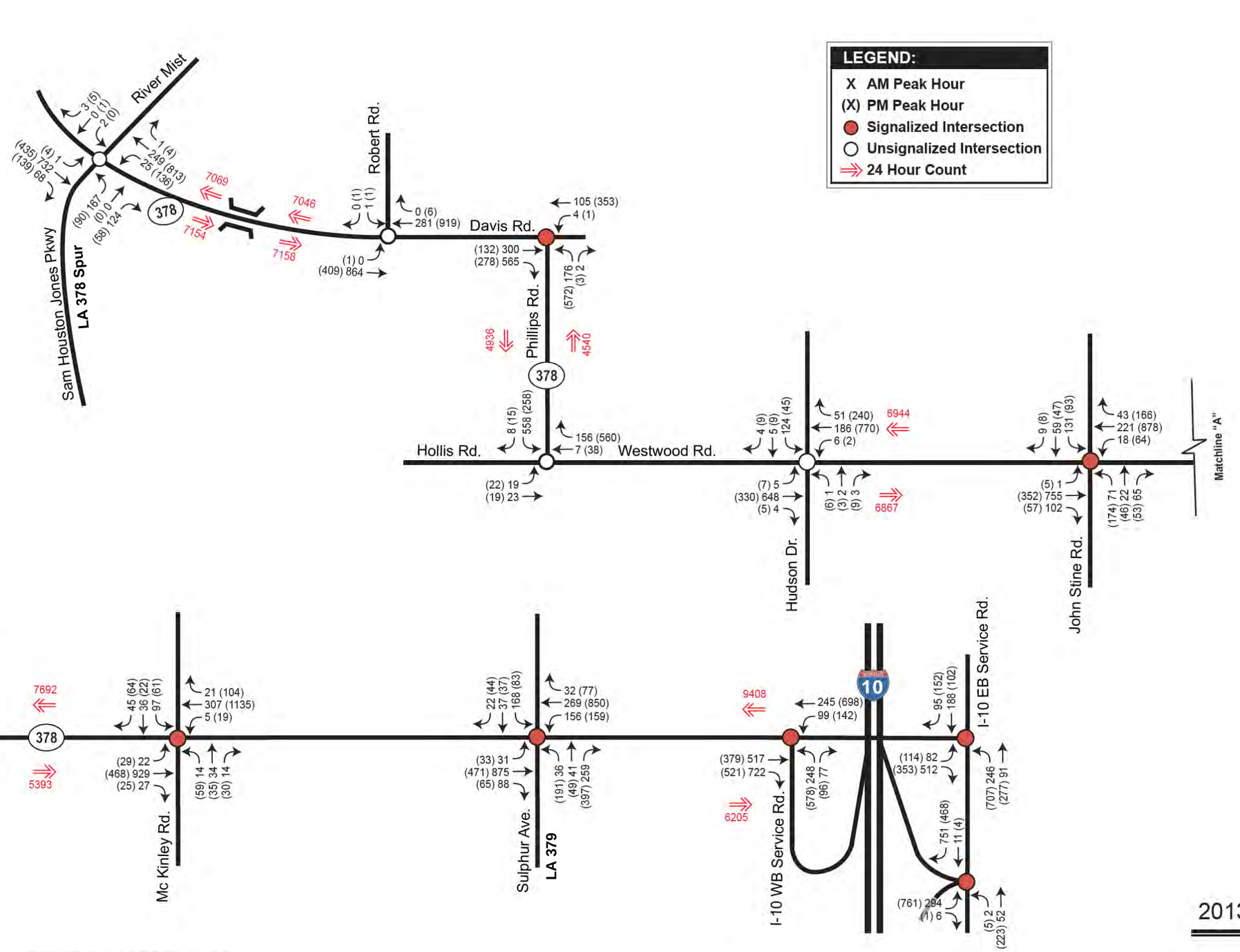


Figure II-2
2013 Existing Volumes

LA 378 Stage "0"
Traffic Study
Calcasieu Parish, LA

NOT TO SCALE
FOR PLANNING PURPOSES ONLY

URBAN SYSTEMS inc.

NY ASSOCIATES, INC.
ENGINEERS • ARCHITECTS • PLANNERS
PROGRAM & PROJECT MANAGERS

Existing Conditions Capacity Analysis

The 2013 existing traffic volumes, access points, lengths of segments, speed and lane widths were entered into HCS+ software for each roadway segment. The results are presented in **Tables II-1** and **II**.

A review of Tables II-1 and II-2 indicates that the southern five lane section has excess capacity in the existing conditions. Analysis indicates LOS D and LOS E conditions on the two-lane section with a volume to capacity ratio near 0.5. The poor LOS compared to the volume capacity ratio is a function of the impact of left and right turning vehicles that impact the through traffic.

The 2013 existing traffic volumes, geometry and intersection control were entered into Synchro 8.0 software to determine the expected capacity and Levels of Service for each of the subject intersections. The signalized intersection analysis was based on current timing and phasing information obtained from the Traffic Signal Inventories and field observations. The results are presented in **Table II-3**.

A review of **Table II-3** indicates reasonable operating conditions under existing traffic demand is expected in the study area with the exception of the intersection of John Stine Road in the PM peak hour. This is consistent with field conditions as this is where the road transitions from a five-lane to a two-lane section and congestion was observed. Queuing was observed for the eastbound approach of the I-10 eastbound service road at LA 378 for left turning vehicles.

Table II-1
LA 378 Roadway Segments
Base Conditions Multilane Segment Capacity Analysis

Roadway Segment	AM Peak		PM Peak	
	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)
LA 378 between I-10 Westbound ramps and Sulphur Ave				
LA 378 Northbound	A	6.2	B	15.9
LA 378 Southbound	B	15.7	B	11.2
LA 378 between Sulphur Ave and McKinley St.				
LA 378 Northbound	A	4.1	B	15.7
LA 378 Southbound	B	13.0	A	7.0
LA 378 between McKinley St and John Stine Rd				
LA 378 Northbound	A	4.5	B	15.3
LA 378 Southbound	B	12.0	A	6.3

Table II-2
LA 378 Roadway Segments
Base Conditions Two-Lane Segment Capacity Analysis

Roadway Segment	AM Peak		PM Peak	
	LOS	V/C	LOS	V/C
LA 378 between John Stine Rd and Hudson Dr				
LA 378 Northbound	D	0.40	E	0.51
LA 378 Southbound				
LA 378 between Hudson Dr and Hollis Rd				
LA 378 Northbound	D	0.30	D	0.39
LA 378 Southbound				
LA 378 between Hollis Rd and Bridge				
LA 378 Northbound	D	0.40	D	0.46
LA 378 Southbound				
LA 378 between Bridge and Sam Houston Jones Pkwy				
LA 378 Northbound	D	0.40	E	0.50
LA 378 Southbound				

Table II-3
Base Conditions Intersection Analysis Results

Intersection Approach	2013			
	AM Peak		PM Peak	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)
I-10 EB Service Rd @ Ramps				
OVERALL	**B**	**10.7**	**B**	**15.0**
Service Rd Eastbound	A	4.0	A	7.0
Service Rd Westbound	A	9.1	A	9.1
Ramps Southbound	B	16.0	C	21.2
LA 378 @ I-10 EB Service Road				
OVERALL	**B**	**12.8**	**B**	**13.8**
Service Rd Eastbound	A	4.4	A	8.9
Service Rd Westbound	B	12.8	B	16.2
LA 378 Southbound	B	18.2	C	24.1
LA 378 @ I-10 N. Service Road				
OVERALL	**B**	**12.2**	**B**	**13.8**
Service Rd Eastbound	B	17.2	B	19.2
LA 378 Northbound	A	4.3	A	7.7
LA 378 Southbound	B	12.8	B	15.1
LA 378 @ Sulphur Avenue				
OVERALL	**C**	**31.5**	**C**	**31.2**
Sulphur Ave Eastbound	C	32.6	D	41.1
Sulphur Ave Westbound	D	36.4	C	33.2
LA 378 Northbound	C	26.7	C	29.2
LA 378 Southbound	C	32.0	C	22.2
LA 378 @ McKinley Road				
OVERALL	**B**	**10.4**	**B**	**10.7**
McKinley Rd Eastbound	C	21.3	C	25.0
McKinley Rd Westbound	C	28.8	C	25.0
LA 378 Northbound	A	5.5	A	9.1
LA 378 Southbound	A	7.5	A	6.1
LA 378 @ John Stine Road				
OVERALL	**C**	**27.5**	**E**	**73.3**
John Stine Rd Eastbound	C	31.5	F	90.5
John Stine Rd Westbound	C	34.9	D	54.8
LA 378 Northbound	B	17.1	F	91.4
LA 378 Southbound	C	28.1	B	19.7
LA 378 @ Hudson Drive				
Hudson Dr Eastbound	C	16.8	C	22.0
Hudson Dr Westbound	D	30.2	E	46.7
LA 378 Northbound	A	0.2	A	0.1
LA 378 Southbound	A	0.1	A	0.3
LA 378 @ Hollis Road				
Hollis Rd Southbound	A	2.3	A	3.5
Phillips Rd Westbound	C	23.0	C	18.1
LA 378/Phillips Rd @ Davis Road				
OVERALL	**B**	**18.1**	**B**	**19.7**
LA 378 Eastbound	B	14.7	C	29.4
Davis Rd Northbound	A	4.4	B	14.3
LA 378 Southbound	C	20.7	B	11.5
LA 378 @ Robert Road				
Robert Rd Westbound	C	24.8	D	31.2
LA 378 @ Sam Houston Jones Parkway				
LA 378 Eastbound	A	0.9	A	1.3
LA 378 Westbound	A	0.1	A	0.1
River Mist Northbound	C	15.7	C	17.5
Sam Houston Jones Pwy Southbound	C	20.0	D	28.6

PLANNED PROJECTS

The next step in the development of alternatives was to examine any planned projects that may affect the design of the alternatives. The Imperial Calcasieu Regional Planning & Development Commission (IMCAL) as the Metropolitan Planning Organization (MPO) for the region maintains its Transportation Improvement Plan (TIP), which identifies, prioritizes and allocates anticipated funding for transportation improvements over the next 4 years.

Only three projects are in the TIP which relate to the possible future improvement of LA 378. They include the widening of John Stine Road west of LA 378 to Myrtle Springs Road, the addition of a right turn lane from LA 378 (Sampson Street) to LA 379 (Sulphur Avenue), and the project at hand, the feasibility study of improvements to LA 378. Though not listed in the TIP, the LADOTD is in the very early stages of preparing an Environmental Impact Statement (EIS) to assess alternatives, including a no build and a "rehabilitation" option, for I-10 between the I-210 interchanges including the Calcasieu River Bridge, which will include improvements to the I-10/LA 378 interchange.

REVIEW OF EARLIER CONCEPTS

2006 Report

As mentioned in Chapter I, a preliminary feasibility report was previously completed by Meyer Engineers in March, 2006 which explored possible improvements between John Stine Road and Sam Houston Jones Parkway. The result of that study recommended the following:

- Construction of a five-lane section between John Stine Road and Sam Houston Jones Parkway.
- Use of a functional classifications of Urban Arterial UA-2 and UA-3.
- Construction of a new 2 lane parallel span bridge over the West Fork of the Calcasieu River to provide 4 travel lanes across the river.
- Maintaining the existing alignment, with the exception of realigning the Phillips Road/Westwood Road intersection and Phillips Road /Davis Road intersection as well as a slight realignment in the vicinity of the West Fork Bridge to enable construction of a new West Fork crossing.

LADOTD District 07 Memorandum

The Calcasieu Parish Police Jury passed a resolution in September 2011 to request that a feasibility study be done for the widening of LA 378. As a result, LADOTD District 07 issued a memorandum recommending revisiting the previous study done by Meyer Engineering. The three initial options are described below:

Option A: Very similar to the alternative recommended in the Meyer Report, it essentially utilized the existing alignment, included the construction of a new parallel bridge, and removed the right angle turns.

Option B: The concept straightened the highway alignment, included construction of a new bridge, but had a larger impact to residential property.

Option C: Included a new alignment north of Phillips with two new bridge locations (one over the West Fork of the Calcasieu River and one over Indian Bayou). The concept entailed passing through Sam Houston Jones State Park.

These three became the starting point for alternatives developed in this Stage 0 Feasibility Study, which was confirmed during the Project Initiation Meeting held in August 2012. They are presented in **Figures II-3, II-4 and II-5** on the following pages.

Figure II-3 2011 LADOTD Option A

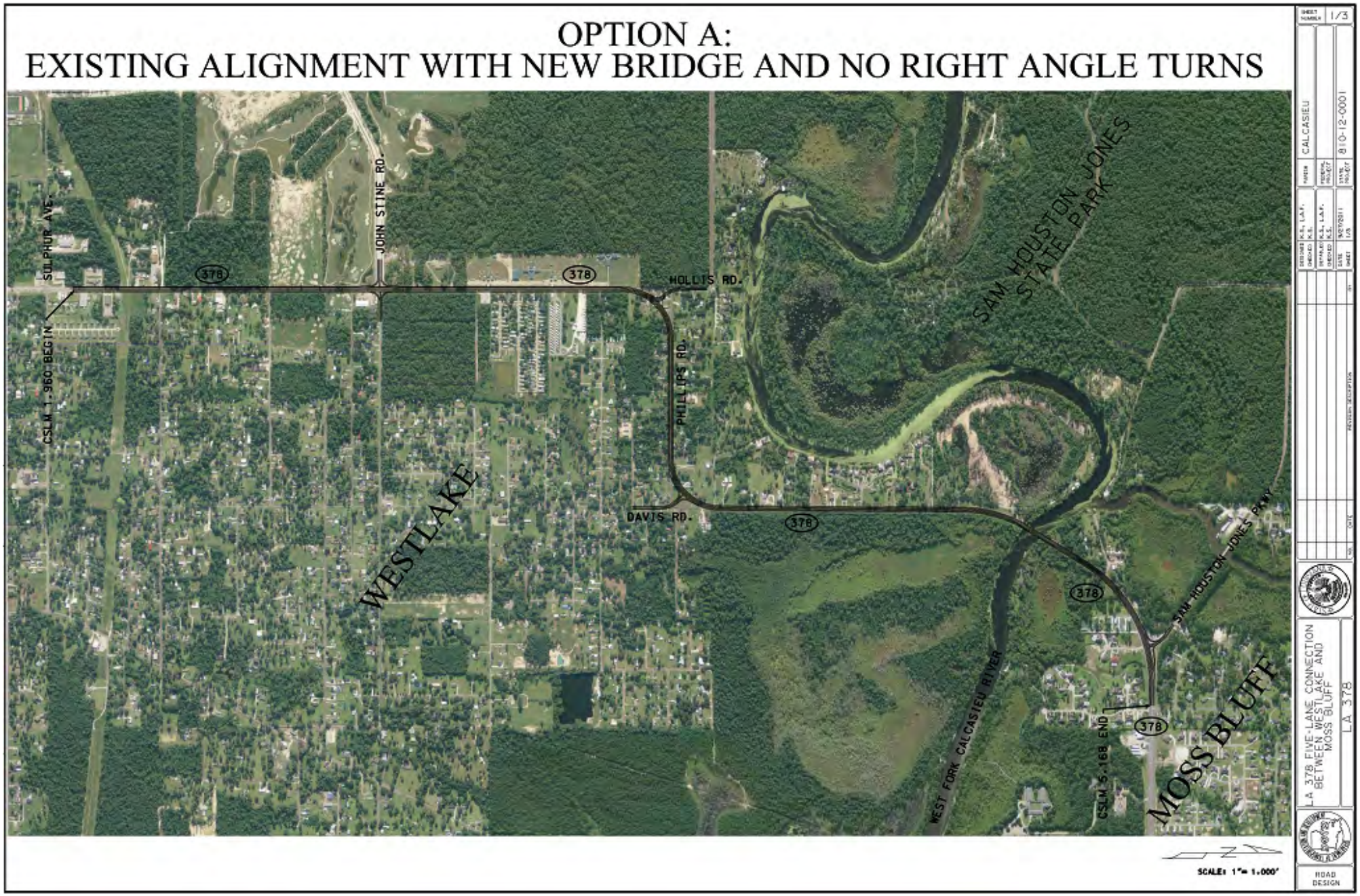


Figure II-4 2011 LADOTD Option B

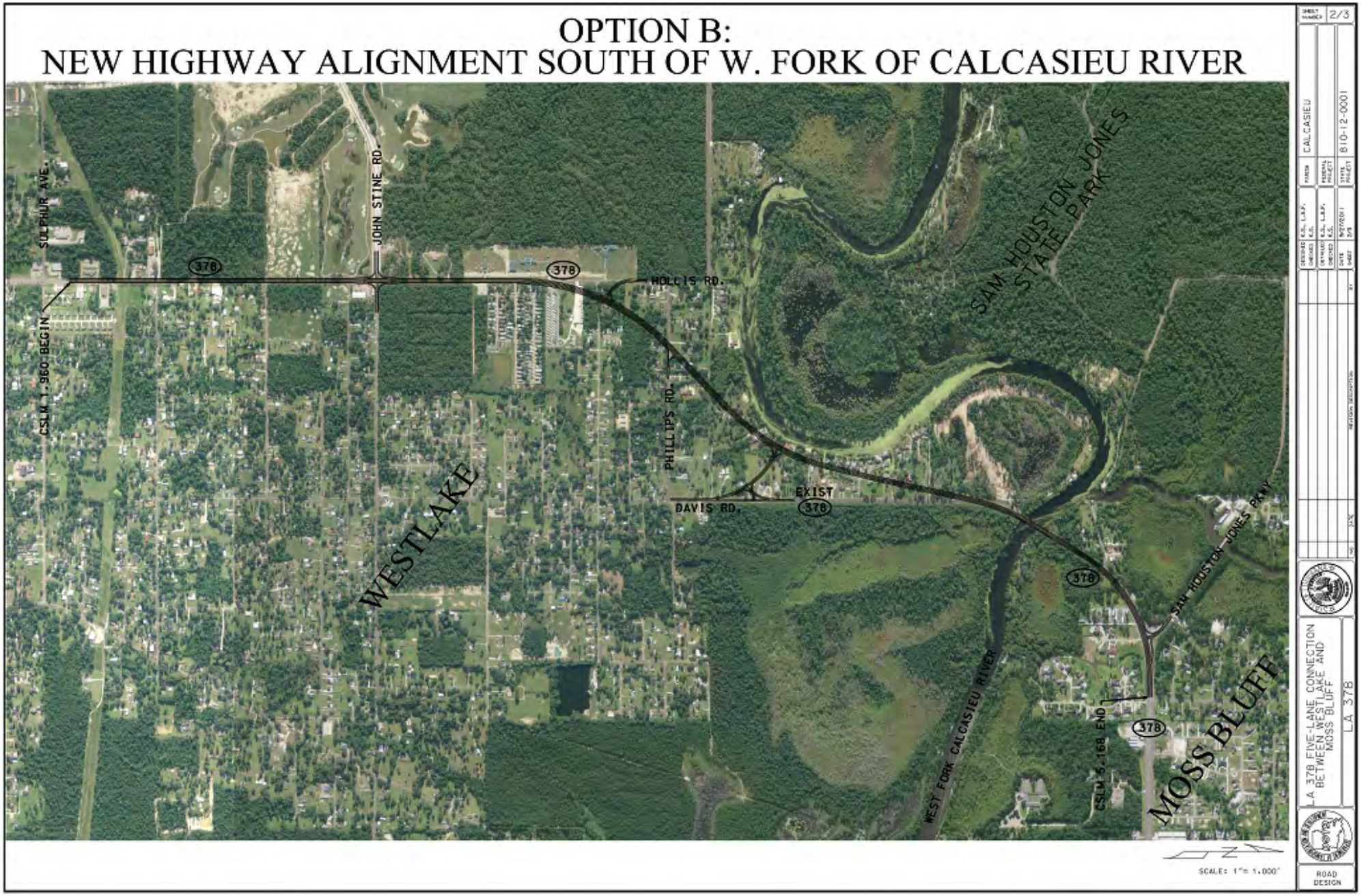


Figure II-5 2011 LADOTD Option C

FURTHER DEVELOPMENT OF ALTERNATIVES BASED ON TRAFFIC ANALYSIS

The initial development of alternatives involved reviewing the volume data, existing conditions capacity analysis results and safety data for each subject intersection. **These analyses are detailed in the stand-alone appendix document *LA 378 Stage 0 Feasibility Analysis Traffic Study*.**

Refinement based on Traffic Signal Warrant Analysis

Based on the EDSM requirements, full median openings and traffic signal installations must satisfy the MUTCD signal Warrant 1A. The requirements for Warrant 1A include a minimum number of vehicles on the major and minor roadways for any eight hours on an average day. To aid in the development of alternatives, traffic signal warrant analysis was conducted based on the existing traffic volumes, intersection geometry, speed and location at the subject intersections.

Existing traffic volumes, roadway geometry, speed and crash data were input into PC-Warrants software. The results of the traffic signal warrant analyses are presented in **Table II-4** below:

Table II-4
Signal Warrant Analysis Results

LA 378 Intersection	2009 MUTCD Traffic Signal Warrant								
	1	1A	1B	1 A&B	2	3	3A	3B	7
I-10 Service Road	S	S	S	S	S	S	S	S	NS
I-10 WB Ramps	S	S	S	S	S	S	S	S	S
Sulphur Avenue	S	S	NS	S	S	S	S	S	NS
McKinley Street	S	S	S	S	S	S	S	S	NS
John Stine Road	S	S	S	S	S	S	S	S	NS
Hudson Drive	S	NS	S	NS	S	S	S	S	NS
Hollis Road	NS	NS	NS	NS	S	S	S	S	NS
Davis Road	S	S	NS	S	S	S	S	S	NS
Sam Houston Jones Parkway	S	S	S	S	S	S	S	S	NS

S = Satisfied, NS = Not Satisfied

A review of **Table II-4** indicates that the unsignalized intersection of Hudson Drive and Hollis Road should remain unsignalized. The unsignalized intersection of Sam Houston Jones Parkway met Warrant 1A indicating that signalization and/or a full access median opening could be considered. The existing signalized intersections met volume Warrant 1A.

Potential intersection configurations were then considered for each location that met Warrant 1A for traffic signals, which included:

- Traditional Signals
- Roundabouts
- Superstreets (J-turns)

The initial intersection evaluation at the following two intersections indicated that only one (1) option would be used for all alternatives (including No Build) for the following reasons:

1. Southern I-10 Service Rd at I-10 eastbound on/off ramps - Remain as is, signalized for all alternatives, due to the following reasons:

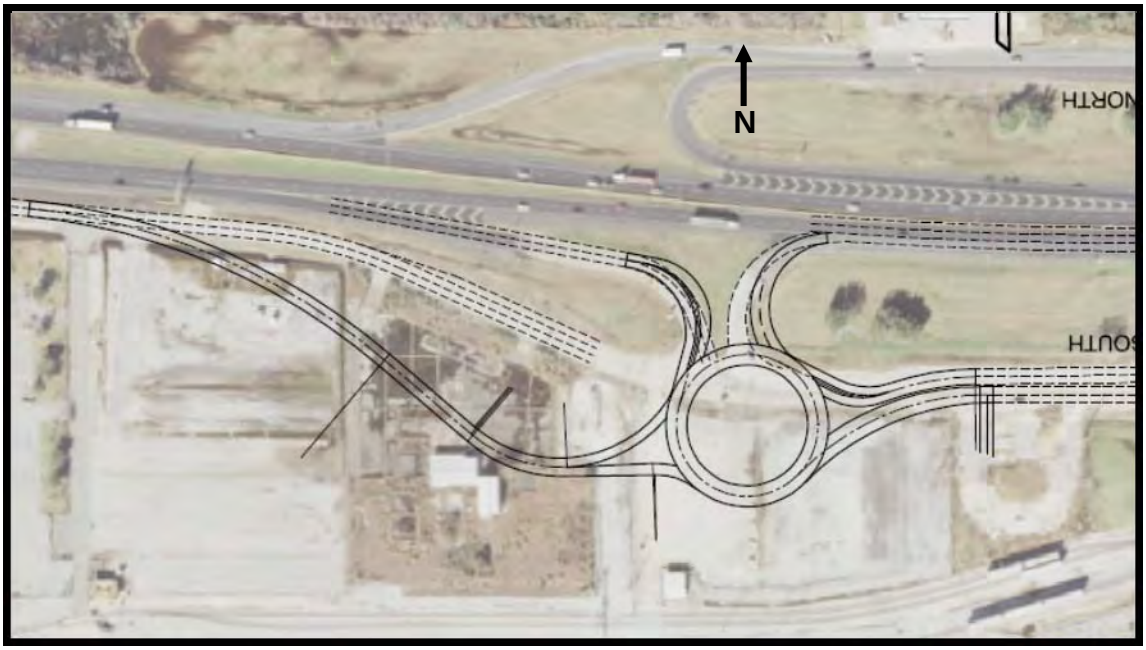
1. Operational and/or safety deficiencies were not identified.
2. J-turns were determined to not be feasible for the roadway alignments that currently require a sharp right turn from the interstate ramp that enters the service road in both a curve and a transition area from three to two-lanes with limited right-of-way. This is depicted in **Figure II-6** below.

Figure II -6
Southern I-10 Service Road at I-10 eastbound on/off ramps

Sources: Aerial – LADOTD

3. Due to the angle of ramp approaches it was determined that a roundabout would be geometrically not feasible. The impact to an adjacent industrial site also make a roundabout in this location undesirable. The potential roundabout layout is included in **Figure II-7** on the following page.

Figure II -7
Potential Roundabout at I-10

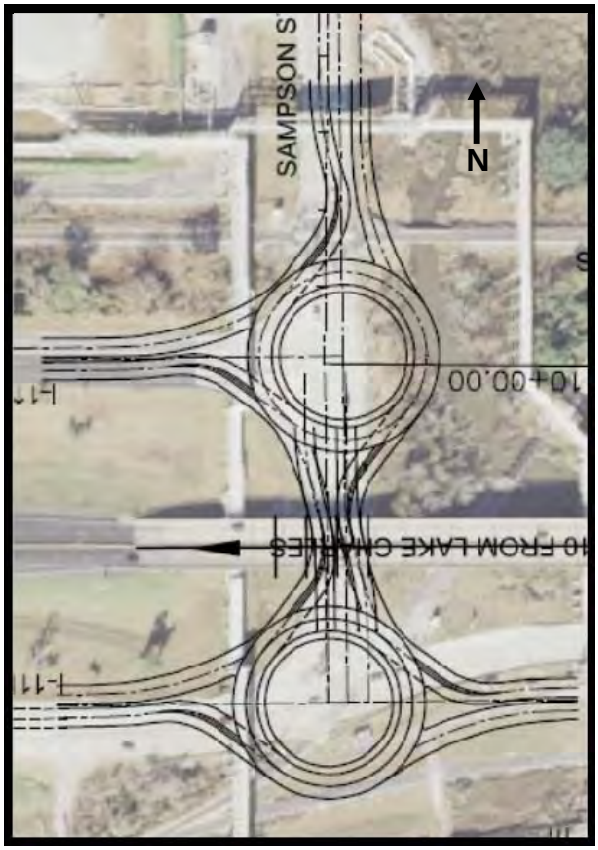


Sources: Aerial - LADOTD, Roundabout Geometry - N-Y Associates, Inc.

2. Southern and Northern I-10 Service Rd Intersections – Eliminate eastbound permitted left turns at southern intersection and northbound permitted left turns at the northern intersection for safety for all alternatives.

- Operational deficiencies were not identified.
- Eliminating permitted left turns could reduce crashes.
- J-turns were determined to not be feasible as it would be an unexpected condition in-between and in-close proximity to two full access signalized intersections.
- A roundabout was determined to be geometrically not feasible at this location due to right-of-way limitations as well as the close proximity of the existing I-10 overpass, pipe racks over the roadway, and nearby at-grade railroad crossings. These constraints are shown on **Figures II-8** and **II-9** on the following page.

Figure II -8
Potential Roundabouts at I-10 Service Road and Sampson Street



Sources: Aerial - LADOTD, Roundabout Geometry - N-Y Associates, Inc.

Figure II -9
Constraints at I-10 Service Road and Sampson Street

The other subject intersections were determined to be eligible for various configurations and control depending on the alignment of LA 378. With potential intersection configurations identified, the various options were combined with the original three alternative alignments to form three logical corridor alternatives in addition to the No Build. Alternative A included two options at the intersection of Davis Road. The corridor alternatives were defined as follows:

- **No Build** is maintaining the existing roadway geometry and traffic control as is.

- **Alternative A-1** is a minimal impact corridor project. It has the least variation from existing conditions in the southern section. In the northern section of Alterntive A-1, in addition to widening to four lanes, it also has the smallest change to the current LA 378 alignment (replacing two ninety degree turns with curves).

- **Alternative A-2** is Alternative A-1 with a roundabout at Davis Road in lieu of a signal.

- **Alternative B** includes installation of a raised median throughout the study limits and incorporates roundabouts at the subject intersections that met Warrant 1A and at intersections in between to allow U-turns at or about ½ mile spacing. In the northern section, the alternative involves a realignment of LA 378 between Hudson Drive and Davis Road along with the widening to four lanes.

- **Alternative C** is a superstreet concept with a combination of unsignalized and signalized J-turn intersections. In the northern section, the alternative also involves a realignment of LA 378 between Phillips Road and the LA 378 spur along with the widening to four lanes.
-

Each of the alternatives can be separated into a southern section (LA 378 between I-10 and John Stine Road) and a northern section (LA 378 between John Stine Road and Sam Houston Jones Parkway). The southern and northern sections could be interchanged with one another in later stages of the project.

Proposed Modifications

Alternative A-1

Alternative A-1 has no mainline roadway improvements between I-10 and the new four lane divided section. The following describes the proposed modifications for each intersection along Alternative Alignment A-1.

- Sulphur Avenue - Remove the sweeping channelized eastbound right turn and replace with a standard right turn lane parallel to the through lane. This will

provide motorists a better line of sight to see oncoming traffic while making a right turn versus looking over their shoulder for safety. The right turn could be signalized with an overlap for efficiency.

- LA 378 north of Sulphur Avenue - Install a 200 ft. center median using barrier curb or a separating device such as flex posts to prohibit lefts into/out of Burger King & Shell Gas station to reduce conflicts for safety.

- McKinley Street - No proposed modifications.

- John Stine Road - Eliminate northbound and southbound permitted left turns for safety, and add a northbound through lane, a northbound right turn lane and an eastbound left turn lane.

- Hudson Drive - Convert to right-in/right-out

- Hollis Road - Realign and convert to right-in/right-out only.

- Davis Road - Realign with the fire station driveway and provide preemption for the signal.

- Sam Houston Jones Parkway/River Mist - Convert to unsignalized J-turn intersection with a directional median opening for LA 378 northbound left turns only.

Alternative A-1 includes the following proposed U-turn locations to provide access with appropriate spacing:

- Southbound U-turn, north of John Stine Road
- Northbound U-turn, north of Goss Road
- Southbound U-turn, north of Landry Road
- Northbound U-turn, north of Hudson Drive
- Southbound U-turn, south of Fontenot Road
- Northbound U-turn, between Davis Road and Hollis Road
- Northbound U-turn, north of Davis Road (may not be needed)
- Southbound U-turn, south of River Bluff Lane

Alternative A-2

The only variation from Alternative A-1 is a roundabout at the Davis Road/Phillips Road/Roberts Road intersection instead of a signal.

Alternative B

Alternative B includes introducing a raised median from south of Sulphur Avenue to the new four lane divided section. The following intersections are proposed to be converted to a multi-lane roundabout to replace the existing signal:

- Sulphur Avenue
- McKinley Street
- John Stine Road

The following intersections are proposed to be converted to a multi-lane roundabout to provide a location for U-turns with appropriate spacing between intersections.

- Mulberry Street
- Hudson Drive
- Villa Drive

Other changes include:

Sam Houston Jones Parkway/River Mist - Convert to a multi-lane roundabout to service traffic demand and provide access as it meets Warrant 1A.

Hollis Road and Phillips Road - Realign roadways to form a single multilane roundabout.

Barrett Lane - Provide a partial median opening for northbound left turns.

Alternative C

Alternative C is a superstreet concept in the southern portion of the project that includes introducing a raised median from south of Sulphur Avenue to the new four lane divided section. This alternative includes removing the existing West Fork Creek Bridge and dead-ending Davis Road on either side. The following describes the proposed control at each intersection:

Sulphur Avenue - Convert to a signalized J-turn intersection with left turns from LA 378 allowed. The Sulphur approaches would be right-in/right-out only with unsignalized J-turns on either side. Eastbound approach of Sulphur Avenue proposed to include dual eastbound right turns.

McKinley Street - Convert to a signalized J-turn intersection with left turns from LA 378 allowed. The McKinley Street approaches would be right-in/right out only with unsignalized J-turns on either side.

John Stine Road - Convert to a signalized J-turn intersection with no left turns from any direction. The John Stine approaches would be right-in/right out only with unsignalized

J-turns on either side. The northbound approach of LA 378 is proposed to include a northbound right turn only lane.

Hudson Drive - Convert to right-in/right-out

Hollis Road - Convert to right-in/right-out

Phillips Road - Convert to a multilane roundabout just south of proposed elevated section.

Sam Houston Jones Parkway/River Mist - Convert to a unsignalized J-turn intersection with no left turns from any direction. The Sam Houston Jones Parkway and River Mist approaches would be right-in/right out only with unsignalized J-turns on either side.

Alternative C includes the following proposed U-turn locations to provide access with appropriate spacing:

- Southbound U-turn, north of Mulberry Lane
- Northbound U-turn, north of Shady Lane
- Southbound U-turn, north of Goss Road
- Northbound U-turn, north of Landry Road
- Southbound U-turn, north of Hudson Drive
- Northbound U-turn, at Dove Creek motor homes
- Southbound U-turn, north of new bridge/elevated section
- Northbound U-turn, east of Gahagan Lane

Capacity Analysis of Developed Alternatives

The 2013 and 2028 projected traffic volumes were entered into HCS+ software for each roadway segment to compare alternatives. The results of the analysis for AM and PM peaks are presented in **Tables II-5** and **II-6**, respectively, on the following two pages.

A review of **Tables II-5** and **II-6** indicates that Alternatives A-1, A-2, B and C are expected to provide better level of services and more capacity compared to the No Build condition, with the most significant impact north of John Stine Road where the two-lane section is widened to four.

The following intersections are proposed to include the same improvements in each Build alternative:

- I-10 eastbound ramps at the Service Road
- LA 378 at the I-10 Service Road
- LA 378 at I-10 westbound Ramps
- LA 378 at Hudson Drive

These intersections were analyzed for the 2013 Build, 2028 No Build and Build scenarios using Synchro 8.0 software. The results of the analysis are presented in **Table II-7**.

A review of **Table II-7** indicates an increase in delay where permitted lefts are eliminated in the Build scenarios. The eastbound approach of the I-10 eastbound Service Road at LA 378 is expected to operate acceptably; however, queues are still expected. Re-striping of the eastbound approach to allow dual left turns could be considered to reduce queues as existing pavement for dual receiving lanes on LA 378 is available.

Table II-5
LA 378 Roadway Segments Analysis Results for AM Peak

Intersection Approach	No Build				Alternative A-1 ans A-2				Alternative B				Alternative C			
	2013		2028		2013		2028		2013		2028		2013		2028	
	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)
LA 378 between I-10 Westbound ramps and Sulphur Avenue																
LA 378 Northbound	A	6.2	A	9.2	A	6.2	A	9.2	A	6.2	A	9.2	A	6.2	A	9.2
LA 378 Southbound	B	15.7	B	16.9	B	15.7	B	16.9	B	15.7	B	16.9	B	15.7	B	16.9
LA 378 between Sulphur Avenue and McKinley Street																
LA 378 Northbound	A	4.1	A	4.9	A	4.1	A	4.9	A	4.7	A	5.7	A	6.1	A	7.4
LA 378 Southbound	B	13.0	B	14.2	B	13.0	B	14.2	B	13.0	B	14.2	B	14.9	B	16.6
LA 378 between McKinley Street and John Stine Road																
LA 378 Northbound	A	4.5	A	4.8	A	4.5	A	4.8	A	4.5	A	4.8	A	7.4	A	8.3
LA 378 Southbound	B	12.0	B	13.8	B	12.0	B	13.8	B	12.7	B	14.8	B	14.8	B	17.3
LA 378 between John Stine Road and Hudson Drive																
LA 378 Northbound	D*	0.40*	E*	0.46*	A	3.6	A	3.9	A	3.6	A	3.9	A	7.2	A	8.3
LA 378 Southbound					A	10.3	B	11.8	A	10.4	B	12.0	B	15.3	B	16.2
LA 378 between Hudson Drive and Hollis Road																
LA 378 Northbound	D*	0.30*	D*	0.33*	A	4.4	A	5.1	A	3.8	A	4.3	A	4.1	A	4.7
LA 378 Southbound					A	9.2	A	10.7	A	7.6	A	10.9	A	9.5	B	11.1
LA 378 between Hollis Road and Bridge																
LA 378 Northbound	D*	0.40*	E*	0.48*	A	3.3	A	3.8	A	3.5	A	4.1	A	1.9	A	2.1
LA 378 Southbound					A	10.1	B	12.2	A	10.2	B	12.3	A	6.6	A	8.1
LA 378 between Bridge and Sam Houston Jones Parkway																
LA 378 Northbound	D*	0.40*	E*	0.47*	A	5.2	A	6.0	A	3.2	A	3.8	A	6.8	A	7.8
LA 378 Southbound					B	12.1	B	14.4	A	10.1	B	12.2	B	11.5	B	13.8

* Tw o-lane highw ay segment LOS criteria are based on v/c. Multilane highw ay segment LOS criteria are based on density (pc/mi/ln).

Table II-6
LA 378 Roadway Segments Analysis Results for PM Peak

Intersection Approach	PM Peak															
	No Build				Alternative A-1 ans A-2				Alternative B				Alternative C			
	2013		2028		2013		2028		2013		2028		2013		2028	
	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)
LA 378 between I-10 Westbound ramps and Sulphur Avenue																
LA 378 Northbound	B	15.9	B	17.4	B	15.9	B	17.4	B	15.9	B	17.4	B	15.9	B	17.4
LA 378 Southbound	B	11.2	B	14.4	B	11.2	B	14.4	B	11.2	B	14.4	B	11.2	B	14.4
LA 378 between Sulphur Avenue and McKinley Street																
LA 378 Northbound	B	15.7	B	17.1	B	15.7	B	17.1	B	16.1	B	17.6	C	18.7	C	21.7
LA 378 Southbound	A	7.0	A	8.0	A	7.0	A	8.0	A	7.0	A	8.0	A	10.0	B	12.6
LA 378 between McKinley Street and John Stine Road																
LA 378 Northbound	B	15.3	B	17.6	B	15.3	B	17.6	B	15.3	B	17.6	C	18.2	C	21.1
LA 378 Southbound	A	6.3	A	6.8	A	6.3	A	6.8	A	7.6	A	8.4	A	9.2	A	10.3
LA 378 between John Stine Road and Hudson Drive																
LA 378 Northbound	E*	0.51*	E*	0.57*	B	12.7	B	14.5	B	12.7	B	14.5	B	16.6	C	19.2
LA 378 Southbound					A	5.0	A	5.3	A	5.2	A	5.7	A	8.9	A	10.0
LA 378 between Hudson Drive and Hollis Road																
LA 378 Northbound	D*	0.39*	D*	0.44*	A	10.1	B	11.4	A	9.7	B	11.2	A	9.9	B	11.2
LA 378 Southbound					A	4.6	A	5.0	A	4.0	A	5.1	A	4.8	A	5.2
LA 378 between Hollis Road and Bridge																
LA 378 Northbound	D*	0.46*	E*	0.55*	B	11.3	B	13.7	B	11.6	B	14.0	A	6.2	A	7.2
LA 378 Southbound					A	5.0	A	5.9	A	5.0	A	5.8	A	3.4	A	3.9
LA 378 between Bridge and Sam Houston Jones Parkway																
LA 378 Northbound	E*	0.50*	E*	0.60*	B	12.3	B	14.8	B	11.3	B	13.7	A	9.5	A	10.9
LA 378 Southbound					A	6.9	A	7.8	A	5.8	A	6.7	A	6.7	A	7.7

* Two-lane highway segment LOS criteria are based on v/c. Multilane highway segment LOS criteria are based on density (pc/mi/ln).

Table II-7
LA 378 Build and No Build Intersection Analysis Results

Intersection Approach	AM Peak								PM Peak							
	Synchro								Synchro							
	2013				2028				2013				2028			
	No Build		Build*		No Build		Build*		No Build		Build*		No Build		Build*	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)
I-10 EB Service Road @ Ramps																
OVERALL	**B**	**10.7**	**B**	**10.7**	**B**	**12.9**	**B**	**12.9**	**B**	**15.0**	**B**	**15.0**	**B**	**17.9**	**B**	**17.9**
Service Rd Eastbound	A	4.0	A	4.0	A	4.9	A	4.9	A	7.0	A	7.0	A	7.4	A	7.4
Service Rd Westbound	A	9.1	A	9.1	B	11.9	B	11.9	A	9.1	A	9.1	B	10.9	B	10.9
Ramps Southbound	B	16.0	B	16.0	B	16.0	B	16.0	C	21.2	C	21.2	C	26.1	C	26.1
LA 378 @ I-10 EB Service Road																
OVERALL	**B**	**12.8**	**B**	**16.4**	**B**	**13.1**	**C**	**24.2**	**B**	**13.8**	**C**	**26.3**	**B**	**18.6**	**D**	**35.1**
Service Rd Eastbound	A	4.4	B	15.4	A	6.8	D	35.8	A	8.9	C	21.5	B	16.6	C	34.9
Service Rd Westbound	B	12.8	B	15.2	B	15.0	B	17.1	B	16.2	C	32.3	B	16.0	C	35.0
LA 378 Southbound	B	18.2	B	17.7	B	17.2	B	18.6	C	24.1	C	34.0	C	24.2	D	35.6
LA 378 @ I-10 N. Service Road																
OVERALL	**B**	**12.2**	**B**	**12.9**	**B**	**13.5**	**B**	**14.4**	**B**	**13.8**	**B**	**15.2**	**B**	**15.4**	**B**	**16.9**
Service Rd Eastbound	B	17.2	B	17.3	B	18.1	B	18.2	B	19.2	C	21.3	C	22.8	C	24.4
LA 378 Northbound	A	4.3	A	8.2	A	5.5	A	8.5	A	7.7	A	9.9	A	8.0	B	10.6
LA 378 Southbound	B	12.8	B	12.9	B	14.6	B	15.0	B	15.1	B	15.0	B	15.7	B	16.4
LA 378 @ Hudson Drive																
Hudson Dr Eastbound	C	16.8	B	11.6	C	18.8	B	12.4	C	22.0	A	9.8	D	27.2	A	9.9
Hudson Dr Westbound	D	30.2	B	10.3	E	46.9	B	10.6	E	46.7	B	14.6	F	72.4	C	16.4
LA 378 Northbound	A	0.2	-	-	A	0.2	-	-	A	0.1	-	-	A	0.1	-	-
LA 378 Southbound	A	0.1	-	-	A	0.1	-	-	A	0.3	-	-	A	0.4	-	-

* Build scenario is for all three alternatives.

The following major intersections were analyzed to compare the alternatives to the No Build condition in 2013 and 2028:

- LA 378 at Sulphur Avenue
- LA 378 at McKinley Road
- LA 378 at John Stine Road
- LA 378 at Sam Houston Jones Parkway

Synchro software was used for the No Build, Alternatives A-1, A-2 and C analysis. Alternative B was analyzed using SIDRA software to compare roundabout control to signalized control. The Synchro and SIDRA analysis results cannot be compared between alternatives due to differences in capacity formulas used by the different software's. The U-turn volumes were omitted in the SIDRA signalized intersection analysis. **Tables II-8 and II-9** present Level of Service criteria for the AM and PM peaks, respectively, on the following page.

A review of **Tables II-8 and II-9** indicates the proposed alternatives are expected to provide similar or better levels of service than the No Build conditions at these four intersections in both peak periods. Alternatives A-1 and A-2 would maintain the existing access in the southern section, but results in the highest number of conflict points. Both Alternatives B and C include significantly reduced conflict points compared to Alternatives A-1 and A-2 with acceptable operational conditions expected. Alternative B would result in slower speeds throughout the corridor due to the traffic calming effect of the roundabouts. Alternative C is most conducive to the through traffic on LA 378 with the least number of conflict points overall

The existing intersections of LA 378 at Hollis Road, Phillips Road and Davis Road are expected to have significantly different configurations between alternatives. **Table II-10** presents a comparison of the major intersection in each alternative.

Table II-8
LA 378 Major Intersections for AM Peak Analysis Results

Intersection Approach	2013										2028									
	No Build		Build Alt. A-1 and A-2		Build Alt. B				Build Alt. C		No Build		Build Alt. A-1 and A-2		Build Alt. B				Build Alt. C	
	Synchro		Synchro		Sidra Signalized*		Sidra Roundabout		Synchro		Synchro		Synchro		Sidra Signalized		Sidra Roundabout		Synchro	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)
LA 378 @ Sulphur Avenue																				
OVERALL	**C**	**31.5**	**D**	**35.1**	**C**	**34.2**	**B**	**12.3**	**B**	**14.9**	**D**	**52.0**	**D**	**48.0**	**D**	**40.2**	**B**	**19.2**	**B**	**17.2**
Sulphur Ave Eastbound	C	32.6	C	27.6	C	23.3	B	16.8	B	17.4	C	33.0	C	28.6	C	25.8	C	23.5	B	18.0
Sulphur Ave Westbound	D	36.4	D	47.9	D	47.3	B	15.4	B	15.2	D	42.0	D	53.7	D	48.0	B	18.9	B	15.0
LA 378 Northbound	C	26.7	C	23.5	C	31.7	A	8.9	B	11.8	E	58.1	D	47.7	D	47.4	B	10.1	B	14.9
LA 378 Southbound	C	32.0	D	39.9	D	36.2	B	11.4	B	15.5	E	57.9	D	54.2	D	39.0	C	23.0	B	18.8
LA 378 @ McKinley Road																				
OVERALL	**B**	**10.4**	**B**	**12.6**	**B**	**18.6**	**A**	**8.3**	**B**	**12.4**	**B**	**11.2**	**B**	**14.1**	**C**	**25.7**	**A**	**9.5**	**B**	**15.3**
McKinley Rd Eastbound	C	21.3	B	12.3	C	29.3	B	13.4	B	15.4	C	21.5	B	12.5	C	31.7	B	14.5	B	15.8
McKinley Rd Westbound	C	28.8	B	15.3	D	51.4	B	12.3	B	15.9	C	30.6	B	15.9	E	61.3	B	13.1	B	16.0
LA 378 Northbound	A	5.5	A	9.3	B	10.6	A	7.3	A	9.1	A	6.0	B	10.5	B	18.2	A	8.1	B	10.8
LA 378 Southbound	A	7.5	B	13.3	B	13.8	A	7.6	B	13.0	A	8.9	B	15.2	C	21.0	A	9.1	B	17.1
LA 378 @ John Stine Road																				
OVERALL	**C**	**27.5**	**C**	**21.8**	**D**	**38.5**	**B**	**11.5**	**-**	**-**	**C**	**32.9**	**C**	**28.6**	**D**	**36.8**	**B**	**15.8**	**-**	**-**
John Stine Rd Eastbound	C	31.5	C	30.3	E	60.5	B	19.9	C	24.5	D	42.4	C	27.8	E	74.5	D	35.3	D	32.4
John Stine Rd Westbound	C	34.9	C	30.4	E	73.0	B	13.8	B	11.8	D	48.2	C	31.8	E	67.0	B	15.7	B	13.0
LA 378 Northbound	B	17.1	B	15.1	C	23.5	B	10.3	-	-	B	18.5	B	17.7	B	15.4	B	10.8	-	-
LA 378 Southbound	C	28.1	B	19.9	C	29.9	A	9.9	-	-	C	31.2	C	31.3	C	27.1	B	14.6	-	-
LA 378 @ Sam Houston Jones Parkway																				
OVERALL	**-**	**-**	**-**	**-**	**B**	**14.1**	**A**	**8.9**	**A**	**5.6**	**-**	**-**	**-**	**-**	**B**	**16.3**	**B**	**11.2**	**B**	**11.3**
LA 378 Eastbound	A	9.5	A	9.6	A	7.5	A	7.0	A	5.2	B	10.2	B	10.3	A	8.2	A	7.2	A	8.1
LA 378 Westbound	A	7.8	-	-	A	8.0	A	5.5	A	4.4	A	7.9	-	-	A	8.5	A	5.5	B	11.4
River Mist Northbound	C	15.7	A	9.7	C	27..9	B	10.6	A	6.4	C	23.3	A	10.0	C	28.8	B	11.1	A	8.9
Sam Houston Jones Pwy Southbound	C	20.0	C	20.3	C	34.2	B	19.0	A	7.0	D	26.9	E	36.5	D	41.5	C	28.1	B	15.4

* U-turns were omitted from signalized SIDRA analyes

Table II-9
LA 378 Major Intersections for PM Peak Analysis Results

Intersection Approach	2013										2028									
	No Build		Build Alt. A-1 and A-2		Build Alt. B				Build Alt. C		No Build		Build Alt. A-1 and A-2		Build Alt. B				Build Alt. C	
	Synchro		Synchro		Sidra Signalized*		Sidra Roundabout		Synchro		Synchro		Synchro		Sidra Signalized		Sidra Roundabout		Synchro	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)
LA 378 @ Sulphur Avenue																				
OVERALL	**C**	**31.2**	**C**	**31.1**	**C**	**32.1**	**B**	**11.6**	**B**	**17.1**	**E**	**58.3**	**D**	**39.0**	**C**	**34.3**	**B**	**16.3**	**C**	**23.7**
Sulphur Ave Eastbound	D	41.1	C	32.0	C	26.7	B	13.0	B	18.6	F	100.2	D	49.8	C	32.7	C	22.1	C	34.6
Sulphur Ave Westbound	C	33.2	D	35.7	D	37.4	C	22.6	B	15.2	C	33.4	D	36.4	D	37.6	C	32.1	B	15.6
LA 378 Northbound	C	29.2	C	26.1	D	35.2	B	10.6	B	18.6	D	45.0	C	28.0	D	36.3	B	13.4	C	22.9
LA 378 Southbound	C	22.2	D	38.0	C	31.1	A	8.4	B	13.3	C	27.9	D	43.7	C	32.2	A	8.8	B	14.3
LA 378 @ McKinley Road																				
OVERALL	**B**	**10.7**	**B**	**15.3**	**C**	**26.3**	**A**	**9.4**	**B**	**12.0**	**B**	**15.8**	**B**	**18.1**	**D**	**48.2**	**B**	**14.8**	**B**	**17.3**
McKinley Rd Eastbound	C	25.0	B	13.8	D	52.9	B	12.9	B	19.4	E	56.9	B	19.0	E	72.4	B	16.8	C	23.9
McKinley Rd Westbound	C	25.0	B	14.4	D	53.2	C	21.0	C	23.1	C	27.1	B	15.1	E	64.8	D	43.0	C	24.5
LA 378 Northbound	A	9.1	B	17.6	B	18.6	A	8.3	B	12.1	A	10.0	C	21.4	D	50.2	B	14.0	B	19.4
LA 378 Southbound	A	6.1	B	10.3	B	13.2	A	8.0	A	8.0	A	6.3	B	10.5	C	25.8	A	8.4	A	9.1
LA 378 @ John Stine Road																				
OVERALL	**E**	**73.3**	**C**	**25.3**	**D**	**52.3**	**B**	**13.4**	**-**	**-**	**F**	**115.0**	**C**	**30.7**	**E**	**80.0**	**C**	**22.0**	**-**	**-**
John Stine Rd Eastbound	F	90.5	C	32.7	E	60.5	B	19.2	C	19.1	F	83.1	C	34.5	F	80.7	C	26.3	D	25.6
John Stine Rd Westbound	D	54.8	C	33.7	F	99.2	C	26.3	C	22.3	E	62.4	C	34..9	F	99.2	E	75.8	D	32.7
LA 378 Northbound	F	91.4	C	23.7	D	50.9	B	11.9	-	-	F	163.4	C	31.7	F	93.9	B	18.3	-	-
LA 378 Southbound	B	19.7	C	20.8	C	31.0	A	9.1	-	-	C	23.0	C	23.3	C	31.6	B	10.3	-	-
LA 378 @ Sam Houston Jones Parkway																				
OVERALL	**-**	**-**	**-**	**-**	**B**	**10.5**	**A**	**7.5**	**A**	**5.2**	**-**	**-**	**-**	**-**	**B**	**13.3**	**A**	**7.9**	**A**	**5.8**
LA 378 Eastbound	A	8.8	A	9.0	B	10.0	A	7.1	A	4.9	A	9.3	A	9.3	B	13.2	A	7.4	A	5.5
LA 378 Westbound	A	9.7	-	-	A	7.1	A	6.5	A	4.2	B	10.5	-	-	A	8.3	A	6.9	A	4.2
River Mist Northbound	C	17.5	B	12.1	C	21.0	B	12.6	B	10.3	C	20.9	B	13.3	C	25.7	B	13.9	B	12.6
Sam Houston Jones Pwy Southbound	D	28.6	B	11.4	C	24.4	B	13.2	B	10.7	F	51.8	B	12.0	C	30.2	B	13.9	B	13.6

* U-turns were omitted from signalized SIDRA analyes

Table II-10

LA 378 at Hollis/ Davis/ Phillips Rd
Intersection Analysis Results

Intersection Approach	Alt. A-1		Alt. A-2				Alt. B				Alt. C			
	Synchro Signalized		Sidra Signalized		Sidra Roundabout		Sidra Signalized		Sidra Roundabout		Sidra Signalized		Sidra Roundabout	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)
LA 378 @ Hollis/Davis/ Phillips Road - 2013 AM Peak														
OVERALL	**B**	**11.1**	**B**	**17.8**	**A**	**8.0**	**B**	**12.3**	**A**	**8.6**	**A**	**9.2**	**A**	**8.2**
LA 378 Northbound	A	6.5	B	19.6	B	12.6	D	36.1	B	13.0	A	7.1	A	8.4
LA 378 Southbound	B	11.5	B	15.9	A	7.2	B	12.2	A	8.2	A	8.7	A	8.0
Fire Station/ Hollis	B	14.0	C	27.9	B	12.0	C	31.2	A	9.9	-	-	-	-
Davis Rd/ Phillips Rd	B	14.8	C	28.7	A	6.6	A	6.6	A	8.7	B	14.5	A	8.9
LA 378 @ Hollis/Davis/ Phillips Road - 2028 AM Peak														
OVERALL	**B**	**13.7**	**B**	**18.7**	**A**	**8.0**	**B**	**13.6**	**A**	**8.8**	**A**	**9.3**	**A**	**8.4**
LA 378 Northbound	A	6.6	C	22.0	B	13.0	D	42.2	B	14.6	A	7.5	A	9.0
LA 378 Southbound	B	15.0	B	16.5	A	7.1	B	13.6	A	8.2	A	8.6	A	8.2
Fire Station/ Hollis	B	14.0	C	27.7	B	12.7	C	32.7	B	10.5	-	-	-	-
Davis Rd/ Phillips Rd	B	14.9	C	29.1	A	6.8	A	7.3	A	9.3	B	15.2	A	9.1
LA 378 @ Hollis/Davis/ Phillips Road - 2013 PM Peak														
OVERALL	**B**	**11.9**	**C**	**24.2**	**B**	**10.9**	**B**	**11.0**	**A**	**7.5**	**B**	**10.2**	**A**	**8.4**
LA 378 Northbound	A	7.6	B	18.1	B	11.8	D	39.9	B	11.6	A	6.9	A	7.0
LA 378 Southbound	A	8.3	B	14.5	A	7.1	B	12.8	A	8.1	B	12.3	A	8.5
Fire Station/ Hollis	B	14.0	C	34.6	B	10.2	C	25.4	B	10.9	-	-	-	-
Davis Rd/ Phillips Rd	C	21.6	D	42.4	B	13.5	A	8.5	A	7.0	B	12.8	B	10.8
LA 378 @ Hollis/Davis/ Phillips Road - 2028 PM Peak														
OVERALL	**B**	**10.6**	**C**	**24.4**	**B**	**13.4**	**B**	**12.3**	**A**	**7.9**	**B**	**13.1**	**B**	**10.4**
LA 378 Northbound	A	9.2	C	20.3	B	12.1	D	44.3	B	12.0	A	7.2	A	7.4
LA 378 Southbound	A	10.0	B	14.7	A	7.0	B	14.7	A	8.2	B	16.1	A	8.6
Fire Station/ Hollis	A	7.8	C	34.6	B	10.5	C	25.8	B	12.0	-	-	-	-
Davis Rd/ Phillips Rd	B	13.4	D	40.7	C	22.0	A	9.4	A	7.5	B	17.4	B	16.2

A review of **Table II-10** indicates similar operational conditions are expected with Alternatives A-1, A-2, B and C at the major intersection of LA 378 at Hollis Road/ Phillips Road/ David Road except with the signalized condition in Alternative B which is only shown for comparison purposes.

Analysis was conducted to compare locations where motorists are expected to U-turn due to raised median in Alternatives A-1 and A-2. Unsignalized U-turn analysis was conducted using Synchro software for the highest volume locations only. The results are presented in **Table II-11**.

Table II-11
LA 378 Alternatives A-1 and A-2 U-turn Analysis Results

Intersection Approach	2013				2028			
	AM		PM		AM		PM	
	Synchro Unsignalized		Synchro Unsignalized		Synchro Unsignalized		Synchro Unsignalized	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)
NB U-turn North of Hudson Drive								
LA 378 Northbound	B	10.4	A	8.9	B	12.5	A	9.3
NB U-turn Btw Westwood Drive and Davis								
LA 378 Eastbound/Northbound	B	11.2	A	9.0	B	12.8	A	9.2
WB U-Turn West of Sam Houston Jones Parkway								
LA 378 Westbound	A	8.8	C	16.2	A	9.1	C	21.1

A review of **Table II-11** indicates that the proposed U-turns are expected to operate acceptably.

The roundabouts at minor intersections in Alternative B that were included to provide for U-turn movements were analyzed in SIDRA. The results are presented in **Table II-12**.

Table II-12
LA 378 Alternative B Intersections Analysis Results

Intersection Approach	2013				2028			
	Sidra Roundabout				Sidra Roundabout			
	AM Peak		PM Peak		AM Peak		PM Peak	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)
LA 378 @ Mulberry Street								
OVERALL	**A**	**8.1**	**A**	**9.7**	**A**	**8.8**	**B**	**16.8**
Mulberry St Eastbound	B	13.8	B	11.8	B	15.9	B	12.6
Mulberry St Westbound	B	12.5	B	18.5	B	13.3	C	27.0
LA 378 Northbound	A	8.0	B	10.0	A	8.8	C	21.0
LA 378 Southbound	A	7.8	A	8.6	A	8.3	A	9.2
LA 378 @ Hudson Drive								
OVERALL	**A**	**8.2**	**A**	**7.0**	**A**	**8.7**	**A**	**7.2**
Hudson Dr Eastbound	B	10.1	A	9.9	B	10.9	B	10.2
Hudson Dr Westbound	B	12.6	B	13.7	B	13.2	B	14.7
LA 378 Northbound	A	7.8	A	6.3	A	8.1	A	6.4
LA 378 Southbound	A	7.1	A	6.8	A	7.6	A	7.0
LA 378 @ Villa Drive								
OVERALL	**A**	**5.3**	**A**	**5.4**	**A**	**5.3**	**A**	**5.3**
Villa Dr Eastbound	B	12.0	B	10.5	B	12.7	B	10.8
LA 378 Northbound	A	5.3	A	5.3	A	5.3	A	5.3
LA 378 Southbound	A	5.2	A	5.3	A	5.2	A	5.3

A review of **Table II-12** indicates the roundabouts proposed to provide access are expected to operate acceptably.

Analysis was conducted to compare locations where motorists are expected to U-turn and perform a J-turn movement in Alternative C. Unsignalized U-turn analysis was conducted using Synchro software for the highest volume locations only. The results are presented in **Table 11-13**.

Table II-13
LA 378 Alternative C U-turn Analysis Results

Intersection Approach	2013				2028			
	AM		PM		AM		PM	
	Synchro Unsignalized		Synchro Unsignalized		Synchro Unsignalized		Synchro Unsignalized	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)
SB U-turn South of Sulphur Avenue								
LA 378 Southbound	B	10.2	C	19.5	B	12.5	D	33.5
NB U-turn North of Sulphur Avenue								
LA 378 Northbound	C	19.4	B	11.6	C	22.3	B	12.7
SB U-turn South of Mc Kinley Road								
LA 378 Southbound	A	9.4	C	21.3	B	10.0	C	25.0
NB U-turn North of Mc Kinley Road								
LA 378 Northbound	C	18.0	B	12.0	C	22.9	B	13.3
SB U-turn North of Mulberry Street								
LA 378 Southbound	B	10.9	D	30.7	B	11.8	E	43.2
NB U-turn North of Shady Lane								
LA 378 Northbound	C	19.8	B	12.5	D	26.0	B	13.9
SB U-turn South of John Stine Road								
LA 378 Southbound	A	9.5	C	22.7	A	9.8	D	29.4
NB U-turn North of John Stine Road								
LA 378 Northbound	B	14.9	B	10.3	C	17.6	B	10.8
NB U-turn at Dove Creek Motorhomes								
LA 378 Northbound	B	12.0	A	9.2	B	13.9	A	9.6
WB U-Turn West of Sam Houston Jones Parkway								
LA 378 Westbound	A	8.9	C	15.1	A	8.9	C	19.3
EB U-turn East of Sam Houston Jones Parkway								
LA 378 Eastbound	A	8.4	B	11.3	C	16.7	B	12.3

A review of **Table 11-13** indicates that signalization may be considered in the future at the southbound U-turn north of Mulberry Street. All other unsignalized U-turn locations are expected to operate at LOS D or better through the design year.

Safety Benefits

The potential safety benefits of each alternative were evaluated based on the proposed geometry, roadway characteristics, intersection control, access management and traffic volumes. Where analysis methods were not available, crash modification factors (CMF) were identified. According to the American Association of State Highway and Transportation Officials (AASHTO) Highway Safety Manual (HSM), 1st Edition, a CMF is a numerical value that estimates how effective a given safety countermeasure or set of countermeasures will be in reducing crashes at a specific location.

Roadway Segments

Four roadway segments were chosen to be representative of the various roadways sections in the study area. These are as follows:

- LA 378 between I-10 and McKinley Street
- LA 378 between McKinley Street and John Stine Road
- LA 378 between John Stine Road and Phillips Road
- LA 378 between Phillips Road and Sam Houston Jones Parkway

Volumes and segment characteristics were input into an analysis spreadsheet that utilizes the HCM predictive method to determine the yearly predicted number of crashes on the four segments along LA 378. **Table II-14** presents the resulting predicted crash rates for the Build and No Build conditions for both the implementation and design years.

Table II-14
Comparison of Roadway Sections
with Predictive Method

LA 378 Roadway Segment	Predicted Crash Rate (crashes/mi/yr)							
	2013 Base Year				2028 Design Year			
	No Build	Alt A-1 and A-2	Alt B	Alt C	No Build	Alt A-1 and A-2	Alt B	Alt C
Between I-10 and McKinley Street	9.7	9.7	5.1	5.1	10.6	10.6	5.5	5.5
Between McKinley Street and John Stine Road	9.9	9.9	3.7	3.7	10.7	10.7	4.1	4.1
Between John Stine Road and Phillips Road	4.3	2.7	2.7	2.7	4.7	3.0	3.0	3.0
Between Phillips Road and Sam Houston Jones Parkway	3.8	2.7	2.7	2.5	4.6	3.2	3.2	3.0

A review of Table II-14 indicates that converting the existing two-lane undivided or five-lane sections to a four-lane raised median section is expected to result in a reduction in crashes. Alternatives B and C are proposed to have a raised median section from I-10 to John Stine Road. All four alternatives are proposed to have a raised median section from John Stine Road to Sam Houston Jones Parkway. Introducing a raised median reduces the number of conflict points by eliminating left turn movements at most intersections which improves safety. Conflicts from left turns would still be present at full access median opening.

Intersections

Predictive method calculations were not available at the time of this report for converting full access intersections to J-turns or roundabouts.

Roundabouts have been shown to significantly decrease the number and severity of collisions when compared to traditional intersections. Roundabouts are designed for low speed operation and virtually eliminate the possibility of right angle (T-bone) crashes.

Table II-15 presents the CMFs for conversion of signalized and unsignalized intersections to roundabouts as identified in the HSM.

Table II-15
CMFs for Conversion of Traditional Intersections
Into a Roundabout

Setting (Intersection Type)	Crash Type (Severity)	CMF	Standard Error
Converting Signalized Intersection into a Roundabout			
One or Two Lanes	All Types (All Severities)	0.52	0.06
	All Types (Injury)	0.22	0.07
Converting Unsignalized Intersection into a Roundabout			
One or Two Lanes	All Types (All Severities)	0.56	0.05
	All Types (Injury)	0.18	0.04

Based on Table II-15, when converting to a roundabout, the total number of predicted crashes is expected to be 52% of the base condition crashes for a traditional signalized intersection and 56% for a traditional two-way stop control intersection. Also, the number of predicted crashes involving injury is expected to be 22% of the base condition injury crashes for a traditional signalized intersection and 18% for a traditional two-way stop controlled intersection.

The HSM does not provide CMFs for converting signalized or unsignalized intersections to a J-turn intersection. J-turn configurations traditionally improve safety by eliminating the through and left turn movements from the minor streets, reducing the number of conflict points compared to a full access intersection.

Elimination of multiple driveways and/or driveway sharing could benefit safety by reducing the number of conflict points along LA 378. Removing driveways in the functional area of the intersections on LA 378 would also reduce conflict points and improve safety at the intersections.

DESIGN CONSIDERATIONS

During the conceptual engineering of the corridor alternative layouts, several design considerations were followed:

- The first of these was that any widening or improvement of Westwood Road in the vicinity of Pinederosa Park would occur on the east side of Westwood Road so as not to impact this public park.
- Impacts involving relocations would be minimized to the greatest extent possible. Residential relocations were the primary consideration, with commercial uses being a secondary consideration.
- The Fire Station on Davis Road (including the radio tower and guy wire system associated with it) could not be relocated, and access for fire truck ingress and egress needed to be maintained.

Complete Streets Policy

In July of 2010, the Louisiana Department of Transportation and Development enacted a *Complete Streets Policy*. In short, the Complete Streets Policy addresses the needs of pedestrians and bicyclists, and calls for the LADOTD to consider and include (where appropriate) sidewalks and bicycle accommodations along new and reconstruction roadway projects.

The Complete Streets Policy was addressed and considered in the development of these alternatives during this early Stage 0 process. The following items provide some specific points relating to the LA 378 improvement project and the Complete Streets Policy:

- As written in the policy, LADOTD will provide pedestrian and bicycle accommodations appropriate to the context of the roadway. Sampson Street is a rather urbanized thoroughfare and currently has 6 ft. sidewalks for pedestrian use on either side. North of Sampson Street, the remainder of LA 378 in the project study area (Westwood Road, Philips Road, Davis Road, and Sam Houston Jones Parkway) features no sidewalks. Nowhere along the route is there a dedicated bike lane nor a paved shoulder that can accommodate bicyclists.
- The UA-2 Design Criteria with curb and gutter used for those portions of the alternatives north of Sampson Street and south of the river allows sufficient right-of-way for construction of 10 ft. wide shared use path for bicyclists and pedestrians along one side of the roadway. The shared use path is located 6 feet from the back of curb for safety purposes as this portion of the project features a 45 mph design speed (compared to the 35 mph posted speed along Sampson Road portion). In conjunction with the existing sidewalks and lower speed limits along Sampson, the shared use path should provide an adequate route along LA 378 for both pedestrians (sidewalks along Sampson and path north of Sampson) and bicyclists (right travel lane along Sampson Street, with shared lane markings added, and path north of Sampson Street). The shared use path is included in the cost estimates for each alternative and shown

on the typical sections presented at the end of this chapter for the segments between John Stine Road (end of Sampson Street) and the river.

- The existing bridge across the West Fork of the Calcasieu River has very little striped shoulder (+/- 2 ft.) and would not be able to handle pedestrian or bicyclist movements. The planned parallel span and its approaches have 8 ft. outside shoulders, which should be sufficient to accommodate bicyclists.
- The possibility of adding a dedicated bicycle/pedestrian lane to the new parallel span was explored. Such a lane would need to be physically separated from the travel lanes by a barrier, and would be about 10 to 12 ft. in width (not counting the barrier). The Complete Streets policy notes that it is generally inappropriate to provide bicycle and pedestrian facilities where it would be excessively disproportionate to the need or probable use, with excessively disproportionate being defined as exceeding twenty percent (20%) of the cost of the project. If such a lane were to be built as part of the new parallel span two-lane bridge and approaches, it would increase the bridge portion of the project by +/- 38%, nearly double the 20% threshold.

LADOTD Review of Initial Alternatives

On August 14, 2013, a *Progress Review Meeting* was held at the LADOTD headquarters in Baton Rouge. At this meeting, the three project alternatives (as well as the projected traffic volumes and traffic analysis that helped to shape them) were presented for review and discussion.

From that meeting, several suggested revisions arose:

- It was clarified that under the Alternative C scenario, the assumption the consultant team operated under was that the current LA 378 bridge would remain. District staff was unanimous in their idea that under Alternative C, the old bridge would be removed to keep maintenance and bridge opening costs down. All attendees agreed that this would be the new assumption, and Urban Systems agreed to re-run their traffic analysis for Alternative C with the old bridge removed. This resulted in small changes in the Alternative C roundabout at Hollis, Phillips and Westwood Roads just south of the new West Fork Bridge.
- The existing LA 378 Bridge over the West Fork of the Calcasieu River was discussed. Records research indicated that there had been 3 openings of the bridge in the last two years, but due to the infrequent opening schedule, no vessel heights were recorded. All parties felt that with such infrequent openings, a formal bridge opening study was not required at this time. LADOTD staff later pointed out that the existing bridge has been determined to be eligible for the National Register of Historic Places (NRHP). Maintaining the existing bridge while building a parallel span (to create four lanes of traffic) would result in cost savings over building two new bridges. It would also result in fewer impacts than building one new four lane span to replace the existing bridge. For those reasons, the assumptions for the bridge crossing under Alternatives A and B were to maintain the existing bridge to handle northbound traffic, and build a parallel lift bridge to handle the southbound lanes. As the project

moves forward and required bridge heights are better ascertained, the possibility of the parallel span being built as a fixed bridge and the existing bridge being replaced with a fixed bridge can be entertained.

- The most notable revision was a suggested change to Alternative B. LADOTD District 07 staff suggested that the two roundabouts close together in the "middle" of the route (between John Stine Road and Phillips Road) were not needed, and suggested using one or the other. It was suggested to that the northerly one be removed and moving the other one to Hudson Drive. All in attendance agreed, and the consultant team agreed to make this change. Additionally, a member of the District 07 staff noted that by shifting the alignment slightly, it may flow better and result in less relocation impacts. The consultant team agreed the adjustment may be beneficial, and agreed to do a conceptual layout and brief analysis of relocation impacts. If the adjustment resulted in fewer relocation impacts, it would be the new Alternative B.

Following the meeting the consultants performed a brief analysis of affected properties along the northern portions of the original Alternative B alignment and the new Alternative B alignment suggested at the meeting. The comparison analysis was only done in the specific area affected - between Landry Road and the river. The results of the analysis were as follows:

<u>Original Alternative B alignment, between Landry Road and the river, would require relocation/removal of:</u>

- 18 single family homes
- 28 mobile homes in park on Westwood Road
- 11 mobile homes in park along Fontenot Road
- 1 entire RV park on West wood Road
- Commercial site on Westwood Road at Hudson Drive
- Self-storage facility on Westwood Road
- Fire station access removed from main highway

Total: 23 developed properties affected; **60 likely relocations.**

<u>Suggested realigned Alternative B alignment, between Landry Road and the river, would require relocation/removal of:</u>

- 22 single family homes
- Commercial site on Westwood Road at Hudson Drive
- Fire station access **remains** on main highway

Total: 23 developed properties affected; **23 likely relocations.**

As such, the new alignment as suggested became the new Alternative B alignment. The initial Alternative B alignment is presented in the Appendix.

Existing LA 378 Bridge Rehabilitation/Replacement

After discussions regarding the bridge held during the LADOTD review of initial alternatives, the Bridge Design Engineer Administrator of the LADOTD provided some additional comments regarding the existing bridge being retained under Alternatives A-1, A-2 and B:

- Firstly, consideration for reusing or widening an existing bridge shall follow LADOTD Bridge Design Technical Memorandum No. 37. Typically the existing bridge shall be load rated and/or analyzed based on its existing condition for both superstructure and substructure to determine its capability of accepting current LRFD bridge loads. The existing vertical lift movable bridge over the West Fork of the Calcasieu River is currently rated as structurally deficient and has an existing weight load posting of 15-25 tons. If the project moves forward and the intent of the LADOTD is for the bridge to remain, it should be a project goal to remove the load posting to support current legal load traffic and possible overloads due to future plant expansion in the area.

- Secondly, LADOTD staff has noted that the existing bridge has been determined to be eligible (though not yet registered) for the National Register of Historic Places (NRHP). Historical bridges are also a concern for rehabilitation and/or replacement options, and this would also be a very difficult structure to rehabilitate in order to remove the load posting. As such, replacement of the existing bridge may be the only option.

- The eventual bridge type (movable or fixed) will need to be coordinated with the United State Coast Guard (USCG) and will be based on the USCG permit requirements. Requirements are not completely based on past vessel heights and how few or how many times a bridge opens, but based on present and future navigation interests in the areas that must be coordinated with USCG.

Regarding the first two points, the decision of whether to replace the existing bridge, or to retain and rehabilitate the existing bridge (that would remove the current load posting) for Alternatives A-1, A-2 and B will require a full engineering analysis of the bridge, something beyond the scope of this early Stage 0 Feasibility Study. Similarly, without knowing the extent of bridge rehabilitation needed, an accurate cost for that rehabilitation cannot be estimated, either. As previous issues with the bridge have involved piling replacement, and as indicated by Bridge Design Administrator above, this would also be a very difficult structure to rehabilitate in order to remove the load posting, it is assumed that the cost of bridge rehabilitation may approach that of constructing a new two-lane bridge (one that meets current design guidelines).

For purposes of this Stage 0 Study, both options remain and two sets of cost estimates were developed for Alternatives A-1, A-2 and B. As the costs of rehabilitation may approach that of replacement, replacement will also include the cost of removal of the

current bridge. Bridge replacement is assumed with a single new four-lane bridge structure in order to save cost. Cost for bridge demolition and bridge removal were estimated for Alternative C (which includes a new four-lane crossing at a site further upstream and incudes removal of the current bridge).

If the bridge is replaced, adverse effect mitigation would need to be undertaken. This will include Historic American Engineering Record (HAER) documentation, and marketing of bridge components for adaptive re-use -- perhaps as a pedestrian/bicycle bridge in Sam Houston Jones State Park or in a nearby area. Depending on the outcome of the Section 106 Memorandum of Agreement process, other mitigation efforts may also apply.

In terms of project phasing relating to the bridge options, if rehabilitation is the selected option, the new parallel span would be completed and opened for two-way traffic, followed by rehabilitation of the existing span prior to the opening of all four lanes of a widened LA 378 bridge. If replacement is the selected option, a new four-lane bridge would be built adjacent to the existing bridge, and once open and connected to LA 378 the old bridge would be removed.

As the project moves forward into the Stage 1 process and coordination with the USCG relating to the bridge is undertaken, the possibility of the bridges being built as a fixed-span rather than lift bridges (and at what height they will need to be built for navigational clearance) will be fully explored.

DESCRIPTION OF THE FINAL ALTERNATIVES

DESIGN CRITERIA

Using LADOTD design criteria, it was determined to build new or widened roadway segments north of John Stine Road and south of the River to UA-2 (Urban Arterial) highway standards, which would entail a 45 MPH design speed. This matches the current posted speed and functionality north of John Stine Road and south of the river while adding capacity. Alternative segments north of the river would utilize a UA-4 (Urban Arterial) standard to match the higher currently posted speed (50 mph) and functionality in that area while adding capacity. **Table II-16**, on the following two pages, lists the design criteria for both UA-2 and UA-4.

As the required cross-section for a UA-2 roadway is approximately 170 ft. and the required cross section for a UA-4 roadway is approximately 180 ft., while the current right-of-way is approximately 110 ft., additional right-of-way will be required.

The widened roadway segments will also need to meet LADOTD design guidelines for safety and access. As per LADOTD design criteria, for safety purposes a 6 ft. minimum and 30 ft. desirable median is required between the northbound and southbound lanes under UA-2, while a 30 ft. minimum median is required under the UA-4 criteria.

Table II-16

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
Minimum Design Guidelines for Urban Arterial Roads and Streets

State law requires that the state highway system conform to these guidelines.

Item No.	Item	Urban				
		UA-1	UA-2	UA-3	UA-4	UA-5
1	Design Speed (mph)	40	45	50	55	60
2	Level of Service [1]	C	C	C	C	C
3	Number of Lanes	2 (min) – 4 (typ)	2 (min) – 4 (typ)	2 (min) – 4 (typ)	2 (min) – 4 (typ)	2 (min) – 4 (typ)
4	Width of Travel Lanes (ft)	11	11 – 12	12	12	12
5	Width of Shoulders (minimum) (ft) [2]					
	(a) Inside on multilane facilities	N/A	N/A	4	4	4
	(b) Outside	8	8	8	8	8
6	Shoulder Type	Paved	Paved	Paved	Paved	Paved
7	Parking Lane Width (ft)	10 – 12	10 – 12	N/A	N/A	N/A
8	Width of Median on Multilane Facilities (ft)					
	(a) Depressed	N/A	N/A	30	34 – 42	42
	(b) Raised	6 [3] – 30	6 [3] – 30	30	30	30
	(c) Two way left turn lane	11 – 14 typ. [4]	11 – 14 typ. [4]	N/A	N/A	N/A
9	Width of Sidewalk (minimum) (where used) (ft) [5]					
	(a) When offset from curb	4	4	4	4	4
	(b) When adjacent to curb	6	6	N/A	N/A	N/A
10	Fore slope (vertical – horizontal)	1:3 (min) – 1:4 (des)	1:3 (min) – 1:4 (des)	1:4	1:6	1:6
11	Back slope (vertical – horizontal)	1:3	1:3	1:3	1:4	1:4
12	Pavement Cross-slope (%)	2.5	2.5	2.5	2.5	2.5
13	Min. Stopping Sight Distance (ft)	305	360	425	495	570
14	Maximum Superelevation (%)	4	4	4	6	6
15	Minimum Radius (ft) [6,7]					
	(a) With normal crown (-2.5% cross-slope)	700	1,000	16,700	19,700	22,880
	(b) With 2.5% superelevation	550	750	3,500	5,250	6,280
	(c) With full superelevation	500	700	1,000	1,100	1,400
16	Maximum Grade (%)	7	6	6	5	5
17	Minimum Vertical Clearance (ft) [8]	16	16	16	16	16
18	Minimum Clear Zone (ft)					
	(a) From edge of through travel lane	18 [9]	24 [9]	28 [10]	22	30
	(b) Outside from back of curb (when curb is used)	6 (min) – 16 (des) [11]	6 (min) – 22 (des) [11]	19 [10]	13	21
	(c) Median from back of curb [12] (when curb is used)	4 (min) – 12 (des)	4 (min) – 18 (des)	8 (min) – 17 (des)	8 (min) – 17 (des)	8 (min) – 25 (des)
19	Bridge Design Live Load [13]	AASHTO	AASHTO	AASHTO	AASHTO	AASHTO
20	Width of Bridges (minimum) (face to face of bridge rail at gutter line) (ft)					
	(a) Curbed facilities (without sidewalks)	Traveled way plus 8′ [14]	Traveled way plus 8′ [14]	Roadway width	Roadway width	Roadway width
	(b) Shoulder facilities	Roadway width	Roadway width	Roadway width	Roadway width	Roadway width
21	Guardrail Required at Bridge Ends	[14]	[14]	Yes	Yes	Yes

Approved _____ Chief Engineer 12-4-09 Date

Minimum Urban Arterial Road and Street Design Guidelines - Sheet 1 of 2

Table II-16 (continued)

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

Footnotes for Minimum Design Guidelines for Urban Arterial Roads and Streets

1- Level of service D allowable in heavily developed urban areas.
2- Curb may be used in place of shoulders on UA-1 and UA-2 facilities. If used on UA-3, UA-4, or UA-5 facilities, curb should be placed at the edge of shoulder. For design speeds greater than 45 mph, curb will not be placed in front of guardrail.
3- With Chief Engineer's approval, curb offsets may be eliminated and the minimum median width can be reduced to 4 feet. On principal arterials, particularly at intersections, the upper limit should be considered.
4- Cannot be used on multilane roadways (with four or more through lanes) without the Chief Engineer's approval.
5- Sidewalks must be separated from the shoulder and should be placed as near the right of way line as possible. On high speed facilities, they should preferably be placed outside the minimum clear zone shown in item 18.
6- It may be necessary to increase the radius of the curve and/or increase the shoulder width (maximum of 12 feet) to provide adequate stopping sight distance on structure.
7- The following radii apply at divisional islands. The radius selected must match the design speed of the road. These radii also apply to the other guidelines where divisional islands are mentioned.

Design Speed	Radius (rounded)	Degree of Curve
20 mph	1,450′	4°
25 mph	1,650′	3° 30′
30 mph	1,950′	3°
35 mph	2,300′	2° 30′

Design Speed	Radius (rounded)	Degree of curve
40 mph	2,900′	2°
45 mph	3,850′	1° 30′
50 mph	5,750′	1°
55 & 60 mph	11,500′	0° 30′

8- An additional 6 inches should be added for additional future surfacing.
9- Applies to facilities with shoulders. Refer to the Roadside Design Guide when 1:3 fore slopes are used or for slopes flatter than 1:4.
10- The distance may be reduced by 6 feet if 1:6 slopes are used. For outside shoulders wider than 8 feet, further reduction should be proportional to the added shoulder width.
11- If outside shoulders and curb are used, refer to the Roadside Design Guide.
12- Where left turn lanes are provided or where the median is less than 6 feet in width, the minimum clearance will be 1.5 feet from back of curb. For median slopes steeper than 1:6, refer to the Roadside Design Guide for the desirable clear zone.
13- LRFD for bridge design.
14- Refer to EDSM II.3.1.4 when sidewalks will be provided and for guardrail requirements.

General Note:

DOTD pavement preservation minimum design guidelines or 3R minimum design guidelines (separate sheets) shall be applicable to those projects for which the primary purpose is to improve the riding surface.

Minimum Urban Arterial Road and Street Design Guidelines - Sheet 2 of 2

Access management is also key. As the Highway Safety Manual states:

> *Access management provides or manages access to land development while simultaneously preserving traffic safety, capacity, and speed on the surrounding road system, this address congestion, capacity loss and crashes on the nation's roadways.*

Access will be managed as per the LADOTD's Engineering Design Standards Manual (EDSM) IV.2.1.4. The EDSM is a policy that provides definitions and criteria for design of median openings on roadways where a median did not exist prior to the current project (i.e., 2-lane to 4-lane divided or 4-lane undivided to 4-lane divided). Most notably, median openings shall be spaced at least ½ mile (2,640 ft) and shall be directional u-turns. At locations where median openings are provide for u-turns, some bump-outs were also provided to enable truck u-turn movements.

DESIGN CONCEPTS

The project currently consists of four (4) build alternatives: Alternatives A-1, A-2, B and C. Additionally, each Alternative can be divided into two segments of improvement: a southerly section, from I-10 to John Stine Road, where LA 378 is a five-lane facility which may be converted to a four lane divided facility, and a northerly section, between John Stine Road and Sam Houston Jones Parkway, where the current two lane roadway would be widened and realigned. As such, it is possible to implement one alternative for the southern section, and a different one for the northern section.

Each of the alternatives is described in depth below:

Alternative A-1

In the southern section (between I-10 and John Stine Road), Alternative A only includes two improvements, both of which are in the vicinity of the intersection with Sulphur Avenue. As described earlier under **Proposed Modifications, t**he turnout from eastbound Sulphur Avenue to southbound LA 378 would be replaced with a new turnout and an acceleration lane would be added. A raised median would also be installed north of Sulphur Avenue along the left (westbound) turn lane of LA 378. These improvements are expected to aid in safety.

In the northern section, beginning at John Stine Road, LA 378 would be widened and improved from two to four lanes. Instead of the existing "T" intersection with Phillips Road, under Alternative A-1 the roadway will curve eastward to align with Phillips Road, and Westwood Road itself will be realigned to intersect with the new LA 378 in the roadway curve. Alignment A-1 uses the Phillips Road alignment for a short distance and instead of the existing "T" intersection at Davis Road, the roadway will curve northward to connect directly to Davis Road. Davis Road south of the intersection will be realigned to intersect at an acceptable angle, with the intersection occurring in the vicinity of the

fire station driveway. North of this intersection, the new alignment will follow the Davis Road alignment with right-of-way being acquired mostly on the east (undeveloped) side. Near Barrett Lane, right-of-way will be acquired on the western side. Under the rehabilitation option, a new parallel lift bridge will be constructed to carry the two southbound lanes and the existing bridge will remain and be rehabilitated to carry the two northbound lanes. Under the replacement option, the bridge crossing will be replaced with a new four lane bridge. The intersection with Dennis Lane will be reconfigured along with the intersection with Sam Houston Jones Parkway. Just east of E. Park Manor Drive/ Winding Creek Drive, the roadway transitions back to the existing LA 378 five-lane section.

Alternative A-1 would reduce LADOTD road mileage in Calcasieu Parish by approximately 1,000 linear feet.

Alternative A-2

Alternative A-2 is essentially the same alternative as A-1, but which features a roundabout at the Phillips Road/Davis Road intersection instead of a curve. This enables the Davis Road section north of the intersection to more closely align with the existing road and would require less right-of-way.

Alternative A-2 would reduce LADOTD road mileage in Calcasieu Parish by approximately 600 linear feet.

Alternative B

In the southern section (between I-10 and John Stine Road), Alternative B would include conversion of existing intersections to roundabouts at four locations: Sulphur Avenue, McKinley Street, Mulberry Street, and John Stine Road. Alternative B also includes installation of a raised median between the roundabouts. U-turn movements would be accomplished at these roundabout locations. These improvements are expected to aid in safety and access management.

In the northern section, beginning at John Stine Road, LA 378 would be widened and improved from two to four lanes. Near the intersection with Landry Road, the new roadway will begin to veer northeasterly. At Hudson Road, another roundabout will be installed. A new roadway will extend from this roundabout to the vicinity of the existing Davis Road/Phillips Road intersection, which will also be replaced with a roundabout. For access purposes, a roundabout is also to be located at Villa Drive. Alternative B shares the same bridge rehabilitation/replacement option as Alternatives A-1 and A-2. The intersection with Dennis Lane will be reconfigured and the intersection with Sam Houston Jones Parkway will be converted to a roundabout. Just east of this roundabout, the roadway transitions back to the existing LA 378 five-lane section.

It is assumed that under Alternative B, Westwood Road north of National Drive and Phillips Road would be transferred from the LADOTD system to a local system. If this transfer is completed, construction of Alternative B as a replacement segment of LA 378 would reduce LADOTD road mileage in Calcasieu Parish by approximately 1,800 linear feet.

Alternative C

In the southern section (between I-10 and John Stine Road), Alternative C would include conversion of existing intersections into "J-turns" at Sulphur Avenue and McKinley Street. The alternative also includes installation of a raised median with provisions for left turns and U-turns evenly spaced along the route. These improvements are expected to aid in safety and access management.

In the northern section, beginning at John Stine Road, LA 378 would be widened and improved from two to four lanes. At the intersection with Phillips Road, a roundabout will replace the existing intersection. Just north of Hollis Road, a new four-lane bridge across the West Fork of the Calcasieu River will be constructed, which will pass through Sam Houston Jones State Park. After returning to ground level, the new route will curve east, past Gahagan Lane and crossing Indian Bayou with a smaller bridge. The existing intersection with Sam Houston Jones Parkway will be relocated and re-configured, and the new roadway will connect to and transition to the existing LA 378 five-lane section just east of E. Park Manor Drive/ Winding Creek Drive. The existing LA 378 bridge over the West Fork of the Calcasieu River would be removed.

It is assumed that under Alternative C, Phillips Road and Davis Road would be transferred from the LADOTD system to a local system. If this transfer is completed, construction of Alternative C as a replacement segment of LA 378 would add approximately 1,000 linear feet of LADOTD road mileage in Calcasieu Parish.

Independent Segments of Improvement

It should be re-iterated that each Alternative can be divided into two segments of improvement: a southerly section, from I-10 to John Stine Road, where LA 378 is already a five-lane facility, and a northerly section, between John Stine Road and Sam Houston Jones Parkway, where the current two lane roadway would be widened and realigned. As such, it is possible to implement one alternative for the southern section, and a different one for the northern section. The two-section approach also lends itself to constructing the project in separate phases.

ENGINEERING DRAWINGS

Plan view layouts on aerial base maps at 1"= 200' scale (including roadway geometry as well as apparent and proposed right-of-way) and typical sections for the Alternatives are presented at the end of this chapter.

CONCEPTUAL CONSTRUCTION COSTS

General

Estimated construction quantities for the alternatives were derived from the typical sections shown at the end of this chapter. Unit prices were based on Louisiana Department of Transportation and Development (LADOTD) fourth quarter 2012 unit prices.

At Grade Roadway

The at-grade roadway cost estimate includes clearing and grubbing, earthwork (excavation and embankment), installation of base course and geotextile fabric, new pavement, pavement striping, drainage, removal of structures and obstructions, traffic maintenance aggregate, removal of existing roadways and base, temporary signs & barricades, driveways, seeding and silt fencing.

Shared Bicycle/Pedestrian Path

The shared bicycle/pedestrian path cost estimate includes earthwork (embankment) and new pavement and signage.

Bridge Structure

The bridge structure cost estimate includes 1 new moveable bridge structures (lift bridge type) one parallel to the existing bridge and rehabilitation of the existing lift bridge for Alternatives A-1, A-2 and B under the bridge rehabilitation option (for purposes of this estimate, rehabilitation and replacement are the same cost). For Alternatives A-1, A-2 and B under the bridge replacement option and for Alternative C on new alignment, a four-lane lift bridge was estimated. Using quantities from the typical sections and LADOTD unit costs, a square foot unit construction cost was calculated. The cost of bridge drainage was included in the average square foot unit costs. The square foot costs were used to estimate the cost of the bridge structure.

Bridge Demolition

Alternative C, and the bridge replacement option for Alternatives A-1, A-2, and B include the cost of the demolition of the existing LA 378 moveable lift bridge. Using engineering experience in previous examples, a lump sum demolition cost was calculated to be $700,000.

ADDITIONAL PROJECT COSTS

Prior to actual construction, there will be other costs associated with the project, including utility relocations, environmental documentation and environmental mitigation, engineering design costs, right-of-way and relocation, and mobilization. These are discussed below.

Utility Relocations

Water

South of John Stine Road, the existing 12" water main along Sampson Street will not have to be relocated for Alternative A-1 or A-2.

For Alternative B, the existing 12" water main will have to be relocated within the construction limits at each of the new roundabouts. In addition, the existing 6" water lines down the side streets will have to be relocated at each of these roundabouts within the construction limits for each of the roundabouts.

For Alternative C, the existing 12" water main will have to be relocated within the construction limits of the new u-turn bump outs.

North of John Stine Road, the existing 12" water main along the east side of Westwood Road will have to be relocated between John Stine Road and Phillips Road for Alternative A-1 and A-2. In addition, the existing 6" water lines down the side streets will have to be relocated at each intersection within the construction limits. The 12" water line along the north side of Phillips Road to the water tower will have to be relocated for the widening. The existing 4" water line along the west side of Davis Road will have to be relocated at the Phillips Road/Davis Road intersection and also at Barrett Lane where it terminates. Where replaced, the minimum size should be 6", so the estimated cost is based on replacing a 6" line.

On the north side of the West Fork Calcasieu River, the 2" water line to Dennis Lane and the 4" water line from Dennis Lane to LA 378 Spur will have to be relocated for the widening. In addition, the 8" water line on the south side of LA 378 Spur (Sam Jones Houston Parkway) and the 12" water line on the north side of LA 378 will have to be

relocated within the construction limits of the new intersection and the transition to the existing 4-lane section.

For Alternative B, the existing 12” water main along the east side of Westwood Road will have to be relocated between John Stine Road and the Phillips Road/Davis Road intersection. In addition, the existing 6” water lines down the side streets will have to be relocated at each intersection within the construction limits. The 12” water line along the north side of Phillips Road to the water tower will have to be relocated for the widened roadway. The existing 4” water line along the west side of Davis Road will have to be relocated at the Phillips Road/Davis Road intersection and also at Barrett Lane where it terminates. Where replaced, the minimum size should be 6”, so the estimated cost is based on replacing a 6” line.

On the north side of the West Fork Calcasieu River, the 2” water line to Dennis Lane and the 4” water line from Dennis Lane to LA 378 Spur will have to be relocated for the widening. In addition, the 8” water line on the south side of LA 378 Spur (Sam Jones Houston Parkway) and the 12” water line on the north side of LA 378 will have to be relocated within the construction limits of the new intersection and the transition to the existing 4-lane section.

For Alternative C, the existing 12” water main along the east side of Westwood Road will have to be relocated between John Stine and Hollis Road. In addition, the existing 6” water lines down the side streets will have to be relocated at each intersection within the construction limits. The 12” water line along the north side of Phillips Road to the water tower will have to be relocated within the construction limits.

On the north side of the West Fork Calcasieu River, the 4” water line on the north side of Davis Road from Dennis Lane to LA 378 Spur, the 8” water line on the south side of LA 378 Spur (Sam Jones Houston Parkway) and the 12” water line on the north side of LA 378 will have to be relocated within the construction limits of the new intersection and the transition to the existing 4-lane section.

The cost for water line relocations was based on historical cost per linear foot for the various sizes to include all valves, fittings, and appurtenances for this public utility.

Sewer

South of John Stine Road, the existing gravity sewer is running down a portion of the center lane of Sampson Street, offsetting out of the roadway and back again. As this sewer line has an adequate depth to be under the roadway, it will not have to be relocated for Alternative Alignments A-1, A-2, B or C. Where sewer manholes will be in the roundabouts or bump outs, concrete collars should be paved around them.

On the north side of John Stine Road there is no public sewer system, only privately owned individual mechanical systems. Thus there will be no sewer relocations north of John Stine, including on the north side of the West Fork Calcasieu River.

Gas

South of John Stine Road, the existing 2" gas line along Sampson Street will not have to be relocated for Alternative A-1 or A-2.

For Alternative B, the existing 2" gas line will have to be relocated within the construction limits at each of the new roundabouts.

For Alternative C, the existing 2" gas line main will have to be relocated within the construction limits for the new u-turn bump-outs.
North of John Stine Road, the existing 2" gas line along the east side of Westwood Road will have to be relocated between John Stine and Phillips Road for Alternative A. The existing 2" gas line on the south side of Phillips Road will have to be relocated for widening between Westwood Road and Davis Road. The 2" gas line on the west side of Davis Road will have to be relocated at Phillips Road/Davis Road intersection and at Barrett Lane for the relocation of Barrett Lane, the entrance to the subdivision. On the north side of the West Fork Calcasieu River, the 2" gas line will have to be relocated from Dennis Lane to and including the crossing under Davis Road, prior to the LA 378 Spur.

For Alternative B, the existing 2" gas line along the east side of Westwood Road will have to be relocated between John Stine Road and W. Wayside Drive where the proposed alignment turns to the north east to meet the Phillips Road/ Davis Road intersection. The 2" gas line on the south side of Phillips Road will have to be relocated only at the intersection with Davis Road. The 2" gas line on the west side of Davis Road will have to be relocated at Phillips Road/Davis Road intersection and at Barrett Lane for the relocation of Barrett Lane, the entrance to the subdivision. On the north side of the West Fork Calcasieu River, the 2" gas line will have to be relocated from Dennis Lane to and including the crossing under Davis Road, prior to the LA 378 Spur.
For Alternative C, the existing 2" gas line along the east side of Westwood Road will have to be relocated between John Stine Road and Hollis Road. On the north side of the West Fork Calcasieu River, the 2" gas line will have limited relocation on the south side of Davis Road for side street tie-ins, prior to the LA 378 Spur.

The cost for gas line relocations was based on historical cost per linear foot for the various sizes to include all valves, fittings, and appurtenances for this public utility.

Electric

South of John Stine Road, the existing Entergy power lines along Sampson Street will not have to be relocated for Alternative A-1 and A-2.

For Alternative B, the existing Entergy power line poles will have to be relocated within the construction limits at each of the new roundabouts.

For Alternative C, the existing Entergy power poles may have to be relocated within the construction limits for the new u-turn bump-outs.

North of John Stine Road, the Entergy power lines on the east side of Westwood Road between John Stine Road and Phillips Road will have to be relocated for the widening for Alternatives A-1 and A-2. The Entergy power lines along Phillips Road will have to be relocated for the widening. The Entergy power lines on the east side of Davis Road will have to be relocated from Phillips Road to their terminus near Villa Drive.

For Alternative B, the Entergy power lines on the east side of Westwood Road between John Stine Road and W. Wayside Drive will have to be relocated for the widening for Alternative B. All Entergy power lines along side streets between Westwood Road and the Phillips Road/Davis Road intersection will have to be raised for the new roadway alignment. The Entergy power lines on the east side of Davis Road will have to be relocated from Phillips Road to their terminus near Villa Drive.

For Alternative C, the Entergy power lines on the east side of Westwood Road between John Stine Road and Hollis Road will have to be relocated for the widening.

All of Entergy's power lines noted above are located within the LADOTD roadway right-of-way and relocation costs are not considered a cost to the project.
South of John Stine Road, Beauregard Electric Co-op, Inc. (BECI) has no power lines.

North of John Stine Road, the BECI power lines on the west side of Davis Road between Phillips Road and the West Fork Calcasieu River will not have to be relocated for the widening for Alternatives A and B. However, the crossing of Davis Road south of the bridge will have to be relocated for the roadway widening. North of the West Fork Calcasieu River, the BECI power lines under the bridge will not need relocation. The BECI power lines along and crossing Davis Road between Dennis Lane and the LA 378 Spur will have to be relocated for the widening.

For Alternative C, the BECI power poles along Hollis Road will have to be relocated and the lines raised. North of the West Fork Calcasieu River, the BECI power lines will have to be raised for the proposed alignment. The BECI power lines along and crossing Davis Road between Dennis Lane and the LA 378 Spur and along the LA 378 Spur will have to be relocated for new LA 378/ LA 378 Spur intersection.

Most of BECI's power lines noted above are along public streets or within the LADOTD roadway right-of-way and relocation costs are not considered a cost to the project. However, for Alternative C in the state park, it was not determined whether these crossings would be a cost to the project. The BECI power lines crossing the alternative alignments and continuing in private servitude will not need to be relocated.

Telephone and Communication Lines

Telephone and communication lines for the most part are supported by the power lines. A few were noted to be buried. These lines will have to be relocated or raised as noted for the electric lines. These all appear to be within the roadway right-of-way and relocation costs are not considered to be a cost to the project.

Street Lights

South of John Stine Road, the existing street lights hung from the various power poles will be relocated with the power poles. As such, relocation costs are not considered to be a cost to this project.

For Alternatives A1 and A-2, there will be no relocations.

For Alternative B, the existing street lights hung from the various power poles will be relocated with the power poles relocated within the construction limits of the new roundabouts.

For Alternative C, the existing street lights hung from the various power poles will be relocated with the power poles relocated within the construction limits of the new u-turn bump-outs.

North of John Stine Road, there are no street lights.

Environmental Documentation

The next stage of project development will be Stage 1, which will likely include completion of an environmental document such as an Environmental Assessment or Environmental Impact Statement. Depending on the amount and degree of severity of anticipated impacts and the size of the project area, completion of such documents can run between hundreds of thousands of dollars up to millions of dollars. For purposes of this Stage 0 Feasibility Study, a conservative estimate of $1,000,000 to cover Environmental Documentation is included.

Environmental Mitigation

A second type of environmental cost would be cost of mitigation of any unavoidable impacts. One possible cost of mitigation has already been identified, that of wetland impacts: Mitigation of unavoidable wetland impacts on similar projects in the past has been achieved through a monetary contribution, as determined by the regulatory agencies, to the Louisiana Nature Conservancy that maintains several wetland mitigation areas in Louisiana. Three (3) current wetland mitigation areas (or wetland banks) were contacted, and mitigation purchases at these banks ranged between $35,000 to $50,000 per acre. Of course prior to the project progressing to the construction phase, coordination with the US Army Corps of Engineers will need to be undertaken, and depending on their findings and determination under the Modified Charleston Method, impacted wetlands may need to be replaced at a 1-1 ratio, a 1-2 ratio, a 1-3 ratio, or an even higher ratio.

For purposes of this Stage 0 Feasibility Study, a basic replacement ratio of 1:1 and a conservative mitigation cost estimate of $50,000 per wetland acre impacted is included.

If the existing LA 378 bridge over the West Fork of the Calcasieu River is replaced, adverse effect mitigation would need to be undertaken. This will include Historic American Engineering Record (HAER) documentation, and marketing of bridge components for adaptive re-use. Depending on the outcome of the Section 106 Memorandum of Agreement process, other mitigation efforts may also apply.

For purposes of this Stage 0 Feasibility Study, a conservative adverse effect mitigation cost estimate of $75,000 is included for the cost estimate options that involve removal of the bridge.

Engineering Design Costs

Prior to construction, the project will need to be fully engineered, not only including actual design, but also including testing, surveying, and geotechnical investigation. Using a baseline estimate of 8% of construction cost, engineering design costs would be range between $3.22 million to $3.75 million, depending on the alternative.

Right-of-Way and Relocations

This cost estimate includes the cost for land acquisition in two categories*: commercial property*, which is predominately in the southern section of the project, and *residential property*, which is the majority of the northern section. Costs are also estimated for residential acquisitions/relocations as well as commercial acquisitions. All right-of-way and relocation costs were based on internet and field reconnaissance research of similar "for sale" properties at the time of the study, and professional experience.

Mobilization

A conceptual cost for mobilization was estimated and included as 5% of the roadway and bridge construction costs and utility relocations.

CONTINGENCIES

A 25% cost contingency was included for this concept-level study.

CONCEPTUAL COST ESTIMATES

Itemized conceptual cost estimates for each alternative are presented in **Tables II-17 through II-20** on the following four pages.

PROJECT FUNDING

As of the date of this document, there is no current funding source identified for designing or constructing this project. Possible funding sources include state bonds, state capital outlays or federal highway monies.

Table II-17
Alternative A-1
Conceptual Construction Cost Estimate (Bridge Rehabilitation Option)

ITEM	UNIT	UNIT PRICE	QUANTITY	AMOUNT
ENVIRONMENTAL DOCUMENTATION	Lump	$1,000,000	1	$1,000,000
ENVIRONMENTAL MITIGATION				
Wetlands	Acres	$50,000	4.56	$228,000
Adverse Effect (Historic Bridge Removal)	Lump	$75,000	0	$0
ENGINEERING DESIGN COSTS	Lump	$3,221,720	1	$3,221,720
RIGHT-OF WAY AND RELOCATIONS				
Right of-Way - Commercial	Acres	$85,000	5.43	$461,550
Right-of Way – Residential	Acres	$39,500	25.50	$1,007,250
Commercial Acquisition /Relocation	Ea.	$200,000	10	$2,000,000
Residential Acquisition /Relocation	Ea.	$100,000	47	$4,700,000
AT-GRADE ROADWAY				
South Section (John Stine Road and southward) (Partial raised median, turn lanes, striping)	Lump	$230,000	1	$230,000
North Section (above John Stine Road) (Including main roadway, bumpouts, u-turns, side streets)	LF	$1,000	17,187	$17,187,000
SHARED BIKE/PED PATH	LF	$60	13950	$837,000
SIGNALIZATION				
New Signal	Ea.	$200,000	3	$600,000
Signal Modification	Ea.	$7,500	2	$15,000
Signal Removal	Ea.	$10,000	0	$0
BRIDGE CONSTRUCTION				
Approaches	SF	$100	43890	$4,389,000
New Lift Bridge	Ea.	$7,386,000	1	$7,386,000
Existing Lift Bridge Rehabilitation	Ea.	$7,386,000	1	$7,386,000
BRIDGE DEMOLITION	Lump	$700,000	0	$0
MOBILIZATION	Ea.	$2,013,575	1	$2,013,575
UTILITY RELOCATION				
Water - South Section (below John Stine Road)	Lump	$0	1	$0
Water - North Section (above John Stine Road)	Lump	$1,857,500	1	$1,857,500
Sewer - South Section (below John Stine Road)	Lump	$0	1	$0
Sewer - North Section (above John Stine Road)	Lump	$0	1	$0
Gas Line - South Section (below John Stine Road)	Lump	$0	1	$0
Gas Line- North Section (above John Stine Road)	Lump	$384,000	1	$384,000
		SUBTOTAL		$54,903,595
Contingencies	25%			$13,725,899
		GRAND TOTAL		**$68,629,494**

Table II-18
Alternative A-1
Conceptual Construction Cost Estimate (Bridge Replacement Option)

ITEM	UNIT	UNIT PRICE	QUANTITY	AMOUNT
ENVIRONMENTAL DOCUMENTATION	Lump	$1,000,000	1	$1,000,000
ENVIRONMENTAL MITIGATION				
Wetlands	Acres	$50,000	4.56	$228,000
Adverse Effect (Historic Bridge Removal)	Lump	$75,000	1	$75,000
ENGINEERING DESIGN COSTS	Lump	$3,387,400	1	$3,387,400
RIGHT-OF WAY AND RELOCATIONS				
Right of-Way - Commercial	Acres	$85,000	5.43	$461,550
Right-of Way – Residential	Acres	$39,500	25.50	$1,007,250
Commercial Acquisition /Relocation	Ea.	$200,000	10	$2,000,000
Residential Acquisition /Relocation	Ea.	$100,000	47	$4,700,000
AT-GRADE ROADWAY				
South Section (John Stine Road and southward) (Partial raised median, turn lanes, striping)	Lump	$230,000	1	$230,000
North Section (above John Stine Road) (Including main roadway, bumpouts, U-turns, side streets)	LF	$1,000	17,187	$17,187,000
SHARED BIKE/PED PATH	LF	$60	13950	$837,000
SIGNALIZATION				
New Signal	Ea.	$200,000	3	$600,000
Signal Modification	Ea.	$7,500	2	$15,000
Signal Removal	Ea.	$10,000	0	$0
BRIDGE CONSTRUCTION				
Approaches	SF	$100	87780	$8,778.000
New Lift Bridge	Ea.	$11,754,000	1	$11,754,000
Existing Lift Bridge Rehabilitation	Ea.	$7,386,000	0	$0
BRIDGE DEMOLITION	Lump	$700,000	1	$700,000
MOBILIZATION	Ea.	$2,117,125	1	$2,117,125
UTILITY RELOCATION				
Water - South Section (below John Stine Road)	Lump	$0	1	$0
Water - North Section (above John Stine Road)	Lump	$1,857,500	1	$1,857,500
Sewer - South Section (below John Stine Road)	Lump	$0	1	$0
Sewer - North Section (above John Stine Road)	Lump	$0	1	$0
Gas Line - South Section (below John Stine Road)	Lump	$0	1	$0
Gas Line- North Section (above John Stine Road)	Lump	$384,000	1	$384,000
		SUBTOTAL		$57,318,825
Contingencies	25%			$14,329,706
		GRAND TOTAL		**$71,648,531**

Table II-19
Alternative A-2
Conceptual Construction Cost Estimate (Bridge Rehabilitation Option)

ITEM	UNIT	UNIT PRICE	QUANTITY	AMOUNT
ENVIRONMENTAL DOCUMENTATION	Lump	$1,000,000	1	$1,000,000
ENVIRONMENTAL MITIGATION				
Wetlands	Acres	$50,000	4.60	$230,000
Adverse Effect (Historic Bridge Removal)	Lump	$75,000	0	$0
ENGINEERING DESIGN COSTS	Lump	$3,236,587	1	$3,236,587
RIGHT-OF WAY AND RELOCATIONS				
Right of-Way - Commercial	Acres	$85,000	5.65	$480,250
Right-of Way – Residential	Acres	$39,500	27.66	$1,092,570
Commercial Acquisition /Relocation	Ea.	$200,000	10	$2,000,000
Residential Acquisition /Relocation	Ea.	$100,000	49	$4,900,000
AT-GRADE ROADWAY				
South Section (John Stine Road and southward) (Partial raised median, turn lanes, striping)	Lump	$230,000	1	$230,000
North Section (above John Stine Road) (Including main roadway, bumpouts, U-turns, side streets)	LF	$1,000	17,551	$17,551,000
SHARED BIKE/PED PATH	LF	$60	14,314	$858,840
SIGNALIZATION				
New Signal	Ea.	$200,000	2	$400,000
Signal Modification	Ea.	$7,500	2	$15,000
Signal Removal	Ea.	$10,000	0	$0
BRIDGE CONSTRUCTION				
Approaches	SF	$100	43,890	$4,389,000
New Lift Bridge	Ea.	$7,386,000	1	$7,386,000
Existing Lift Bridge Rehabilitation	Ea.	$7,386,000	1	$7,386,000
BRIDGE DEMOLITION	Lump	$700,000	0	$0
MOBILIZATION	Ea.	$2,022,867	1	$2,022,867
UTILITY RELOCATION				
Water - South Section (below John Stine Road)	Lump	$0	1	$0
Water - North Section (above John Stine Road)	Lump	$1,857,500	1	$1,857,500
Sewer - South Section (below John Stine Road)	Lump	$0	1	$0
Sewer - North Section (above John Stine Road)	Lump	$0	1	$0
Gas Line - South Section (below John Stine Road)	Lump	$0	1	$0
Gas Line- North Section (above John Stine Road)	Lump	$384,000	1	$384,000
		SUBTOTAL		$55,419,614
Contingencies	25%			$13,854,904
		GRAND TOTAL		**$69,274,518**

Table II-20
Alternative A-2
Conceptual Construction Cost Estimate (Bridge Replacement Option)

ITEM	UNIT	UNIT PRICE	QUANTITY	AMOUNT
ENVIRONMENTAL DOCUMENTATION	Lump	$1,000,000	1	$1,000,000
ENVIRONMENTAL MITIGATION				
Wetlands	Acres	$50,000	4.60	$230,000
Adverse Effect (Historic Bridge Removal)	Lump	$75,000	1	$75,000
ENGINEERING DESIGN COSTS	Lump	$3,402,267	1	$3,402,267
RIGHT-OF WAY AND RELOCATIONS				
Right of-Way - Commercial	Acres	$85,000	5.65	$480,250
Right-of Way – Residential	Acres	$39,500	27.66	$1,092,570
Commercial Acquisition /Relocation	Ea.	$200,000	10	$2,000,000
Residential Acquisition /Relocation	Ea.	$100,000	49	$4,900,000
AT-GRADE ROADWAY				
South Section (John Stine Road and southward) (Partial raised median, turn lanes, striping)	Lump	$230,000	1	$230,000
North Section (above John Stine Road) (Including main roadway, bumpouts, U-turns, side streets)	LF	$1,000	17,551	$17,551,000
SHARED BIKE/PED PATH	LF	$60	14,314	$858,840
SIGNALIZATION				
New Signal	Ea.	$200,000	2	$400,000
Signal Modification	Ea.	$7,500	2	$15,000
Signal Removal	Ea.	$10,000	0	$0
BRIDGE CONSTRUCTION				
Approaches	SF	$100	87,780	$8,778,000
New Lift Bridge	Ea.	$11,754,000	1	$11,754,000
Existing Lift Bridge Rehabilitation	Ea.	$7,386,000	0	$0
BRIDGE DEMOLITION	Lump	$700,000	1	$700,000
MOBILIZATION	Ea.	$2,126,417	1	$2,126,417
UTILITY RELOCATION				
Water - South Section (below John Stine Road)	Lump	$0	1	$0
Water - North Section (above John Stine Road)	Lump	$1,857,500	1	$1,857,500
Sewer - South Section (below John Stine Road)	Lump	$0	1	$0
Sewer - North Section (above John Stine Road)	Lump	$0	1	$0
Gas Line - South Section (below John Stine Road)	Lump	$0	1	$0
Gas Line- North Section (above John Stine Road)	Lump	$384,000	1	$384,000
		SUBTOTAL		$57,834,844
Contingencies	25%			$14,458,711
		GRAND TOTAL		**$72,293,555**

Table II-21
Alternative B
Conceptual Construction Cost Estimate (Bridge Rehabilitation Option)

ITEM	UNIT	UNIT PRICE	QUANTITY	AMOUNT
ENVIRONMENTAL DOCUMENTATION	Lump	$1,000,000	1	$1,000,000
ENVIRONMENTAL MITIGATION				
Wetlands	Acres	$50,000	4.60	$230,000
Adverse Effect (Historic Bridge Removal)	Lump	$75,000	0	$0
ENGINEERING DESIGN COSTS	Lump	$3,256,976	1	$3,256,976
RIGHT-OF WAY AND RELOCATIONS				
Right of-Way - Commercial	Acres	$85,000	4.83	$410,550
Right-of Way – Residential	Acres	$39,500	38.92	$1,537,486
Commercial Acquisition /Relocation	Ea.	$200,000	28	$5,600,000
Residential Acquisition /Relocation	Ea.	$100,000	38	$3,800,000
AT-GRADE ROADWAY				
South Section (John Stine Road and southward) (Raised median, roundabouts, striping)	Lump	$3,750,000	1	$3,750,000
North Section (above John Stine Road) (Including main roadway, bumpouts, U-turns, side streets)	LF	$1,000	14750	$14,750,000
SHARED BIKE/PED PATH	LF	$60	12,745	$764,700
SIGNALIZATION				
New Signal	Ea.	$200,000	0	$0
Signal Modification	Ea.	$7,500	2	$15,000
Signal Removal	Ea.	$10,000	4	$40,000
BRIDGE CONSTRUCTION				
Approaches	SF	$100	43,890	$4,389,000
New Lift Bridge	Ea.	$7,386,000	1	$7,386,000
Existing Lift Bridge Rehabilitation	Ea.	$7,386,000	1	$7,386,000
BRIDGE DEMOLITION	Lump	$700,000	0	$0
MOBILIZATION	Ea.	$1,666,310	1	$1,666,310
UTILITY RELOCATION				
Water - South Section (below John Stine Road)	Lump	$332,000	1	$332,000
Water - North Section (above John Stine Road)	Lump	$2,035,610	1	$2,035,610
Sewer - South Section (below John Stine Road)	Lump	$0	0	$0
Sewer - North Section (above John Stine Road)	Lump	$0	0	$0
Gas Line - South Section (below John Stine Road)	Lump	$60,000	1	$60,000
Gas Line- North Section (above John Stine Road)	Lump	$204,000	1	$204,000
		SUBTOTAL		$58,582,676
Contingencies	25%			$14,645,669
		GRAND TOTAL		**$73,228,345**

Table II-22
Alternative B
Conceptual Construction Cost Estimate (Bridge Replacement Option)

ITEM	UNIT	UNIT PRICE	QUANTITY	AMOUNT
ENVIRONMENTAL DOCUMENTATION	Lump	$1,000,000	1	$1,000,000
ENVIRONMENTAL MITIGATION				
Wetlands	Acres	$50,000	4.60	$230,000
Adverse Effect (Historic Bridge Removal)	Lump	$75,000	1	$75,000
ENGINEERING DESIGN COSTS	Lump	$3,422,656	1	$3,422,656
RIGHT-OF WAY AND RELOCATIONS				
Right of-Way - Commercial	Acres	$85,000	4.83	$410,550
Right-of Way – Residential	Acres	$39,500	38.92	$1,537,340
Commercial Acquisition /Relocation	Ea.	$200,000	28	$5,600,000
Residential Acquisition /Relocation	Ea.	$100,000	38	$3,800,000
AT-GRADE ROADWAY				
South Section (John Stine Road and southward) (Raised median, roundabouts, striping)	Lump	$3,750,000	1	$3,750,000
North Section (above John Stine Road) (Including main roadway, bumpouts, U-turns, side streets)	LF	$1,000	14750	$14,750,000
SHARED BIKE/PED PATH	LF	$60	12,745	$764,700
SIGNALIZATION				
New Signal	Ea.	$200,000	0	$0
Signal Modification	Ea.	$7,500	2	$15,000
Signal Removal	Ea.	$10,000	4	$40,000
BRIDGE CONSTRUCTION				
Approaches	SF	$100	87,780	$8,780,000
New Lift Bridge	Ea.	$11,754,000	1	$11,754,000
Existing Lift Bridge Rehabilitation	Ea.	$7,386,000	0	$0
BRIDGE DEMOLITION	Lump	$700,000	1	$700,000
MOBILIZATION	Ea.	$2,139,160	1	$2,139,160
UTILITY RELOCATION				
Water - South Section (below John Stine Road)	Lump	$332,000	1	$332,000
Water - North Section (above John Stine Road)	Lump	$1,635,500	1	$1,635,500
Sewer - South Section (below John Stine Road)	Lump	$0	0	$0
Sewer - North Section (above John Stine Road)	Lump	$0	0	$0
Gas Line - South Section (below John Stine Road)	Lump	$60,000	1	$60,000
Gas Line- North Section (above John Stine Road)	Lump	$204,000	1	$204,000
		SUBTOTAL		$60,997,906
Contingencies	25%			$15,249,477
		GRAND TOTAL		**$76,247,383**

Table II-23
Alternative C
Conceptual Construction Cost Estimate

ITEM	UNIT	UNIT PRICE	QUANTITY	AMOUNT
ENVIRONMENTAL DOCUMENTATION	Lump	$1,000,000	1	$1,000,000
ENVIRONMENTAL MITIGATION				
Wetlands	Acres	$50,000	17.43	$871,500
Adverse Effect (Historic Bridge Removal)	Lump	$75,000	1	$75,000
ENGINEERING DESIGN COSTS	Lump	$3,749,250	1	$3,749,250
RIGHT-OF WAY AND RELOCATIONS				
Right of-Way - Commercial	Acres	$85,000	0.91	$77,350
Right-of Way – Residential	Acres	$39,500	46.96	$1,854,920
Commercial Acquisition /Relocation	Ea.	$200,000	20	$4,000,000
Residential Acquisition /Relocation	Ea.	$100,000	36	$3,600,000
AT-GRADE ROADWAY				
South Section (John Stine Road and southward) (Raised median, turn lanes, striping)	Lump	$3,200,000	1	$3,200,000
North Section (above John Stine Road) (Including main roadway, bumpouts, u-turns, side streets)	LF	$1,000	12114	$12,114,000
SHARED BIKE/PED PATH	LF	$60	6,052	$363,120
SIGNALIZATION				
New Signal	Ea.	$200,000	1	$200,000
Signal Modification	Ea.	$7,500	2	$15,000
Signal Removal	Ea.	$10,000	3	$30,000
BRIDGE STRUCTURE(S)				
Approaches	SF	$100	142,450	$14,245,000
New Lift Bridge	Ea.	$11,754,000	1	$11,754,000
New Indian Bayou Bridge	Ea.	$2,300,000	1	$2,300,000
BRIDGE DEMOLITION	Lump	$700,000	1	$700,000
MOBILIZATION	Ea.	$2,343,281	1	$2,343,281
UTILITY RELOCATION				
Water - South Section (below John Stine Road)	Lump	$195,500	1	$195,500
Water - North Section (above John Stine Road)	Lump	$1,353,000	1	$1,353,000
Sewer - South Section (below John Stine Road)	Lump	$0	0	$0
Sewer - North Section (above John Stine Road)	Lump	$0	0	$0
Gas Line - South Section (below John Stine Road)	Lump	$32,000	1	$32,000
Gas Line- North Section (above John Stine Road)	Lump	$364,000	1	$364,000
		SUBTOTAL		$64,436,921
Contingencies	25%			$16,109,230
		GRAND TOTAL		**$80,546,151**

EVALUATION AND COMPARISON OF THE ALTERNATIVES

While the Scope of Work for the project does not require selection of a preferred alternative among the alternatives, it does call for an evaluation and comparison. The matrix below presents a comparison in terms of (1) cost, (2) right-of-way acquisitions, (3) likely required relocations, (4) traffic impacts, (5) potential wetland impacts, (6) 4(f) impacts, (7) historic sites, and (8) other potential impacts.

Table II-24
Evaluation/Comparison Matrix

	Alternative A-1	**Alternative A-2**	**Alternative B**	**Alternative C**
Project Cost:	$68,629,494 (bridge rehab) $71,648,531 (bridge replace)	$69,274,518 (bridge rehab) $72,293,555 (bridge replace)	$73,228,345 (bridge rehab) $76,247,383 (bridge replace)	$80,546,151
Total Right-of-Way to be acquired (in acres):	30.93	33.31	43.75	47.37
Likely required relocations:	10 commercial, 47 residential	10 commercial, 49 residential	28 commercial, 38 residential	20 commercial, 36 residential
Traffic Impacts:	Acceptable LOS	Acceptable LOS	Acceptable LOS	Acceptable LOS
Potential Wetland Impacts:	4.56 acres potential wetlands	4.60 acres potential wetlands	4.60 acres potential wetlands	17.43 acres potential wetlands
4(f) Impacts	None	None	None	4 (f) impacts to State Park
Historic Sites	Existing LA 378 West Fork Calcasieu River Bridge is NRHP-eligible.	Existing LA 378 West Fork Calcasieu River Bridge is NRHP-eligible.	Existing LA 378 West Fork Calcasieu River Bridge is NRHP-eligible.	Existing LA 378 West Fork Calcasieu River Bridge is NRHP-eligible. One (1) documented archaeological site
Historic Sites	None	None	None	One (1) documented archaeological site
Other Potential Impacts:	Pressures for land use/zoning changes	Pressures for land use/zoning changes	Pressures for land use/zoning changes	Pressures for land use/zoning changes

ALTERNATIVE

EXHIBITS

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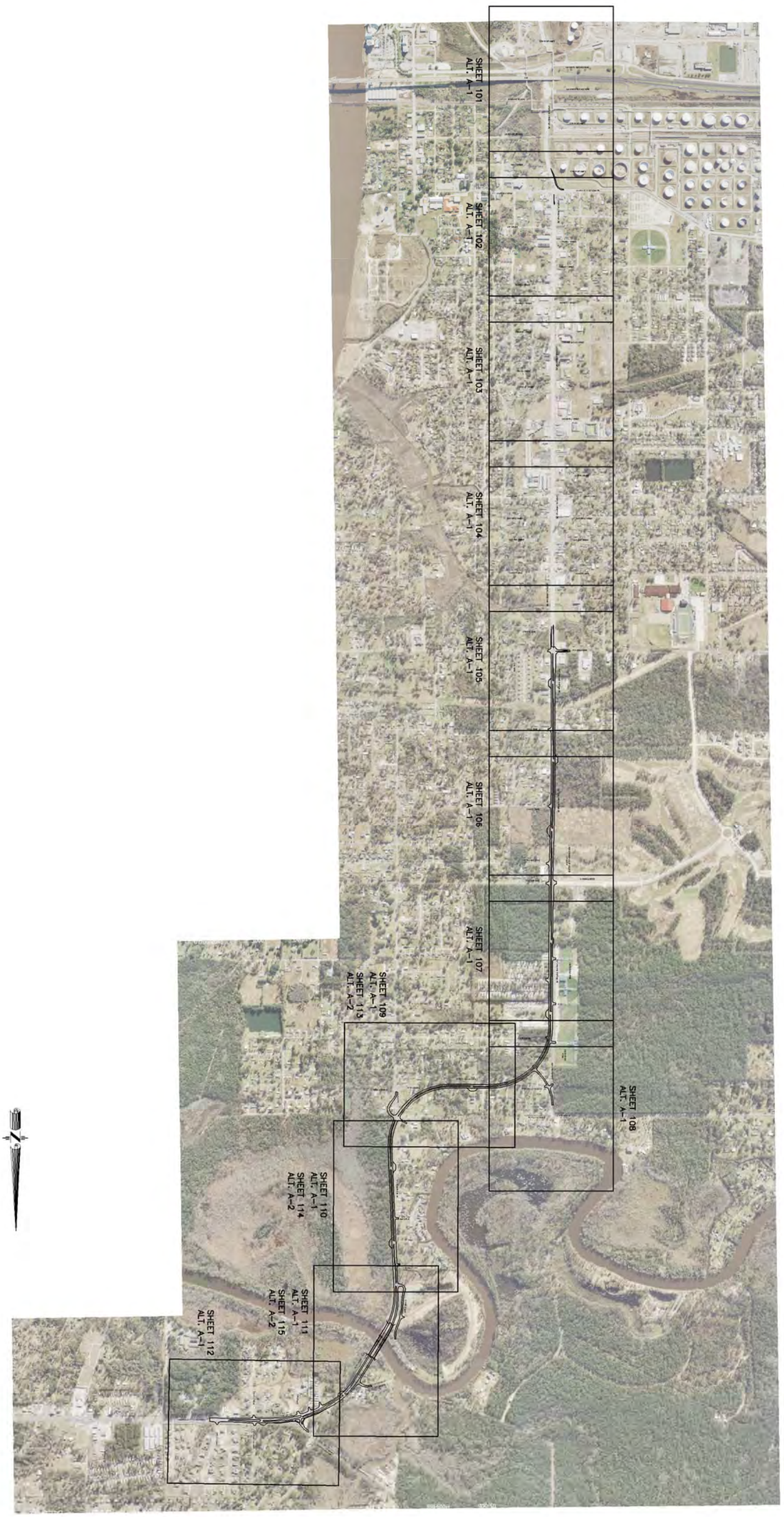
Alternatives A-1& A-2:	Sheets 101 to 108; Sheet 112
Alternative A-1:	Sheets 109 to 111
Alternative A-2:	Sheets 113 to 115
Alternative B:	Sheets 201 to 211
Alternative C:	Sheets 301 to 312
Typical Sections:	Sheets TS-1 to TS-6



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INDEX SHEET - ALTERNATIVE "A-1 and A-2" ALIGNMENTS

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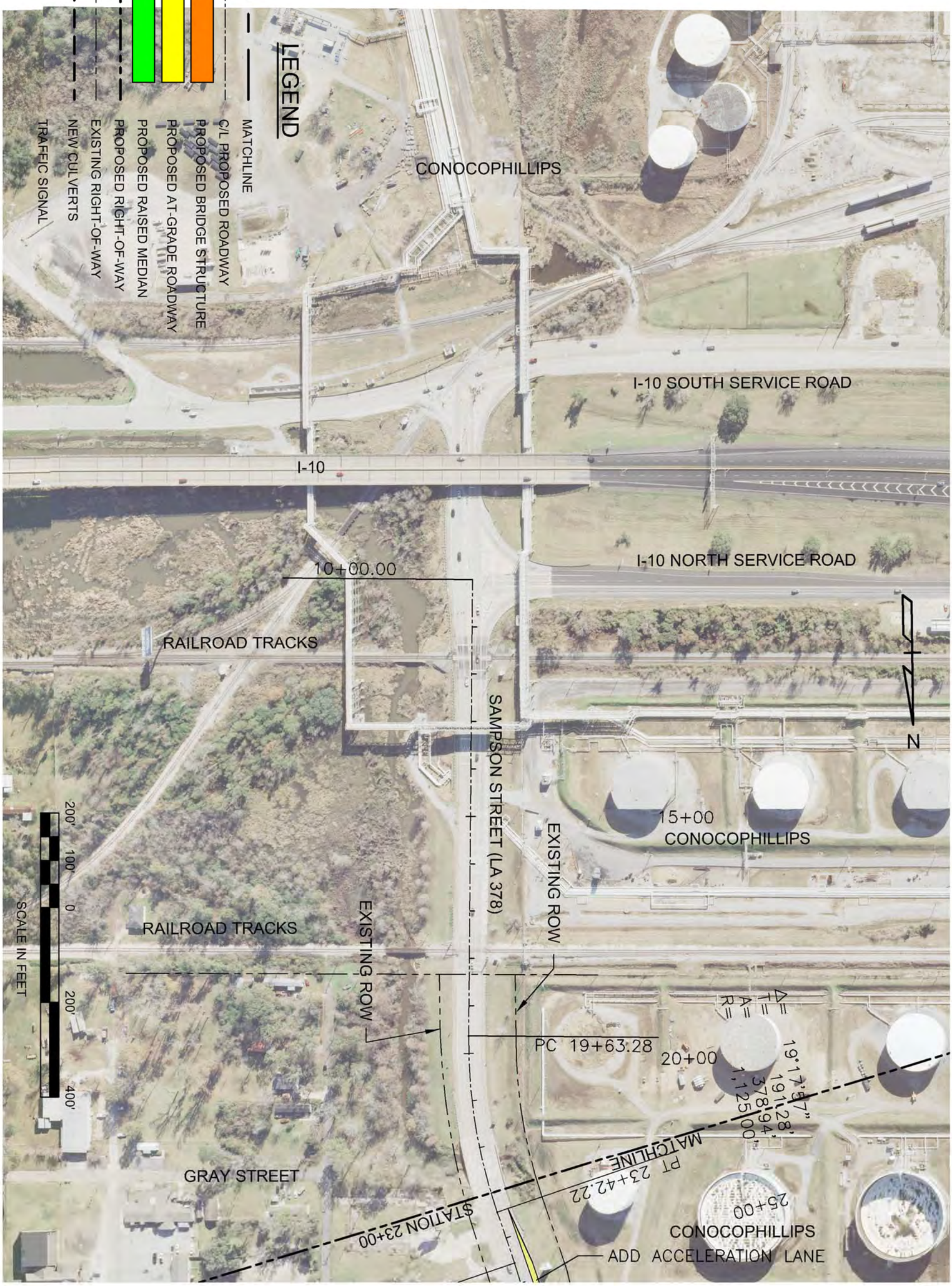

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PLAN LAYOUT – ALTERNATIVE "A-1" ALIGNMENT

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PLAN LAYOUT – ALTERNATIVE "A-1" ALIGNMENT

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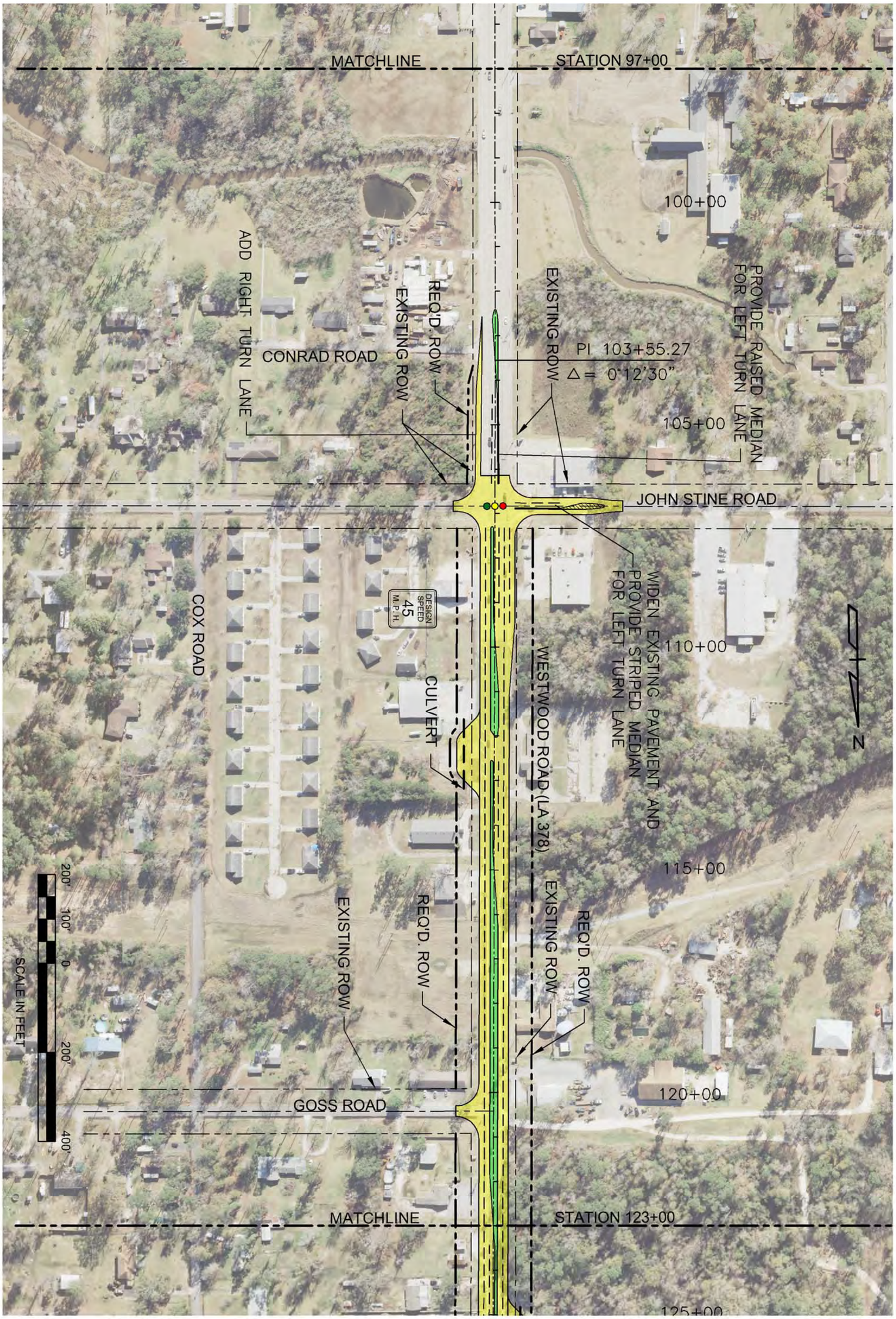

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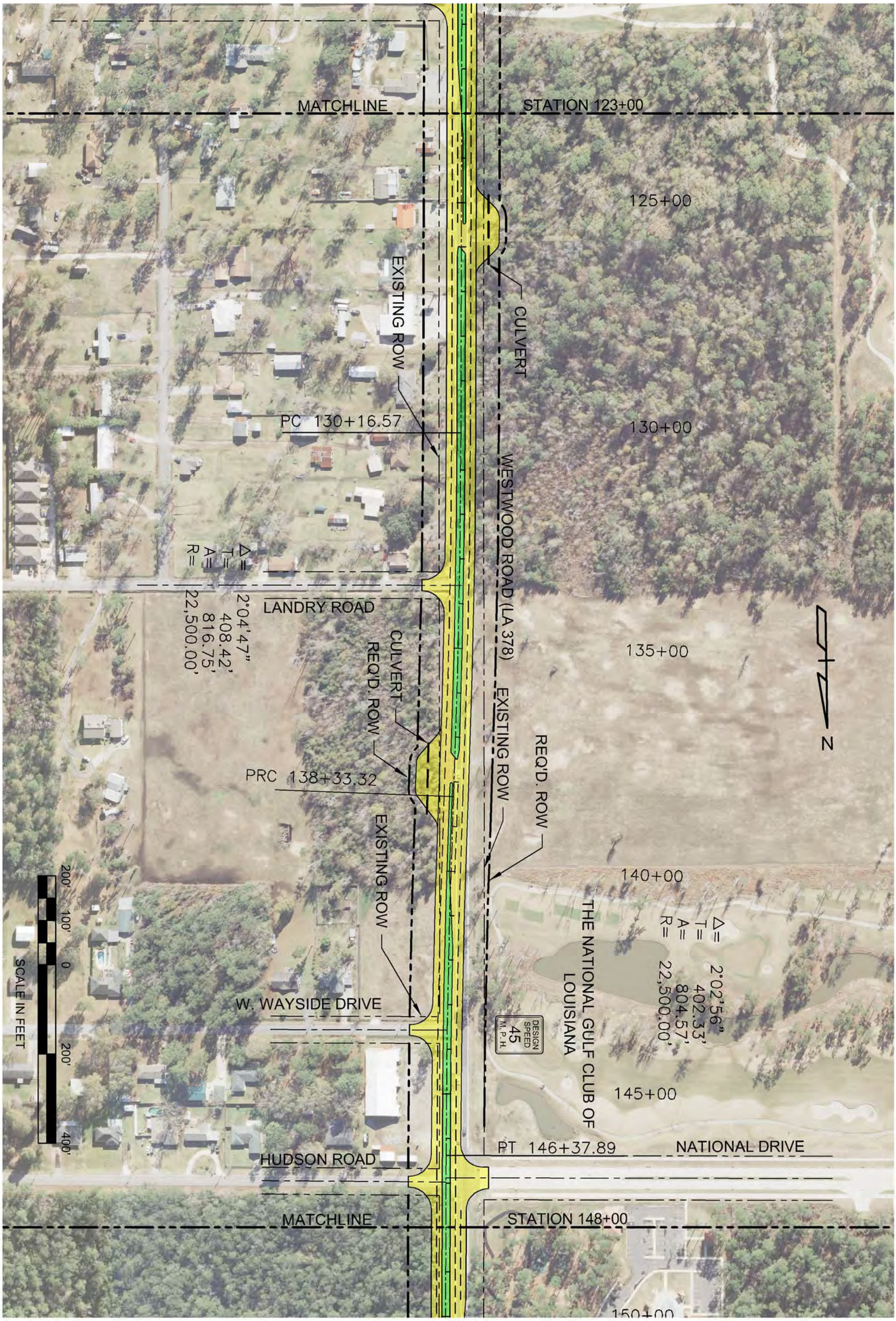

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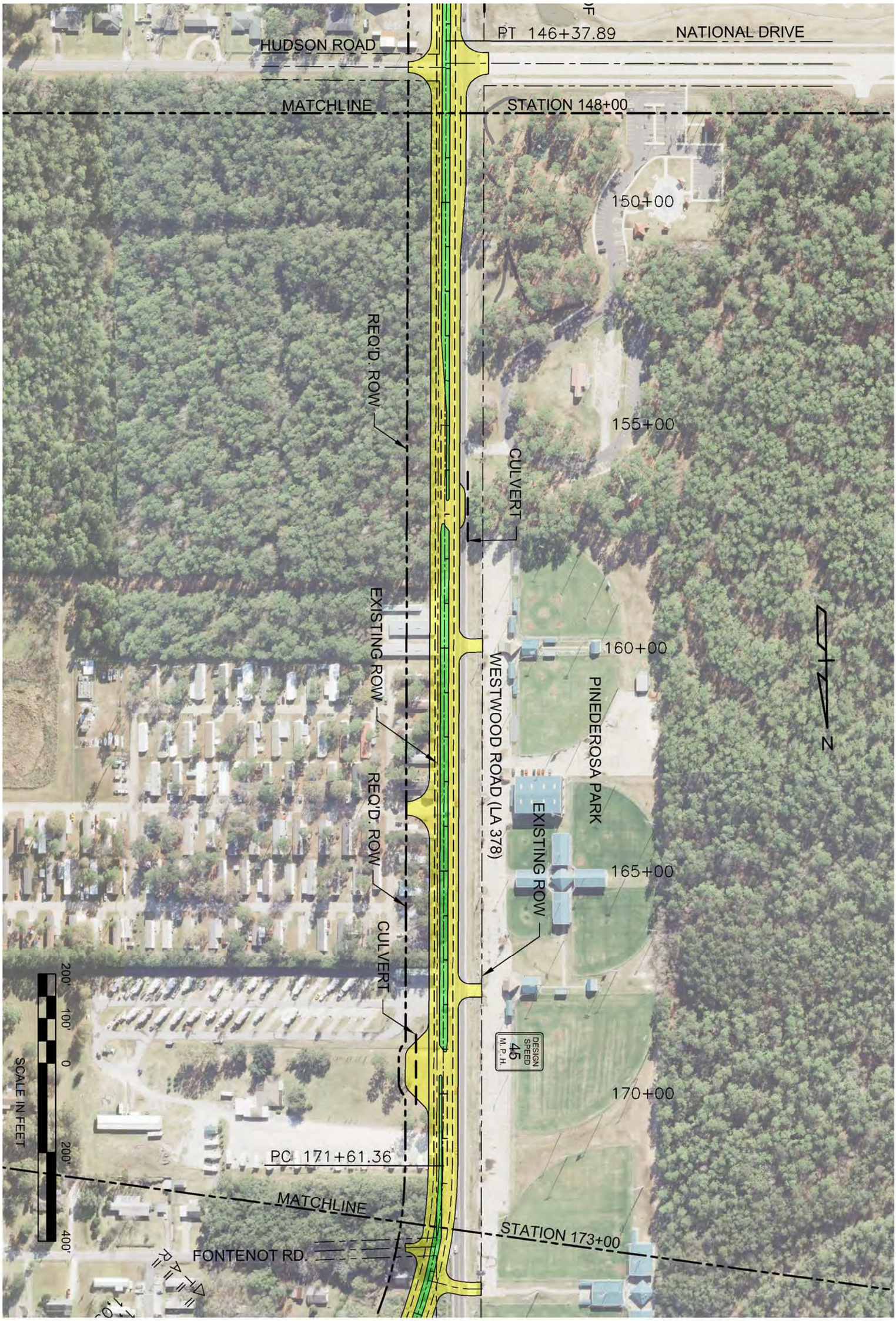

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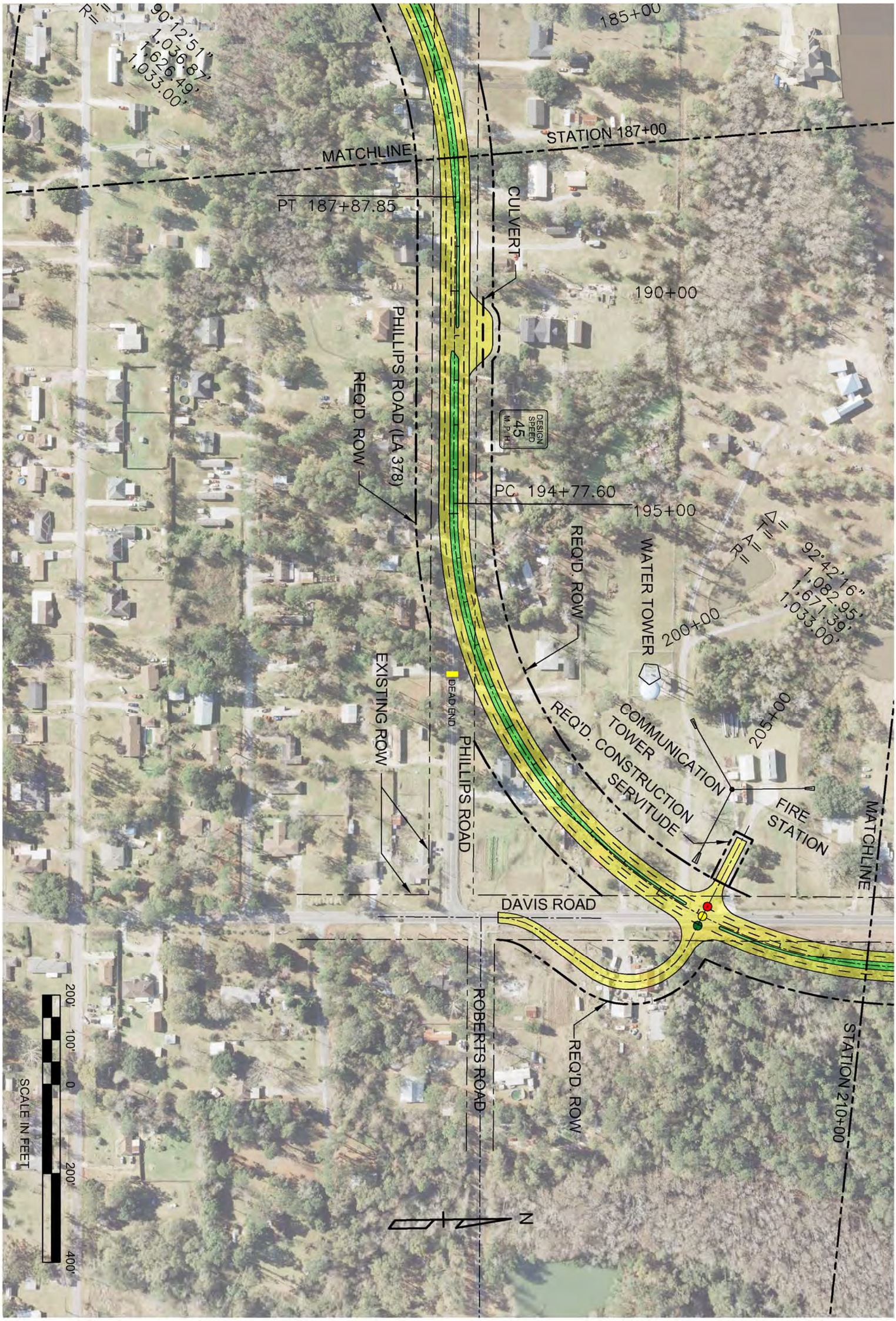

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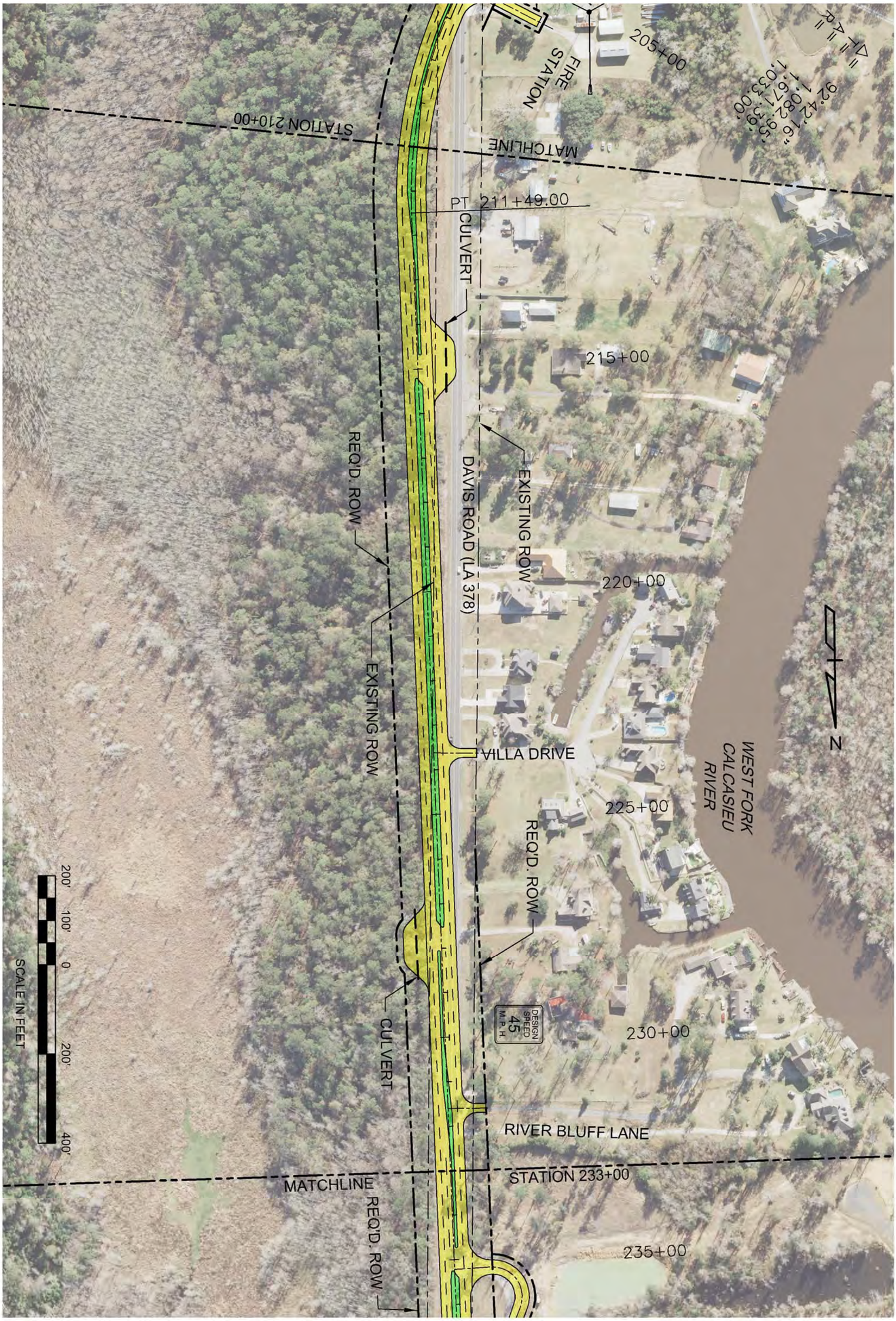

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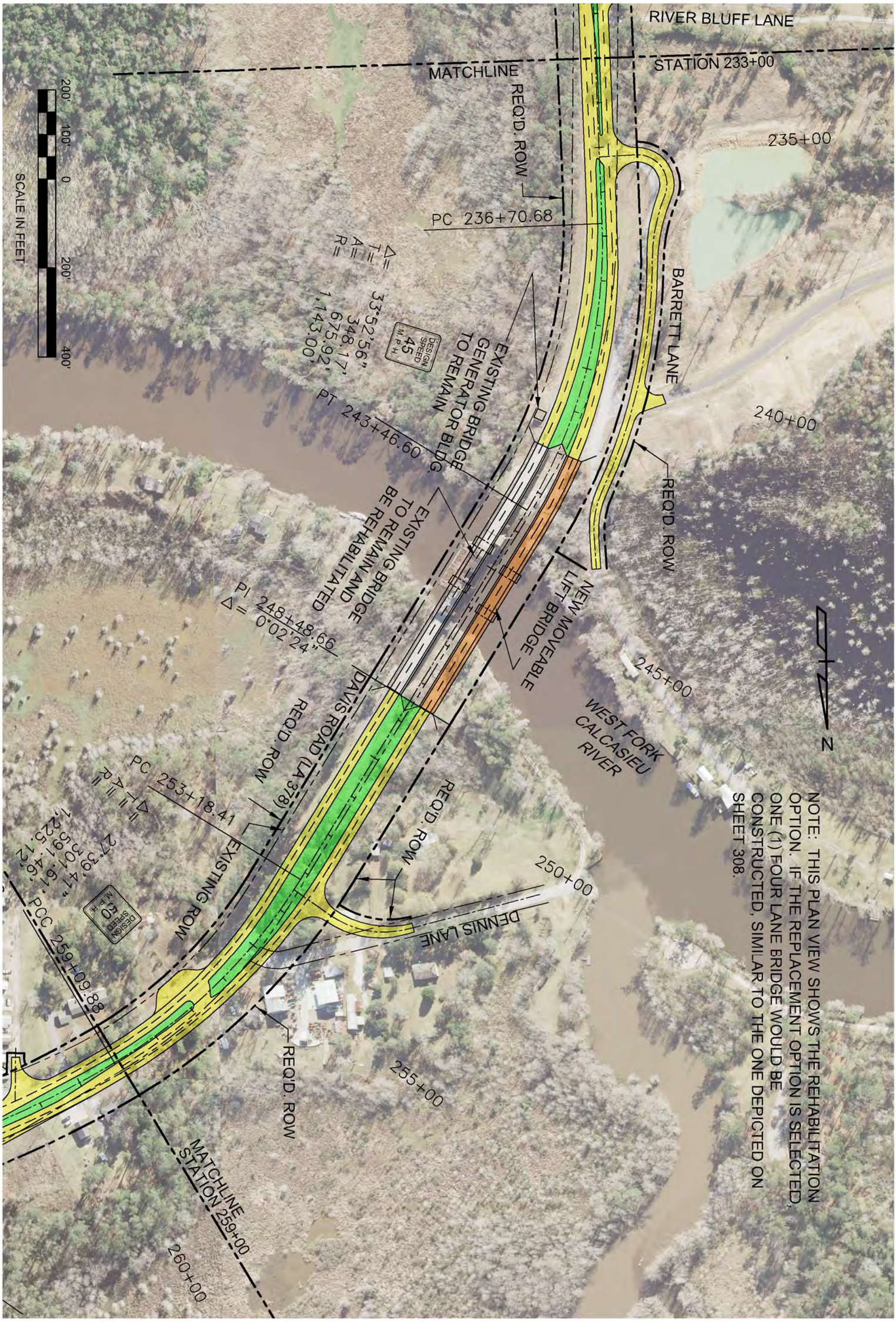

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PLAN LAYOUT – ALTERNATIVE "A-1" ALIGNMENT

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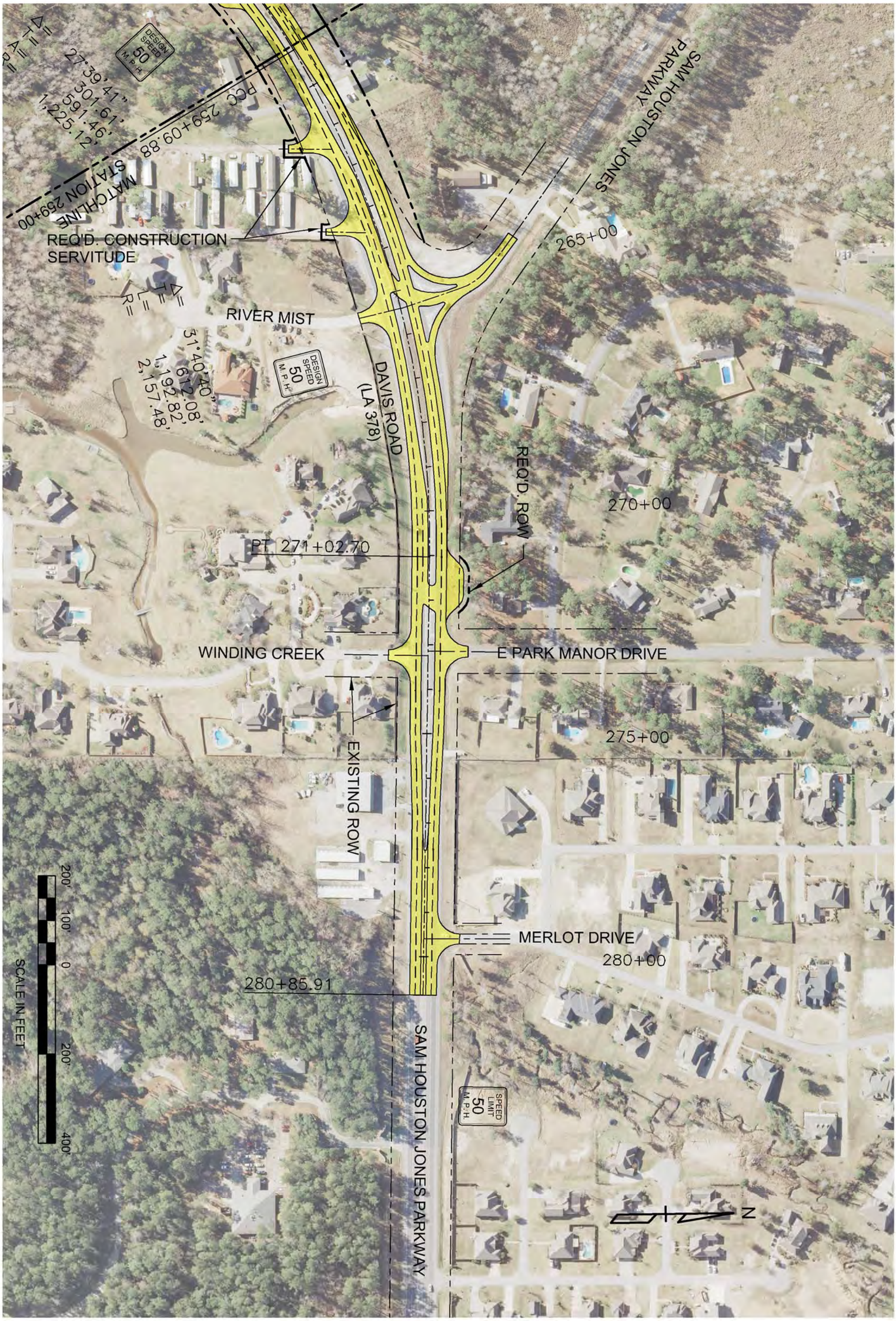

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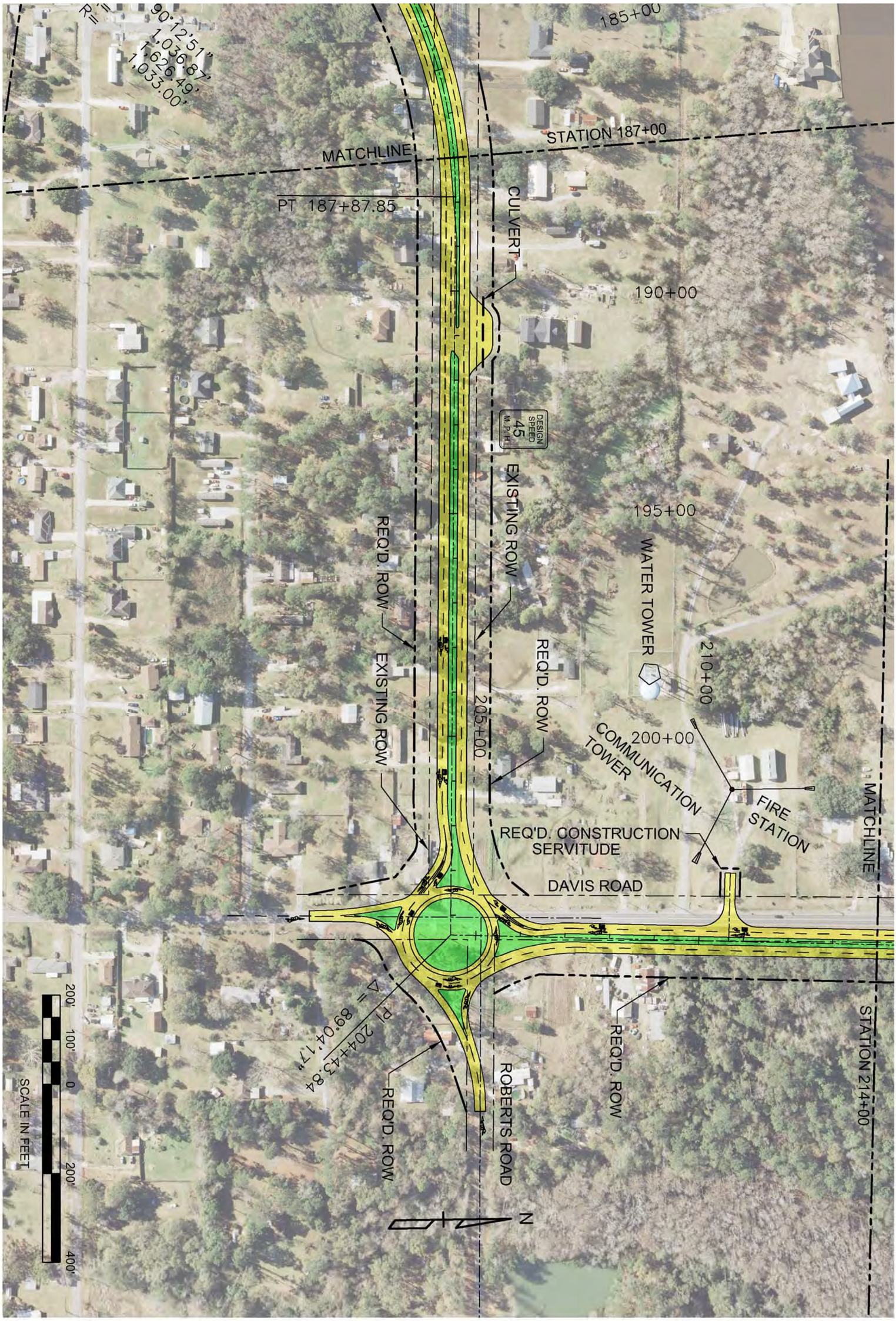

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PLAN LAYOUT - ALTERNATIVE "A-2" ALIGNMENT

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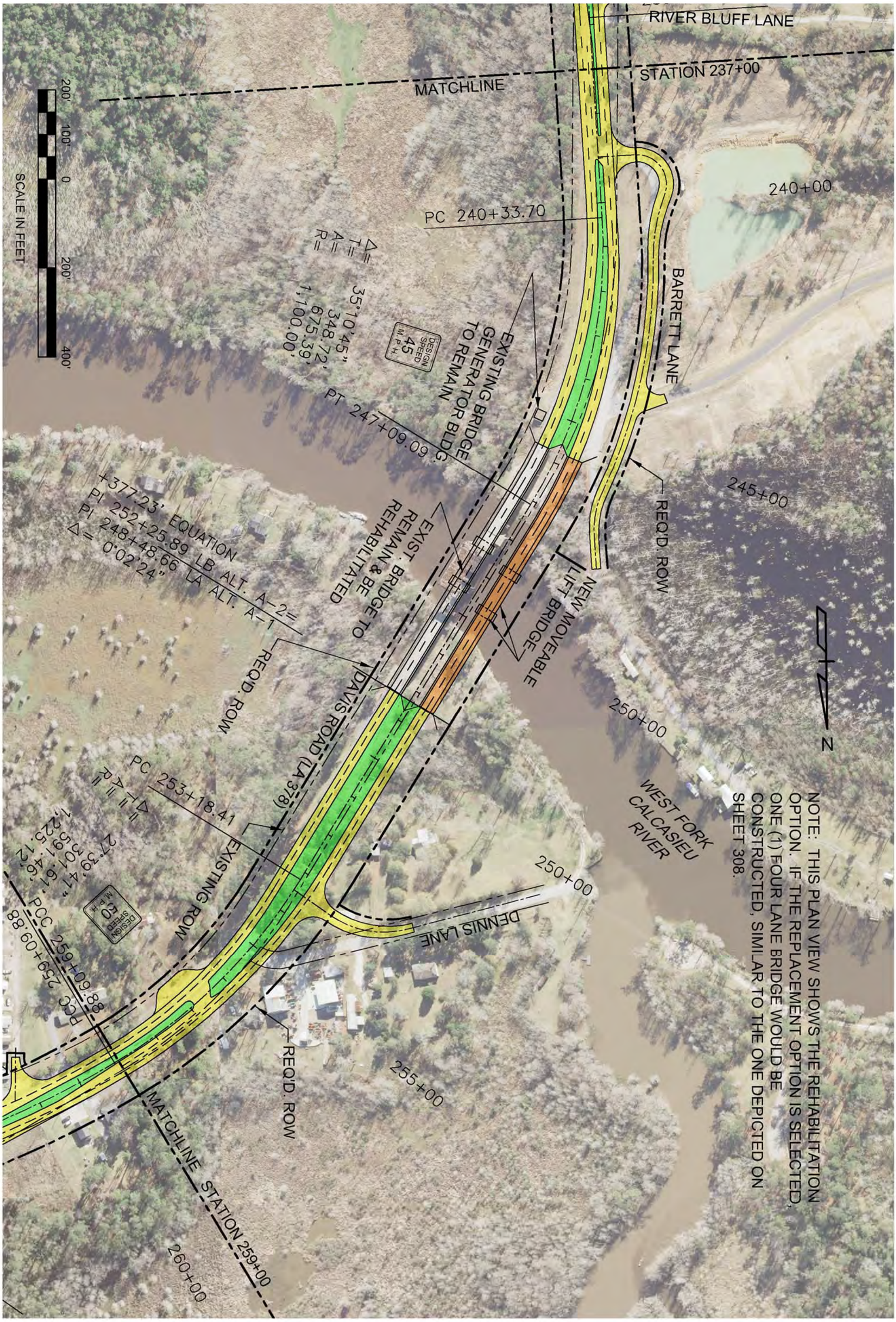

NOTE: THIS PLAN VIEW SHOWS THE REHABILITATION OPTION. IF THE REPLACEMENT OPTION IS SELECTED, ONE (1) FOUR LANE BRIDGE WOULD BE CONSTRUCTED, SIMILAR TO THE ONE DEPICTED ON SHEET 308.

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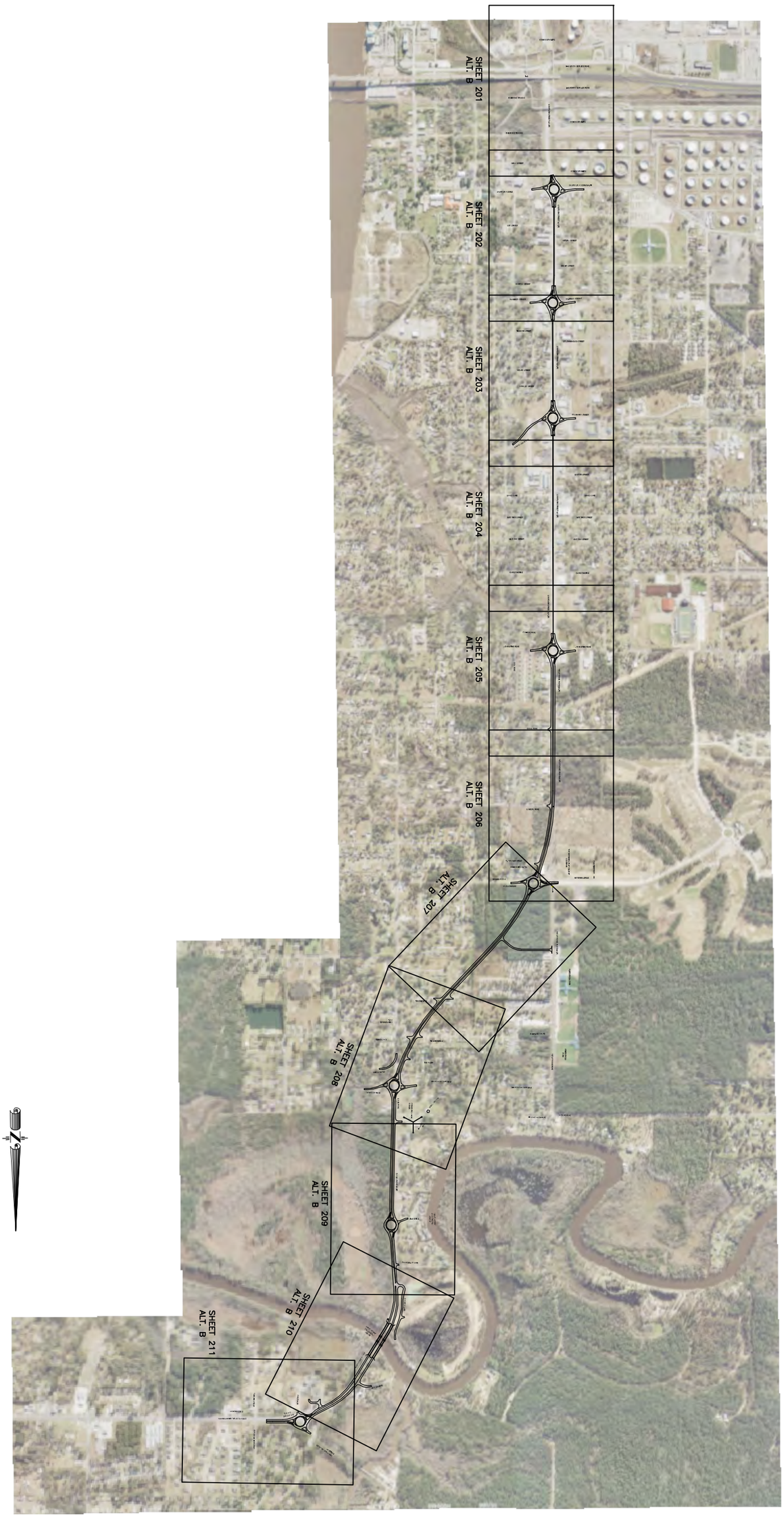

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INDEX - ALTERNATIVE "B" ALIGNMENT

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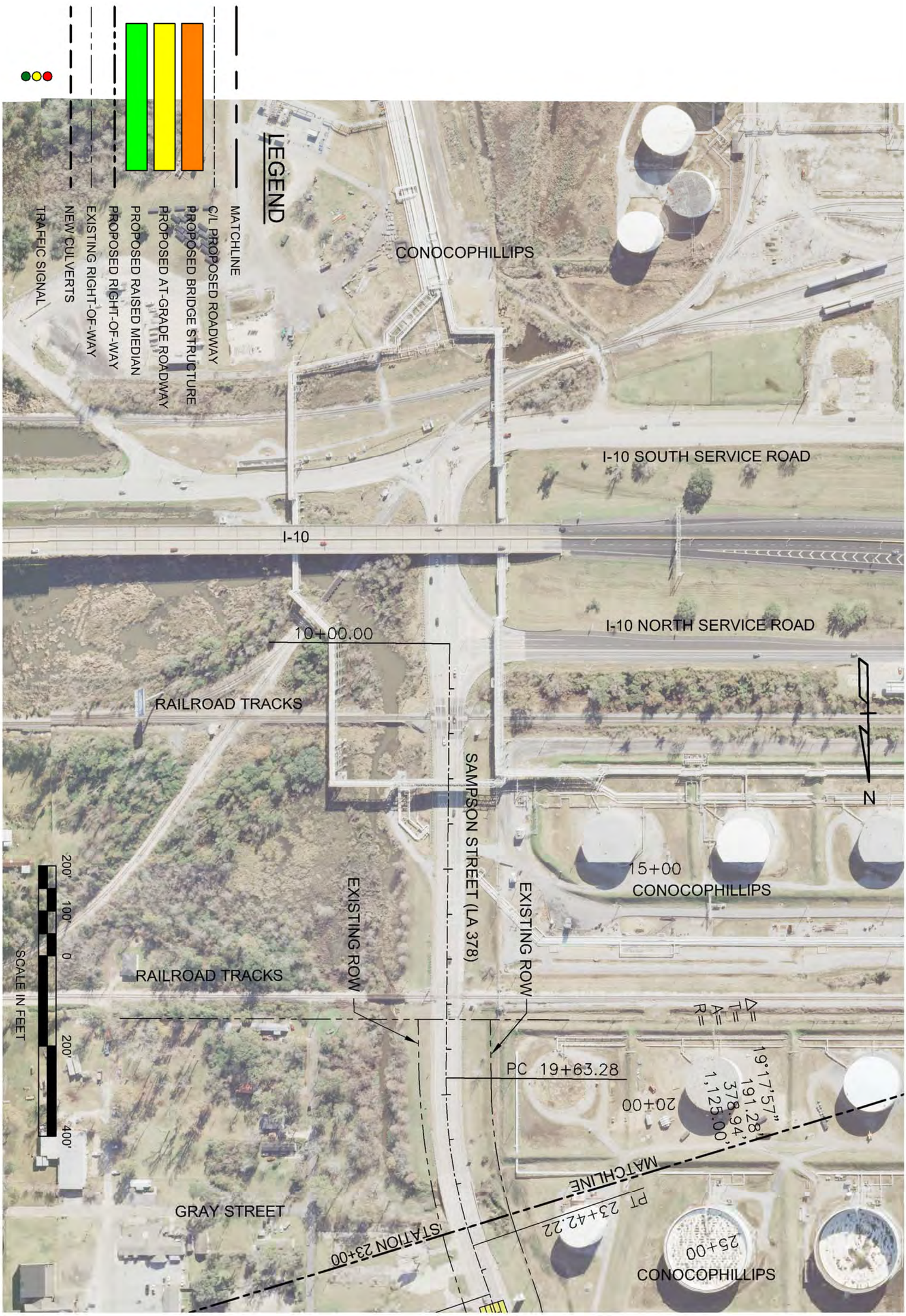

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PLAN LAYOUT - ALTERNATIVE "B" ALIGNMENT

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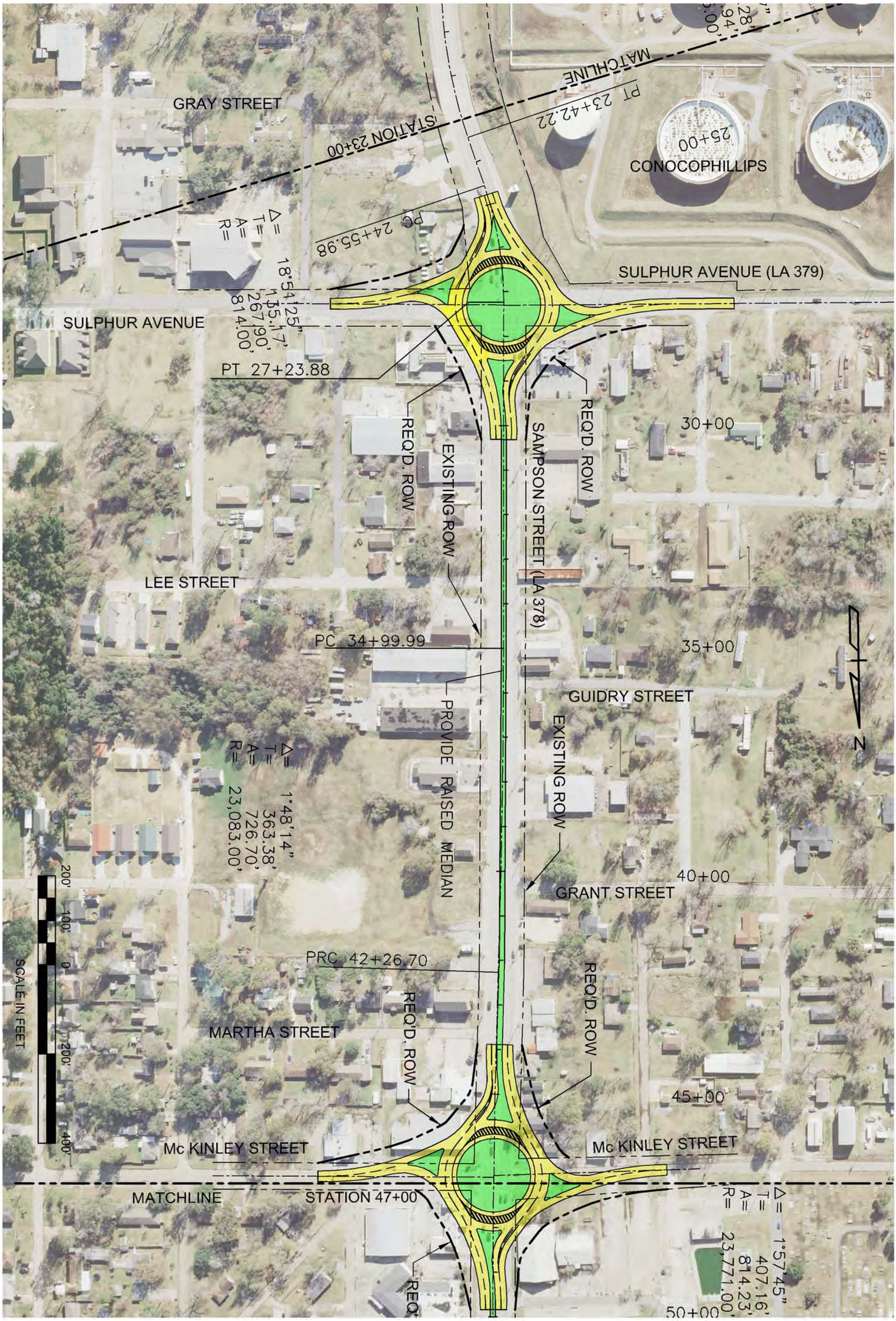

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PLAN LAYOUT - ALTERNATIVE "B" ALIGNMENT

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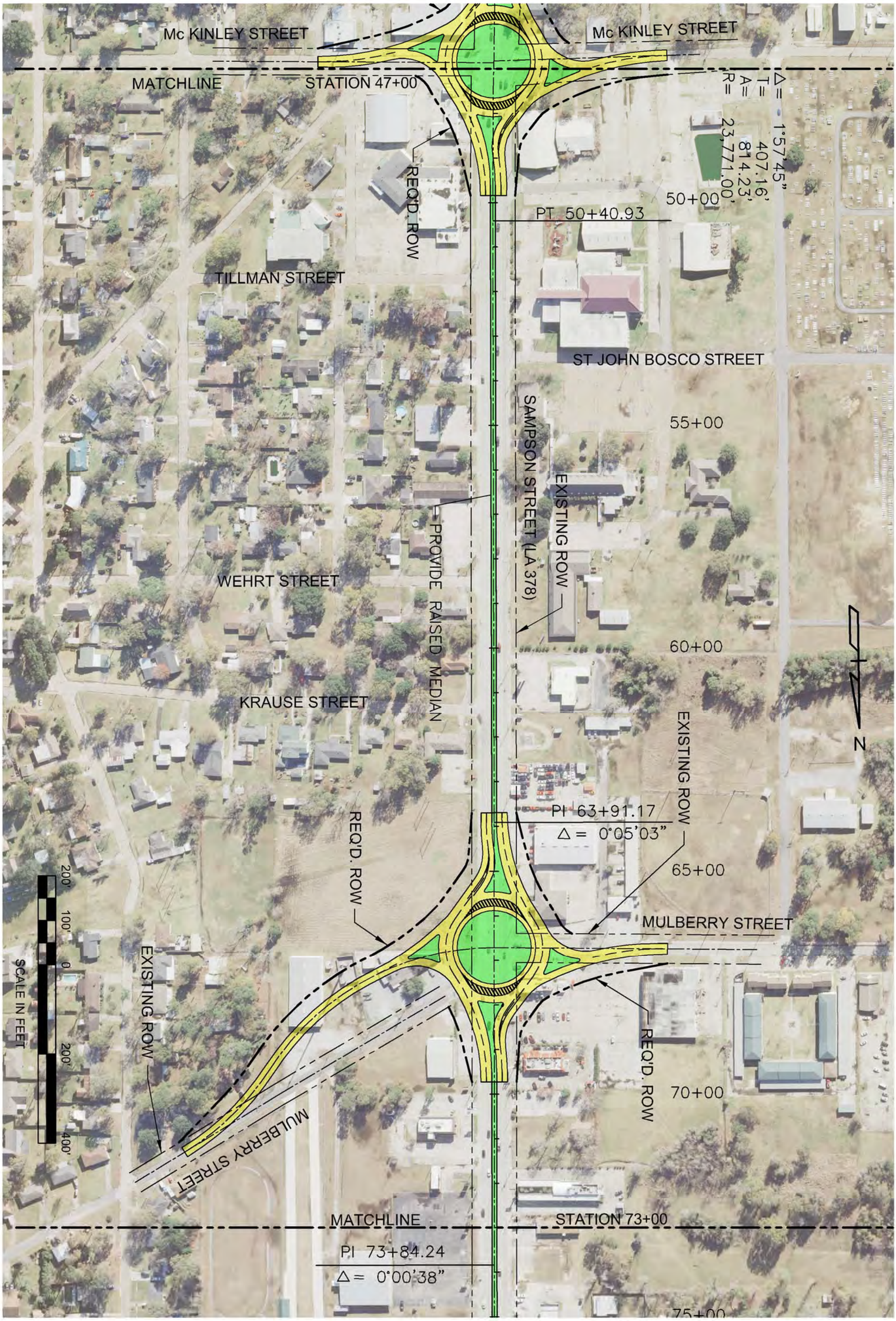

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PLAN LAYOUT - ALTERNATIVE "B" ALIGNMENT

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PLAN LAYOUT – ALTERNATIVE "B" ALIGNMENT

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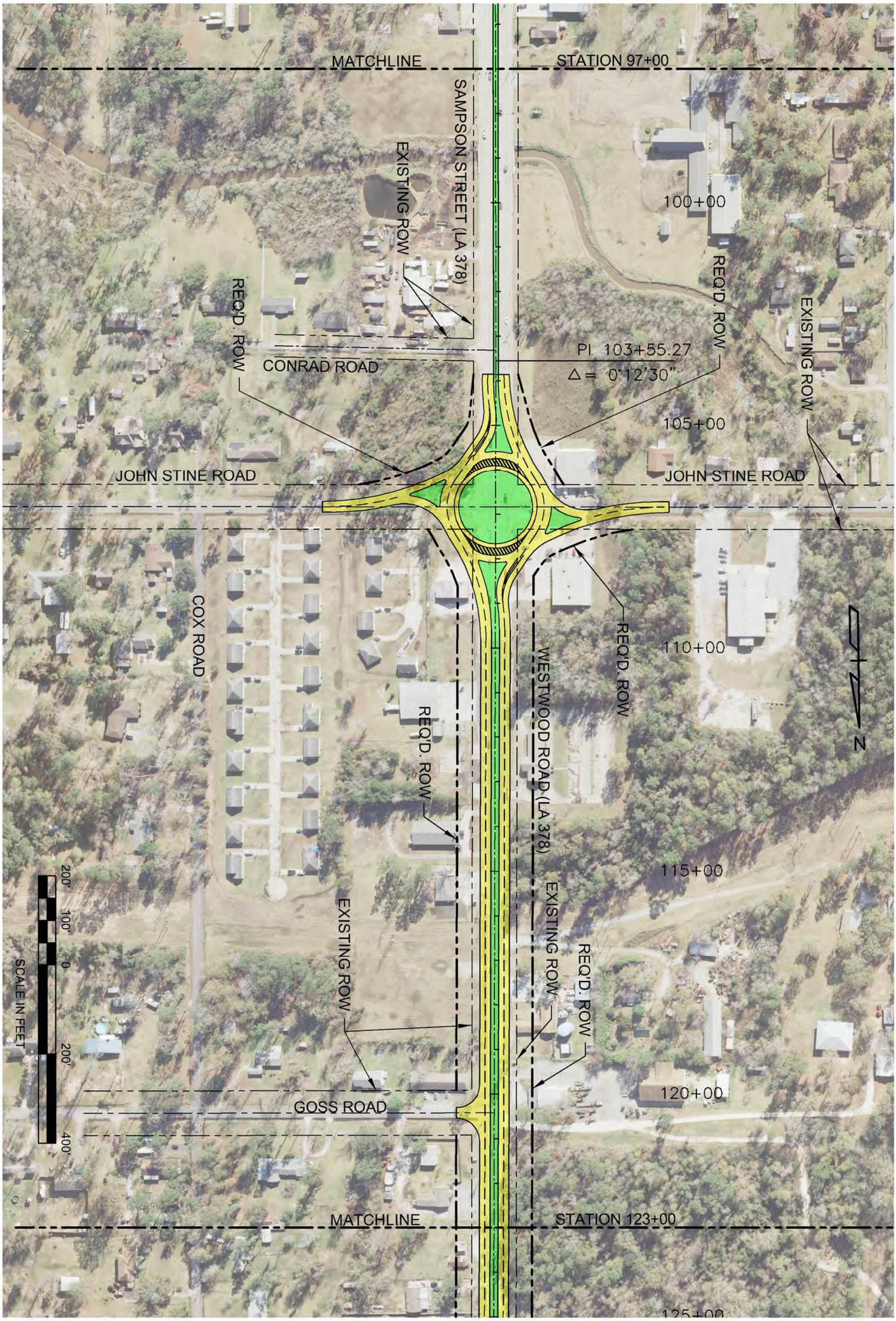

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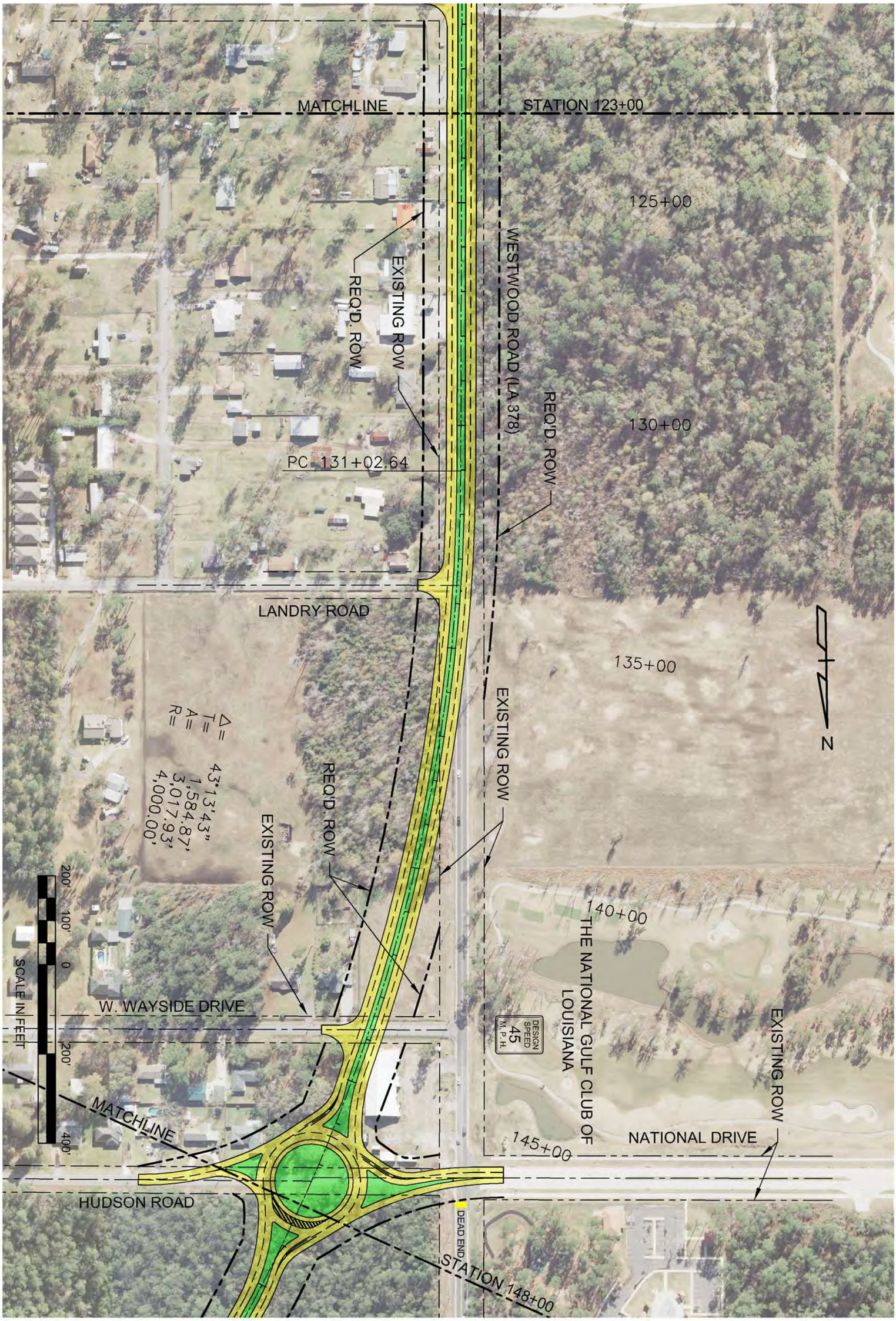
PROGRAM & PROJECT MANAGERS

LA 378 WIDENING BETWEEN WESTLAKE AND MOSS BLUFF
FEASIBILITY STUDY – STAGE 0
CALCASIEU PARISH, LOUISIANA

STATE PROJECT No. H.009488.1 FEDERAL AID PROJECT No. H009488

PLAN LAYOUT - ALTERNATIVE "B" ALIGNMENT

SHEET
205



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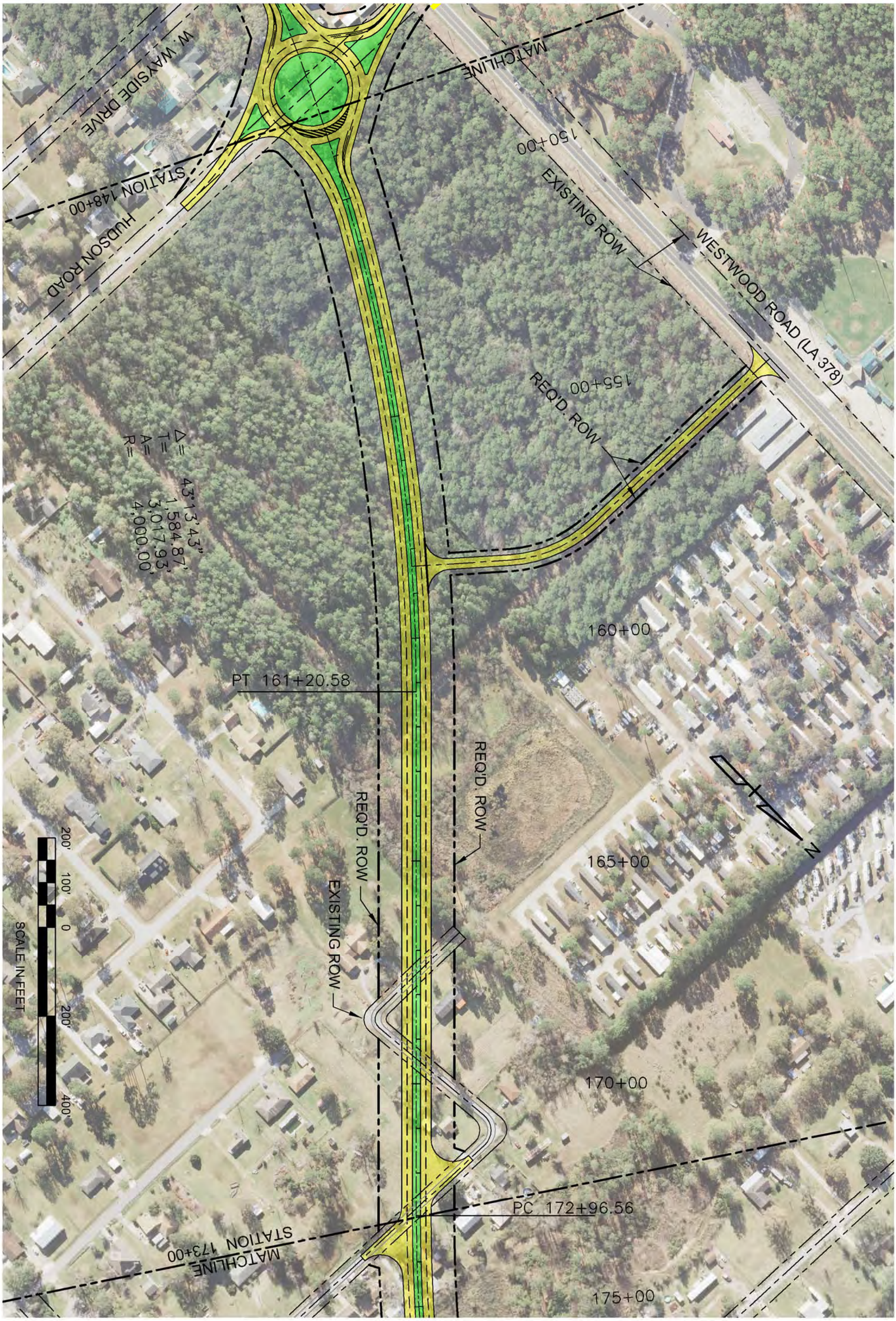
SHEET
206



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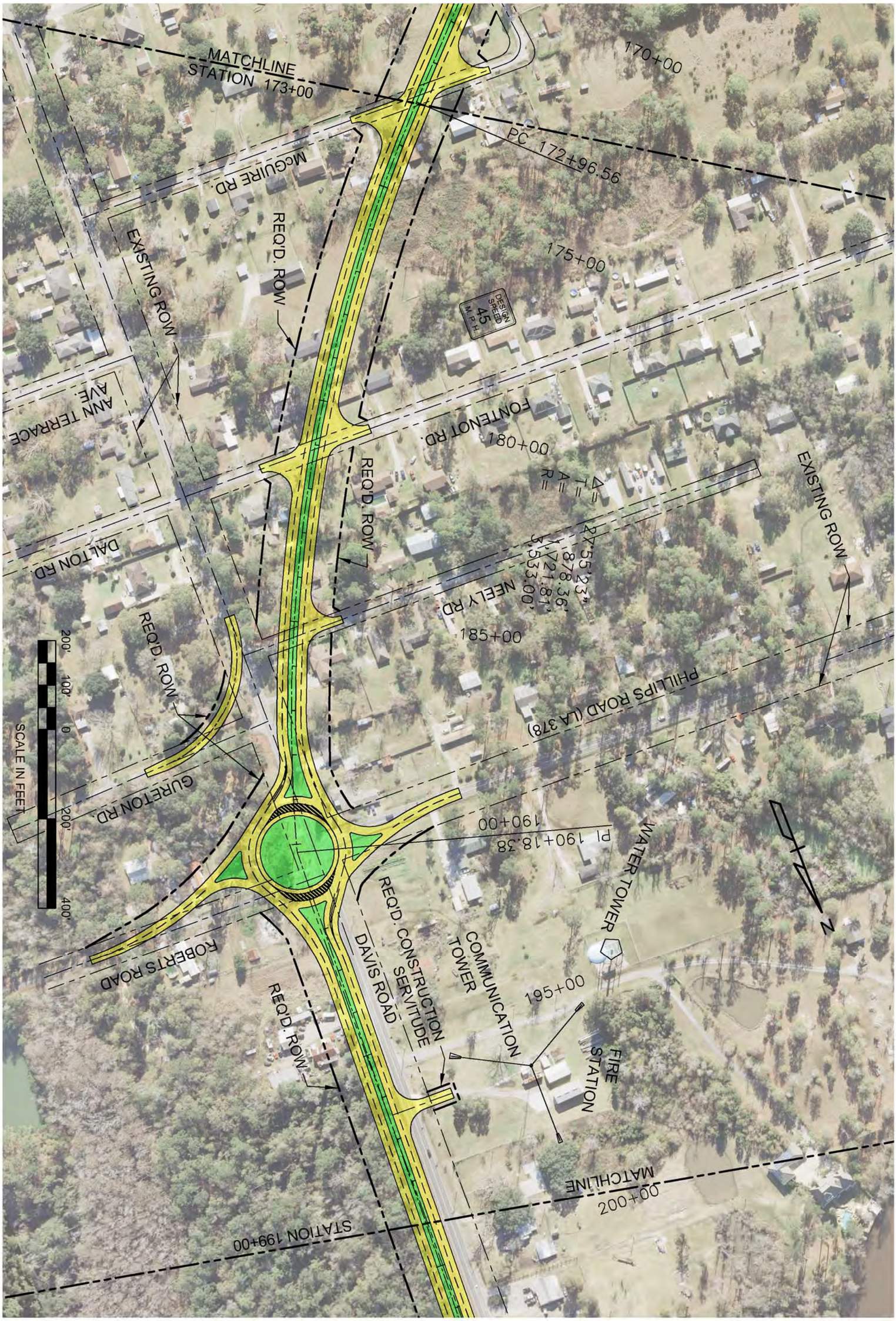
PLAN LAYOUT – ALTERNATIVE "B" ALIGNMENT

SHEET
207



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PLAN LAYOUT - ALTERNATIVE "B" ALIGNMENT

SHEET
208

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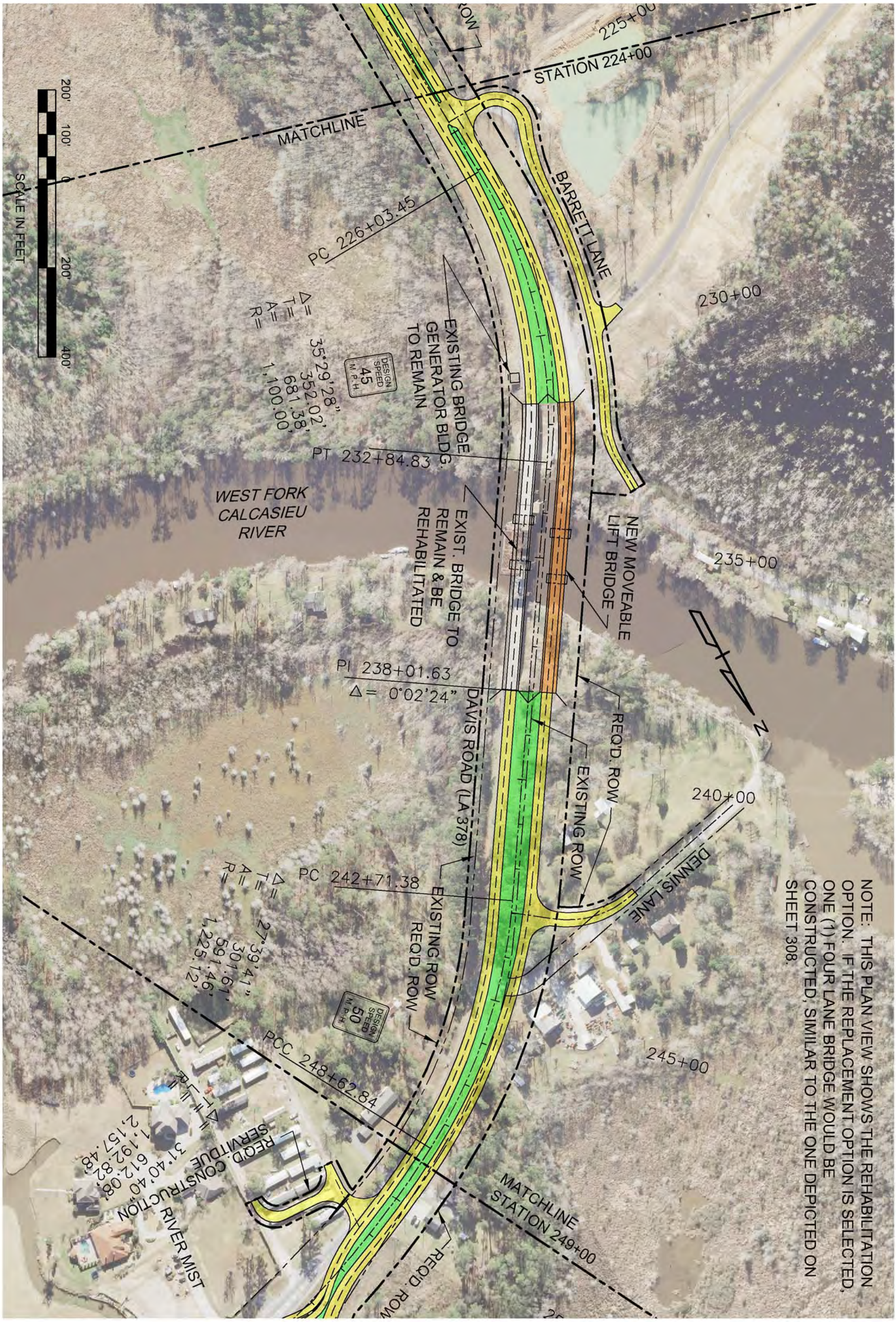
PLAN LAYOUT - ALTERNATIVE "B" ALIGNMENT

SHEET
209



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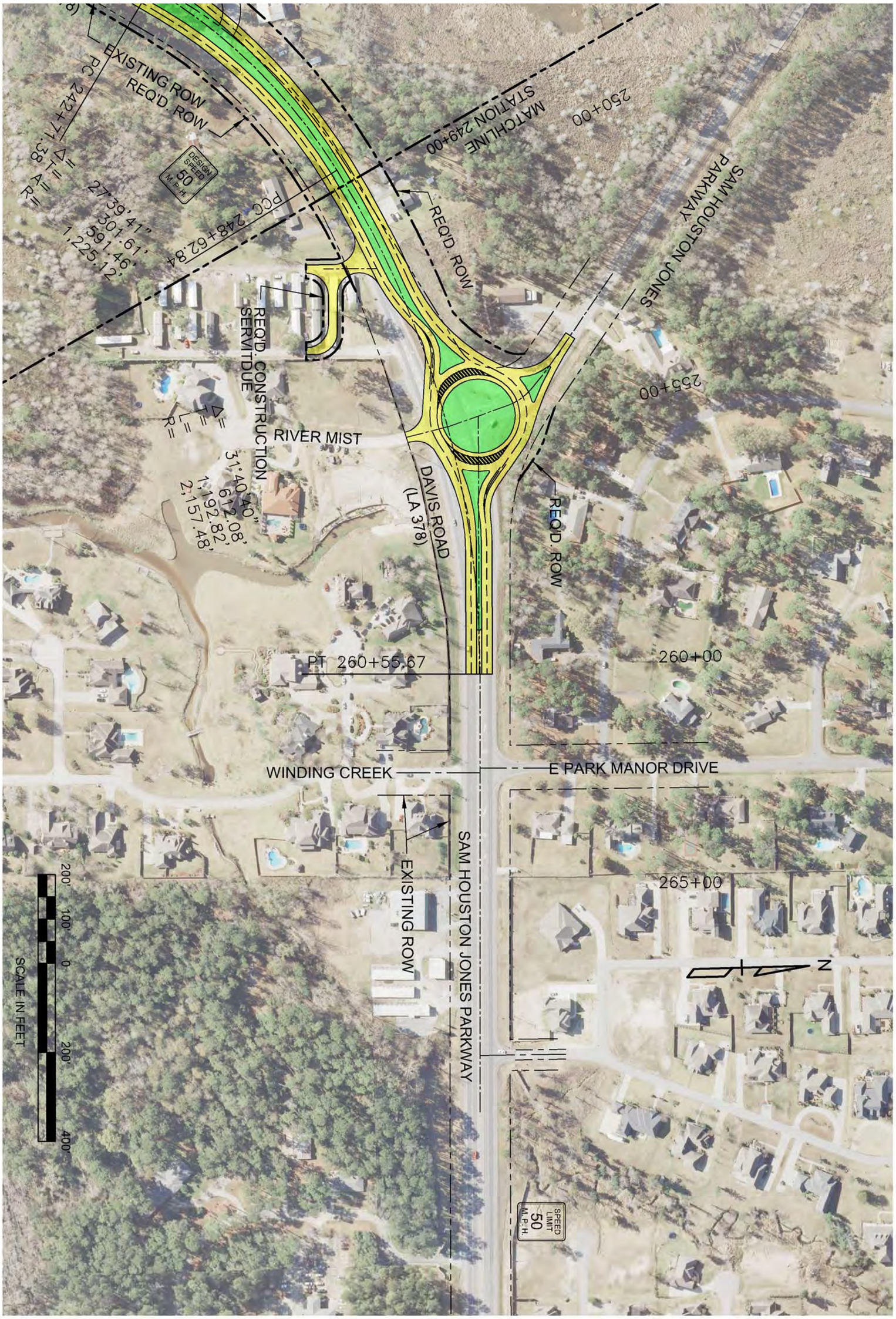
PLAN LAYOUT – ALTERNATIVE "B" ALIGNMENT

SHEET
210



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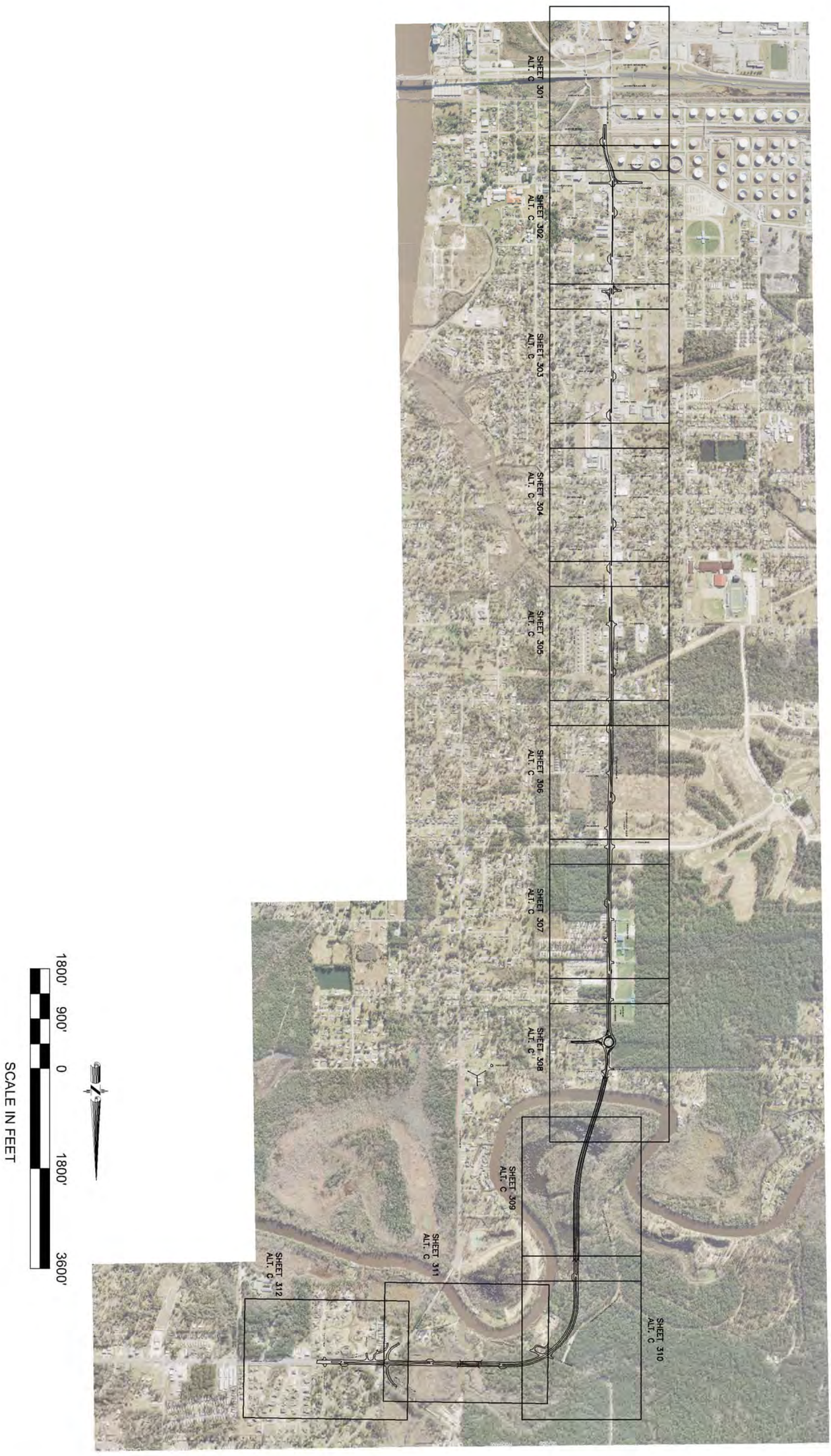
PLAN LAYOUT - ALTERNATIVE "B" ALIGNMENT

SHEET
211



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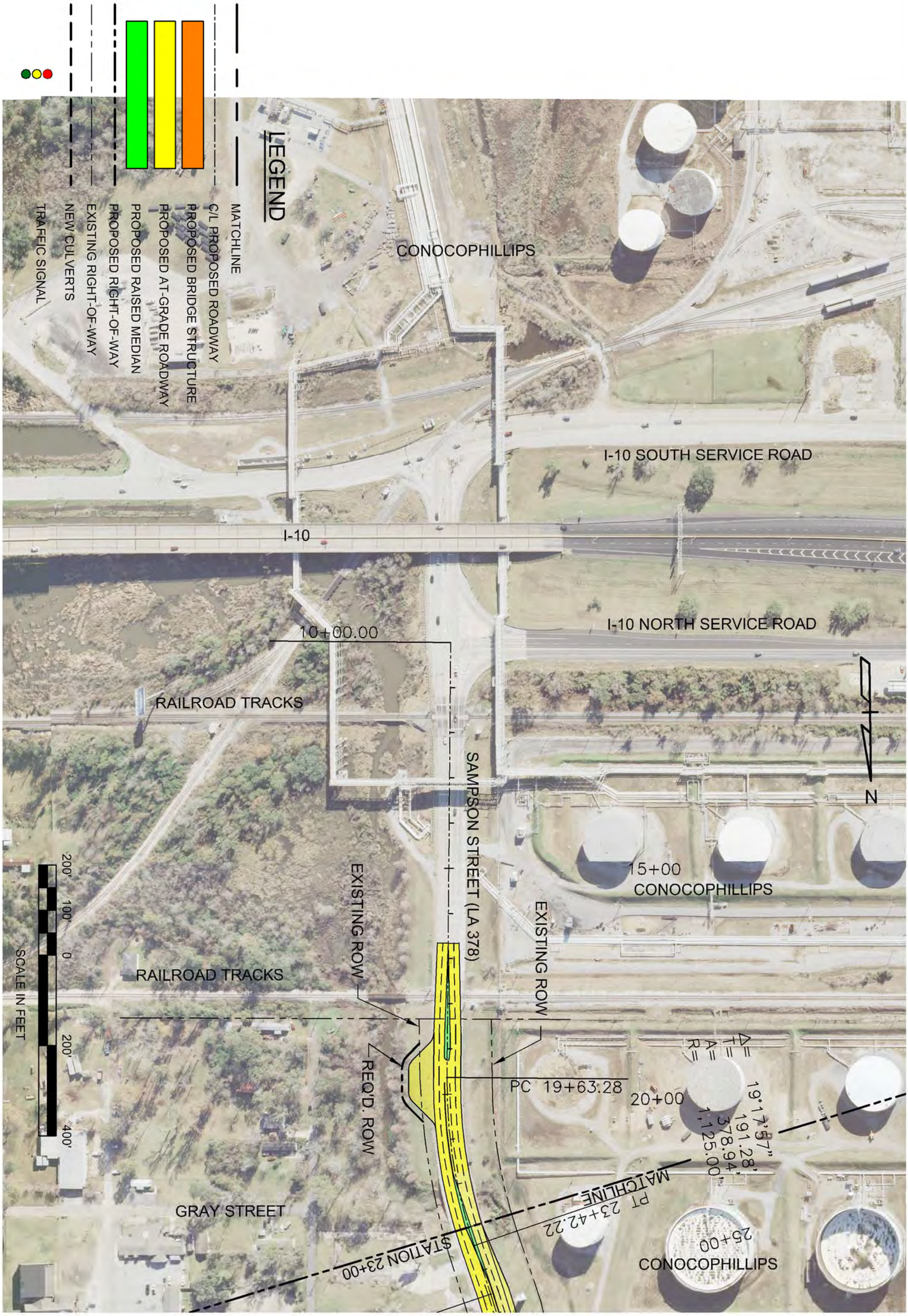
INDEX SHEET - ALTERNATIVE "C" ALIGNMENT

SHEET
INDEX
3 OF 3



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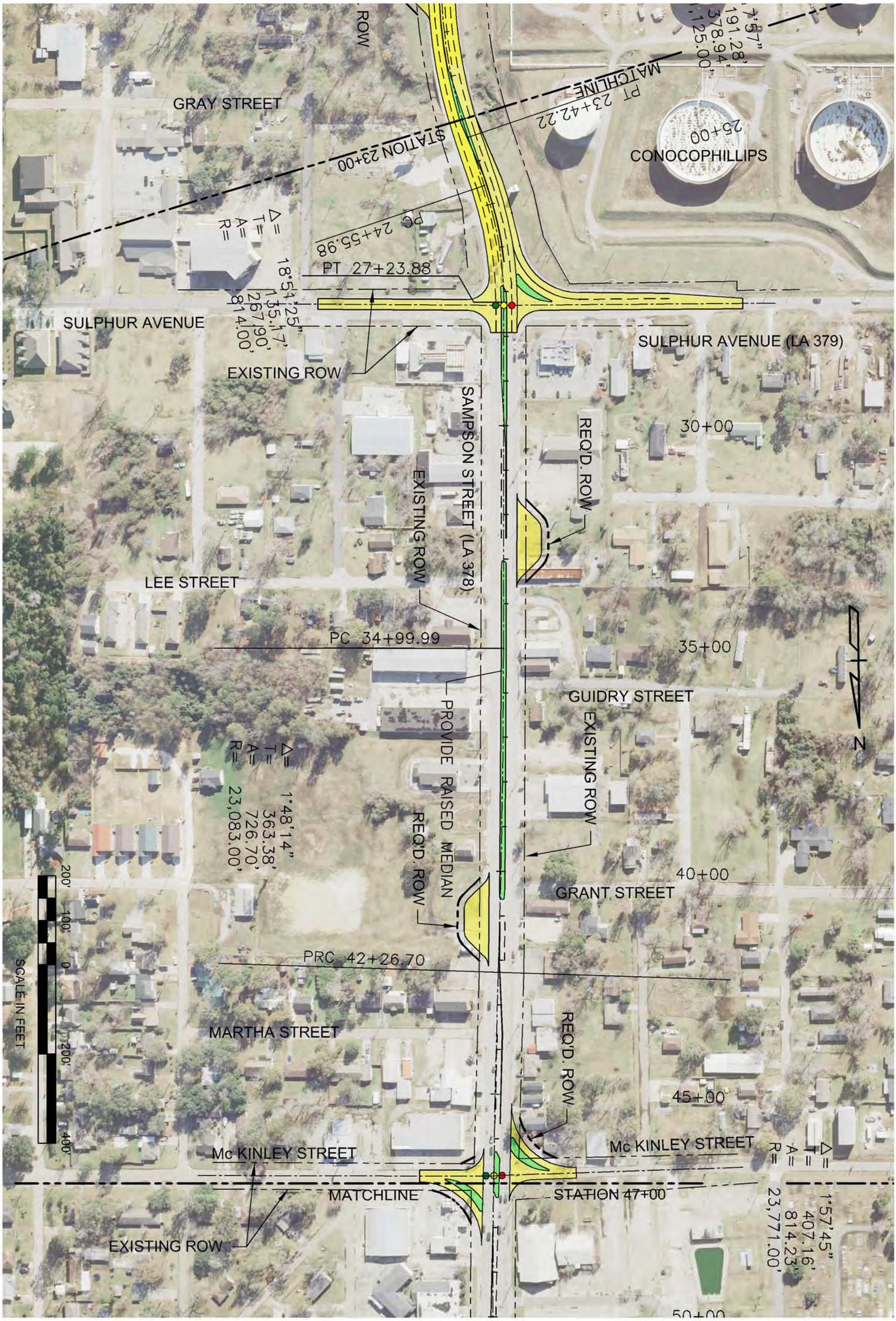
PLAN LAYOUT - ALTERNATIVE "C" ALIGNMENT

SHEET
301



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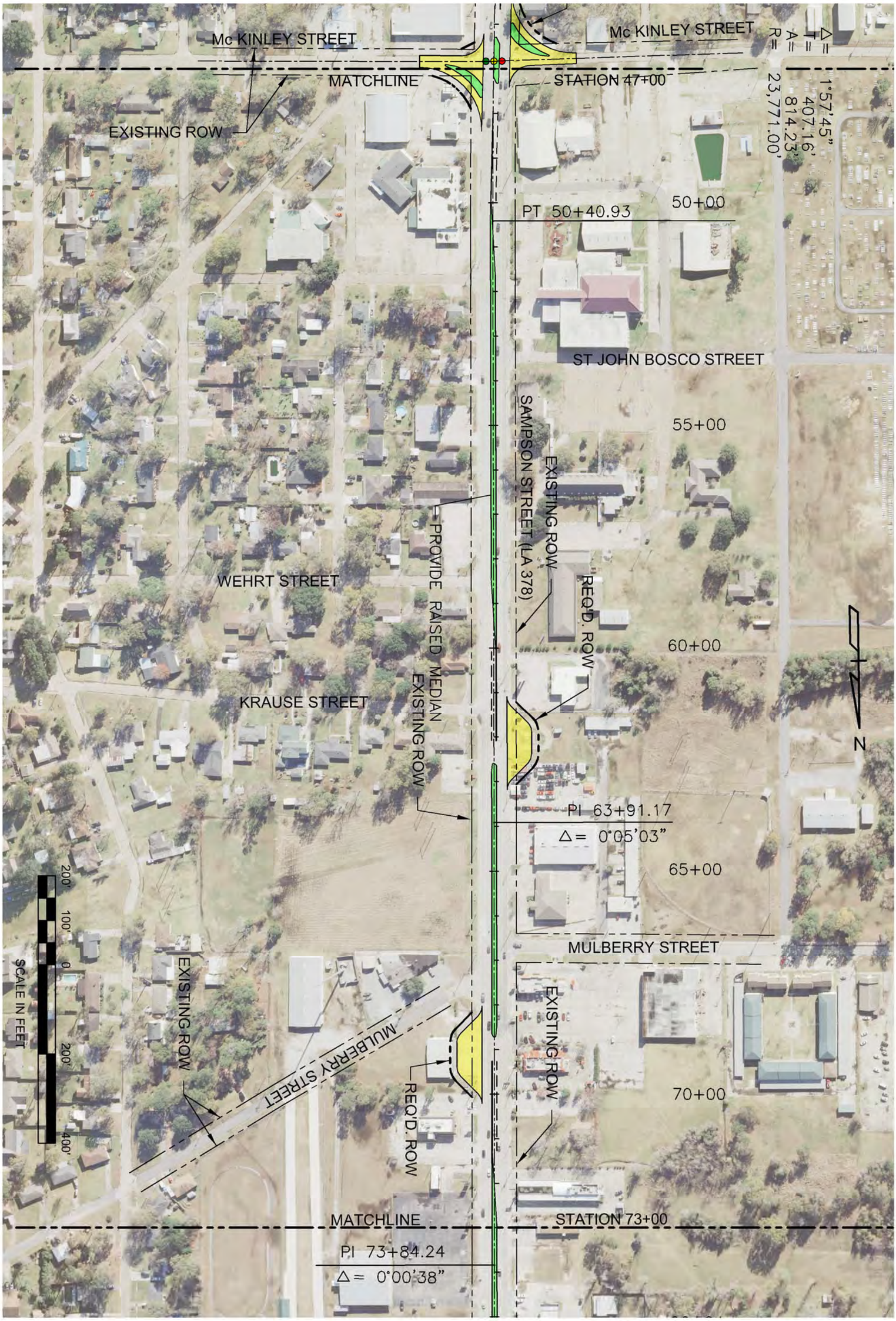
STATE PROJECT No. H.009488.1 FEDERAL AID PROJECT No. H009488

PLAN LAYOUT – ALTERNATIVE "C" ALIGNMENT

SHEET
302



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PLAN LAYOUT - ALTERNATIVE "C" ALIGNMENT

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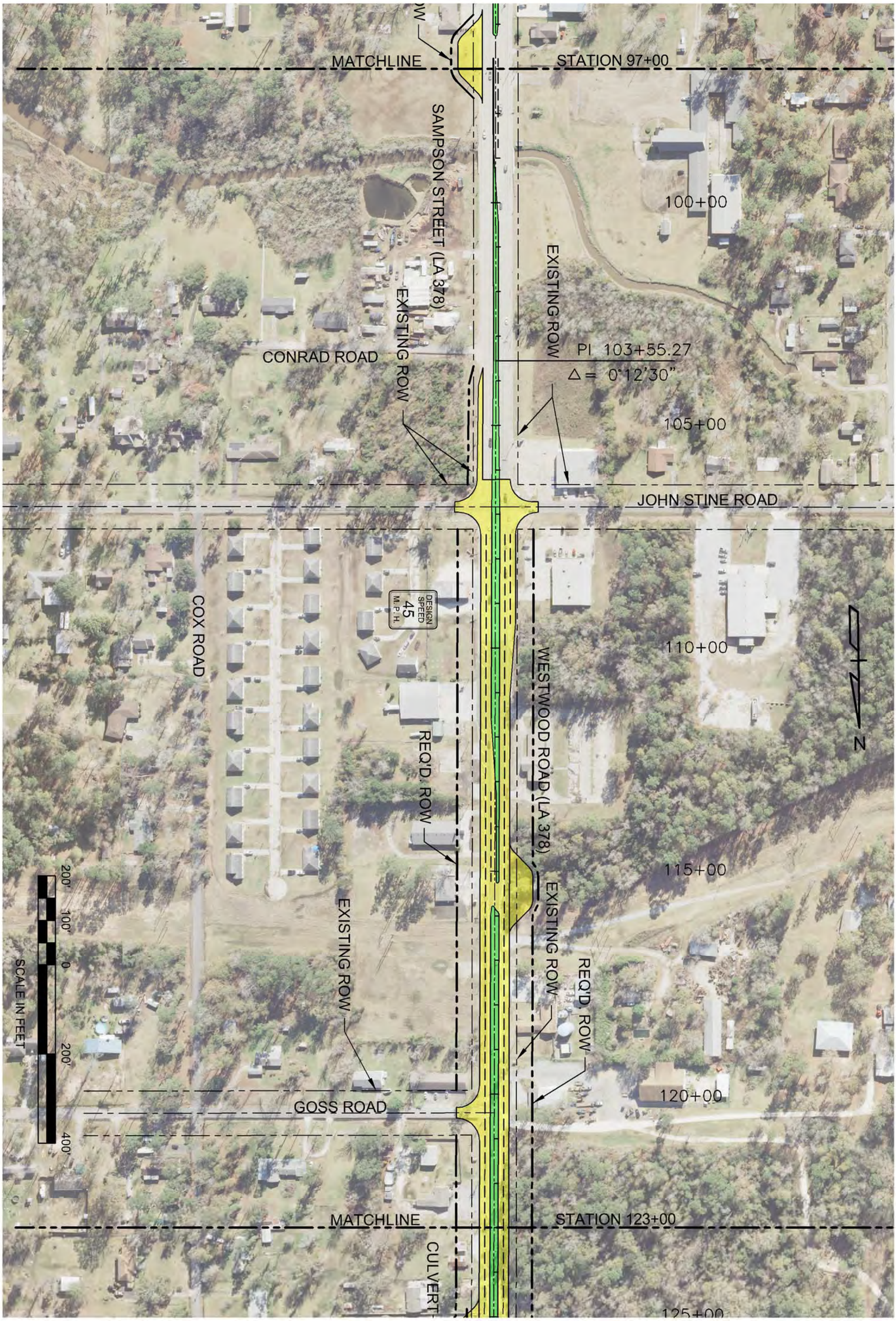
PLAN LAYOUT – ALTERNATIVE "C" ALIGNMENT

SHEET
304



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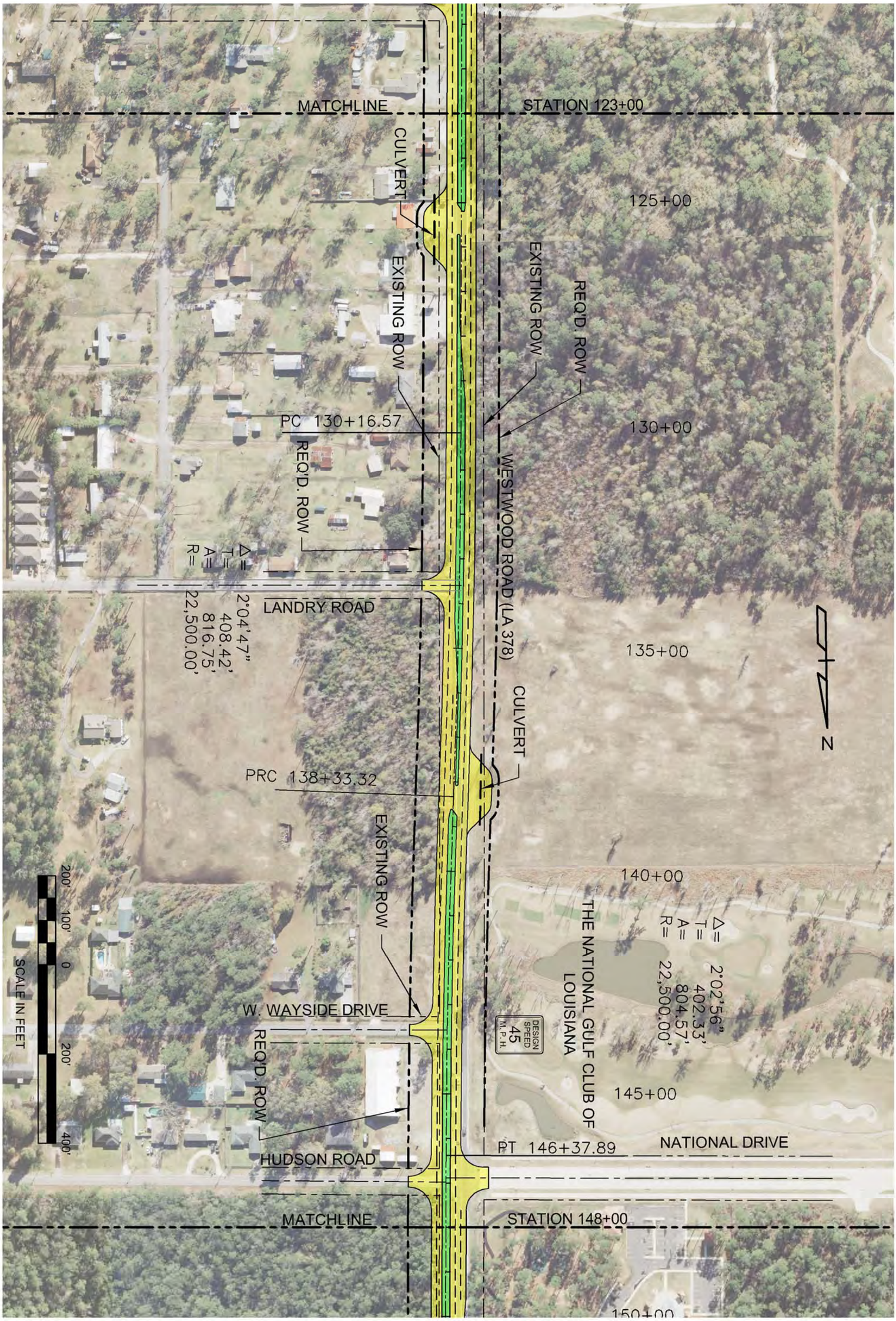
SHEET
305



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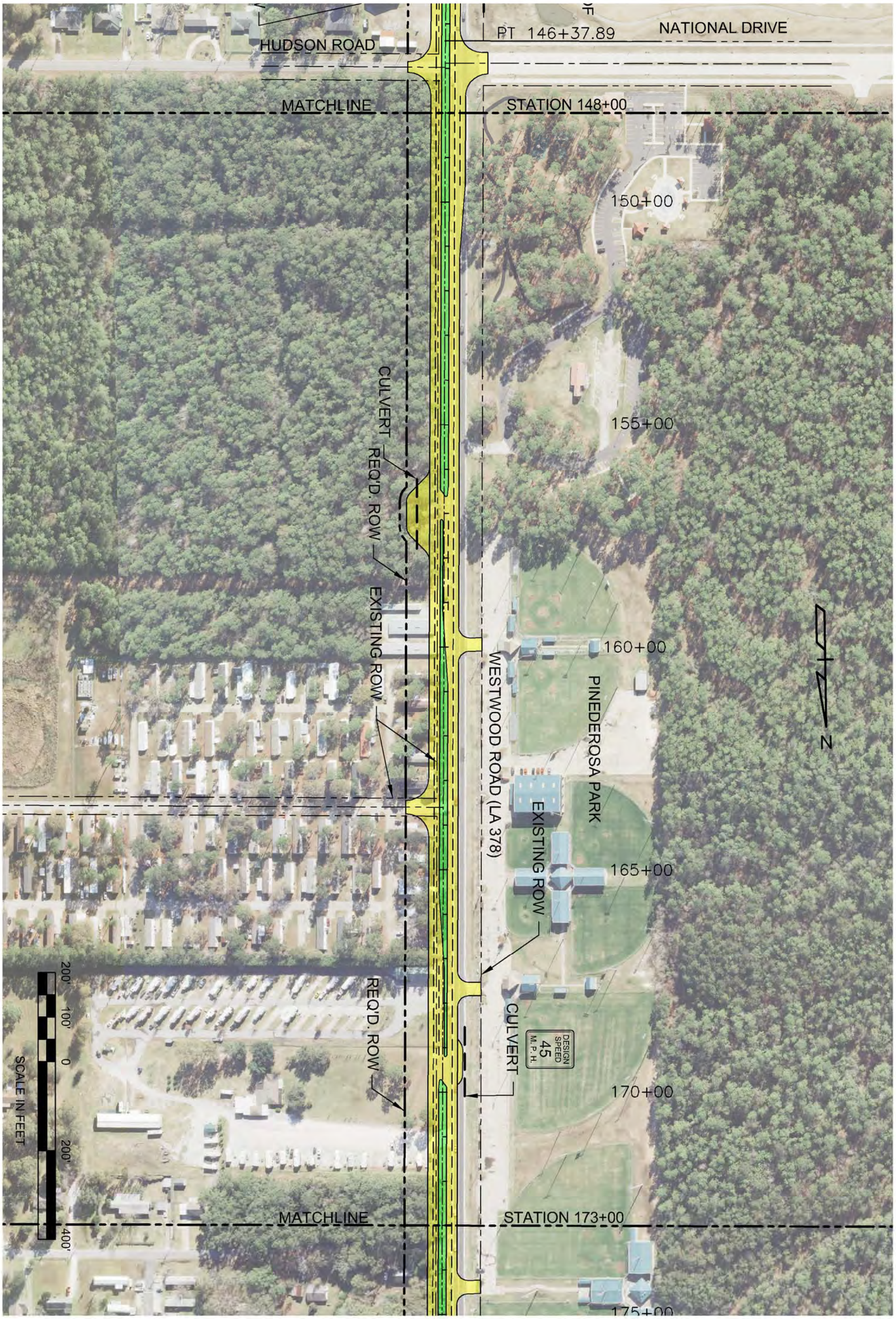
306



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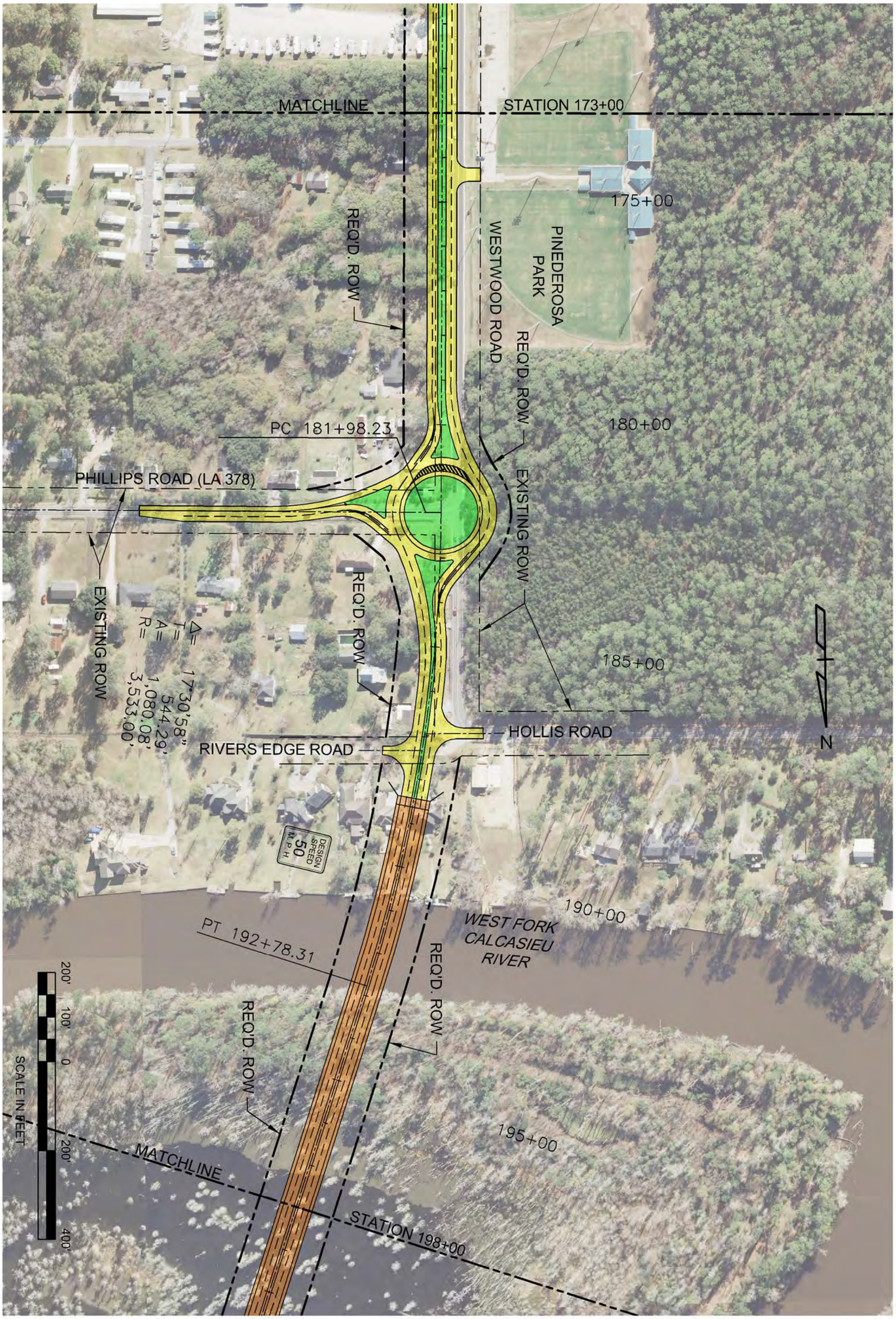
PLAN LAYOUT - ALTERNATIVE "C" ALIGNMENT

SHEET
307



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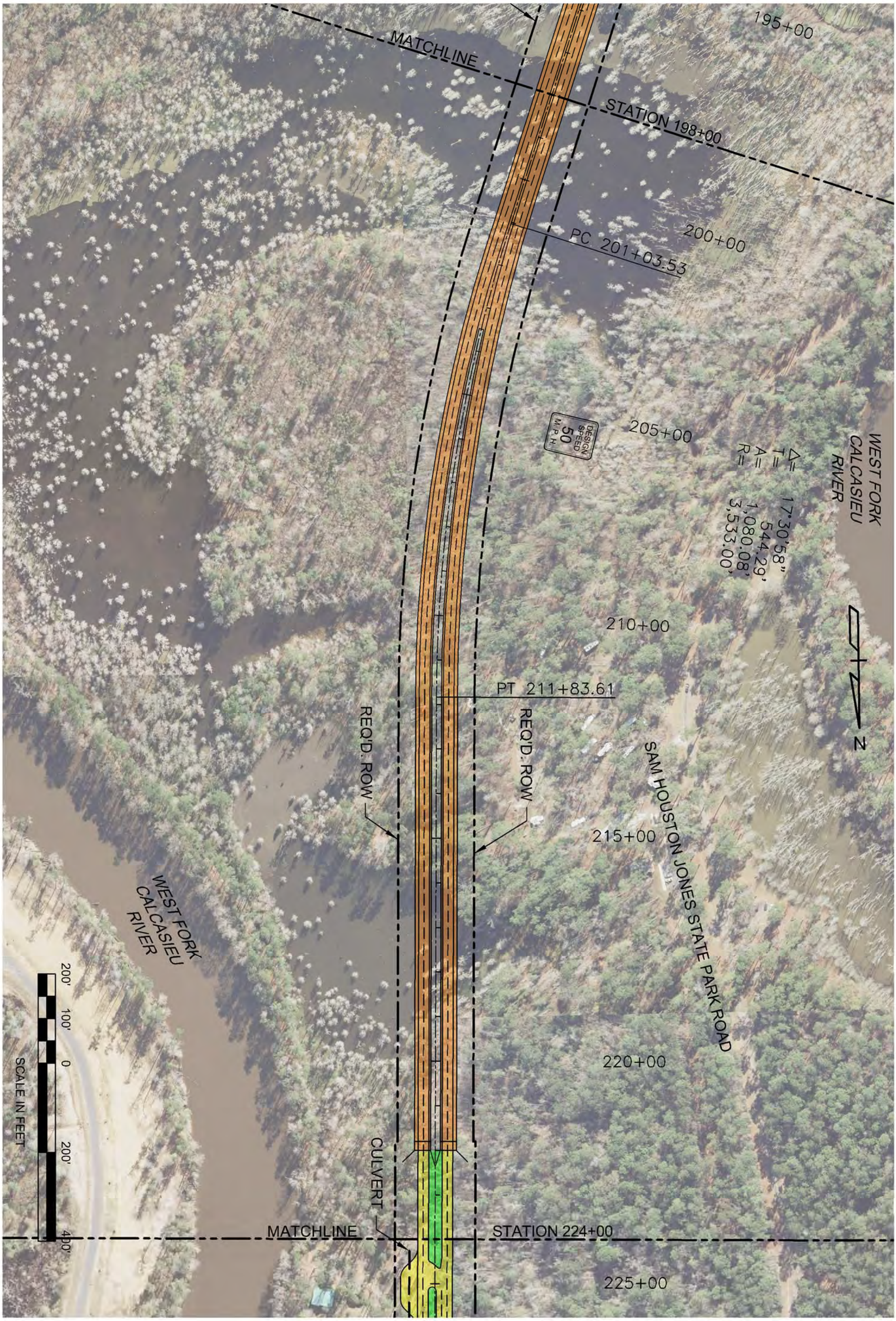
308



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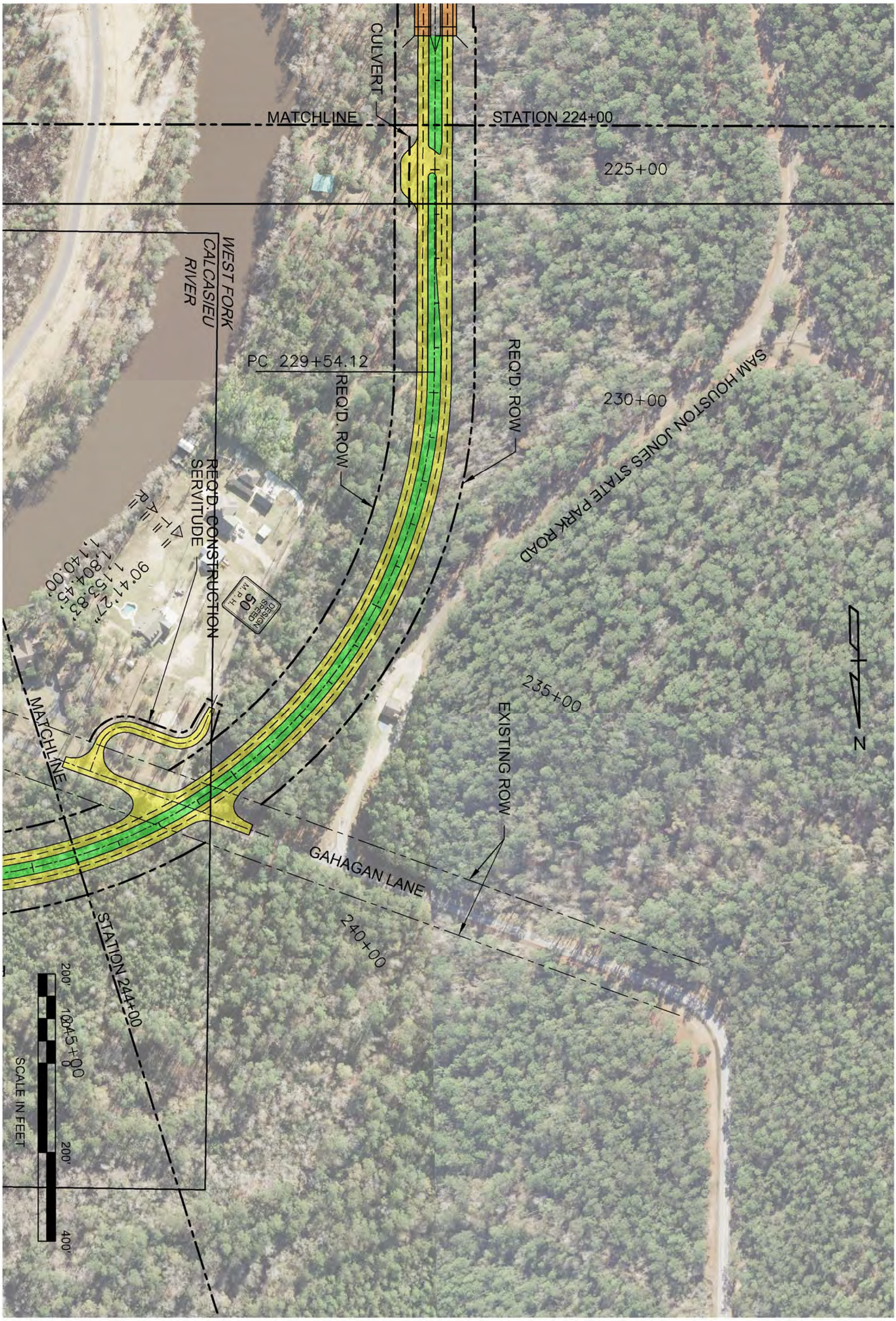

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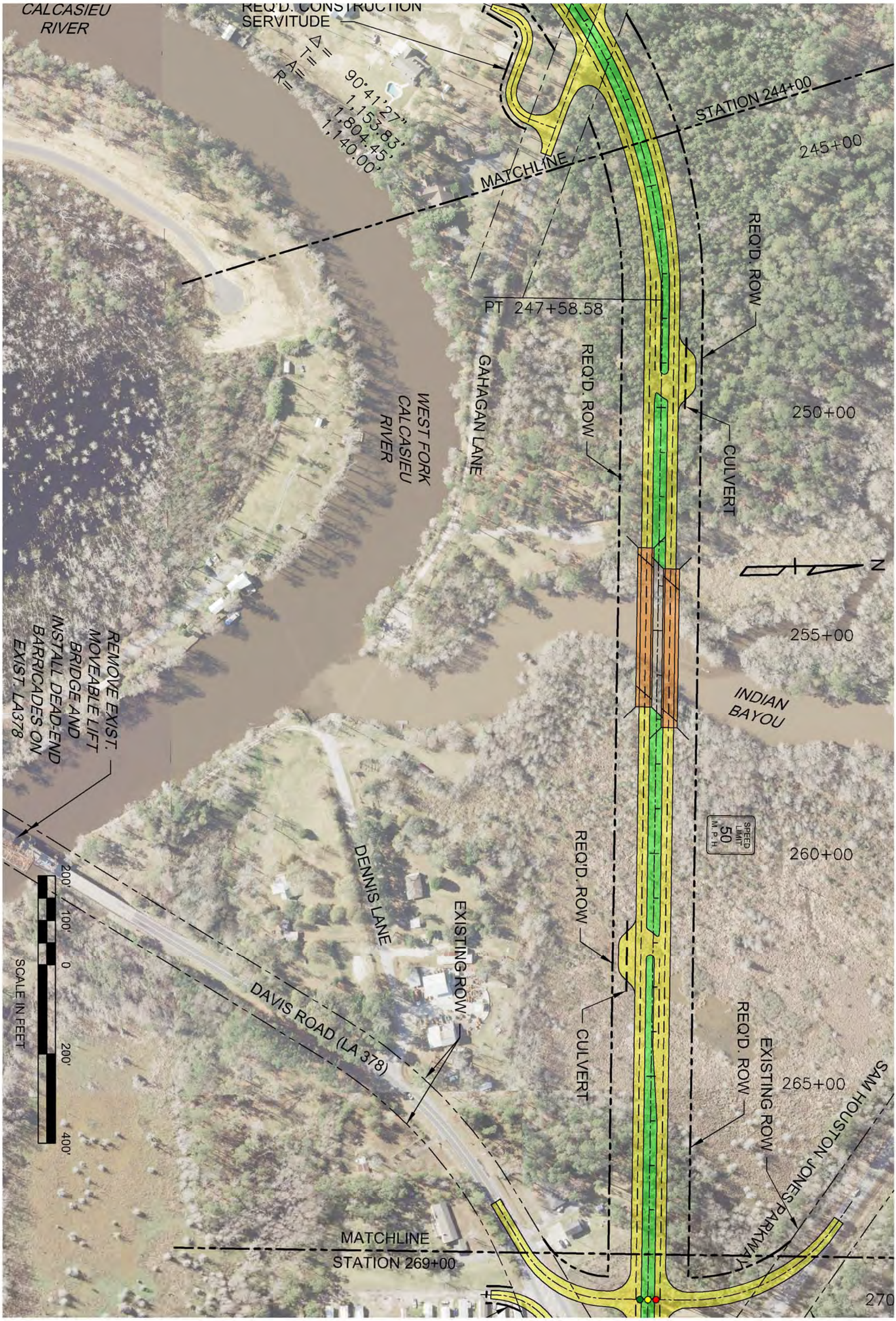

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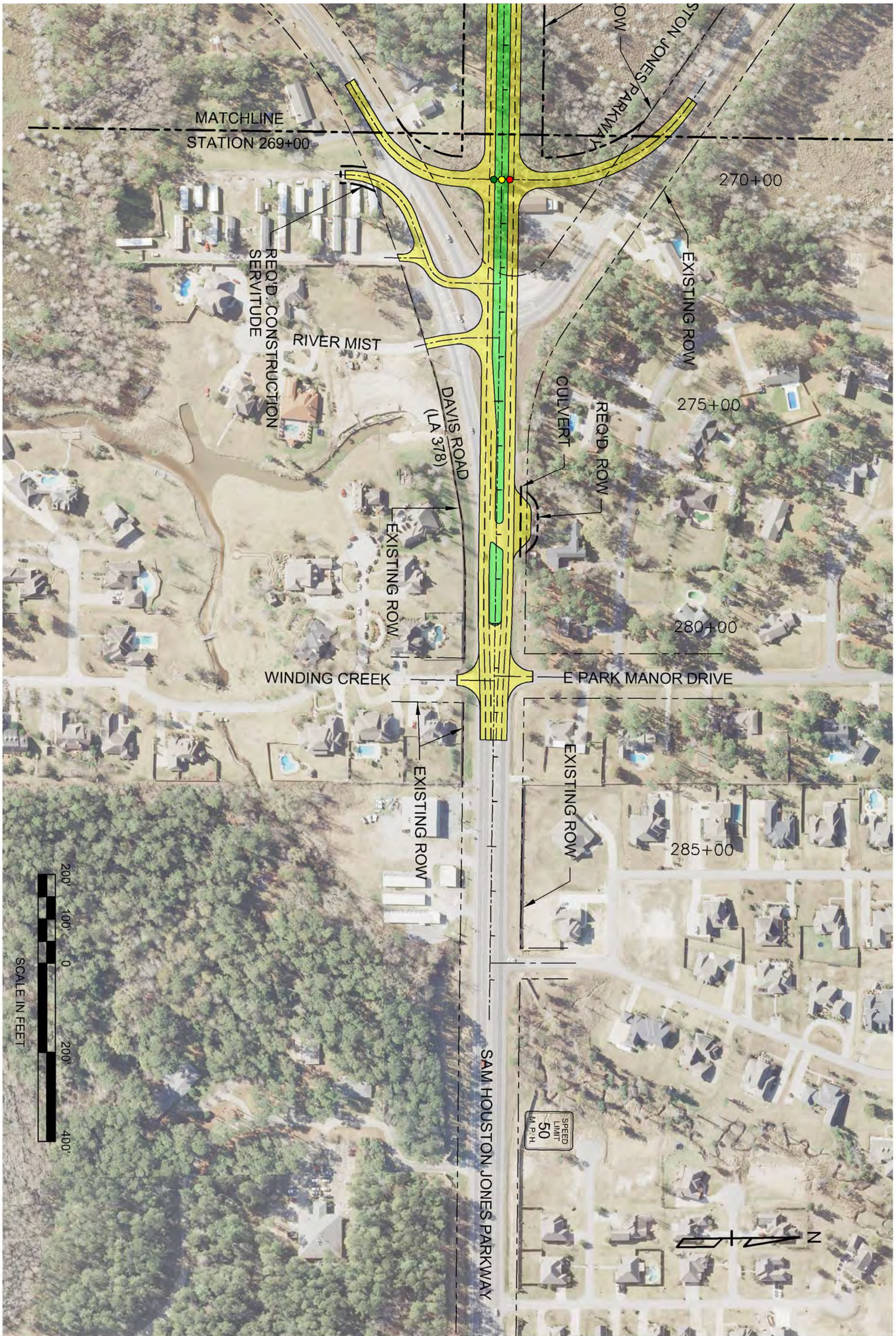
SHEET
311



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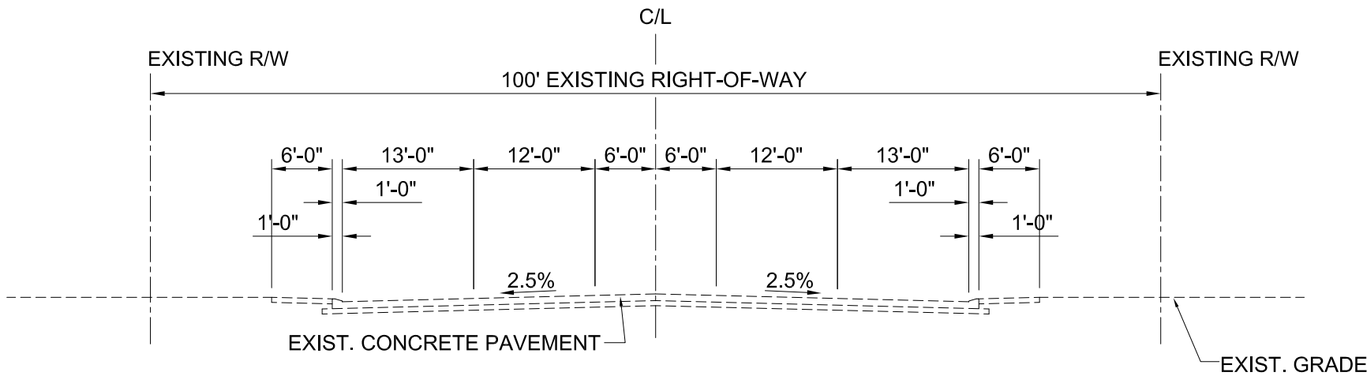
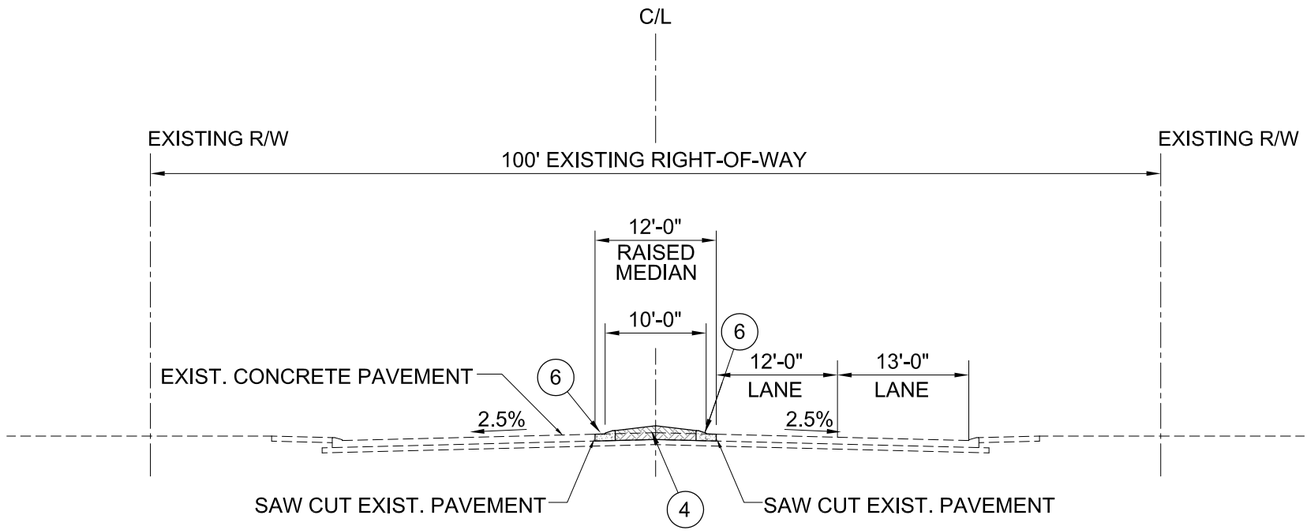
SHEET
312



TYPICAL EXISTING SECTION - LA 378 SOUTH OF JOHN STINE ROAD (45 mph)
AT-GRADE ROADWAY



TYPICAL RAISED MEDIAN SECTION - LA 378 SOUTH OF JOHN STINE ROAD (45 mph)
AT-GRADE ROADWAY

LEGEND

1. 2" SUPERPAVE ASPHALTIC CONCRETE (WEARING COURSE).
2. 6" SUPERPAVE ASPHALTIC CONCRETE (BINDER COURSE).
3. 10" CLASS II BASE COURSE (CRUSHED STONE OR RECYCLED PCCP).
4. EMBANKMENT MATERIAL.
5. GEOTEXTILE FABRIC
6. CONCRETE CURB AND GUTTER (MOUNTABLE TYPE)
7. EXCAVATION

△ TO BE CONSTRUCTED FREE OF OBSTRUCTIONS

15 0 15 30
SCALE IN FEET

SHEET TS-1

LA 378 WIDENING BETWEEN WESTLAKE AND MOSS BLUFF
FEASIBILITY STUDY – STAGE 0
CALCASIEU PARISH, LOUISIANA
STATE PROJECT No. H.009488.1
FEDERAL AID PROJECT No. H009488

TYPICAL SECTIONS – ROADWAY AT-GRADE

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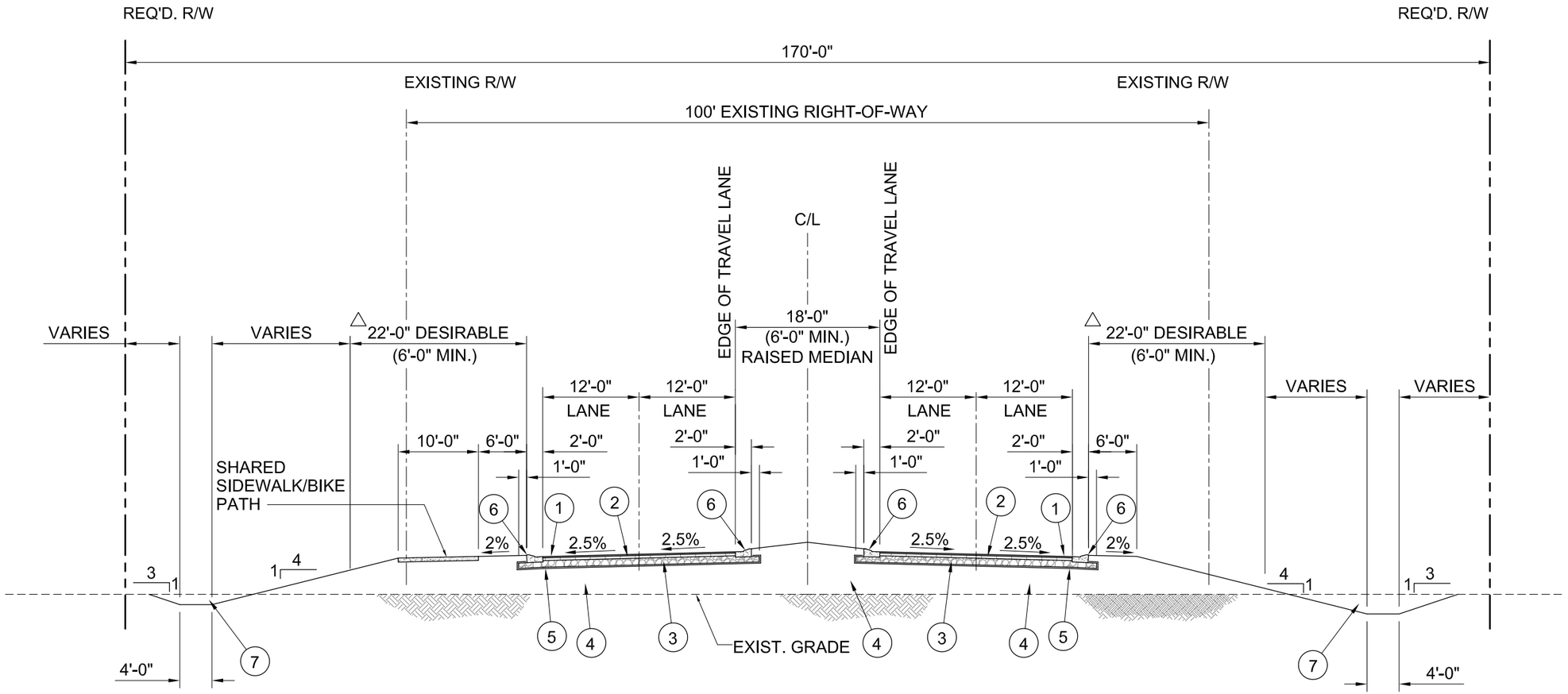

TYPICAL SECTION - LA 378 EXTENSION (UA-2) (45mph)
NORTH OF JOHN STINE ROAD TO WEST FORK CALCASIEU RIVER
WIDEN TO BOTH SIDES OF EXIST. ROADWAY

LEGEND

1. 2" SUPERPAVE ASPHALTIC CONCRETE (WEARING COURSE).
2. 6" SUPERPAVE ASPHALTIC CONCRETE (BINDER COURSE).
3. 10" CLASS II BASE COURSE (CRUSHED STONE OR RECYCLED PCCP).
4. EMBANKMENT MATERIAL.
5. GEOTEXTILE FABRIC
6. CONCRETE CURB AND GUTTER (MOUNTABLE TYPE)
7. EXCAVATION

△ TO BE CONSTRUCTED FREE OF OBSTRUCTIONS

NOTES:

1. A 10' SHARED SIDEWALK/BIKE PATH COULD BE LOCATED ON EITHER SIDE OF THE ROADWAY. ACTUAL LOCATION AND LIMITS OF SHARED SIDEWALK/BIKE PATH TO BE DETERMINED DURING DESIGN.

2. ASPHALT PAVEMENT ASSUMED FOR CONSTRUCTION COST ESTIMATE. PAVEMENT TYPE TO BE DETERMINED DURING DESIGN.

15 0 15 30

SCALE IN FEET

SHEET TS-2

LA 378 WIDENING BETWEEN WESTLAKE AND MOSS BLUFF
FEASIBILITY STUDY – STAGE 0
CALCASIEU PARISH, LOUISIANA
STATE PROJECT No. H.009488.1 FEDERAL AID PROJECT No. H009488

TYPICAL SECTIONS – ROADWAY AT-GRADE

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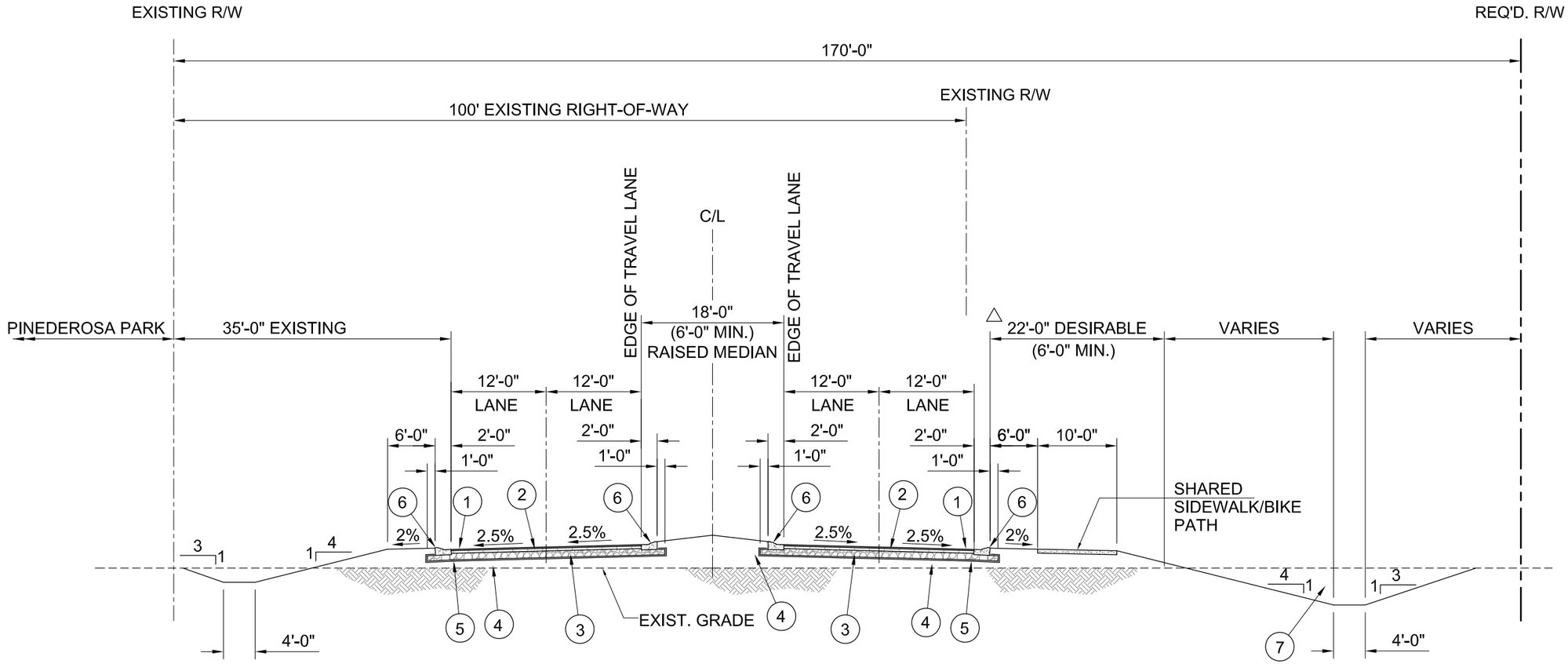

TYPICAL SECTION - LA 378 EXTENSION (UA-2) (45mph)
NORTH OF JOHN STINE ROAD TO WEST FORK CALCASIEU RIVER
WIDEN TO ONE SIDE OF EXIST. ROADWAY

LEGEND

1. 2" SUPERPAVE ASPHALTIC CONCRETE (WEARING COURSE).
2. 6" SUPERPAVE ASPHALTIC CONCRETE (BINDER COURSE).
3. 10" CLASS II BASE COURSE (CRUSHED STONE OR RECYCLED PCCP).
4. EMBANKMENT MATERIAL.
5. GEOTEXTILE FABRIC
6. CONCRETE CURB AND GUTTER (MOUNTABLE TYPE)
7. EXCAVATION

△ TO BE CONSTRUCTED FREE OF OBSTRUCTIONS

NOTES:

1. ACTUAL LOCATION AND LIMITS OF SHARED SIDEWALK/BIKE PATH TO BE DETERMINED DURING DESIGN.

2. ASPHALT PAVEMENT ASSUMED FOR CONSTRUCTION COST ESTIMATE. PAVEMENT TYPE TO BE DETERMINED DURING DESIGN.

15 0 15 30

SCALE IN FEET

SHEET TS-3

LA 378 WIDENING BETWEEN WESTLAKE AND MOSS BLUFF
FEASIBILITY STUDY – STAGE 0
CALCASIEU PARISH, LOUISIANA
STATE PROJECT No. H.009488.1
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TYPICAL SECTIONS – ROADWAY AT-GRADE

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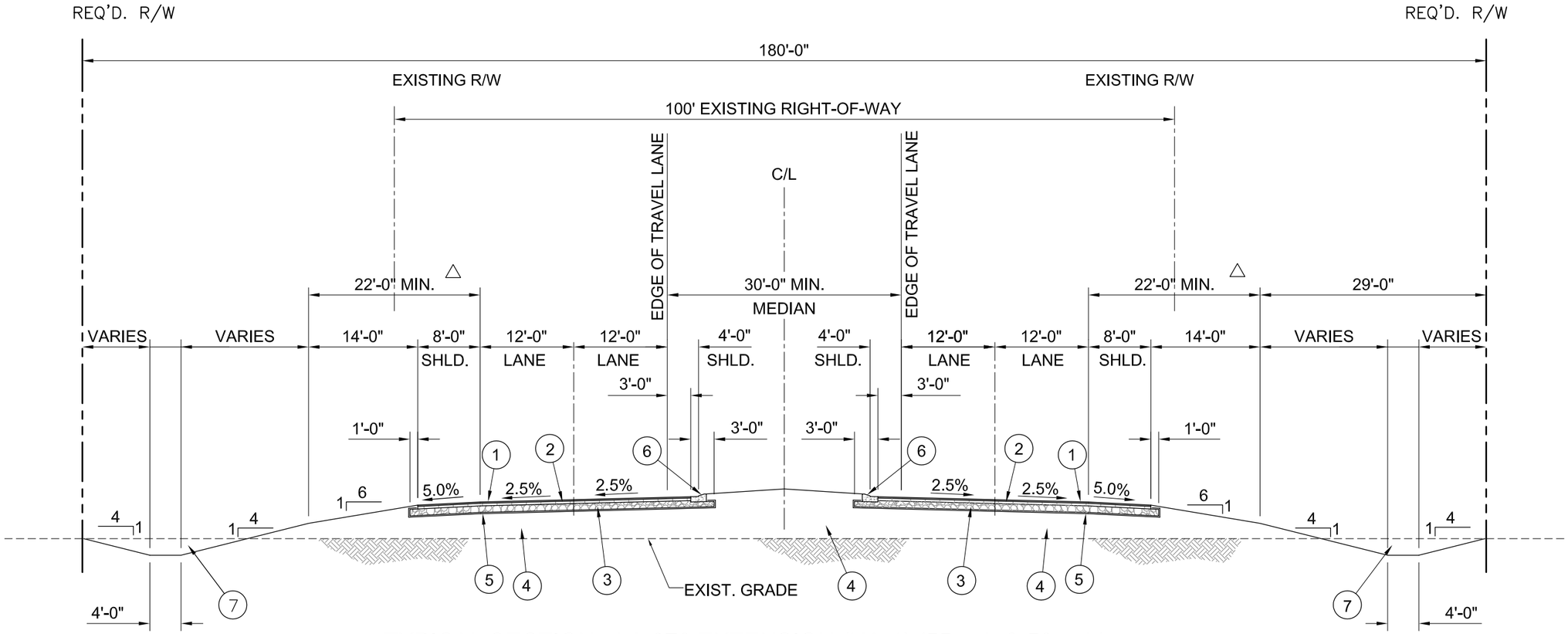

TYPICAL SECTION - LA 378 EXTENSION (UA-4) (55mph & 50mph)
NORTH OF WEST FORK CALCASIEU RIVER

LEGEND

1. 2" SUPERPAVE ASPHALTIC CONCRETE (WEARING COURSE).
2. 6" SUPERPAVE ASPHALTIC CONCRETE (BINDER COURSE).
3. 10" CLASS II BASE COURSE (CRUSHED STONE OR RECYCLED PCCP).
4. EMBANKMENT MATERIAL.
5. GEOTEXTILE FABRIC
6. CONCRETE CURB AND GUTTER (MOUNTABLE TYPE)
7. EXCAVATION

△ TO BE CONSTRUCTED FREE OF OBSTRUCTIONS

NOTE:

1. ASPHALT PAVEMENT ASSUMED FOR CONSTRUCTION COST ESTIMATE. PAVEMENT TYPE TO BE DETERMINED DURING DESIGN.

15 0 15 30
SCALE IN FEET

SHEET TS-4

LA 378 WIDENING BETWEEN WESTLAKE AND MOSS BLUFF
FEASIBILITY STUDY – STAGE 0
CALCASIEU PARISH, LOUISIANA
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TYPICAL SECTIONS – ROADWAY AT-GRADE

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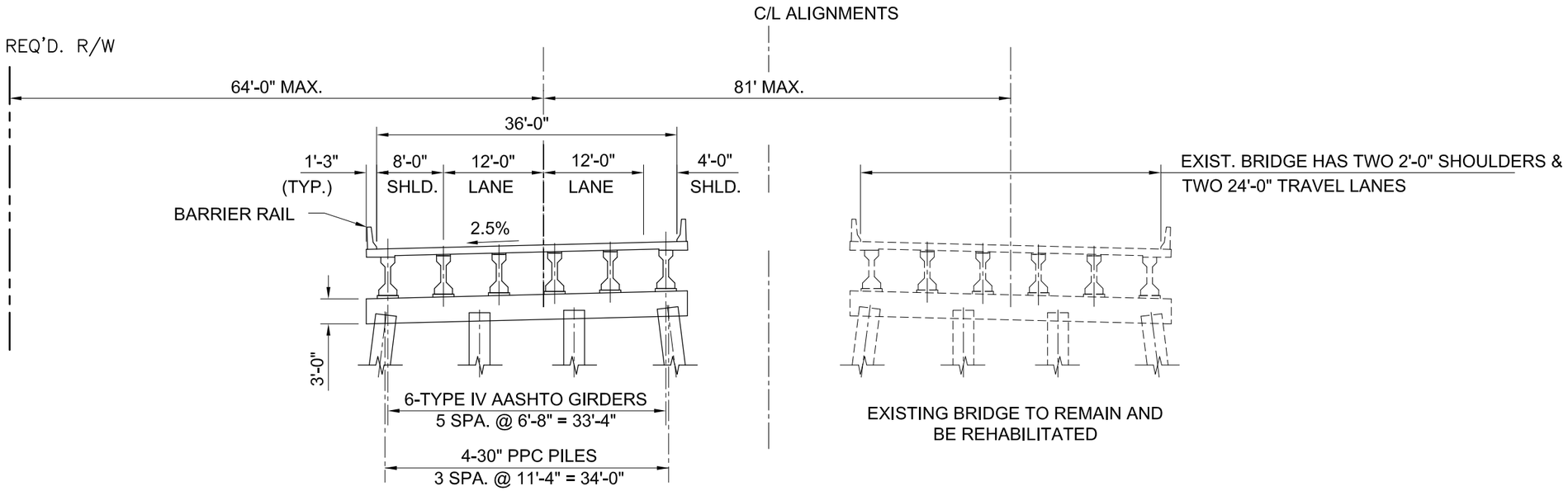

TYPICAL SECTION - LA 378 WEST FORK CALCASIEU RIVER BRIDGE
ALTERNATIVE A-1, A-2 AND B ALIGNMENTS (REHABILITATION OPTION)
FOUR LANES - TWO BRIDGES
LOOKING NORTH

NOTE:
THIS SECTION IS FOR THE APPROACH SPANS
ONLY. THE MAIN SPANS WILL BE LIFT SPANS..

15 0 15 30
SCALE IN FEET

SHEET TS-5

LA 378 WIDENING BETWEEN WESTLAKE AND MOSS BLUFF
FEASIBILITY STUDY – STAGE 0
CALCASIEU PARISH, LOUISIANA
STATE PROJECT No. H.009488.1 FEDERAL AID PROJECT No. H009488

TYPICAL SECTIONS – BRIDGE STRUCTURE

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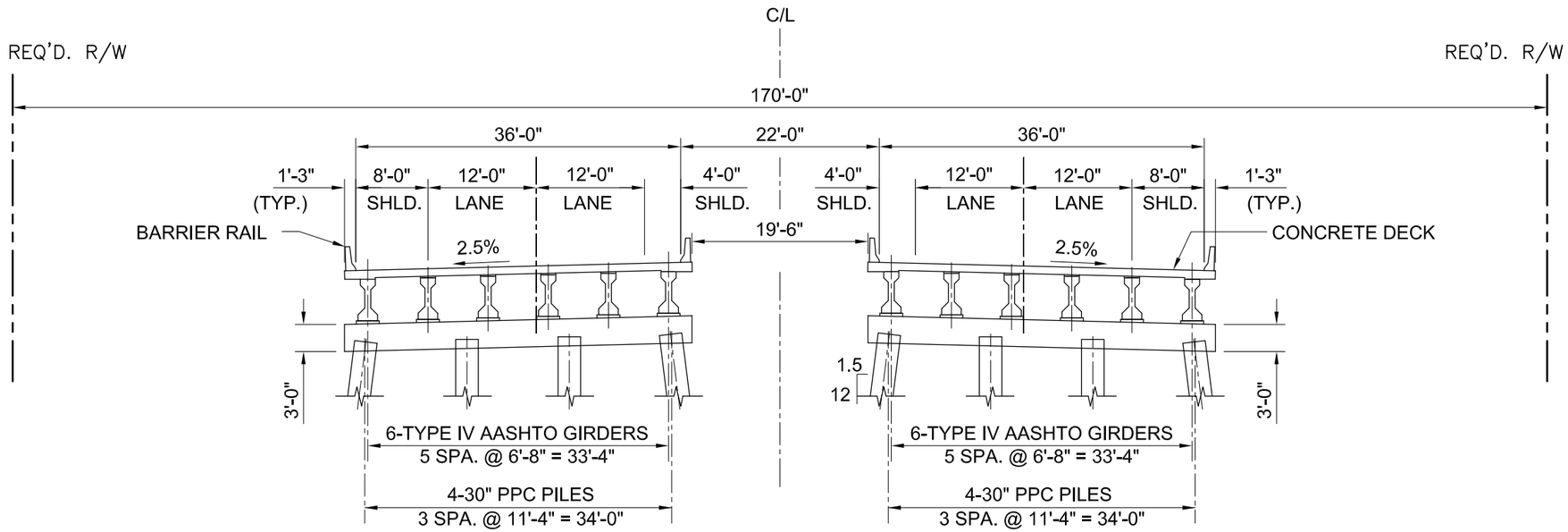
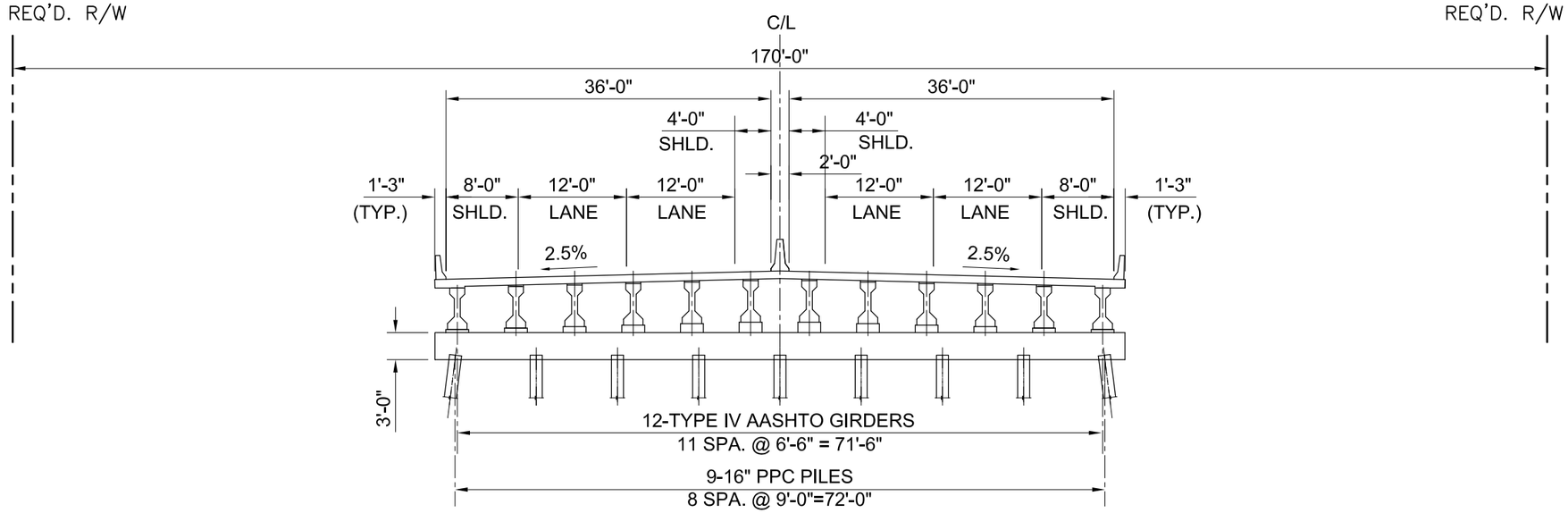


TYPICAL SECTION - LA 378 WEST FORK CALCASIEU RIVER BRIDGE & INDIAN BAYOU
ALTERNATIVE C ALIGNMENT
FOUR LANES - TWO BRIDGES



TYPICAL SECTION - LA 378 WEST FORK CALCASIEU RIVER BRIDGE
ALTERNATIVE A & B ALIGNMENT (REPLACEMENT OPTION) & C ALIGNMENT
FOUR LANES - ONE BRIDGE

NOTE:
THESE SECTIONS ARE FOR THE APPROACH SPANS ONLY. THE MAIN SPAN WILL BE A LIFT SPAN.

15 0 15 30
SCALE IN FEET

SHEET TS-6

LA 378 WIDENING BETWEEN WESTLAKE AND MOSS BLUFF
FEASIBILITY STUDY – STAGE 0
CALCASIEU PARISH, LOUISIANA
STATE PROJECT No. H.009488.1
FEDERAL AID PROJECT No. H009488

TYPICAL SECTIONS – BRIDGE STRUCTURE

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CHAPTER III

ENVIRONMENTAL INVENTORY

The Environmental Inventory identifies and maps all obvious major environmental concerns, issues, and sites within the study area. The Inventory is based on secondary data such as field surveys, U.S. Geological Survey Maps, EPA and state databases, soil surveys, National Wetland Inventory maps, infrared photography, aerial photography, cultural resources data, wildlife areas, literary research, and coordination and interviews with local, state and federal agencies and officials. Both text descriptions and maps are used to provide a brief environmental inventory of the study area. The chapter concludes with a section listing areas of environmental concern or constraint and a comparative matrix of the alternatives.

PURPOSE AND SCOPE

The project consultant team led by N-Y Associates, Inc. conducted an Environmental Inventory within a proposed project area approximately five miles long for proposed improvements of LA 378 from I-10 in Westlake, LA to the LA 378 spur in Moss Bluff, LA. The entire project is in Calcasieu Parish, LA.

As part of the Stage 0 Feasibility Study, the consultant team was responsible for (1) researching all potential environmental "show stopping" constraints or issues that influence early determinations of the project's feasibility, timing, and cost to both the natural and human environment; (2) identifying any major community issues impacted by the project during the construction and operational phases of the project; and (3) assessing any potential mitigation cost that could possibly be incurred in future stages of the development of the project for each project alternative studied in the report. The Louisiana Department of Transportation and Development's (LADOTD) *Stage 0 Environmental Checklist* was utilized to document the results of the preliminary environmental review and is included in **Appendix A** of this report.

METHODOLOGY

The consultant team conducted reviews of numerous environmental and cultural resource databases and readily-available information maintained by both state and Federal agencies such as the Louisiana Department of Environmental Quality (DEQ), Louisiana Department of Natural Resources (DNR), Louisiana Department of Wildlife and Fisheries (LDWF), Louisiana Division of Historic Preservation (DHP), Louisiana Division of Archaeology (DOA), LADOTD, and the U.S. Environmental Protection Agency (EPA). Field investigations to assess environmental issues or impacts were accomplished by conducting site reconnaissance and windshield surveys.

RESULTS

NATURAL AND SCENIC RIVERS

According to the Louisiana Department of Wildlife and Fisheries website, neither the West Fork of the Calcasieu River nor Indian Bayou is a scenic stream at the proposed project crossings.

CULTURAL RESOURCES

Alternative A

Prior to a windshield survey of the proposed project, background research was conducted at the Louisiana Division of Historic Preservation (DHP) and the Louisiana Division of Archaeology (DOA). The DHP is the repository for Louisiana Historic Resource Inventory (LHRI) forms and maps, as well as National Register of Historic Places (NRHP) files. No LHRI properties have been previously inventoried in the vicinity of Alternative A. However, in the spring of 2013 a Statewide Historic Bridge Inventory was conducted and the LA 378 Bridge over the West Fork of the Calcasieu River was determined eligible for listing on the NRHP. As stated in the inventory,

> *"This tower drive with connected towers vertical lift bridge has significance as a movable bridge and as an important variation within the vertical lift bridge type. This variation is demonstrated in the location of the drive machinery at the center of a fixed span that operates the four sheaves. This configuration is uncommon nationally and represents a variation based on the small size of the navigation channel and necessary span length. The bridge retains good integrity and clearly conveys the significant design features of this variation within the bridge type. The bridge is eligible for listing in the National Register under Criterion C: Design/Engineering. No evidence was found during research or data collection activities to indicate that this bridge possesses a direct and important association with historical events or trends. "*[1]

If the bridge is replaced, adverse effect mitigation would need to be undertaken. This will include Historic American Engineering Record (HAER) documentation, and marketing of bridge components for adaptive re-use -- perhaps as a pedestrian/bicycle bridge in Sam Houston Jones State Park or in a nearby area. Depending on the outcome of the Section 106 Memorandum of Agreement process, other mitigation efforts may also apply.

No NRHP listed properties are located within the vicinity of the proposed project.

The DOA maintains archaeological site files and maps. A review of those files indicate that there are known archaeological sites within Alternative A. The relatively high lands found

[1] *National Register Eligibility Determination Report, Pre-1971 Louisiana Highway Bridges, Volume 1: Report and Appendices A-D*. Prepared by Mead & Hunt for LADOTD, September 2013

throughout the project area flank the West Fork of the Calcasieu River and Indian Bayou. This geographic setting indicates that there is a moderate to high potential of finding prehistoric archaeological sites throughout the project area. In addition, several historic routes/trails traversed the project area. Hence, the project area is considered to possess a moderate to high potential of finding historic archaeological sites, as well.

A comprehensive LHRI has not been conducted in Calcasieu Parish. Westlake has not been surveyed with the exception of several properties recorded during Section 106 Phase I cultural resources surveys. During the windshield survey for this project, CEI estimated that approximately 77 structures over 50 years in age are located within or adjacent to the proposed project. These structures will be recorded and evaluated during a Section 106 Phase I cultural resources survey.

Alternative B

Prior to a windshield survey of the proposed project, background research was conducted at the Louisiana Division of Historic Preservation (DHP) and the Louisiana Division of Archaeology (DOA). The DHP is the repository for Louisiana Historic Resource Inventory (LHRI) forms and maps, as well as National Register of Historic Places (NRHP) files. No LHRI properties have been previously inventoried in the vicinity of Alternative B. However, in the spring of 2013 a Statewide Historic Bridge Inventory was conducted and the LA 378 Bridge over the West Fork of the Calcasieu River was determined eligible for listing on the NRHP. If the bridge is replaced, adverse effect mitigation would need to be undertaken. This will include Historic American Engineering Record (HAER) documentation, and marketing of bridge components for adaptive re-use -- perhaps as a pedestrian/bicycle bridge in Sam Houston Jones State Park or in a nearby area. Depending on the outcome of the Section 106 Memorandum of Agreement process, other mitigation efforts may also apply.

No NRHP listed properties are located within the vicinity of the proposed project.

The DOA maintains archaeological site files and maps. A review of those files indicate that there are known archaeological sites within Alternative B. The relatively high lands found throughout the project area flank the West Fork of the Calcasieu River and Indian Bayou. This geographic setting indicates that there is a moderate to high potential of finding prehistoric archaeological sites throughout the project area. In addition, several historic routes/trails traversed the project area. Hence, the project area is considered to possess a moderate to high potential of finding historic archaeological sites.

A comprehensive LHRI has not been conducted in Calcasieu Parish. Westlake has not been surveyed with the exception of several properties recorded during Section 106 Phase I cultural resources surveys. During the windshield survey for this project, CEI estimated that approximately 89 structures over 50 years in age are located within or adjacent to the proposed

project. These structures will be recorded and evaluated during a Section 106 Phase I cultural resources survey.

Alternative C

Prior to a windshield survey of the proposed project, background research was conducted at the Louisiana Division of Historic Preservation (DHP) and the Louisiana Division of Archaeology (DOA). The DHP is the repository for Louisiana Historic Resource Inventory (LHRI) forms and maps, as well as National Register of Historic Places (NRHP) files. No LHRI properties have been previously inventoried in the vicinity of Alternative C. However, in the spring of 2013 a Statewide Historic Bridge Inventory was conducted and the LA 378 Bridge over the West Fork of the Calcasieu River was determined eligible for listing on the NRHP. As this alternative includes the removal of the existing bridge, adverse effect mitigation would need to be undertaken. This will include Historic American Engineering Record (HAER) documentation, and marketing of bridge components for adaptive re-use -- perhaps as a pedestrian/bicycle bridge in Sam Houston Jones State Park or in a nearby area. Depending on the outcome of the Section 106 Memorandum of Agreement process, other mitigation efforts may also apply.

No NRHP listed properties are located within the vicinity of the proposed project.

The DOA maintains archaeological site files and maps. A review of those files indicate that there is one known archaeological site (16CU142) located at the juncture of Indian Bayou and the West Fork of the Calcasieu River within Alternative C. Originally recorded in 1935 by James Ford, the NRHP eligibility of the site is currently undetermined. The relatively high lands found throughout the project area flank the West Fork of the Calcasieu River and Indian Bayou. This geographic setting indicates that there is a moderate to high potential of finding prehistoric archaeological sites throughout the project area. In addition, several historic routes/trails traversed the project are. Hence, the project area is considered to possess a moderate to high potential of finding historic archaeological sites, as well.

A comprehensive LHRI has not been conducted in Calcasieu Parish. Westlake has not been surveyed with the exception of several properties recorded during Section 106 Phase I cultural resources surveys. During the windshield survey for this project, CEI estimated that approximately 64 structures over 50 years in age are located within or adjacent to the proposed project. These structures will be recorded and evaluated during a Section 106 Phase I cultural resources survey.

HAZARDOUS MATERIALS

Methodology

Coastal Environments, Inc. conducted reviews of numerous environmental databases maintained by federal and state agencies including the U.S. Environmental Protection Agency (EPA), the National Response Center (NRC), the Louisiana Department of Environmental Quality (LDEQ), the Louisiana Department of Natural Resources (LDNR) and the Louisiana Department of Transportation and Development (LDOTD). Potential sites and/or facilities that formerly and/or currently generated hazardous wastes or maintained underground storage tanks were identified through review of EPA sources including Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS), Resource Conservation and Recovery Act (RCRA), Emergency Response Notification System (ERNS), Environmental & Compliance History Online (ECHO)], and EnviroMapper). Also reviewed were NRC (Release Incident Logs), LDEQ (Inactive and Abandoned Sites, Underground Storage Tank [UST], Leaking UST [LUST] (LDEQ 2013) and Electronic Document Management System [EDMS]), and LDNR (oil and gas wells and water wells) databases.

The field inspection, conducted on September 25, 2013, included (1) the verification of the existence and status of each of the facilities and/or sites that had been identified through the records review process and (2) the possible identification of unrecorded facilities and/or sites with potential contamination issues. Verification of the existence and/or geographic locations of a few facilities were facilitated by personal interviews during the site visit and the review of Lake Charles, LA street directories at the Louisiana State Library on September 26, 2013.

Results

The investigation resulted in the identification of 25 facilities and/or sites that are apparently within the ROW of, or adjacent to, Alternatives A-1, A-2, B and/or C. No potential "project stopping" constraints or issues were identified. The facilities and/or sites are listed in the LDOTD Stage 0 Environmental Checklist (see **Appendix A**) and depicted on *Hazardous Waste, Underground Tanks, Oil, Gas and Water Well* maps (**Figures III-1, III-2** and **III-3** at the end of this chapter).

WETLANDS

To determine the locations of potential wetlands within the proposed project locations (alternative alignments A-1, A-2, B and C), CEI reviewed multiple sources of data, including U.S. Fish and Wildlife Service (USFWS 2013) National Wetland Inventory (NWI) maps, Natural Resource Conservation Service (NRCS) soil survey maps, U.S. Geological Service

(USGS) topographic maps (USGS 2009a, b, c, d) and 2010 DOQQ aerial imagery (U.S. Department of Agriculture, National Agriculture Imagery Program [USDA-NAIP] 2010). A CEI biologist conducted a "windshield survey" of the proposed route on September 26, 2013. These reviews resulted in estimations of potential wetland impacts as follows:

Alternative A-1	4.56 acres
Alternative A-2	4.60 acres
Alternative B	4.60 acres
Alternative C	17.43 acres

The wetland areas are mapped on **Figures III-4, III-5, III-6** and **III-7** at the end of this chapter.

THREATENED AND ENDANGERED SPECIES

A review of USFWS threatened and endangered species lists for the project area was performed (USFWS 2013, Louisiana Department of Wildlife and Fisheries 2013). The Red-cockaded Woodpecker (*Picoides borealis*) is the only species listed as threatened or endangered in Calcasieu Parish. Because no suitable forage or nesting habitat for Red-cockaded Woodpecker was observed on aerial imagery in the vicinity of the proposed project footprints these alternative alignments are not likely to adversely affect this species. Observations from the windshield survey confirmed absence of suitable habitat from our interpretation of aerial imagery.

SIGNIFICANT TREES

No significant trees were noted during the windshield survey.

ZONING AND LAND USE

Methodology

The methodology employed in this analysis consists of discussions with local planning officials, review of future land use plans, and windshield surveys of the study area.

Zoning is discussed first, being the determining factor for land use. A consideration of the land use and prevailing development patterns follows the zoning description. Both zoning and land use are described from south (I-10) to north (LA 378 spur).

Findings

Zoning

Zoning in the project area is controlled by two entities: the City of Westlake and Calcasieu Parish. Most of the southern section between John Stine Road and I-10 is within the City of Westlake, except for the area west of LA 378 and south of Sulphur Ave, which is in unincorporated Calcasieu Parish and is zoned I-2 (Heavy Industrial).

Around and north of John Stine Road, Calcasieu Parish becomes the predominant zoning entity. Zoning between Westwood Road and Davis Road is predominantly residential (R1 single family and R2 mixed residential, with isolated parcels zoned RM- residential multifamily). Along the east side of Westwood Road, all parcels are zoned commercial (C3, C2, and a small portion of C1). Pinederosa Park on the west side of Westwood Road is zoned A1 Agricultural.

Along Davis Road in the northern portion of the corridor there is a cluster of commercially zoned property at the intersection with Phillips Road/Robert Road, while the remaining corridor north to the river is A1 Agricultural on the undeveloped east side and residential (R1 and R2) on the west side. A small strip of C2 commercial exists on the east side along the river frontage.

North of the river, both sides of the LA 378 frontage is zoned C3 Commercial up to the transition to Sam Houston Jones Parkway, where the zoning is R1 residential on both sides. Sam Houston Jones State Park and the areas around it are zoned A1 Agricultural, and there are small pockets of C2 commercial and R2 residential behind the C3 zoning fronting LA 378.

Land Use

Land use along the project corridor for the most part reflects the current zoning. Beginning in the southern portion of the corridor near I-10, we see mostly industrial land uses. Through the city of Westlake, LA 378 is a busy commercial corridor mostly lined with retail establishments, offices other businesses, as well as schools, churches and other public facilities. Parcels of undeveloped land begin to appear approaching John Stine Road, as well as residential uses interspersed with commercial facilities. At National Drive/ Hudson Drive, recreational land uses (National Golf Course of Louisiana and Pinederosa Park) take up the western side of the corridor, while the eastern side up to the river includes a mixture of undeveloped land, mobile home parks, an RV Park, and single-family residences. The Phillips Road and Davis Road corridors south of the river feature mostly single family residences with occasional small commercial facilities and public facilities (water tower; fire station). Just north of the river, there are a few commercial sites mixed in with residential uses along and around the existing LA 378 corridor. To the west, the Sam Houston Jones State Park exists surrounded by a small amount of residential homes accessed off of Gahagan Lane.

Possible Zoning & Land Use Impacts

The improvement of LA 378 may eventually have some effect on the zoning and land use along the corridor, particularly in the northern section. With a widening from two lanes to four lanes, more vehicles will begin to travel the road, and areas alongside the route will be seen as more desirable for commercial development. Parcels already zoned for such development will be the first to develop, while those zoned for residential uses may petition the Parish to re-zone to allow roadside commercial development on their site.

In the southern section, mostly comprised of the City of Westlake, not much effect is anticipated. LA 378 in this segment is already well-developed, and will likely remain so. The added capacity in the northern section of LA 378 and improvements in the southern section will likely add more traffic volume, which may make parcels along Sampson Street more desirable for upgrade or re-development of existing developed parcels.

PARKS AND RECREATION FACILITIES

Pinederosa Park

Pinederosa Park is a recreational facility owned and operated by the City of Westlake. It contains 8 lighted softball/baseball fields, outdoor basketball court, pavilions/shelters, playground facilities, and a walking track. None of the alternatives encroach on or affect the park property in any way.

Sam Houston Jones State Park

Sam Houston Jones State park is a large facility located in the northern section of the study area. The park features numerous activities, including boating, hiking, bird watching, and camping (from tent through RV to rental cabins). Alternatives A and B would not affect or impact the park, but Alternative C would pass through park property with particular impact on certain facilities including playground, camping areas, and a hiking trail. The park is a Section 4(f) property which will require selecting an alternate route if there is one that is prudent and feasible.

In correspondence with the project team, Stuart Johnson, Ph.D., the Assistant Secretary of the Louisiana Office of State Parks stated that the Office of State Parks cannot support Alternative C, as it bisects a major portion of the park and will render the Entrance Station, Pavilion 2, Campground 2, Campground 2 Playground, the River Walk Trail and the Laundry Building unusable. Dr. Johnson also noted that the sewer system on the south side of the park and future master planned facilities would also be impacted, and the loss of these facilities and the aesthetic impact of the road and bridge would greatly diminish the users experience at the park[2].

[2] *E-mail from Dr. Stuart Johnson to project consultant Bruce Richards, Sept. 11, 2013*

Furthermore, the park is a Land and Water Conservation Site. Any conversion of use is controlled by federal statue, requiring significant mitigation. As clarified in a letter to Dr. Johnson from Cleve Hardman, the State of Louisiana's Director of Outdoor Recreation, Chapter 8 of the LWCF Manual specifically identifies compliance requirements of all sites that have received assistance through this Federal program. Steps involved in a conversion would include:

1. Identification of all alternatives considered and why those alternatives were not accepted;
2. Approval by the National Park Service of the land and recreational amenities that would be lost;
3. Identification of the land that would have to be acquired to replace the land and recreational amenities lost;
4. Conducting appraisals to meet the Uniform Appraisal Standards for Federal Land Acquisition;
5. Gaining approval of appraisals by the state review appraiser;
6. Acceptance of the conversion by the National Park Service; and
7. Development of the new recreational facilities to take the use of that which has been lost.

Also, land used to satisfy a conversion cannot be land that has been dedicated to recreation, nor land from another public agency, nor land that was acquired with the support of any Federal funds.[3]

DISPLACEMENTS/RELOCATIONS

Alternative A-1 will result in an estimated ten (10) commercial displacements, and forty-seven (47) residential displacements.

Alternative A-2 will result in an estimated ten (10) commercial displacements, and forty-nine (49) residential displacements.

Alternative B will result in an estimated twenty-seven (28) commercial displacements, and an estimated thirty-eight (38) residential displacements.

Alternative C will result in an estimated twenty (20) commercial displacements, and an estimated thirty-six (36) residential displacements.

ENVIRONMENTAL CONSTRAINTS OR CONCERNS

As a result of the Environmental Inventory, several areas of environmental concern or constraint have been identified within the project corridor. As described in this chapter, there is no apparent presence of endangered of threatened species in project area. Additionally, there were no potential "project stopping" constraints or issues identified in terms of Phase 1 ESA issues

[3] *Mail correspondence from Cleve Hardman to Dr. Stuart Johnson, Sept 11, 2013*

(hazardous waste, leaky fuel tanks, etc.). As noted in the previous section, the improvement of LA 378 may have some effect on land use and zoning, possibly spurring development and/or redevelopment and requests for changes to existing zoning. However, while cultural resource research and site reconnaissance did not reveal any NRHP sites, the LA 378 Bridge over the West Fork of the Calcasieu River was determined eligible for listing on the NRHP, there is one documented archaeological site in the project area vicinity (affected under Alternative C), and the geographic setting indicates that there is a potential of prehistoric archaeological sites throughout the northern section of the project area near the West Fork of the Calcasieu River. Finally, while there are a considerable amount of displacements and relocations projected under each alternative, it is not unusual considering each involves the widening and/or improvement of an arterial roadway in a developed area.

Two notable issues might arise in further project development:

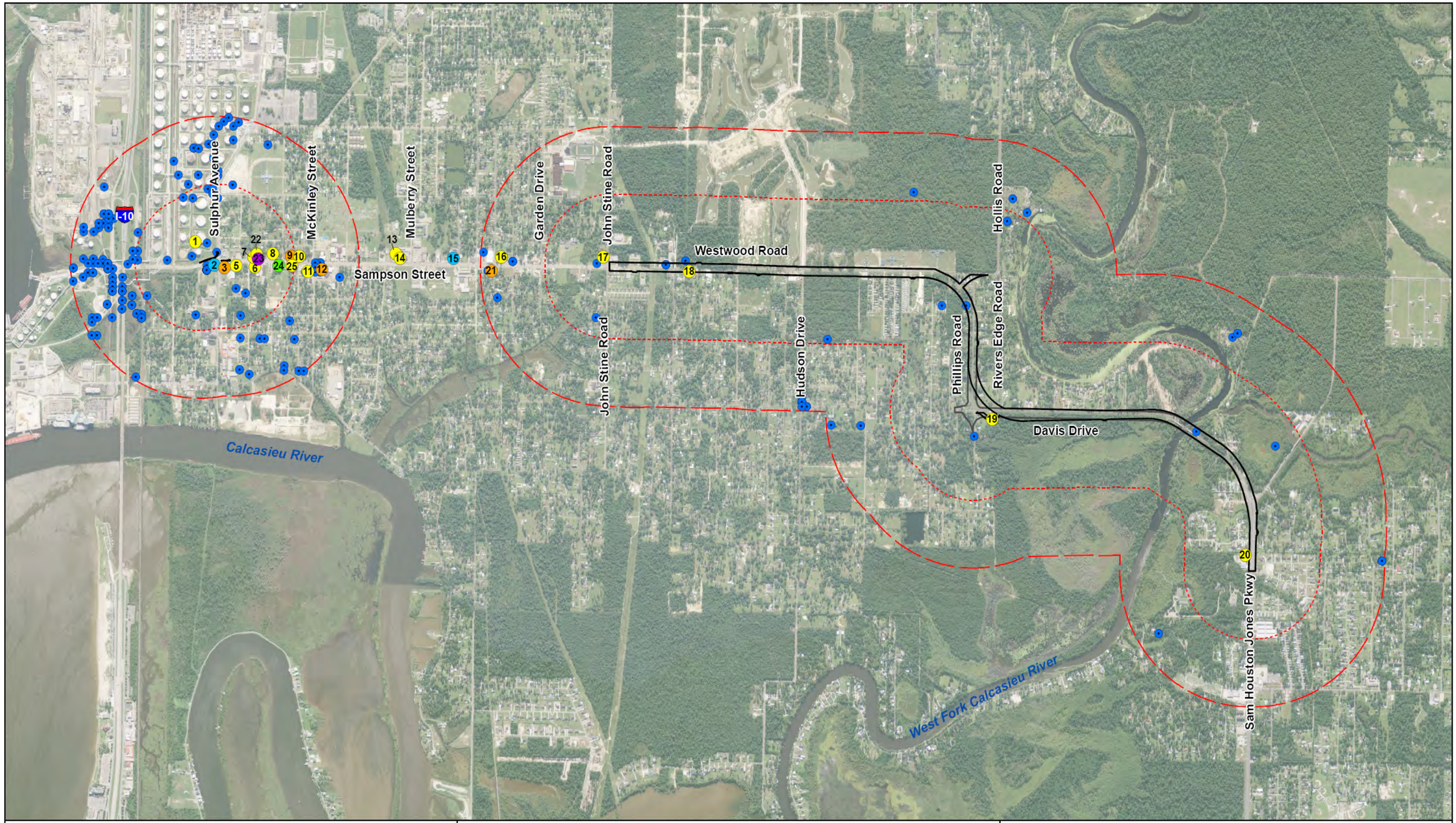
- The first is in regards to potential wetlands. While Alternatives A and B are only projected to impact less than 5 acres of potential wetlands, Alternative C is expected to impact over three times that amount (just over 17 acres). Depending on construction techniques and the amount of right-of-way required, these potential wetlands may be affected by the proposed project and may require mitigation measures. Onsite mitigation of wetland impacts could include clearing and maintenance of the minimum area of right-of-way. Installing adequate cross-drains underneath roadway sections will facilitate maintenance of current surface water movement. Mitigation of unavoidable wetland impacts could also be achieved through a monetary contribution, as determined by the regulatory agencies, to the Louisiana Nature Conservancy that maintains several wetland mitigation areas in the Florida Parishes.
- The second issue, and more prominent of the two, is the impact of Alternative C on Sam Houston Jones State Park. As mentioned earlier, the park is considered a Section 4(f) property which will require selecting an alternate route if there is one that is prudent and feasible. Additionally the park is a Land and Water Conservation Site and any conversion of use is controlled by federal statue, requiring significant mitigation. The Office of State Parks has gone on record as stating they cannot support Alternative C, and as will be described in *Chapter IV*, the public is also generally opposed to the idea of a roadway alternative impacting the park.

EVALUATION AND COMPARISON OF THE ALTERNATIVES

While the Scope of Work for the project does not require selection of a preferred alternative among the alternatives, it does call for an evaluation and comparison. The matrix below presents a comparison in terms of (1) cost, (2) right-of-way acquisitions, (3) likely required relocations, (4) traffic impacts, (5) potential wetland impacts, (6) 4(f) impacts, (7) historic sites, and (8) other potential impacts.

Table III-1
Evaluation/Comparison Matrix

	Alternative A-1	**Alternative A-2**	**Alternative B**	**Alternative C**
Project Cost:	$68,629,494 (bridge rehab) $71,648,531 (bridge replace)	$69,274,518 (bridge rehab) $72,293,555 (bridge replace)	$73,228,345 (bridge rehab) $76,247,383 (bridge replace)	$80,546,151
Total Right-of-Way to be acquired (in acres):	30.93	33.31	43.75	47.37
Likely required relocations:	10 commercial, 47 residential	10 commercial, 49 residential	28 commercial, 38 residential	20 commercial, 36 residential
Traffic Impacts:	Acceptable LOS	Acceptable LOS	Acceptable LOS	Acceptable LOS
Potential Wetland Impacts:	4.56 acres potential wetlands	4.60 acres potential wetlands	4.60 acres potential wetlands	17.43 acres potential wetlands
4(f) Impacts	None	None	None	4 (f) impacts to State Park
Historic Sites	Existing LA 378 West Fork Calcasieu River Bridge is NRHP-eligible.	Existing LA 378 West Fork Calcasieu River Bridge is NRHP-eligible.	Existing LA 378 West Fork Calcasieu River Bridge is NRHP-eligible.	Existing LA 378 West Fork Calcasieu River Bridge is NRHP-eligible. One (1) documented archaeological site
Historic Sites	None	None	None	One (1) documented archaeological site
Other Potential Impacts:	Pressures for land use/zoning changes	Pressures for land use/zoning changes	Pressures for land use/zoning changes	Pressures for land use/zoning changes



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Miles

HAZARDOUS WASTE, UNDERGROUND TANKS, OIL, GAS & WATER WELLS

STAGE 0 FEASIBILITY STUDY FOR LA 378 IMPROVEMENTS
WESTLAKE TO MOSS BLUFF CALCASIEU PARISH, LA

S.P.N. H.009488.1 **F.A.P.N. H009488**

MAP BASE: USDA NAIP 1-m Resolution NC Parish Mosaic, 2010

DATA SOURCE: NYA CAD Files, 2013
CEI Field Survey Sept. 26-27, 2013

RCRA
PRE-RCRA
UST
LUST
UNREGISTETED UST
WATER WELL
ALT. A-1 ROW
ALT. A-2 ROW
HALF MILE BUFFER
FULL MILE BUFFER

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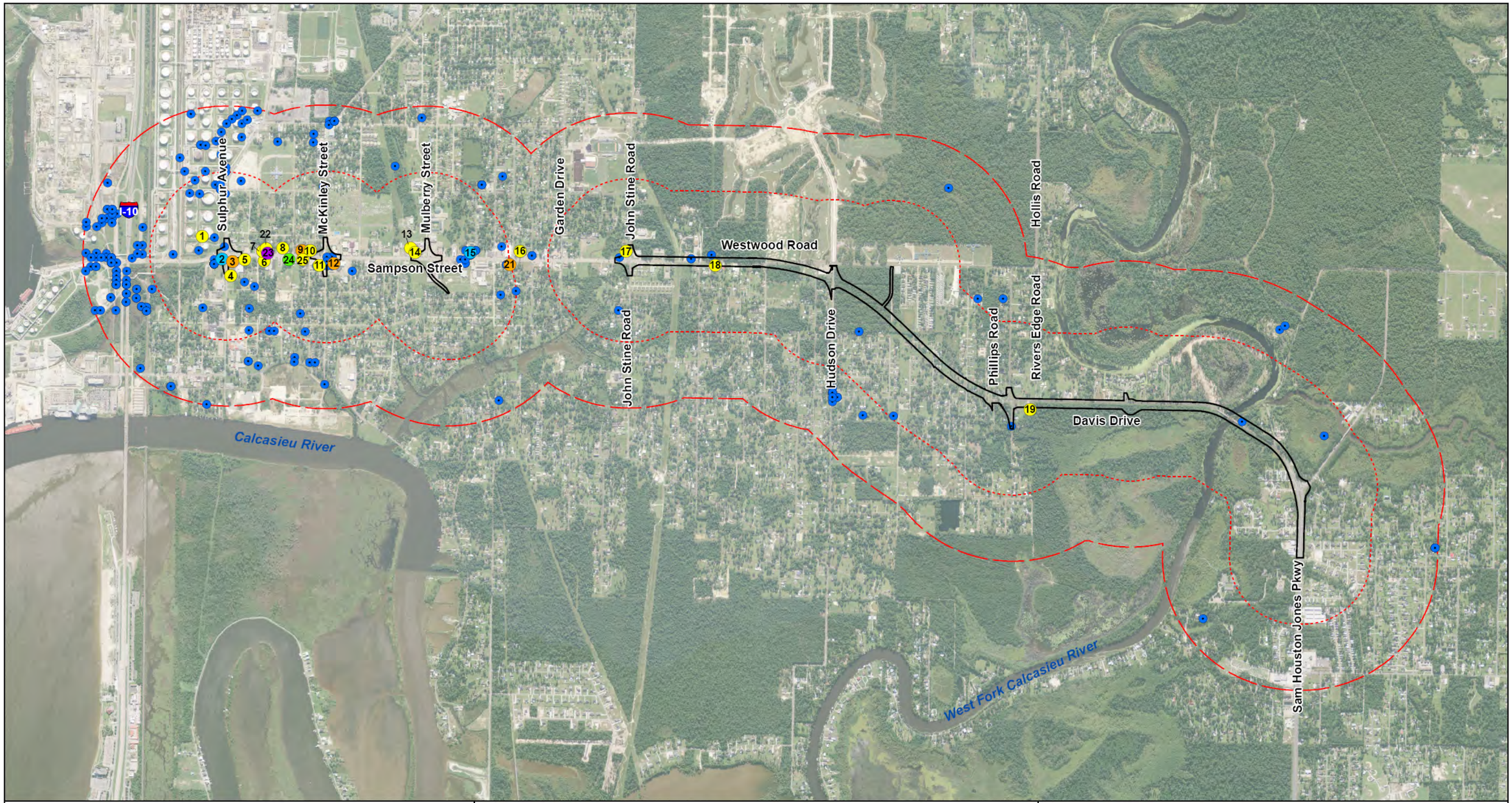
FIGURE
III-1



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Miles

HAZARDOUS WASTE, UNDERGROUND TANKS, OIL, GAS & WATER WELLS

RCRA
PRE-RCRA
UST
LUST
UNREGISTETED UST
WATER WELL
ALT. B ROW
HALF MILE BUFFER
FULL MILE BUFFER

STAGE 0 FEASIBILITY STUDY FOR LA 378 IMPROVEMENTS
WESTLAKE TO MOSS BLUFF CALCASIEU PARISH, LA

S.P.N. H.009488.1 F.A.P.N. H009488

MAP BASE: USDA NAIP 1-m Resolution NC Parish Mosaic, 2010

DATA SOURCE: NYA CAD Files, 2013
CEI Field Survey Sept. 26-27, 2013

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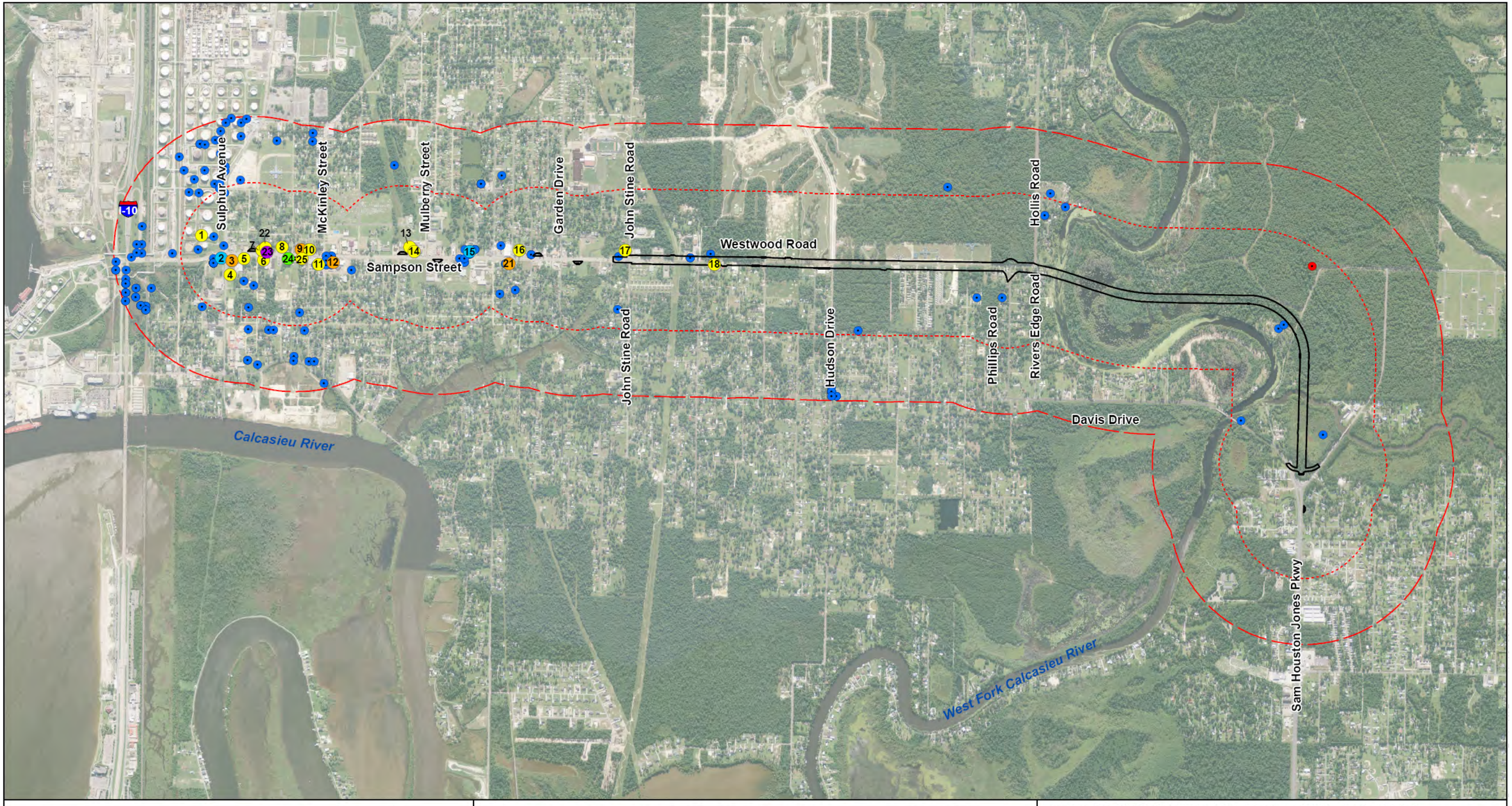
FIGURE III-2



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Miles

HAZARDOUS WASTE, UNDERGROUND TANKS, OIL, GAS & WATER WELLS

STAGE 0 FEASIBILITY STUDY FOR LA 378 IMPROVEMENTS
WESTLAKE TO MOSS BLUFF CALCASIEU PARISH, LA

S.P.N. H.009488.1 F.A.P.N. H009488

MAP BASE: USDA NAIP 1-m Resolution NC Parish Mosaic, 2010

DATA SOURCE: NYA CAD Files, 2013
CEI Field Survey Sept. 26-27, 2013

RCRA
PRE-RCRA
UST
LUST
UNREGISTETED UST
WATER WELL
OIL/GAS WELL
ALT. C ROW
HALF MILE BUFFER
FULL MILE BUFFER

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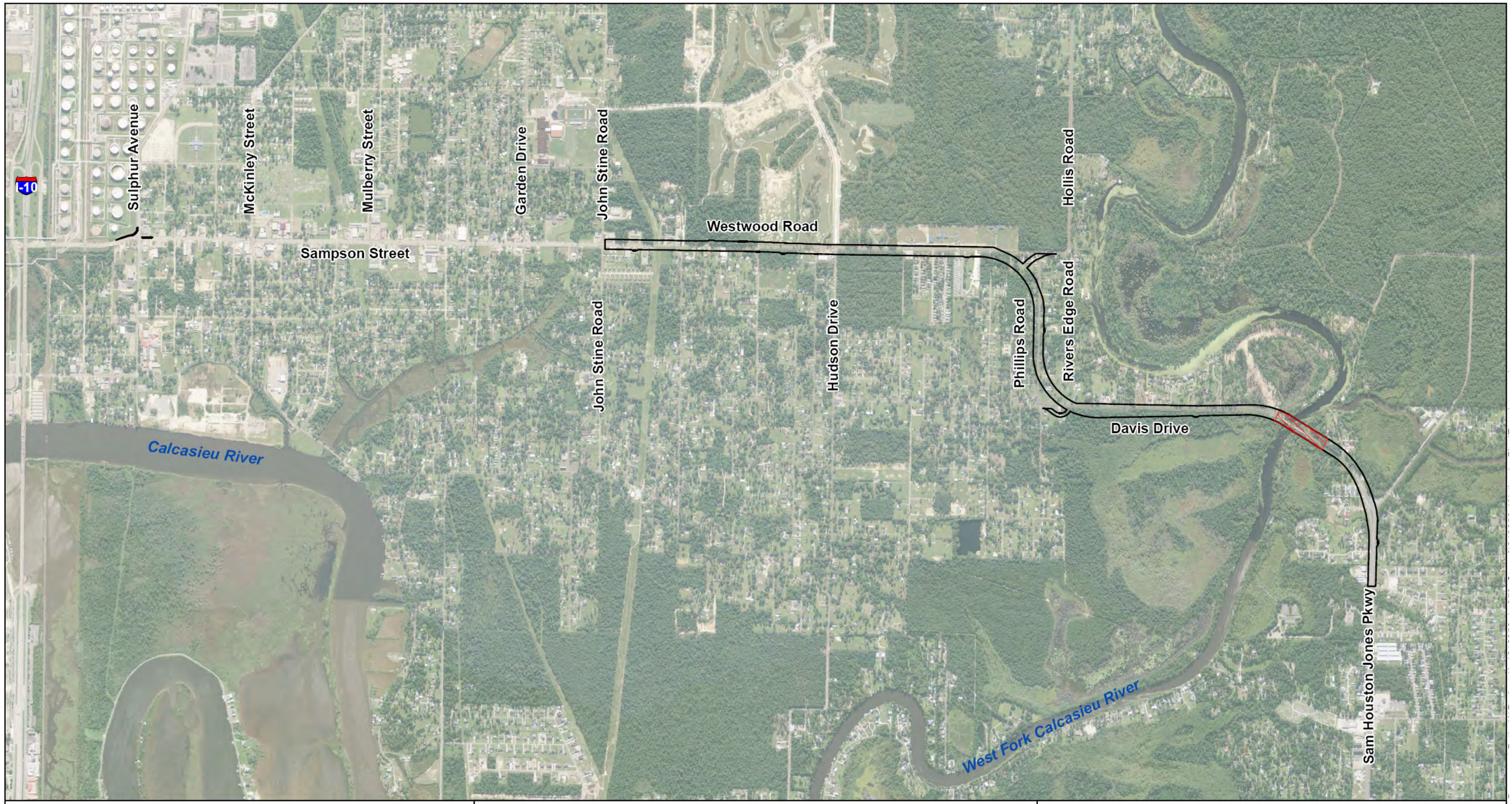
FIGURE III-3



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Miles

N

POTENTIAL WETLANDS AND OTHER WATERS

STAGE 0 FEASIBILITY STUDY FOR LA 378 IMPROVEMENTS
WESTLAKE TO MOSS BLUFF CALCASIEU PARISH, LA

S.P.N. H.009488.1 **F.A.P.N. H009488**

MAP BASE: USDA NAIP 1-m Resolution NC Parish Mosaic, 2010

DATA SOURCE: NYA CAD Files, 2013
CEI Field Survey Sept. 26-27, 2013

POTENTIAL WETLANDS (4.56 ac.)

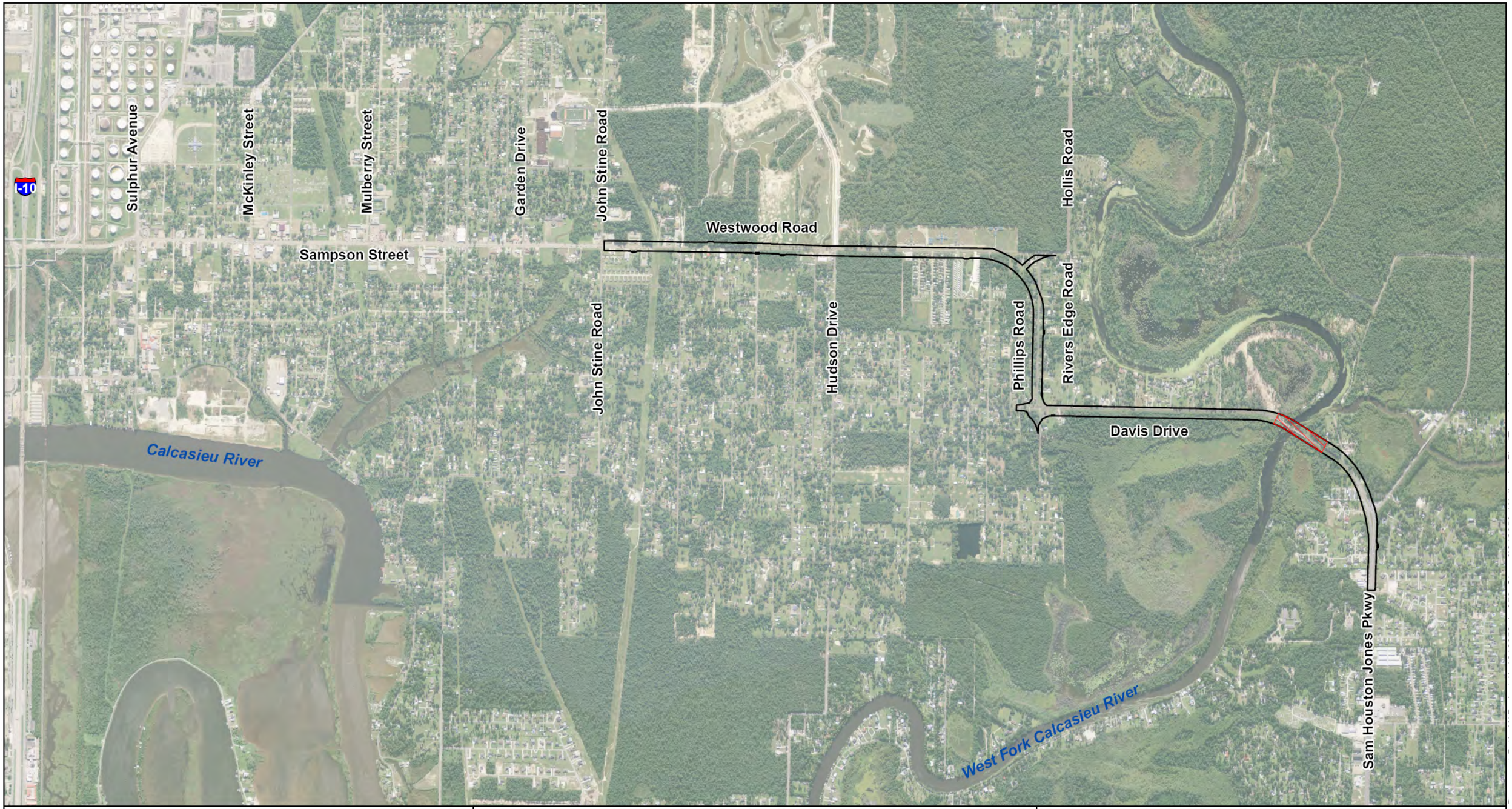
ALT. A-1 ROW

DOTD LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

NY ASSOCIATES, INC. ENGINEERS • ARCHITECTS • PLANNERS PROGRAM & PROJECT MANAGERS

CEI

FIGURE **III-4**



0 0.25 0.5 0.75 1
Miles

POTENTIAL WETLANDS AND OTHER WATERS

STAGE 0 FEASIBILITY STUDY FOR LA 378 IMPROVEMENTS
WESTLAKE TO MOSS BLUFF CALCASIEU PARISH, LA

S.P.N. H.009488.1 **F.A.P.N. H009488**

MAP BASE: USDA NAIP 1-m Resolution NC Parish Mosaic, 2010

DATA SOURCE: NYA CAD Files, 2013
CEI Field Survey Sept. 26-27, 2013

POTENTIAL WETLANDS (4.60 ac.)

ALT. A-2 ROW

DOTD LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

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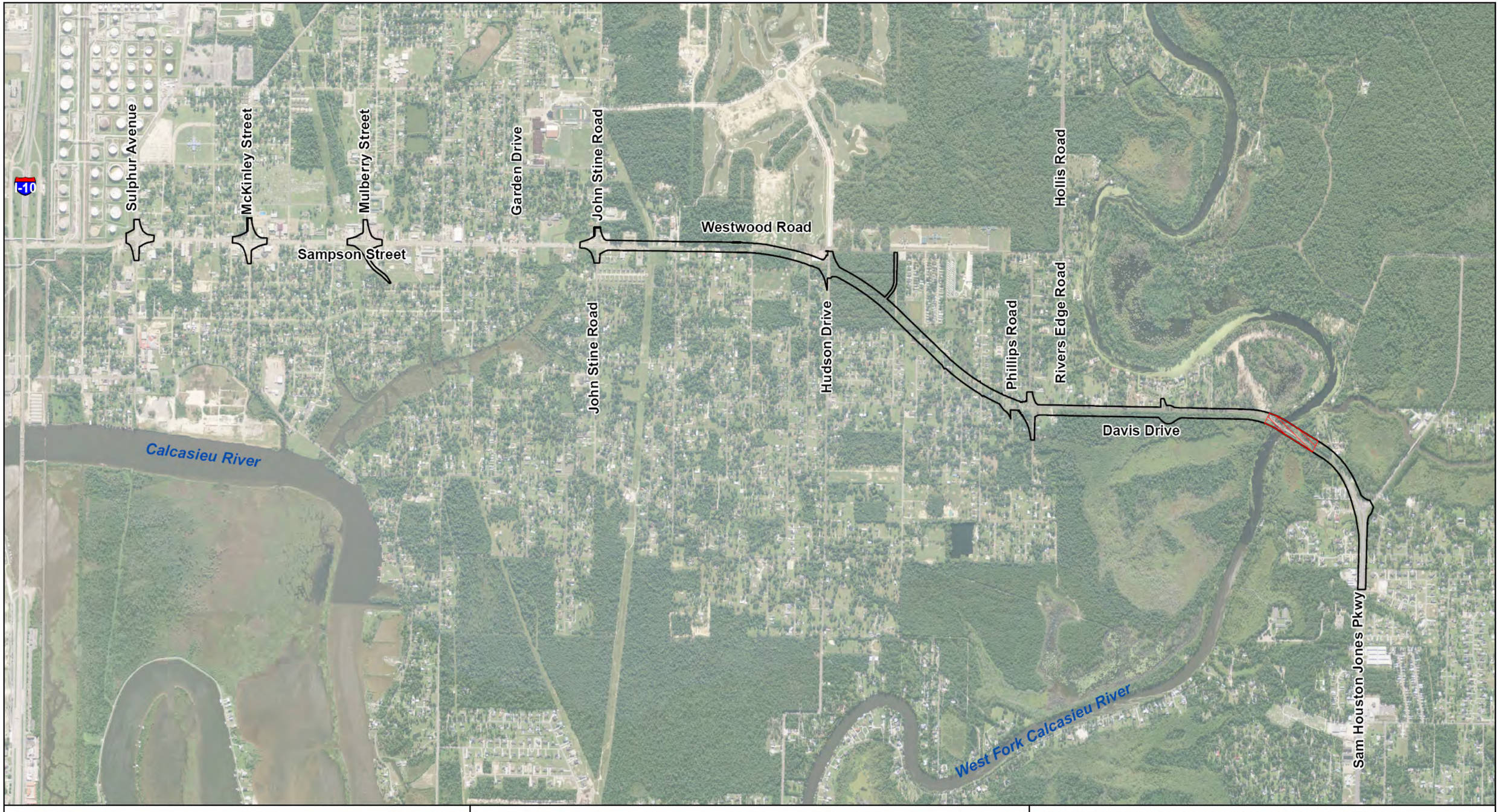
CEI

FIGURE
III-5



0 0.25 0.5 0.75 1
Miles

POTENTIAL WETLANDS AND OTHER WATERS

STAGE 0 FEASIBILITY STUDY FOR LA 378 IMPROVEMENTS
WESTLAKE TO MOSS BLUFF CALCASIEU PARISH, LA

S.P.N. H.009488.1 **F.A.P.N. H009488**

MAP BASE: USDA NAIP 1-m Resolution NC Parish Mosaic, 2010

DATA SOURCE: NYA CAD Files, 2013
CEI Field Survey Sept. 26-27, 2013

POTENTIAL WETLANDS (4.60 ac.)

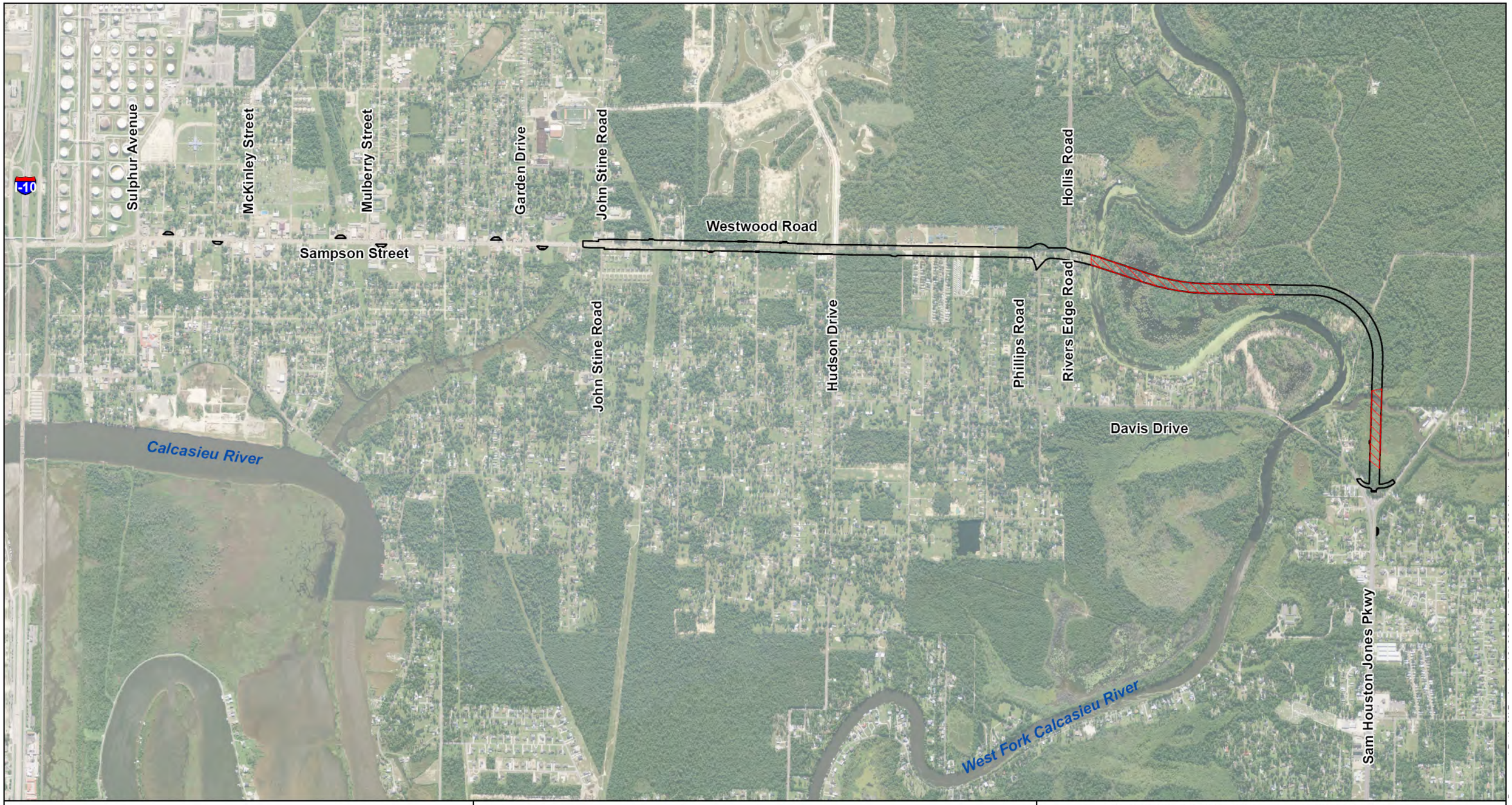
ALT. B ROW

DOTD LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

NYA ASSOCIATES, INC. ENGINEERS • ARCHITECTS • PLANNERS PROGRAM & PROJECT MANAGERS

CEI

FIGURE **III-6**



0 0.25 0.5 0.75 1
Miles

N

POTENTIAL WETLANDS AND OTHER WATERS

STAGE 0 FEASIBILITY STUDY FOR LA 378 IMPROVEMENTS
WESTLAKE TO MOSS BLUFF CALCASIEU PARISH, LA

S.P.N. H.009488.1 **F.A.P.N. H009488**

MAP BASE: USDA NAIP 1-m Resolution NC Parish Mosaic, 2010

DATA SOURCE: NYA CAD Files, 2013
CEI Field Survey Sept. 26-27, 2013

POTENTIAL WETLANDS (17.43 ac.)

ALT. C ROW

DOTD LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

NY ASSOCIATES, INC. ENGINEERS • ARCHITECTS • PLANNERS PROGRAM & PROJECT MANAGERS

CEI

FIGURE
III-7

CHAPTER IV

AGENCY COMMENTS/COORDINATION AND PUBLIC PARTICIPATION

This chapter describes the coordination efforts associated with development of the project including contacts such as those made with LADOTD, FHWA, and other agencies and elected officials. The public participation component of the project is also described and includes documentation of the public meeting held on September 18, 2013.

Hard copies of items such as public meeting sign-in sheets, agenda and handouts from the public meeting, and all written/e-mail comments received from citizens and interested parties are presented in **Appendix C**. A complete record of all comments and coordination is located in the project files of the LADOTD.

AGENCY COMMENTS AND COORDINATION

PROJECT INITIATION MEETING

Agency comments and coordination began with a *Project Initiation Meeting* held on August 20, 2012 at the offices of the Calcasieu Police Jury. In addition to members of the project consultant team and LADOTD staff, invitees/attendees included elected officials and department staff of the Calcasieu Parish Police Jury; elected officials and department staff from the City of Westlake; as well as representatives from the Imperial Calcasieu Metropolitan Planning Organization (IMCAL) and the Federal Highway Administration.

The Project Initiation Meeting began with the consultant's project manager, Mr. Bruce Richards, giving a welcome and allowing everyone to give a self introduction. He then began a short PowerPoint presentation on the project, first describing what is involved in a "Stage 0 Feasibility Study", giving a brief explanation of the Project Location and Description. Mr. Richards then ended the presentation with a description of the project "Game Plan" (what the team would be doing in this particular project).

The meeting then shifted to a discussion as to what types of data or information were available from the agencies to assist in the completion of this project. In particular, GIS or printed maps relating to utilities or zoning, comprehensive plans, previous documents; and knowledge of ongoing or planned developments were deemed to be helpful. Grant Bush noted that IMCAL had aerial and GIS information available --O'Neal Hebert would be the contact. Wes Crain and Tim Conner indicated that they could help with utility information. It was noted that the water district for the area was Districts 4 & 1, that Media Stream and Cameron Communications should be contacted for

telecommunications, and that the City of Westlake owned the gas main along their portion of the route.

The meeting then progressed to an open discussion and question/answer period. Key points discussed included:

- Calcasieu Parish Police Juror Shannon Spell noted that the corridor is a severe bottleneck and is a route taken by plant workers and such. At a request from Urban Systems traffic staff as to peak hours he stated that it has an extremely long peak period --from about 5 to 10 AM in the morning and 4 to 7 PM in the evening. Steve Jiles noted that there was a 3:30 shift change which starts the evening peak.
- Dwight Minton of IMCAL stated that they had recent counts for LA 378 on the Sampson Road section—approximately 30,000 vpd, and also 25 train crossings of Sampson per day which adds to the congestion.
- Lunchtime traffic was also pointed as being high.
- Mr. Spell noted that population growth was a factor in the increased congestion -- over the last two census periods they have experienced 10%-30% growth. Additionally, the local officials noted that there was a lot of upcoming economic development and jobs which would add to traffic. In particular they mentioned the $10 billion SASOL gas-to-liquids plant in Westlake with an estimate for a need for 3500 new homes to serve new workers. In reaction to the need for new homes, Bruce Richards noted that in looking at the National Golf Club subdivision, it appears they have room and future plans for many new homes, and asked who would have information on future build-out numbers. Mayor Dan Cupit of Westlake said he could get those numbers for the consultant team.
- Steve Jiles of LADOTD District 7 stated that LA 378 serves as an alternate route when I-10 and I-210 back-up.
- Mr. Spell stated that one of the special problems associated with LA 378 is that from 6:30 to 8:00 in the morning, Phillips Rd. is completely backed up to the signal at Davis Rd. (heading south) due to the volume of commuters and the stop condition at Westwood Road.
- The next portion of the discussion related to the bridge over the West Fork of the Calcasieu River. Jim Simmons asked how it operates for openings. Steve Jiles replied that it opened on request with 2 hrs. advance notice required. The clearance is 14 feet in the closed position, 50 feet in the open position. There have been very few, if any, openings in the past few years.
- Mr. Spell said that with one alternative passing through Sam Houston Jones State Park and others in the vicinity; it would be a good idea to include the park in discussions, including input on bridge height and park access.
- Tim Conner of the Calcasieu Parish Engineering Department noted the need to consider bicycle and pedestrian access and lighting along any improved LA 378. This was supported by Shannon Spell, and Bruce noted that with Pinederosa Park on the route, this made sense. Grant Bush stated that there may be an opportunity to tie in pedestrian/bike access to a trails system.
- There was a brief discussion as to improvements to LA 378 in the southern section of the study area (in Westlake) which is already 5 lanes. Although the

traffic counts would have to be completed before developing alternatives for improvements, some ideas discussed including access management and intersection changes/improvements.

- Hal McMillin of Calcasieu Parish stated that LA 378 functioned almost like a "north loop" and was used as a hurricane evacuation route. Improvement of the route would help in this regard. Mr. Spell inquired if hurricane evacuation scenarios would be used in traffic projections for determining needed capacity. Bruce Richards noted that while its importance as a hurricane evacuation route would be noted in the report, the types of volumes seen during evacuations are not used in determining roadway capacity. This was backed up Urban Systems staff, who additionally noted that there are opportunities for contraflow on LA 378 during evacuation scenarios as a way of temporarily adding capacity.
- Mr. Jiles asked if there would be an origin-destination study completed as part of the study. Bruce Richards noted it was not a part of the Scope and typically not done in a Stage 0 feasibility study.
- Phasing of funding was next discussed. Local officials noted that local right-of-way costs have spiraled upwards, and whether ROW could be acquired after the Stage 0 study. N-Y staff replied that it typically wasn't, as there has not been a survey or actual design completed after a Stage 0 study. However, they further described some manner in which local governments can be more proactive -- by declaring a corridor planned for improvement, keeping an eye on development along that corridor and not permitting physical development within a proscribed setback from the existing right-of way line to allow for the unencumbered future acquisition of right-of-way without relocations. Mr. Richards noted that some jurisdictions have in the past required developers to donate the needed right-of way as a condition of development. Finally, once a corridor is identified and rather well-described (after Stage 1 – Environmental Assessment) corridor preservation and purchase of right-of-way can occur, and in fact, helps to keep the EA document "current" by serving as an activity moving it towards completion. Connie Porter Betts of LADOTD added this is only done once a preferred alternative is established (during Stage 1, not Stage 0).
- In response to a request about pipelines crossing the route, Mr. Conner noted that One Call was what they used and was a good reference.
- Jim Simmons of consultant N-Y Associates noted that on this project, they will likely have different typical sections as the route does now, with varying speeds from 35 mph through 45 mph, up to 55 mph. Steve Jiles noted that they were not necessarily "married" to the 35 mph speed limit in Westlake.
- With no further matters to discuss, the meeting was ended. Several of the attendees thanked the consultant team for traveling to and holding the meeting in Lake Charles.

PROGRESS REVIEW MEETING

Once the three conceptual alternative designs and the traffic analysis were complete, a *Progress Review Meeting* was held on August 14, 2013 at the LADOTD headquarters in Baton Rouge. Invitees included LADOTD and consultant staff, and technical representatives of IMCAL and the Calcasieu Parish Police Jury. At this meeting, the three project alternatives (as well as the projected volumes and traffic analysis that helped to shape them) were presented for review and discussion.

The Progress Meeting began with the consultant's project manager, Mr. Bruce Richards, giving a welcome and allowing everyone to give a self introduction. The meeting then shifted to a presentation of the three alternatives developed for the project. Jim Simmons of N-Y laid out the plans as depicted on aerial photography, and Alison Catarella-Michel handed out schematics of traffic figures. Alison then gave a breakdown on how the three alternatives were developed, noting that the project is best broken down into northern and southern sections. The northern section of the alternatives involve widening, realignment and bridge replacement/new construction, while the southern section is generally more basic and involves improvements and changes to the existing five-lane Sampson Street. Ms. Michel noted that while the three alternatives are presented jointly on the plans, they could in fact be selected independently: for example the southern section of Alternative "A" could be paired with the northern section of Alternative "B".

Steve Jiles of LADOTD District 07 asked in terms of the traffic projections for all alternatives, was the impacts of the new SASOL plant considered? Alison replied that it was.

The meeting then moved to description and discussion of each of the three alternatives:

Alternative A:

Ms. Michel began with the description of Alternative A, which is the simplest alternative in terms of both the north and southern sections. She described the proposed southern improvements. Pat Landry of LADOTD District 07 questioned the right (south) turn at Sulphur. Ms. Michel and Mr. Simmons noted that the acceleration lane length from this turn was limited by the bridge over the canal. Mr. Richards added that the Scope did call for looking at I-10 intersection improvements, which the team had done, but the area was very limited by physical impediments (rail lines, waterways, overhead pipes, etc) and thus no I-10 improvements are included in any of the Alternatives.

Mr. Jiles then noted that there was an IJR/IMR meeting about possible grade separation on LA 378 near I-10 for the Union Pacific rail crossing.

Pat Landry of LADOTD noted that the intersection of LA 378 at John Stine Road now has a new mast arm with a camera. Alison asked if permitted left turns were eliminated. Mr. Landry said he would find out. He also noted that the City of Westlake was planning to three-lane John Stine Road west of LA 378, and that LADOTD was going to ask them to carry it through the intersection (to the east side of LA 378). Mr. Landry then

mentioned that there was a recent bridge replacement along John Stine Road, and was curious to see if it had any effect on the traffic volumes. After checking the dates of the counts, he and Ms. Michel determined it didn't.

The District LADOTD staff noted that any turns/u-turns north of the bridge would need to consider the many RVs that go to Sam Houston Jones State Park. Josh Harrouch of the LADOTD Traffic Section asked if Urban Systems took driveway counts and side street counts, which Urban replied that they did not as this was not in the Scope of Work. Pat Landry noted that a convenience store was being considered at the northwest corner of Phillips and Davis.

Alternative B:

After the presentation of this alternative (commonly called the roundabout alternative, due to the installation of roundabouts in the southern section), Ryan Morvant of the LADOTD Bridge Section noted that it would have a large cost due to both construction and right-of-way costs. All parties also commented on speed concerns -- the roundabouts would slow traffic down along the route, and to some degree, the route was intended to provide quicker access. It was pointed out by the consultant team that the speed limit south of John Stine Road, on the five lane section, is currently only 35 mph.

In terms of the roadway geometry, Mr. Landry and others with District 7 stated that the two roundabouts close together in the "middle" of the route (between John Stine and Phillips) were not needed, and suggested using one or the other. He suggested removing the northerly one of the two and moving the other one to Hudson. All in attendance agreed, and the consultant team agreed to make this change. Mr. Landry also noted that this alternative would be good for access control, particularly in the southern section.

Alternative C:

Mr. Landry noted that in the southerly section, SASOL is talking of using Sulphur Avenue to bring large equipment in and access LA 378 to the west. One idea is to use the old US 90 Alignment, which Mr. Landry pointed out on the aerial exhibit.

Ed Fike of consultant Coastal Environments noted that this alternative does pass through a state park, and there is pretty good indication that it will pass through a good amount of wetlands.

Mr. Jiles and Mr. Harrouch asked as to the elevation of the bridge where it connects to Hollis, and how close it was to the proposed foot of the bridge. Mr. Richards replied that the elevation at this proposed location was checked via Google Earth and topo maps, and is much higher than it is at the current LA 378 bridge; it is on more of a bluff, thus no need for embankment and slope up to the bridge structure. The geometry for the roundabout meets all AASHTO and LADOTD standards.

The District 07 staff asked under the Alternative C scenario, would the current (old) bridge be removed? The assumption the consultant team operated under was that it would not. District staff was unanimous in their idea that under Alternative C, the old bridge would be removed to keep maintenance and bridge opening costs down. All attendees agreed that this would be the new assumption, and Urban Systems agreed to re-run their traffic analysis for Alternative C with the old bridge removed.

The required height of the Alternative C bridge (and a replacement bridge at the current crossing under Alternatives A and B) was then discussed. Records research indicated that there had been 3 openings of the bridge in the last two years, but due to the infrequent opening schedule, no vessel heights were recorded. Mr. Simmons provided the clearance of the next bridge upstream, which is a fixed bridge. All parties felt that with such infrequent openings, a formal bridge opening study was not required, and that a movable span replacement would likely need to remain.

In response to a question from District 7 staff, Mr. Simmons stated that the Alternative C bridge was longer than the other two, about ¾ of a mile long. Also, Alternative C will also require a second bridge across Indian Bayou on the northern end of the project.

The alternatives then being reviewed, discussion then moved to general items:

- Project manager Connie Porter of the LADOTD asked that for the public meeting, each alternative be shown in sections, such as "Alternative A South Section" and "Alternative A North Section". The consultant team agreed that this would be the best way to present the alternatives.
- Mr. Landry noted that at a certain point, a five-lane section becomes inefficient with too much volume.
- Mr. Harrouch asked as to the traffic volumes under the no-build scenario. Ms. Michel looked them up and provided them: at Sulphur: D; at John Stine: D (am) and F (pm); at Sam Houston Jones Pkwy: F.
- Mr. Landry then asked to see Alternative B again. He noted that by shifting the alignment slightly, it may flow better and result in less relocation impacts. He indicated on the aerial layout what he had in mind. Mr. Richards of the project team agreed the adjustment may be beneficial, and agreed to do a conceptual layout and "quick and dirty" analysis of relocation impacts. If the adjustment resulted in fewer relocation impacts, it would be the new Alternative B; and if not, the original Alternative B (minus one of the roundabouts as earlier discussed) would remain.
- At the request of LADOTD, the consultant team agreed to add basic text regarding driveway elimination and access management to text of the traffic study and final document.
- Future plans for the public meeting were discussed, with the public meeting to be held at the Managan Center on LA 378 (Sampson at McKinley), probably in mid-September.

PUBLIC PARTICIPATION

The major effort in terms of public participation was a Public Meeting. In addition to comments received at the public meeting itself, many residents e-mailed, faxed and mailed their comments in the public comment period following the meeting.

PUBLIC MEETING

The LA 378 Stage 0 Feasibility Project held one (1) public meeting on September 18, 2013. The meeting was held at the Managan Center on LA 378 and McKinley Street in Westlake, LA along the route of the proposed project. The public meeting was advertised via local newspaper display advertisements in the *Lake Charles American Press*. Two advertisements were run, the first one week before the meeting (September 11, 2013) and another one day before the meeting (September 17, 2013). E-mail notices were also sent to community leaders and elected/agency officials in the area, and local televisions and radio stations were contacted to run the meeting notice as a public service announcement. Local television station KPLC (Channel 7) featured an advance news story on the meeting on September 12, as well as a post-meeting story on September 18th.

The meetings were extremely well-attended, as two hundred and forty (240) persons signed in for the meeting.

The meeting was held in an "open house" format, with the public free to show up at any time during the meeting session. The hall featured three display stations for engineering drawings (one for each alternative), each manned by consultant staff that was available to answer questions. Each of these stations had a display of the full project alignment at 1"= 300' scale, and there was also a set of the report document's 11" x 17" plan view detail sheets (at 1"= 200' scale) for each alternative exhibit. Typical sections were also available for review. At another station, a transcriptionist was on hand to take any oral comments for the official record from attendees. The final station featured a PowerPoint presentation projected on a continuous loop, and seating was provided so that attendees could sit and watch the presentation at their leisure. The PowerPoint presentation provided an overview of the project. Attendees were free to look at exhibits and ask questions of staff. Twenty-two (22) persons gave verbal comments to the court reporter during the open house public meeting, and fifty-four (54) comment forms were submitted either in person, by fax, by mail, or by e-mail following the public meetings. Several persons also contacted the project team directly afterwards with ideas and requests for additional information.

Informal Comments and Input

Staff members who manned the stations at the public meetings made note of informal comments and questions received from attendees. Comments and questions discussed with project staff included:

- Requests as to whether or not an alternative would be affecting attendees' personal property (real estate or home).

- Questions as to the time frame of the project—when a decision would be made on the alternatives, when construction may begin.

- Opposition to Alternative "C" as it affects Sam Houston Jones Park.

- Dislike the idea of adding medians along either the widened portion in the north or the improved portion in the south under the three alternatives.

- Comments on roundabouts (some attendees disliked them, others liked them)

Formal Comments and Input

Twenty-two (22) persons gave verbal comments to the court reporter during the open house public meeting, and fifty-four (54) comment forms were submitted either in person, by fax, by mail, or by e-mail following the public meetings. Several persons also contacted the project team directly afterwards with ideas and requests for additional information.

The formal comments followed the same trends as the informal comments: fifty-four (54) comments were received opposing Alternative C while three (3) comments were received in favor of that alternative; sixteen (16) comments were in favor of Alternative A while two (2) were in opposition to that alternative, , and ten (10) were in favor of Alternative B. Four (4) responded negatively to the idea of roundabouts and two (2) to the installation of medians.

Hard copies of items such as copies of newspaper advertisements, public meeting sign-in sheets, agenda and handouts from the public meeting, and all written/e-mail comments received from citizens and interested parties are presented in **Appendix C**.

APPENDICES

APPENDIX A

CHECKLISTS

- PRELIMINARY SCOPE AND BUDGET WORKSHEET
- STAGE 0 ENVIRONMENTAL CHECKLIST

STAGE 0
Preliminary Scope and Budget Checklist

A. Project Background

District 07 Parish Calcasieu

Route LA 378 Control Section 810-12

Begin Log Mile 0.00 End Log Mile 5.17

Project Category (Safety, Capacity, etc.): Capacity and Safety

Date Study Completed: December 2013

Describe the existing facility:

Functional classification: Urban Arterial Number and width of lanes: 5 lanes in southern section (between I -10 and John Stine Road), and extreme northern section (Sam Houston Jones Parkway); 2 lanes in northern section (between John Stine Road and Sam Houston Jones Parkway)

Shoulder width and type: None Mode:

Access control: none ADT: 15,000 +/- as per LADOTD Posted Speed: 35 mph between I -10 and John Stine Road; 45 mph between John Stine Road and Sam Houston Jones Parkway; 50 mph along Sam Houston Jones Parkway

Describe any existing pedestrian facilities (ADA compliance should be considered for all improvements that include pedestrian facilities): 6 ft. wide sidewalks are present immediately behind curb on both sides of the roadway along the Sampson Street portion of the project (between Sulphur Avenue and John Stine Road)

Describe the adjacent land use: Beginning in the southern portion of the corridor near I-10, there are mostly industrial land uses. Through the city of Westlake, LA 378 is a busy commercial corridor mostly lined with retail establishments, offices other businesses, as well as schools, churches and other public facilities. Parcels of undeveloped land begin to appear approaching John Stine Road, as well as residential uses interspersed with commercial facilities. At National Drive/Hudson Drive, recreational land uses (National Golf Course of Louisiana and Pinederosa Park) take up the western side of the corridor, while the eastern side up to the river includes a mixture of undeveloped land, mobile home parks, an RV Park, and single-family residences. The Phillips and Davis corridors south of the river feature mostly single family residences with occasional small commercial facilities and public facilities (water tower; fire station). Just north of the river, there are a few commercial sites mixed in with residential uses along and around the existing LA 378 corridor. To the west, the Sam Houston Jones State Park exists surrounded by a small amount of residential homes accessed off of Gahagan Lane.

Who is the sponsor of the study? LADOTD

List study team members: **Agencies**: LADOTD, City of Westlake, IMCAL. **Consultant Team**: N-Y Associates, Inc., Urban Systems Associates, Inc., Coastal Environments, Inc.

Will this project be adding miles to the state highway system (new alignment, new facility)? If yes, has a transfer of ownership been initiated with the appropriate entity? Alternatives A-1, A-2 and B would result in a reduction of miles from the state highway system. It is assumed that under Alternative C, Phillips Road and Davis Road would be transferred from the LADOTD system to a local system. If this transfer is completed, construction of Alternative C as a replacement segment of LA 378 would add approximately 1,000 linear feet of LADOTD road mileage in Calcasieu Parish. Transfer of ownership has not been initiated yet.

Are there recent, current or near future planning studies or projects in the vicinity? Yes. The MPO lists two projects in its Transportation Improvement Plan (TIP), which relate to the possible future improvement of LA 378. They include the widening of John Stine Road west of LA 378 to Myrtle Springs Road, and the addition of a right turn lane from LA 378 (Sampson Street) to LA 379 (Sulphur Avenue). Though not listed in the TIP, the LADOTD is preparing an Environmental Impact Statement (EIS) to assess alternatives, including a no build and a "rehabilitation" option, for I-10 between the I-210 interchanges including the Calcasieu River Bridge.

If yes, please describe the relationship of this project to those studies/projects. The projects are being planned independently of this project. The two TIP projects would have impacts at two intersections along the route (John Stine Road and Sulphur Avenue). The I-10 project involves redesigning the LA 378 (Sampson Street) interchange including review of crossings with existing railroads, and redesigning access to and from I-10 on the west side of the bridge between Sampson Street and PPG Drive and near the east end of the bridge.

Provide a brief chronology of these planning study activities: The two TIP projects are scheduled for the period of 2013-2016, while the I-10 Calcasieu River Bridge EIS is expected to take approximately 3 years to complete

B. Purpose and Need

State the Purpose (reason for proposing the project) and Need (problem or issue)/Corridor Vision and a brief scope of the project. Also, identify any additional goals and objectives for the project.

The purpose of this project is to improve traffic operations along LA 378 between the LA 378 spur in Moss Bluff and I-10 in Westlake. This would primarily be accomplished by converting the two-lane sections in the north to four-lane sections, but would also involve realignment of and physical improvements to the widened section, as well as geometric improvements to the southern section of LA 378 between John Stine Road and I-10.

The need for this project is as follows:

- The route serves as an access route to the petrochemical industry in Westlake. Further growth is expected in the area with the development of the SASOL plant and other future industrial growth, further exacerbating the congestion.
- Traffic volumes along the roadway have increased tremendously over the last few decades, from below 5,000 vehicles per day in 1980 to around 15,000 vehicles currently. The route is highly congested during peak-hour times.
- LA 378 has a Level of Service below the minimum desired for an Urban Arterial roadway as defined in the Louisiana Department of Transportation and Development (LADOTD) design standards.
- Existing driveway spacing is significantly less than the current spacing requirements in the LADOTD Access Connections Policy. Implementing access management practices like reducing driveway density, driveway sharing for adjacent land uses and eliminating driveways in the functional area of intersections could improve traffic operations along the corridor by reducing conflict points and improving mobility for through traffic.
- Additionally, LA 378 is a hurricane evacuation route and an industrial emergency evacuation route for residents of the Westlake area.

It is also important to enhance the overall transportation system by providing roadway network continuity, improving mobility by increasing capacity to meet to meet current and future traffic demands. Improving roadway safety is also a priority.

C. Agency Coordination

Provide a brief synopsis of coordination with federal, tribal, state and local environmental, regulatory and resource agencies.

A project initiation meeting was held on August 20, 2012 at the offices of the Calcasieu Police Jury. In addition to members of the project consultant team and LADOTD staff, invitees/attendees included elected officials and department staff of the Calcasieu Parish Police Jury; elected officials and department staff from the City of Westlake; as well as representatives from the Imperial Calcasieu Metropolitan Planning Organization (IMCAL) and the Federal Highway Administration. A Progress Review Meeting was held on August 14, 2013 at the LADOTD headquarters in Baton Rouge. Invitees/attendees included LADOTD and consultant staff, and technical representatives of IMCAL and the Calcasieu Parish Police Jury.

What transportation agencies were included in the agency coordination effort? LADOTD, FHWA, IMCAL, and Calcasieu Parish

Describe the level of participation of other agencies and how the coordination effort was implemented.
Elected officials and department staff from The City of Westlake were invited to the Project Initiation meeting as well as the Public Meeting held on September 18, 2013

C. Agency Coordination (Continued)

What steps will need to be taken with each agency during NEPA scoping?
Unknown at this time.

D. Public Coordination

Provide a synopsis of the coordination effort with the public and stakeholders; include specific timelines, meeting details, agendas, sign-in sheets, etc. (if applicable).
The LA 378 Stage 0 Feasibility Project held one (1) public meeting on September 18, 2013. The meeting was held at the Managan Center on LA 378 and McKinley Street in Westlake, LA along the route of the proposed project. The public meeting was advertised via local newspaper display advertisements in the Lake Charles American Press. Two advertisements were run, the first one week before the meeting (September 11, 2013) and another one day before the meeting (September 17, 2013). E-mail notices were also sent to community leaders and elected/agency officials in the area, and local televisions and radio stations were contacted to run the meeting notice as a public service announcement. Local television station KPLC (Channel 7) featured an advance news story on the meeting on September 12, as well as a post-meeting story on September 18th. The meeting was extremely well-attended, as two hundred and forty (240) persons signed in for the meeting. More details can be found in the Stage 0 Feasibility Study Report (Chapter IV and Appendix).

E. Range of Alternatives – Evaluation and Screening

Give a description of the project concept for each alternative studied.

What are the major design features of the proposed facility (attach aerial photo with concept layout, if applicable).
Four alternatives are studied in this report for improvement of LA 378 from I-10 to the LA 378 spur. Alternative A-1 is a minimal impact corridor project with the least variation from existing conditions in the southern section which does not require widening, and widening the current northern alignment while eliminating 90 degree turns. Alternative A-2 is essentially the same as Alternative A-1, but with a roundabout in place of a curve at the intersection of Davis Rd. and Philips Rd. Alternative B includes a raised median throughout the study limits and incorporates roundabouts at the subject intersections that met Warrant 1A and at intersections in between to allow U-turns at or about ½ mile spacing, as well as a widened section in the north with a roadway realignment between Landry Road and Davis Road. Alternative C is a superstreet concept with a combination of unsignalized and signalized J-turn intersections in the southern section, and a widening in the north with a new alignment north of Phillips Road that passes north through Sam Houston Jones State Park and then east over Indian Bayou. More details including aerial photos with conceptual layouts can be found in the Stage 0 Feasibility Study Report

Will design exceptions be required? None of the alternatives are expected to require design exceptions

What impact would this project have on freight movements? Classification data from the study indicated that the route is not heavily used as a freight movement route, with truck percentages of traffic ranging from 0.25% to 6%. In general, the percentages were higher in the area between Sulphur Avenue and the southern project limits including the I-10 ramps. As such, the planned improvements should have little if any impacts on freight movements

Does this project cross or is it near a railroad crossing? There are three (3) rail crossings of LA 378/Sampson Street at its southern end near I-10

DOTD's "Complete Streets" policy should be taken into consideration. Per the policy, any exception for not accommodating bicyclists, pedestrians and transit users will require the approval of the DOTD chief engineer. For exceptions on Federal-aid highway projects, concurrence from FHWA must also be obtained. In addition any exception in an urbanized area, concurrence from the MPO must also be obtained.

- Describe how the project will implement the policy or include a brief explanation of why implementing the policy would not be feasible. Sampson Street is a rather urbanized thoroughfare and currently has 6 ft. sidewalks for pedestrian use on either side. North of Sampson Street, the remainder of LA 378 in the project study area (Westwood Road, Philips Road, Davis Road, and Sam Houston Jones Parkway) features

no sidewalks. Nowhere along the route is there a dedicated bike lane nor a paved shoulder that can accommodate bicyclists. The project proposes construction of a 10 ft. wide shared use path for bicyclists and pedestrians along one side of the roadway north of John Stine Road. The shared use path is located 6 feet from the back of curve for safety purposes as this portion of the project features a 45 mph design speed (compared to the 35 mph posted speed along Sampson Road portion). In conjunction with the existing sidewalks and lower speed limits along Sampson, the shared use path should provide an adequate route along LA 378 for both pedestrians (sidewalks along Sampson and path north of Sampson) and bicyclists (right travel lane along Sampson Street, with shared lane markings added, and path north of Sampson Street).

The current bridge across the West Fork of the Calcasieu River has very little striped shoulder (+/- 2 ft.) and would not be able to handle pedestrian or bicyclist movements. The planned parallel span and its approaches have 8 ft. outside shoulders, which may be sufficient to accommodate bicyclists. The possibility of adding a dedicated bicycle/pedestrian lane to the new parallel span was explored. Such a lane would need to be physically separated from the travel lanes by a barrier, and would be about 10-12 ft. in width (not counting the barrier). The Complete Streets policy notes that it is generally inappropriate to provide bicycle and pedestrian facilities where it would be excessively disproportionate to the need or probable use, with excessively disproportionate being defined as exceeding twenty percent (20%) of the cost of the project. If such a lane were to be built as part of the new parallel span two-lane bridge and approaches, it would increase the bridge portion of the project by +/- 38%, nearly double the 20% threshold.

How are Context Sensitive Solutions being incorporated into the project? Early coordination with the local jurisdictions (City of Westlake and Calcasieu Parish) and input received from a well-attended public meeting helped to gain community input on fitting the projects into the surroundings. Key items included the provision for bicycle/pedestrian facilities and the importance of maintaining Pinderosa Park.

Was the DOTD's "Access Management" policy taken into consideration? If so, describe how. The LADOTD Access Management policies were utilized as guidelines during alternative development. The following Engineering Directives and Standards Manual (EDSM's) were followed: (1) EDSM VI.3.1.6 Installation of New Traffic Signals (2) EDSM IV.2.1.4 Multi-Lane Roadways and Median Openings (3) EDSM VI.1.1.5 Roundabout Safety and Approval

Were any safety analyses performed? If so describe results. Crash reports for both intersections and roadway segments within the study area were provided by LADOTD for 2009, 2010 and 2011. The crash reports were reviewed to identify correctible crash patterns for use in developing alternatives.

The following were identified during the review of intersection crash data: (1) I-10 Service Road: Left turn collisions involving left turning motorists from the I-10 Service Road eastbound onto LA 378 occurred during the permitted left turn phase. (2) I-10 Westbound Ramps: Left turn crashes involving left turning motorist from the LA 378 northbound onto the I-10 westbound ramps occurred during the permitted left turn phase. (3) Sulphur Avenue: Rear end collisions occurred within the channelized eastbound right turn lane on the Sulphur Avenue Motorists looking north for a gap in traffic could not see that the vehicle ahead of them stopped suddenly. (4) John Stine Road: Right angle crashes occurred from motorist running the red indication and left turn crashes occurred on LA 378 northbound during the permitted left turn phase. (5) Sam Houston Jones Parkway: Right angle collisions involving left turning motorists into and out of Sam Houston Jones Parkway occurred from motorist attempting a left turn in an inadequate gap in the high speed LA 378 traffic. The Sam Houston Jones Parkway approach is located in the middle of a horizontal curve on LA 378.

The following were identified during the review of roadway segment crash data: (1) LA 378 north of Sulphur Avenue: Collisions occurred involving left turning vehicles using the center two-way left turn lane for access to and from the Burger King and Shell Gas Station just north of the Sulphur Avenue intersection. (2) LA 378 at Mulberry Street: Collisions occurred due to the awkward skew angles and separation of the eastbound and westbound approaches of Mulberry Street. (3) LA 378 between Mulberry Street and Shady Lane: Collisions

occurred on LA 378 in this section involving motorists using the center two-way left turn lane to access the various land uses.

Are there any abnormal crash locations or overrepresented crashes within the project limits? no

E. Range of Alternatives – Evaluation and Screening (Continued)

What future traffic analyses are anticipated? none

Will fiber optics be required? If so, are there existing lines to tie into? no

Are there any future ITS/traffic considerations? no

What is the required Transportation Management Plan (TMP) level as defined by EDSM No. VI.1.1.8? Level 2
Please attach documentation required for Stage 0 for this level TMP. See attached Stage 0 Feasibility Study

Was Construction Transportation Management/Property Access taken into consideration? no

Were alternative construction methods considered to mitigate work zone impacts? no

Describe screening criteria used to compare alternatives and from what agency the criteria were defined.
No Screening was done in this Stage 0 Feasibility Study

Give an explanation for any alternative that was eliminated based on the screening criteria.
No Alternatives were eliminated

Which alternatives should be brought forward into NEPA and why?

Did the public, stakeholders and agencies have an opportunity to comment during the alternative screening process? Although there was no alternative screening process, the public, stakeholders and agencies had an opportunity to comment during and following a Public Meeting held in September 2013

Describe any unresolved issues with the public, stakeholders and/or agencies.
none

F. Planning Assumptions and Analytical Methods

What is the forecast year used in the study? 2028

What method was used for forecasting traffic volumes? Traffic volume projections for the design year 2028 were developed based on existing traffic volumes and IMCAL regional transportation model data and engineering judgment. The model data provided by IMCAL included 2014 and 2034 daily traffic projections on the corridor both with and without the alternative alignments (see stand alone report *LA 378 Stage "0" feasibility Traffic Study* for further details)

Are the planning assumptions and the corridor vision/purpose and need statement consistent with the long range transportation plan? Yes

What future year policy and/or data assumptions were used in the transportation planning process as they are related to land use, economic development, transportation costs and network expansion? In addition to the projected growth rate applied to existing count data, the future SASOL plant in the area was considered for the 2028 design year. According to the IMCAL consultant, the transportation model included an additional 250 employees in the TAZ during the design period. Data provided by Calcasieu Parish indicated that SASOL would generate approximately 1,290 additional jobs by 2018. Additional trips were added to the network volumes to account for the additional 1,000 employees estimated for SASOL taking into consideration multiple shifts, shift changes that occur outside of the peak hour and administrative staff that would work a typical nine to five schedule.

G. Potential Environmental Impacts

See the attached Stage 0 Environmental Checklist

H. Cost Estimate

Provide a cost estimate for each feasible alternative:

	Alternative A-1: (bridge rehab)	Alternative A-2: (bridge rehab)	Alternative B: (bridge rehab)	Alternative C:
• Engineering Design:	$3,221,720	$3,236,587	$3,256,976	$3,749,250
• Additional Traffic Analyses:	0	0	0	0
• Environmental Processing/:Mitigation	$1,228,000	$1,230,000	$1,230,000	$1,946,500
• R/W Acquisition (and relocations): (C of A if applicable)	$8,168,600	$8,472,820	$11,348,036	$9,532,270
• Utility Relocations:	$2,241,500	$2,241,500	$2,231,500	$1,944,500
• Construction. (including construction traffic management, mobilization and contingencies)	$53,769,674	$54,0931,611	$55,161,833	$63,373,631
TOTAL PROJECT COST	**$68,629,494**	**$69,274,518**	**$73,228,345**	**$80,546,151**

	Alternative A-1: (bridge replace)	Alternative A-2: (bridge replace)	Alternative B: (bridge replace)	
• Engineering Design:	$3,387,400	$3,402,267	$3,422,656	
• Additional Traffic Analyses:	0	0	0	
• Environmental Processing/:Mitigation	$1,303,000	$1,305,000	$1,305,000	
• R/W Acquisition (and relocations): (C of A if applicable)	$8,168,800	$8,472,820	$11,348,036	
• Utility Relocations:	$2,241,500	$2,241,500	$2,231,500	
• Construction. (including construction traffic management, mobilization and contingencies)	$56,547,831	$56,871,968	$57,9403,191	
TOTAL PROJECT COST	**$71,648,531**	**$72,293,555**	**$76,247,383**	

I. Expected Funding Source(s) (Highway Priority Program, CMAQ, Urban Systems, Fed/State earmarks, etc.) **Not identified at present. Possible funding sources include state bonds, state capital outlays or federal highway monies**

ATTACH ANY ADDITIONAL DOCUMENTATION

Disposition (circle one): (1) Advance to Stage 1 (2) Hold for Reconsideration (3) Shelve

STAGE 0
Environmental Checklist

Route LA 378 Lane Connection between Westlake and Moss Bluff: **Alternative A**: (Existing Alignment with New Parallel Bridge and No Right Angle Turns) Parish: Calcasieu

C.S. 810-12 Begin Log mile 0.00 End Log mile 5.17

ADJACENT LAND USE: Commercial and Residential Properties

Any property owned by a Native American Tribe?
(Y or N or Unknown) If so, which Tribe?

Any property enrolled into the Wetland Reserve Program?
(Y or N or Unknown) If so, give the location Attempted to contact the Easement Program Specialist, Dustin Farmer, but was unable to reach him. Since the only wetlands in the proposed project footprint are adjacent to an existing bridge, it is unlikely that area is enrolled in the WRP program.

Are there any other known wetlands in the area?
(Y or N) If so, give the location Yes, Alternate A-1 and Alternate A-2 both have 4.56 acres and 4.60 acres, respectively of potential wetlands adjacent to the Calcasieu River
SEE FIGURES III-4 and III-5 FOR LOCATIONS OF POTENTIAL WETLANDS

Community Elements: Is the project impacting or adjacent to any (if the answer is yes, list names and locations):
(Y or **N**) Cemeteries

(**Y** or N) Churches Good Hope Baptist Church (Field Street, Westlake); First Pentecostal Church (1208 Sampson St., Westlake), St. John Basco Catholic Church, Sampson St., Westlake; Chruch of the Nazaren, corner of Sampson and Live Oak Street, Westlake; Westwood Baptist Church, 2317 Westwood Road, Westlake; ;

(**Y** or N) Schools Westwood Elementary School, 1900 Sampson Street, Westlake

(**Y** or N) Public Facilities (i.e., fire station, library, etc.) Volunteer Fire Station, Davis Road

(**Y** or N) Community water well/supply Yes
SEE FIGURE III- 1 FOR WATER WELL LOCATIONS

Water Wells A-1 ROW (Public & Domestic):

019-829	**CU WW DIST 4**	**T9S/R9W Sec 23**	**plugged and abandoned public supply**
019-1003	**CU WW DIST 4**	**T9S/R9W Sec 23**	**rural public supply**
019-209	**Tucker, J. P.**	**T9S/R9W Sec 14**	**abandoned domestic**
019-13223Z	**Gobert, N.**	**T9S/R9W Sec 12**	**plugged and abandoned domestic**

Water Wells A-2 ROW (Public & Domestic):

019-389	**Carr, B. K.**	**T9S/R9W Sec 13**	**domestic**
019-829	**CU WW DIST 4**	**T9S/R9W Sec 23**	**plugged and abandoned public supply**
019-1003	**CU WW DIST 4**	**T9S/R9W Sec 23**	**rural public supply**
019-209	**Tucker, J. P.**	**T9S/R9W Sec 14**	**abandoned domestic**
019-386	**Pinion, O.**	**T9S/R9W Sec 23**	**domestic**
019-13223Z	**Gobert, N.**	**T9S/R9W Sec 12**	**plugged and abandoned domestic**

Section 4(f) issue: Is the project impacting or adjacent to any (if the answer is yes, list names and locations):
(**Y** or N) Public recreation areas Managan (Recreation) Center; Sampson Street @McKinley St., Westlake

(**Y** or N) Public parks Pinederosa Park, Westwood Road, Westlake

(Y or N) Wildlife Refuges

(**Y** or N) Historic Sites YES LA 378 Bridge over West Fork Calcasieu River (Eligible for NRHP)

Is the project impacting, or adjacent to, a property listed on the National Register of Historic Places? (Y or N) **Is the project within a historic district or a national landmark district?** (Y or **N**) If the answer is yes to either question, list names and locations below:
YES LA 378 Bridge over West Fork Calcasieu River (Eligible for NRHP)

Do <u>you know</u> of any threatened or endangered species in the area? (Y or **<u>N</u>**) If so, list species and location.

Does the project impact or adjacent to a stream protected by the Louisiana Scenic Rivers Act? (Y or **<u>N</u>**) If yes, name the stream. <u>No</u>

Are there any Significant Trees as defined by EDSM I.1.1.21 within proposed ROW? (Y or **<u>N</u>**) If so, where? <u>No</u>

What year was the existing bridge built? <u>1968</u>

Are any waterways impacted by the project considered navigable? (**<u>Y</u>** or N) If unknown, state so, list the waterways: <u>West Fork of the Calcasieu River</u>

Hazardous Material: Have you checked the following DEQ and EPA databases for potential problems? (If the answer is yes, list names and locations.)

(**<u>Y</u>** or N) Leaking Underground Storage Tanks <u>YES</u>

(**<u>Y</u>** or N) CERCLIS <u>YES</u>

(**<u>Y</u>** or N) ERNS <u>YES None reported from 01/01/87 to 12/12/89</u>

(**<u>Y</u>** or N) Enforcement and Compliance History <u>YES</u>

<u>SEE FIGURE III-1 FOR NUMBERED SITE LOCATIONS</u>

No CERCLIS sites are located within or adjacent to any of the three alternative alignments Alternative A (A-1 [north and south] and A-2) (**Figure III-1**).

Ten facility listings, excluding those solely with wastewater-effluent and/or air-emissions related activities, were identified as RCRA facilities in the EPA ECHO List as follows:

- Conoco Phillips Lake Charles Refinery, 2200 Old Spanish Trail, Westlake, LA 70669, EPA ID No. LAD990683716. **Site No. 1.**
- Eastman Chiropractic Clinic, 902 Sampson St, Westlake, LA 70669, EPA ID No. LAR000007716. **Site No. 6.**
- Laws Paint & Body, 909 Sampson St, Westlake, LA 70669, EPA ID No. LAD985215078. **Site No. 7.**
- BMC Sales & Rentals, 929 Sampson St, Westlake, LA 70669, EPA ID No. LAD985219559. **Site No. 8.**
- OHM (One Hour Martinizing) Westlake, LA 70669, EPA ID No. LAD981051709. **Site No. 11.**
- Lee's Diagnostic, 1507-1/2 Sampson St, Westlake, LA 70669, EPA ID No. LAD985224872. **Site No. 13.**
- Westlake Medical Clinic of WCCH, 2345 Sampson St, Westlake, LA 70669, EPA ID No. LAR000003970. **Site No. 17.**
- Westlake Trans, 3420 Davis Rd, Westlake, LA 70669, EPA ID No. LA0000450049. **Site No. 19.**
- Ewing Paint & Body, 2277 Sam Houston Jones Pkwy, Lake Charles, LA 70611, EPA ID No. LAD982284242. **Site No. 20.**

- V M Environmental Services, 917 Sampson St, Westlake LA 70669. EPA ID No. LAD985221985. Map location is approximate. **Site No. 22.**

Review of the ECHO compliance report indicated that all of the aforementioned facilities are in compliance with Site 1 having only a citation of past enforcement action within the last five years.

Sixteen facilities were identified in the EPA RCRA Lists as follows:

- Phillips 66 Company, Conoco Phillips Lake Charles Refinery, 2200 Old Spanish Trail, Westlake, LA 70669, Large Quantity Generator of hazardous wastes and used oil handler, EPA ID No. LAD990683716. Active facility. **Site No. 1.**

- Dimmick Supply Co., Inc., 812 Samson St, Westlake, LA 70669, EPA ID No. LAD985226018. Site currently occupied by Bumper to Bumper Auto Parts. **Site No. 5.**

- Eastman Chiropractic Clinic, 902 Sampson St, Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes, EPA ID No. LAR000007716. Active facility. **Site No. 6.**

- Laws Paint & Body, 909 Sampson St, Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes, EPA ID No. LAD985215078. Site currently cleared with concrete slab. **Site No. 7.**

- BMC Sales & Rentals, 929 Sampson St, Westlake, LA 70669, Small Quantity Generator of hazardous wastes, EPA ID No. LAD985219559. Active facility. **Site No. 8.**

- Alpha Tool & Supply Inc., 1121 Sampson St, Westlake, LA 70669, EPA ID No. LAD985228337. Site currently occupied by Discount Mirror & Glass. **Site No. 10.**

- OHM (One Hour Martinizing) Westlake (821 McKinley St), Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes EPA ID No. LAD981051709. Site currently occupied by Quality Cleaners. **Site No. 11.**

- Lee's Diagnostic, 1507-1/2 Sampson St, Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes EPA ID No. LAD985224872. Inactive and formerly located in rear of Westlake Auto Sales, LLC. **Site No. 13.**

- Western Auto Store 67140, 1509 Sampson St, Westlake, LA 70669, EPA ID No. LAD981600059. Site is currently occupied by an active Dollar General Store. **Site No. 14.**

- Westlake Center for Health & Occupational Medicine, 2103 Sampson St, Westlake, LA, EPA ID No. LAD981591381. Site is currently occupied by Gulf Coast Analytical Laboratories, Inc. **Site No. 16.**

- Westlake Medical Clinic of WCCH, 2345 Sampson St, Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes, EPA ID No. LAR000003970. Site is currently occupied by The Family Care Center of SWLA and Jody D. George, MD Family Medicine. **Site No. 17.**

- Sam's Automotive and Tire, 2510 Westwood Drive, Westlake, LA 70669. EPA ID No. LAR000025643, Inactive facility. **Site No. 18.**

- Westlake Trans, 3420 Davis Rd, Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes, EPA No. LA0000450049. Active facility. **Site No. 19.**

- Ewing Paint & Body, 2277 Sam Houston Jones Pkwy, Lake Charles, LA 70611, EPA ID No. LAD982284242. Site currently occupied by Steam & Process Repairs. **Site No. 20.**

- V M Environmental Services, 917 Sampson St, Westlake LA 70669. Transporter of hazardous wastes, EPA ID No. LAD985221985. Inactive facility. Location on map is approximate. **Site No. 22.**

- Westlake Hobby Shop, 1112.5 Sampson St, Westlake, LA, EPA ID No. LAD982290868, Former site was remediated for soil contamination and associated building was demolished (LDEQ AI No. 9875). Location on map is approximate. **Site No. 24.**

Review of the National Response Center database, which maintains ERNS data from 1990 coming forward, indicates there were 1,551 reported incidents between January 1, 1990 and September 24, 2013 in Westlake, LA. With possible exception to a relatively high number of incidents that occurred at the Conoco Phillips Lake Charles Refinery (**Site No. 1**), there were no incidents that occurred within or adjacent to any of the three alternative alignments. Review of the ERNS database for 1987 through 1989 for Westlake, LA indicates there were 83 reported incidents with two occurring at the Conoco Phillips Lake Charles Refinery (**Site No. 1**). Because of the size and relative proximity of Site 1 to Sampson St, the existence of earthen levees, designed to contain oil spills within the grounds of Site No. 1 and the general lack of detailed information contained in the incident reports, no further efforts were made regarding documenting releases at this site.

Underground Storage Tanks (UST): Are there any Gasoline Stations or other facilities that may have UST on or adjacent to the project? (**Y** or N) YES
If so, give the name and location: **SEE FIGURE III-1 FOR NUMBERED SITE LOCATIONS**

Two facilities were identified on the leaking Underground Storage Tank (LUST) List as follows:

- In & Out Mini Mart #5, 706 Sampson St, Westlake, LA 70669, LDEQ AI No. 69775, All UST removed (4). Facility demolished and onsite remediation almost completed (Gubancsik, per. comm. 2013). Site partially occupied by U-Haul (trailer business). **Site No. 2.**

- Super Saver #6, 1631 Sampson St, Westlake, LA 70669 , LDEQ AI No. 70786, UST active (1), closed (2) and temporarily out of service (1). **Site No. 15.**

Six facilities were identified on the LDEQ UST List as follows:

- In & Out Mini Mart #5, 706 Sampson St, Westlake, LA 70669, LDEQ AI No. 69775, All UST removed (4). **Site No. 2.**

- Westlake Shell, 800 Sampson St, Westlake, LA 70669, LDEQ AI No. 78735, All UST active (3). **Site No. 3.**

- Wizard Fast Stop #10, 1007 Sampson St, Westlake, LA 70669, LDEQ AI No. 67364, Inactive facility, All UST closed (3). **Site No. 9.**

- Pumpelly #1, 1200 Sampson St, Westlake, LA 70669, LDEQ AI No. 72041, UST active (3) and removed (1). **Site No. 12.**

- Super Saver #6, 1631 Sampson St, Westlake, LA 70669 , LDEQ AI No. 70786, UST active (1), closed (2) and temporarily out of service (1). **Site No. 15.**

- Circle K #8333, 2010 Sampson St, Westlake, LA 70669, LDEQ AI No. 75289, Inactive facility, All UST removed (2). **Site No. 21.**

One unregistered UST facility was identified as follows:

- Evangeline (Oil) Service Station, 1012 Sampson St, Westlake, LA 70669. Identified during personal interviews as being located adjacent to, and north of, former location of Bradley's Department Store on east side of Sampson St (south of its intersection with Grant St). Review of Lake Charles Street Directories indicates the facility was active between 1970 and 1982, possibly longer. Fate of UST unknown. Location on map is approximate. **Site No. 25.**

Any chemical plants, refineries or landfills adjacent to the project? (**Y** or N) If yes to any, give names and locations: YES **SEE FIGURE III-1 FOR NUMBERED SITE LOCATIONS**

- Phillips 66 Company, Conoco Phillips Lake Charles Refinery, 2200 Old Spanish Trail, Westlake, LA 70669, Large Quantity Generator of hazardous wastes and used oil handler, EPA ID No. LAD990683716. **Site No. 1.**

Any large manufacturing facilities adjacent to the project? (Y or **N**) If yes to any, give names and locations: NO

Dry Cleaners? (**Y** or N) If yes to any, give names and locations: YES
SEE FIGURE III 1 FOR NUMBERED SITE LOCATIONS

- OHM (One Hour Martinizing) Westlake (Site currently occupied by Quality Cleaners, 821 McKinley St), Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes EPA ID No. LAD981051709. **Site No. 11.**

- Rusty's Cleaners, 919 Sampson St, Westlake, LA 70669. While verifying existence of Evangeline Service Station (Site No. 24) in street directories, the listing of this facility was noted in the 1980 and 1982 directories. Location on map is approximate. **Site No. 23.**

Oil/Gas wells: Have you checked DNR database for registered oil and gas wells? (**Y** or N) List the type and location of wells being impacted by the project. No oil and/or gas wells are located in or adjacent to Alignments A-1 (north and south) or A-2 that would be impacted by the project.

Are there any possible residential or commercial relocations/displacements? (**Y** or N)
How many? 10 commercial; 47-49 residential (estimated)

Do you know of any sensitive community or cultural issues related to the project? (Y or **N**)
If so, explain

Is the project area population minority or low income? (Y or **N**)

What type of detour/closures could be used on the job? Unknown at present

Did you notice anything of environmental concern during your site/windshield survey of the area? If so, explain below.

STAGE 0
Environmental Checklist

Sara Hahn, Ed Fike, Walker Wilson
Point of Contact

225.383.7544
Phone Number

October 2, 2013
Date

STAGE 0
Environmental Checklist

General Explanation:

To adequately consider projects in Stage 0, some consideration must be given to the human and natural environment which will be impacted by the project. The Environmental Checklist was designed knowing that some environmental issues may surface later in the process. This checklist was designed to obtain basic information, which is readily accessible by reviewing public databases and by visiting the site. It is recognized that some information may be more accessible than other information. Some items on the checklist may be more important than others depending on the type of project. It is recommended that the individual completing the checklist do their best to answer the questions accurately. Feel free to comment or write any explanatory comments at the end of the checklist.

The Databases:

To assist in gathering public information, the previous sheet includes web addresses for some of the databases that need to be consulted to complete the checklist. As of February 2011, these addresses were accurate.

Note that you will not have access to the location of any threatened or endangered (T&E) species. The web address lists only the threatened or endangered species in Louisiana by Parish. It will generally describe their habitat and other information. If you know of any species in the project area, please state so, but you will not be able to confirm it yourself. If you feel this may be an issue, please contact the Environmental Section. We have biologist on staff who can confirm the presence of a species.

Why is this information important?

Land Use? Indicator of biological issues such as T&E species or wetlands.

Tribal Land Ownership? Tells us whether coordination with tribal nations will be required.

WRP properties? Farmland that is converted back into wetlands. The Federal government has a permanent easement which cannot be expropriated by the State. Program is operated through the Natural Resources Conservation Service (formerly the Soil Conservation Service).

Community Elements? DOTD would like to limit adverse impacts to communities. Also, public facilities may be costly to relocate.

Section 4(f) issues? USDOT agencies are required by law to avoid certain properties, unless a prudent or feasible alternative is not available.

Historic Properties? Tells us if we have a Section 106 issue on the project. (Section 106 of the National Historic Preservation Act) See http://www.achp.gov/work106.html for more details.

Scenic Streams? Scenic streams require a permit and may require restricted construction activities.

Significant Trees? Need coordination and can be important to community.

Age of Bridge? Section 106 may apply. Bridges over 50 years old are evaluated to determine if they are eligible for the National Register of Historic Places.

Navigability? If navigable, will require an assessment of present and future navigation needs and US Coast Guard permit.

Hazardous Material? Don't want to purchase property if contaminated. Also, a safety issue for construction workers if right-of-way is contaminated.

Oil and Gas Wells? Expensive if project hits a well.

Relocations? Important to community. Real Estate costs can be substantial depending on location of project. Can result in organized opposition to a project.

Sensitive Issues? Identification of sensitive issues early greatly assists project team in designing public involvement plan.

Minority/Low Income Populations? Executive Order requires Federal Agencies to identify and address disproportionately high and adverse human health and environmental effects on minority or low income populations. (Often referred to as Environmental Justice)

Detours? The detour route may have as many or more impacts. Should be looked at with project. May be unacceptable to the public.

Louisiana Governor's Office of Indian Affairs:
http://www.indianaffairs.com/tribes.htm

Louisiana Wetlands Reserve Program:
http://www.nrcs.usda.gov/programs/wrp/states/la.html

Community Water Well/Supply
http://sonris.com/default.htm

Louisiana Department of Wildlife and Fisheries – Wildlife Refuges
http://www.wlf.louisiana.gov/refuges
http://www.fws.gov/refuges/profiles/ByState.cfm?state=LA
http://www.fws.gov/refuges/refugelocatormaps/Louisiana.html

U.S. Fish & Wildlife Service – National Wetlands Inventory:
http://www.fws.gov/wetlands/

Louisiana State Historic Sites:
http://www.crt.state.la.us/parks/ihistoricsiteslisting.aspx

National Register of Historic Places (Louisiana):
http://nrhp.focus.nps.gov/natreghome.do?searchtype=natreghome
http://www.nationalregisterofhistoricplaces.com/la/state.html

National Historic Landmarks Program:
http://www.nps.gov/history/nhl/

Threatened and Endangered Species Databases:
http://www.wlf.louisiana.gov/wildlife/louisiana-natural-heritage-program

Louisiana Scenic Rivers:
http://www.wlf.louisiana.gov/wildlife/scenic-rivers
http://media.wlf.state.la.us/experience/scenicrivers/louisiananaturalandscenicriversdescriptions/
(BAD LINK)
http://www.legis.state.la.us/lss/lss.asp?doc=104995

Significant Tree Policy (EDSM I.1.1.21)
http://notes1/ppmemos.nsf
(Live Oak, Red Oak, White Oak, Magnolia or Cypress, aesthetically important, 18" or greater in diameter at breast height and has form that separates it from surrounding or that which may be considered historic.)

CERCLIS (Superfund Sites):
http://www.epa.gov/superfund/sites/cursites/
http://www.epa.gov/enviro/html/cerclis/cerclis_query.html

ERNS - Emergency Response Notification System - Database of oil and hazardous substances spill reports: http://www.epa.gov/region4/r4data/erns/index.htm

Enforcement & Compliance History (ECHO)
http://www.epa-echo.gov/echo/

DEQ – Underground Storage Tank Program Information:
http://www.deq.louisiana.gov/portal/tabid/2674/Default.aspx
Leaking Underground Storage Tanks:

http://www.deq.state.la.us/portal/tabid/79/Default.aspx

SONRIS – Oil and Gas Well Information & Water Well Information
http://sonris.com/default.htm

Environmental Justice (minority & low income)
http://www.fhwa.dot.gov/environment/ej2000.htm

Demographics
http://www.census.gov/

FHWA's Environmental Website
http://www.fhwa.dot.gov/environment/index.htm

Additional Databases Checked
Threatened and Endangered Species Databases:
http://www.fws.gov/endangered/map/state/LA.html

Soil Surveys
http://websoilsurvey.NRCS.usda.gov

Other Comments:

STAGE 0
Environmental Checklist

Route LA 378 Lane Connection between Westlake and Moss Bluff: **Alternative B**: (New Highway Alignment S. of West Fork of Calcasieu River w/ new parallel bridge) Parish: Calcasieu

C.S. 810-12 Begin Log mile 0.00 End Log mile 5.17

ADJACENT LAND USE: Commercial and Residential Properties

Any property owned by a Native American Tribe?
(Y or N or Unknown) If so, which Tribe?

Any property enrolled into the Wetland Reserve Program?
(Y or N or **Unknown**) If so, give the location Attempted to contact the Easement Program Specialist, Dustin Farmer, but was unable to reach him. Since the only wetlands in the proposed project footprint are adjacent to an existing bridge, it is unlikely that area is enrolled in the WRP program.

Are there any other known wetlands in the area?
(Y or N) If so, give the location Yes, 4.60 acres adjacent to the Calcasieu River
SEE FIGURE III-6 FOR LOCATION OF WETLANDS

Community Elements: Is the project impacting or adjacent to any (if the answer is yes, list names and locations):
(Y or **N**) Cemeteries

(**Y** or N) Churches Good Hope Baptist Church (Field Street, Westlake); First Pentecostal Church (1208 Sampson St., Westlake), St. John Basco Catholic Church, Sampson St., Westlake; Chruch of the Nazaren, corner of Sampson and Live Oak Street, Westlake; Westwood Baptist Church, 2317 Westwood Road, Westlake; ;

(**Y** or N) Schools Westwood Elementary School, 1900 Sampson Street, Westlake

(**Y** or N) Public Facilities (i.e., fire station, library, etc.) Volunteer Fire Station, Davis Road

(**Y** or N) Community water well/supply
SEE FIGURE III-2 FOR WATER WELL LOCATIONS
Water Wells Alternative B ROW (Public & Domestic):

019-389	**Carr, B. K.**	**T9S/R9W Sec 13**	**domestic**
019-829	**CU WW DIST 4**	**T9S/R9W Sec 23**	**plugged and abandoned public supply**
019-1003	**CU WW DIST 4**	**T9S/R9W Sec 23**	**public rural supply**
019-386	**Pinion, O.**	**T9S/R9W Sec 23**	**domestic**
019-13223Z	**Gobert, N.**	**T9S/R9W Sec 12**	**plugged and abandoned domestic**

Section 4(f) issue: Is the project impacting or adjacent to any (if the answer is yes, list names and locations):
(**Y** or N) Public recreation areas Managan (Recreation) Center; Sampson Street @McKinley St., Westlake
(Y or **N**) Public parks
(Y or **N**) Wildlife Refuges
(**Y** or N) Historic Sites LA 378 Bridge over West Fork of Calcasieu River (Eligible for NRHP)

Is the project impacting, or adjacent to, a property listed on the National Register of Historic Places? (**Y** or N) **Is the project within a historic district or a national landmark district?** (Y or **N**) If the answer is yes to either question, list names and locations below:
YES LA 378 Bridge over West Fork of Calcasieu River (Eligible for NRHP)

Do you know of any threatened or endangered species in the area? (Y or **N**)
If so, list species and location. No

Does the project impact or adjacent to a stream protected by the Louisiana Scenic Rivers Act? (Y or **N**) If yes, name the stream. No

Are there any Significant Trees as defined by EDSM I.1.1.21 within proposed ROW? (Y or **N**) If so, where? No

What year was the existing bridge built? 1968

Are any waterways impacted by the project considered navigable? (**Y** or N) If unknown, state so, list the waterways: West Fork of the Calcasieu River

Hazardous Material: Have you checked the following DEQ and EPA databases for potential problems? (If the answer is yes, list names and locations.)

(**Y** or N) Leaking Underground Storage Tanks YES

(**Y** or N) CERCLIS YES

(**Y** or N) ERNS YES None reported from 01/01/87 to 12/12/89

(**Y** or N) Enforcement and Compliance History YES

SEE FIGURE III-2 FOR LOCATION OF NUMBERED SITES

No CERCLIS sites are located within or adjacent to any of the three alternative alignments.

Ten facility listings, excluding those solely with wastewater-effluent and/or air-emissions related activities, were identified as RCRA facilities in the EPA ECHO List as follows:

- Conoco Phillips Lake Charles Refinery, 2200 Old Spanish Trail, Westlake, LA 70669, EPA ID No. LAD990683716. **Site No. 1.**
- Southern Equipment Sales & Service, 732 Sulphur Ave, Westlake, LA 70669, EPA ID No. LAR000015461. **Site No. 4.**
- Eastman Chiropractic Clinic, 902 Sampson St, Westlake, LA 70669, EPA ID No. LAR000007716. **Site No. 6.**
- Laws Paint & Body, 909 Sampson St, Westlake, LA 70669, EPA ID No. LAD985215078. **Site No. 7.**
- BMC Sales & Rentals, 929 Sampson St, Westlake, LA 70669, EPA ID No. LAD985219559. **Site No. 8.**
- OHM (One Hour Martinizing) Westlake, LA 70669, EPA ID No. LAD981051709. **Site No. 11.**
- Lee's Diagnostic, 1507-1/2 Sampson St, Westlake, LA 70669, EPA ID No. LAD985224872. **Site No. 13.**
- Westlake Medical Clinic of WCCH, 2345 Sampson St, Westlake, LA 70669, EPA ID No. LAR000003970. **Site No. 17.**
- Westlake Trans, 3420 Davis Rd, Westlake, LA 70669, EPA ID No. LA0000450049. **Site No. 19.**
- V M Environmental Services, 917 Sampson St, Westlake LA 70669. EPA ID No. LAD985221985. Map location is approximate. **Site No. 22.**

Review of the ECHO compliance report indicated that all of the aforementioned facilities are in compliance with Site 1 having only citation of past enforcement action within the last five years.

Sixteen facilities were identified in the EPA RCRA Lists as follows:

- Phillips 66 Company, Conoco Phillips Lake Charles Refinery, 2200 Old Spanish Trail, Westlake, LA 70669, Large Quantity Generator of hazardous wastes and used oil handler, EPA ID No. LAD990683716. Active facility. **Site No. 1.**

- Southern Equipment Sales & Service, 732 Sulphur Ave, Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes, EPA ID No. LAR000015461. Apparent inactive facility. **Site No. 4.**

- Dimmick Supply Co., Inc., (812 Samson St, Westlake, LA 70669, EPA ID No. LAD985226018. Site currently occupied by Bumper to Bumper Auto Parts. **Site No. 5.**

- Eastman Chiropractic Clinic, 902 Sampson St, Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes, EPA ID No. LAR000007716. Active facility. **Site No. 6.**

- Laws Paint & Body, 909 Sampson St, Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes, EPA ID No. LAD985215078. Site currently cleared with concrete slab. **Site No. 7.**

- BMC Sales & Rentals, 929 Sampson St, Westlake, LA 70669, Small Quantity Generator of hazardous wastes, EPA ID No. LAD985219559. Active facility. **Site No. 8.**

- Alpha Tool & Supply Inc., 1121 Sampson St, Westlake, LA 70669, EPA ID No. LAD985228337. Site currently occupied by Discount Mirror & Glass. **Site No. 10.**

- OHM (One Hour Martinizing) Westlake (821 McKinley St), Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes EPA ID No. LAD981051709. Site currently occupied by Quality Cleaners.. **Site No. 11.**

- Lee's Diagnostic, 1507-1/2 Sampson St, Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes EPA ID No. LAD985224872. Inactive and located in rear of Westlake Auto Sales, LLC. **Site No. 13.**

- Western Auto Store 67140, 1509 Sampson St, Westlake, LA 70669, EPA ID No. LAD981600059. Site is currently occupied by an active Dollar General Store. **Site No. 14.**

- Westlake Center for Health & Occupational Medicine, 2103 Sampson St, Westlake, LA, EPA ID No. LAD981591381. Site is currently occupied by an active Gulf Coast Analytical Laboratories, Inc. **Site No. 16.**

- Westlake Medical Clinic of WCCH, 2345 Sampson St, Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes, EPA ID No. LAR000003970. Site is currently occupied by The Family Care Center of SWLA and Jody D. George, MD Family Medicine. **Site No. 17.**

- Sam's Automotive and Tire, 2510 Westwood Drive, Westlake, LA 70669. EPA ID No. LAR000025643, Inactive facility. **Site No. 18.**

- Westlake Trans, 3420 Davis Rd, Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes, EPA No. LA0000450049. Active facility. **Site No. 19.**

- V M Environmental Services, 917 Sampson St, Westlake LA 70669. Transporter of hazardous wastes, EPA ID No. LAD985221985. Inactive facility. Location on map is approximate. **Site No. 22.**

- Westlake Hobby Shop, 1112.5 Sampson St, Westlake, LA, EPA ID No. LAD982290868, Former site was remediated for soil contamination and associated building was demolished (LDEQ AI No. 9875). Location on map is approximate. **Site No. 24.**

Review of the National Response Center database, which maintains ERNS data from 1990 coming forward, indicates there were 1,551 reported incidents between January 1, 1990 and September 24, 2013 in Westlake, LA. With possible exception to a relatively high number of incidents that occurred at the Conoco Phillips Lake Charles Refinery (**Site No. 1**), there were no incidents that occurred within or adjacent to any of the three alternative alignments. Review of the the ERNS database for 1987 through 1989 for Westlake, LA indicates there were 83 reported incidents with two occurring at the Conoco Phillips Lake Charles Refinery (**Site No. 1**). Because of the relative proximity of Site 1 to Sampson St, the existence of earthen levees, designed to contain oil spills within the grounds of Site No. 1 and the general lack of detailed information contained in the reports, no further efforts were made regarding documenting releases at this site.

Underground Storage Tanks (UST): Are there any Gasoline Stations or other facilities that may have UST on or adjacent to the project? (**Y** or N) YES
If so, give the name and location: **SEE FIGURE III-2 FOR LOCATION OF SITES**

Two facilities were identified on the leaking Underground Storage Tank (LUST) List as follows:

- In & Out Mini Mart #5, 706 Sampson St, Westlake, LA 70669, LDEQ AI No. 69775, All UST removed (4). Facility demolished and onsite remediation almost completed (Gubancsik, per. comm. 2013). Site partially occupied by U-Haul (trailer business). **Site No. 2.**

- Super Saver #6, 1631 Sampson St, Westlake, LA 70669 , LDEQ AI No. 70786, UST active (1), closed (2) and temporarily out of service (1). **Site No. 15.**

Six facilities were identified on the LDEQ UST List as follows:

- In & Out Mini Mart #5, 706 Sampson St, Westlake, LA 70669, LDEQ AI No. 69775, All UST removed (4). **Site No. 2.**

- Westlake Shell, 800 Sampson St, Westlake, LA 70669, LDEQ AI No. 78735, All UST active (3). **Site No. 3.**

- Wizard Fast Stop #10, 1007 Sampson St, Westlake, LA 70669, LDEQ AI No. 67364, Inactive facility, All UST closed (3). **Site No. 9.**

- Pumpelly #1, 1200 Sampson St, Westlake, LA 70669, LDEQ AI No. 72041, UST active (3) and removed (1). **Site No. 12.**

- Super Saver #6, 1631 Sampson St, Westlake, LA 70669 , LDEQ AI No. 70786, UST active (1), closed (2) and temporarily out of service (1). **Site No. 15.**

- Circle K #8333, 2010 Sampson St, Westlake, LA 70669, LDEQ AI No. 75289, Inactive facility, All UST removed (2). **Site No. 21.**

An unregistered UST facility was identified as follows:

- Evangeline (Oil) Service Station, 1012 Sampson St, Westlake, LA 70669. Identified during personal interviews as being located adjacent to, and north of, former location of Bradley's Department Store on east side of Sampson St (south of its intersection with Grant St). Review of Lake Charles Street directories indicates the facility was active between 1970 and 1982; possibly longer. Fate of UST unknown. Location on map is approximate. **Site No. 25.**

Any chemical plants, refineries or landfills adjacent to the project? (**Y** or N) **Any large manufacturing facilities adjacent to the project?** (Y or **N) Dry Cleaners?** (**Y** or N) If yes to any, give names and locations: **YES SEE FIGURE III-2 FOR LOCATION OF SITES**

- Phillips 66 Company, Conoco Phillips Lake Charles Refinery, 2200 Old Spanish Trail, Westlake, LA 70669, Large Quantity Generator of hazardous wastes and used oil handler, EPA ID No. LAD990683716. **Site No. 1.**

- OHM (One Hour Martinizing) Westlake (Site currently occupied by Quality Cleaners, 821 McKinley St), Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes EPA ID No. LAD981051709. **Site No. 11.**

- Rusty's Cleaners, 919 Sampson St, Westlake, LA 70669. While verifying existence of Evangeline Service Station (Site No. 24) in street directories, the listing of this facility in 1980 and 1982 was noted. Location on map is approximate. **Site No. 23.**

Any chemical plants, refineries or landfills adjacent to the project? (**Y** or N) If yes to any, give names and locations: **YES SEE FIGURE III-2 FOR LOCATION OF SITES**

Phillips 66 Company, Conoco Phillips Lake Charles Refinery, 2200 Old Spanish Trail, Westlake, LA 70669, Large Quantity Generator of hazardous wastes and used oil handler, EPA ID No. LAD990683716. **Site No. 1.**

Any large manufacturing facilities adjacent to the project? (Y or **N**) If yes to any, give names and locations: NO

Dry Cleaners? (**Y** or N) If yes to any, give names and locations: **YES SEE FIGURE III-2 FOR LOCATION OF SITES**

- OHM (One Hour Martinizing) Westlake (Site currently occupied by Quality Cleaners, 821 McKinley St), Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes EPA ID No. LAD981051709. **Site No. 11.**

- Rusty's Cleaners, 919 Sampson St, Westlake, LA 70669. While verifying existence of Evangeline Service Station (Site No. 24) in street directories, the listing of this facility in 1980 and 1982 was noted. Location on map is approximate. **Site No. 23.**

STAGE 0
Environmental Checklist

Oil/Gas wells: Have you checked DNR database for registered oil and gas wells? (**Y** or N) List the type and location of wells being impacted by the project. No oil and/or gas wells would be impacted by the project.

Are there any possible residential or commercial relocations/displacements? (**Y** or N)
How many? 28 commercial; 38 residential (estimated)

Do you know of any sensitive community or cultural issues related to the project? (Y or **N**)
If so, explain

Is the project area population minority or low income? (Y or **N**)

What type of detour/closures could be used on the job? Unknown at present

Did you notice anything of environmental concern during your site/windshield survey of the area? If so, explain below.

Sara Hahn, Ed Fike, Walker Wilson
Point of Contact

225.383.7455
Phone Number

2 October 2013
Date

STAGE 0
Environmental Checklist

General Explanation:

To adequately consider projects in Stage 0, some consideration must be given to the human and natural environment which will be impacted by the project. The Environmental Checklist was designed knowing that some environmental issues may surface later in the process. This checklist was designed to obtain basic information, which is readily accessible by reviewing public databases and by visiting the site. It is recognized that some information may be more accessible than other information. Some items on the checklist may be more important than others depending on the type of project. It is recommended that the individual completing the checklist do their best to answer the questions accurately. Feel free to comment or write any explanatory comments at the end of the checklist.

The Databases:

To assist in gathering public information, the previous sheet includes web addresses for some of the databases that need to be consulted to complete the checklist. As of February 2011, these addresses were accurate.

Note that you will not have access to the location of any threatened or endangered (T&E) species. The web address lists only the threatened or endangered species in Louisiana by Parish. It will generally describe their habitat and other information. If you know of any species in the project area, please state so, but you will not be able to confirm it yourself. If you feel this may be an issue, please contact the Environmental Section. We have biologist on staff who can confirm the presence of a species.

Why is this information important?

Land Use? Indicator of biological issues such as T&E species or wetlands.

Tribal Land Ownership? Tells us whether coordination with tribal nations will be required.

WRP properties? Farmland that is converted back into wetlands. The Federal government has a permanent easement which cannot be expropriated by the State. Program is operated through the Natural Resources Conservation Service (formerly the Soil Conservation Service).

Community Elements? DOTD would like to limit adverse impacts to communities. Also, public facilities may be costly to relocate.

Section 4(f) issues? USDOT agencies are required by law to avoid certain properties, unless a prudent or feasible alternative is not available.

Historic Properties? Tells us if we have a Section 106 issue on the project. (Section 106 of the National Historic Preservation Act) See http://www.achp.gov/work106.html for more details.

Scenic Streams? Scenic streams require a permit and may require restricted construction activities.

Significant Trees? Need coordination and can be important to community.

Age of Bridge? Section 106 may apply. Bridges over 50 years old are evaluated to determine if they are eligible for the National Register of Historic Places.

Navigability? If navigable, will require an assessment of present and future navigation needs and US Coast Guard permit.

Hazardous Material? Don't want to purchase property if contaminated. Also, a safety issue for construction workers if right-of-way is contaminated.

Oil and Gas Wells? Expensive if project hits a well.

Relocations? Important to community. Real Estate costs can be substantial depending on location of project. Can result in organized opposition to a project.

Sensitive Issues? Identification of sensitive issues early greatly assists project team in designing public involvement plan.

Minority/Low Income Populations? Executive Order requires Federal Agencies to identify and address disproportionately high and adverse human health and environmental effects on minority or low income populations. (Often referred to as Environmental Justice)

Detours? The detour route may have as many or more impacts. Should be looked at with project. May be unacceptable to the public.

Louisiana Governor's Office of Indian Affairs:
http://www.indianaffairs.com/tribes.htm

Louisiana Wetlands Reserve Program:
http://www.nrcs.usda.gov/programs/wrp/states/la.html

Community Water Well/Supply
http://sonris.com/default.htm

Louisiana Department of Wildlife and Fisheries – Wildlife Refuges
http://www.wlf.louisiana.gov/refuges
http://www.fws.gov/refuges/profiles/ByState.cfm?state=LA
http://www.fws.gov/refuges/refugelocatormaps/Louisiana.html

U.S. Fish & Wildlife Service – National Wetlands Inventory:
http://www.fws.gov/wetlands/

Louisiana State Historic Sites:
http://www.crt.state.la.us/parks/ihistoricsiteslisting.aspx

National Register of Historic Places (Louisiana):
http://nrhp.focus.nps.gov/natreghome.do?searchtype=natreghome
http://www.nationalregisterofhistoricplaces.com/la/state.html

National Historic Landmarks Program:
http://www.nps.gov/history/nhl/

Threatened and Endangered Species Databases:
http://www.wlf.louisiana.gov/wildlife/louisiana-natural-heritage-program

Louisiana Scenic Rivers:
http://www.wlf.louisiana.gov/wildlife/scenic-rivers
http://media.wlf.state.la.us/experience/scenicrivers/louisiananaturalandscenicriversdescriptions/
http://www.legis.state.la.us/lss/lss.asp?doc=104995

Significant Tree Policy (EDSM I.1.1.21)
http://notes1/ppmemos.nsf
(Live Oak, Red Oak, White Oak, Magnolia or Cypress, aesthetically important, 18" or greater in diameter at breast height and has form that separates it from surrounding or that which may be considered historic.)

CERCLIS (Superfund Sites):
http://www.epa.gov/superfund/sites/cursites/
http://www.epa.gov/enviro/html/cerclis/cerclis_query.html

ERNS - Emergency Response Notification System - Database of oil and hazardous substances spill reports: http://www.epa.gov/region4/r4data/erns/index.htm

Enforcement & Compliance History (ECHO)
http://www.epa-echo.gov/echo/

DEQ – Underground Storage Tank Program Information:
http://www.deq.louisiana.gov/portal/tabid/2674/Default.aspx
Leaking Underground Storage Tanks:
http://www.deq.state.la.us/portal/tabid/79/Default.aspx

SONRIS – Oil and Gas Well Information & Water Well Information
http://sonris.com/default.htm

Environmental Justice (minority & low income)
http://www.fhwa.dot.gov/environment/ej2000.htm

Demographics
http://www.census.gov/

FHWA's Environmental Website
http://www.fhwa.dot.gov/environment/index.htm

Additional Databases Checked

Other Comments:

STAGE 0
Environmental Checklist

Route LA 378 Lane Connection Between Westlake and Moss Bluff: **Alternative C** (New Alignment Through Sam Houston Jones State Park with two new bridges over W. Fork Calcasieu river and Indian Bayou) Parish: Calcasieu

C.S. 810-12 Begin Log mile 0.00 End Log mile 5.17

ADJACENT LAND USE: Commercial and Residential Properties

Any property owned by a Native American Tribe?
(Y or N or Unknown) If so, which Tribe?

Any property enrolled into the Wetland Reserve Program?
(Y or N or **Unknown**) If so, give the location Attempted to contact the Easement Program Specialist, Dustin Farmer, but was unable to reach him. Since the wetlands in the proposed project footprint are on a state park, it is unlikely that area is enrolled in the WRP program.

Are there any other known wetlands in the area?
(Y or N) If so, give the location YES, 17.43 acres in two areas: one beginning just south of the Calcasieu River and ending where the river approaches the proposed project footprint from the east and the other beginning just west of Indian Bayou and ending west of the intersection of Hwy 378 and the 378 spur.
SEE FIGURE III-7 FOR LOCATION OF WETLANDS.

Community Elements: Is the project impacting or adjacent to any (if the answer is yes, list names and locations):
(Y or **N**) Cemeteries

(**Y** or N) Churches Good Hope Baptist Church (Field Street, Westlake); First Pentecostal Church (1208 Sampson St., Westlake), St. John Basco Catholic Church, Sampson St., Westlake; Chruch of the Nazaren, corner of Sampson and Live Oak Street, Westlake; Westwood Baptist Church, 2317 Westwood Road, Westlake; ;

(**Y** or N) Schools Westwood Elementary School, 1900 Sampson Street, Westlake

(Y or **N**) Public Facilities (i.e., fire station, library, etc.)

(**Y** or N) Community water well/supply

SEE FIGURE III-3 FOR WATER WELL LOCATIONS
Water Wells Alternative C ROW (Public & Domestic):

019-829	**CU WW DIST 4**	**T9S/R9W Sec 23**	**plugged and abandoned public supply**
019-1003	**CU WW DIST 4**	**T9S/R9W Sec 23**	**rural public supply**

Section 4(f) issue: Is the project impacting or adjacent to any (if the answer is yes, list names and locations):
(**Y** or N) Public recreation areas Managan (Recreation) Center; Sampson Street @McKinley St., Westlake

(**Y** or N) Public parks Pinederosa Park, Westwood Road, Westlake; Sam Houston Jones State Park

(Y or N) Wildlife Refuges

(**Y** or N) Historic Sites YES One known archaeological site (16CU142) located at the juncture of Indian Bayou and the West Fork of the Calcasieu River

Is the project impacting, or adjacent to, a property listed on the National Register of Historic Places? (Y or **N**) **Is the project within a historic district or a national landmark district?** (Y or **N**) If the answer is yes to either question, list names and locations below:

Do you know of any threatened or endangered species in the area? (Y or **N**)
If so, list species and location. No

Does the project impact or adjacent to a stream protected by the Louisiana Scenic Rivers Act? (Y or **N**) If yes, name the stream. No

Are there any Significant Trees as defined by EDSM I.1.1.21 within proposed ROW? (Y or **N**) If so, where? No

STAGE 0
Environmental Checklist

What year was the existing bridge built? 1968

Are any waterways impacted by the project considered navigable? (**Y** or N) If unknown, state so, list the waterways: West Fork of the Calcasieu River

Hazardous Material: Have you checked the following DEQ and EPA databases for potential problems? (If the answer is yes, list names and locations.)

(**Y** or N) Leaking Underground Storage Tanks YES

(**Y** or N) CERCLIS YES

(**Y** or N) ERNS YES None reported from 01/0187 to 12/12/89

(**Y** or N) Enforcement and Compliance History YES

SEE FIGURE III-3 FOR NUMBERED SITE LOCATIONS.

No CERCLIS sites are located within or adjacent to any of the three alternative alignments.

Nine facility listings, excluding those solely with wastewater-effluent and/or air-emissions related activities, were identified as RCRA facilities in the EPA ECHO List as follows:

Conoco Phillips Lake Charles Refinery, 2200 Old Spanish Trail, Westlake, LA 70669, EPA ID No. LAD990683716. **Site No. 1.**

Southern Equipment Sales & Service, 732 Sulphur Ave, Westlake, LA 70669, EPA ID No. LAR000015461. **Site No. 4.**

Eastman Chiropractic Clinic, 902 Sampson St, Westlake, LA 70669, EPA ID No. LAR000007716. **Site No. 6.**

Laws Paint & Body, 909 Sampson St, Westlake, LA 70669, EPA ID No. LAD985215078. **Site No. 7.**

BMC Sales & Rentals, 929 Sampson St, Westlake, LA 70669, EPA ID No. LAD985219559. **Site No. 8.**

OHM (One Hour Martinizing) Westlake, LA 70669, EPA ID No. LAD981051709. **Site No. 11.**

Lee's Diagnostic, 1507-1/2 Sampson St, Westlake, LA 70669, EPA ID No. LAD985224872. **Site No. 13.**

Westlake Medical Clinic of WCCH, 2345 Sampson St, Westlake, LA 70669, EPA ID No. LAR000003970. **Site No. 17.**

V M Environmental Services, 917 Sampson St, Westlake LA 70669. EPA ID No. LAD985221985. Map location is approximate. **Site No. 22.**

Review of the ECHO compliance report indicated that all of the aforementioned facilities are in compliance with Site 1 having only citation of past enforcement action within the last five years.

Fourteen facilities were identified in the EPA RCRA Lists as follows:

Phillips 66 Company, Conoco Phillips Lake Charles Refinery, 2200 Old Spanish Trail, Westlake, LA 70669, Large Quantity Generator of hazardous wastes and used oil handler, EPA ID No. LAD990683716. Active facility. **Site No. 1.**

Southern Equipment Sales & Service, 732 Sulphur Ave, Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes, EPA ID No. LAR000015461. Apparent inactive facility. **Site No. 4.**

Dimmick Supply Co., Inc., (812 Samson St, Westlake, LA 70669, EPA ID No. LAD985226018. Site currently occupied by Bumper to Bumper Auto Parts. **Site No. 5.**

Eastman Chiropractic Clinic, 902 Sampson St, Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes, EPA ID No. LAR000007716. Active facility. **Site No. 6.**

Laws Paint & Body, 909 Sampson St, Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes, EPA ID No. LAD985215078. Site currently cleared with concrete slab. **Site No. 7.**

BMC Sales & Rentals, 929 Sampson St, Westlake, LA 70669, Small Quantity Generator of hazardous wastes, EPA ID No. LAD985219559. Active facility. **Site No. 8.**

Alpha Tool & Supply Inc., 1121 Sampson St, Westlake, LA 70669, EPA ID No. LAD985228337. Site currently occupied by Discount Mirror & Glass. **Site No. 10.**

OHM (One Hour Martinizing) Westlake (821 McKinley St), Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes EPA ID No. LAD981051709. Site currently occupied by Quality Cleaners.. **Site No. 11.**

Lee's Diagnostic, 1507-1/2 Sampson St, Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes EPA ID No. LAD985224872. Inactive and formerly located in rear of Westlake Auto Sales, LLC. **Site No. 13.**

Western Auto Store 67140, 1509 Sampson St, Westlake, LA 70669, EPA ID No. LAD981600059. Site is currently occupied by an active Dollar General Store. **Site No. 14.**

Westlake Center for Health & Occupational Medicine, 2103 Sampson St, Westlake, LA, EPA ID No. LAD981591381. Site is currently occupied by an active Gulf Coast Analytical Laboratories, Inc. **Site No. 16.**

Westlake Medical Clinic of WCCH, 2345 Sampson St, Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes, EPA ID No. LAR000003970. Site is currently occupied by The Family Care Center of SWLA and Jody D. George, MD Family Medicine. **Site No. 17.**

Sam's Automotive and Tire, 2510 Westwood Drive, Westlake, LA 70669. EPA ID No. LAR000025643, Inactive facility. **Site No. 18.**

V M Environmental Services, 917 Sampson St, Westlake LA 70669. Transporter of hazardous wastes, EPA ID No. LAD985221985. Inactive facility. Location on map is approximate. **Site No. 22.**

Westlake Hobby Shop, 1112.5 Sampson St, Westlake, LA, EPA ID No. LAD982290868, Former site was remediated for soil contamination and associated building was demolished (LDEQ AI No. 9875). Location on map is approximate. **Site No. 24.**

Review of the National Response Center database, which maintains ERNS data from 1990 coming forward, indicates there were 1,551 reported incidents between January 1, 1990 and September 24, 2013 in Westlake, LA. With possible exception to a relatively high number of incidents that occurred at the

Conoco Phillips Lake Charles Refinery (**Site No. 1**), there were no incidents that occurred within or adjacent to any of the three alternative alignments. Review of the the ERNS database for 1987 through 1989 for Westlake, LA indicates there were 83 reported incidents with two occurring at the Conoco Phillips Lake Charles Refinery (**Site No. 1**). Because of the size and relative proximity of Site 1 to Sampson St, the existence of earthen levees, designed to contain oil spills within the grounds of Site No. 1, and the general lack of detailed information contained in the reports, no further efforts were made regarding documenting releases at this site.

Underground Storage Tanks (UST): Are there any Gasoline Stations or other facilities that may have UST on or adjacent to the project? (**Y** or N) YES
If so, give the name and location: **SEE FIGURE III-3 FOR NUMBERED SITE LOCATIONS.**

Two facilities were identified on the LDEQ Leaking Underground Storage Tank (LUST) List as follows:

- In & Out Mini Mart #5, 706 Sampson St, Westlake, LA 70669, LDEQ AI No. 69775, All UST removed (4). Facility demolished and onsite remediation almost completed (Gubancsik, per. comm. 2013). Site partially occupied by U-Haul (trailer business). **Site No. 2.**

- Super Saver #6, 1631 Sampson St, Westlake, LA 70669 , LDEQ AI No. 70786, UST active (1), closed (2) and temporarily out of service (1). **Site No. 15.**

Six facilities were identified on the LDEQ UST List as follows:

- In & Out Mini Mart #5, 706 Sampson St, Westlake, LA 70669, LDEQ AI No. 69775, All UST removed (4). **Site No. 2.**

- Westlake Shell, 800 Sampson St, Westlake, LA 70669, LDEQ AI No. 78735, All UST active (3). **Site No. 3.**

- Wizard Fast Stop #10, 1007 Sampson St, Westlake, LA 70669, LDEQ AI No. 67364, Inactive facility, All UST closed (3). **Site No. 9.**

- Pumpelly #1, 1200 Sampson St, Westlake, LA 70669, LDEQ AI No. 72041, UST active (3) and removed (1). **Site No. 12.**

- Super Saver #6, 1631 Sampson St, Westlake, LA 70669 , LDEQ AI No. 70786, UST active (1), closed (2) and temporarily out of service (1). **Site No. 15.**

- Circle K #8333, 2010 Sampson St, Westlake, LA 70669, LDEQ AI No. 75289, Inactive facility, All UST removed (2). **Site No. 21.**

One unregistered UST facility was identified as follows:

- Evangeline (Oil) Service Station, 1012 Sampson St, Westlake, LA 70669. Identified during personal interviews as being located adjacent to, and north of, former location of Bradley's Department Store on east side of Sampson St (south of its intersection with Grant St). Review of Lake Charles Street Directories indicates the facility was active between 1970 and 1982, possibly longer. Fate of UST unknown. Location on map is approximate. **Site No. 25.**

Any chemical plants, refineries or landfills adjacent to the project? (**Y** or N) If yes to any, give names and locations: YES **SEE FIGURE III-3 FOR NUMBERED SITE LOCATION.**

- Phillips 66 Company, Conoco Phillips Lake Charles Refinery, 2200 Old Spanish Trail, Westlake, LA 70669, Large Quantity Generator of hazardous wastes and used oil handler, EPA ID No. LAD990683716. **Site No. 1.**

Any large manufacturing facilities adjacent to the project? (Y or **N**) If yes to any, give names and locations: NO

Dry Cleaners? (**Y** or N) If yes to any, give names and locations: YES
SEE FIGURE III-3 FOR NUMBERED SITE LOCATIONS.

- OHM (One Hour Martinizing) Westlake (Site currently occupied by Quality Cleaners, 821 McKinley St), Westlake, LA 70669, Conditionally Exempt Generator of hazardous wastes EPA ID No. LAD981051709. **Site No. 11.**

- Rusty's Cleaners, 919 Sampson St, Westlake, LA 70669. While verifying existence of Evangeline Service Station (Site No. 24) in street directories, the listing of this facility in 1980 and 1982 was noted. Location on map is approximate. **Site No. 23.**

Oil/Gas wells: Have you checked DNR database for registered oil and gas wells? (**Y** or N) List the type and location of wells being impacted by the project. No oil and/or gas wells are located within or adjacent to Alternative C that would be impacted by the project.

Are there any possible residential or commercial relocations/displacements? (**Y** or N)
How many? 20 commercial; 36 residential (estimated)

Do you know of any sensitive community or cultural issues related to the project? (Y or **N**)
If so, explain

Is the project area population minority or low income? (Y or **N**)

What type of detour/closures could be used on the job? Unknown at present

Did you notice anything of environmental concern during your site/windshield survey of the area? If so, explain below.

Sara Hahn, Ed Fike, Walker Wilson
Point of Contact

225.383.7455
Phone Number

2 October 2013
Date

STAGE 0
Environmental Checklist

General Explanation:

To adequately consider projects in Stage 0, some consideration must be given to the human and natural environment which will be impacted by the project. The Environmental Checklist was designed knowing that some environmental issues may surface later in the process. This checklist was designed to obtain basic information, which is readily accessible by reviewing public databases and by visiting the site. It is recognized that some information may be more accessible than other information. Some items on the checklist may be more important than others depending on the type of project. It is recommended that the individual completing the checklist do their best to answer the questions accurately. Feel free to comment or write any explanatory comments at the end of the checklist.

The Databases:

To assist in gathering public information, the previous sheet includes web addresses for some of the databases that need to be consulted to complete the checklist. As of February 2011, these addresses were accurate.

Note that you will not have access to the location of any threatened or endangered (T&E) species. The web address lists only the threatened or endangered species in Louisiana by Parish. It will generally describe their habitat and other information. If you know of any species in the project area, please state so, but you will not be able to confirm it yourself. If you feel this may be an issue, please contact the Environmental Section. We have biologist on staff who can confirm the presence of a species.

Why is this information important?

Land Use? Indicator of biological issues such as T&E species or wetlands.

Tribal Land Ownership? Tells us whether coordination with tribal nations will be required.

WRP properties? Farmland that is converted back into wetlands. The Federal government has a permanent easement which cannot be expropriated by the State. Program is operated through the Natural Resources Conservation Service (formerly the Soil Conservation Service).

Community Elements? DOTD would like to limit adverse impacts to communities. Also, public facilities may be costly to relocate.

Section 4(f) issues? USDOT agencies are required by law to avoid certain properties, unless a prudent or feasible alternative is not available.

Historic Properties? Tells us if we have a Section 106 issue on the project. (Section 106 of the National Historic Preservation Act) See http://www.achp.gov/work106.html for more details.

Scenic Streams? Scenic streams require a permit and may require restricted construction activities.

Significant Trees? Need coordination and can be important to community.

Age of Bridge? Section 106 may apply. Bridges over 50 years old are evaluated to determine if they are eligible for the National Register of Historic Places.

Navigability? If navigable, will require an assessment of present and future navigation needs and US Coast Guard permit.

Hazardous Material? Don't want to purchase property if contaminated. Also, a safety issue for construction workers if right-of-way is contaminated.

Oil and Gas Wells? Expensive if project hits a well.

Relocations? Important to community. Real Estate costs can be substantial depending on location of project. Can result in organized opposition to a project.

Sensitive Issues? Identification of sensitive issues early greatly assists project team in designing public involvement plan.

Minority/Low Income Populations? Executive Order requires Federal Agencies to identify and address disproportionately high and adverse human health and environmental effects on minority or low income populations. (Often referred to as Environmental Justice)

Detours? The detour route may have as many or more impacts. Should be looked at with project. May be unacceptable to the public.

Louisiana Governor's Office of Indian Affairs:
http://www.indianaffairs.com/tribes.htm

Louisiana Wetlands Reserve Program:
http://www.nrcs.usda.gov/programs/wrp/states/la.html

Community Water Well/Supply
http://sonris.com/default.htm

Louisiana Department of Wildlife and Fisheries – Wildlife Refuges
http://www.wlf.louisiana.gov/refuges
http://www.fws.gov/refuges/profiles/ByState.cfm?state=LA
http://www.fws.gov/refuges/refugelocatormaps/Louisiana.html

U.S. Fish & Wildlife Service – National Wetlands Inventory:
http://www.fws.gov/wetlands/

Louisiana State Historic Sites:
http://www.crt.state.la.us/parks/ihistoricsiteslisting.aspx

National Register of Historic Places (Louisiana):
http://nrhp.focus.nps.gov/natreghome.do?searchtype=natreghome
http://www.nationalregisterofhistoricplaces.com/la/state.html

National Historic Landmarks Program:
http://www.nps.gov/history/nhl/

Threatened and Endangered Species Databases:
http://www.wlf.louisiana.gov/wildlife/louisiana-natural-heritage-program

Louisiana Scenic Rivers:
http://www.wlf.louisiana.gov/wildlife/scenic-rivers
http://media.wlf.state.la.us/experience/scenicrivers/louisiananaturalandscenicriversdescriptions/
http://www.legis.state.la.us/lss/lss.asp?doc=104995

Significant Tree Policy (EDSM I.1.1.21)
http://notes1/ppmemos.nsf
(Live Oak, Red Oak, White Oak, Magnolia or Cypress, aesthetically important, 18" or greater in diameter at breast height and has form that separates it from surrounding or that which may be considered historic.)

CERCLIS (Superfund Sites):
http://www.epa.gov/superfund/sites/cursites/
http://www.epa.gov/enviro/html/cerclis/cerclis_query.html

ERNS - Emergency Response Notification System - Database of oil and hazardous substances spill reports: http://www.epa.gov/region4/r4data/erns/index.htm

Enforcement & Compliance History (ECHO)
http://www.epa-echo.gov/echo/

DEQ – Underground Storage Tank Program Information:
http://www.deq.louisiana.gov/portal/tabid/2674/Default.aspx
Leaking Underground Storage Tanks:
http://www.deq.state.la.us/portal/tabid/79/Default.aspx

SONRIS – Oil and Gas Well Information & Water Well Information
http://sonris.com/default.htm

Environmental Justice (minority & low income)
http://www.fhwa.dot.gov/environment/ej2000.htm

Demographics
http://www.census.gov/

FHWA's Environmental Website
http://www.fhwa.dot.gov/environment/index.htm

Additional Databases Checked
Threatened and Endangered Species Databases:
http://www.fws.gov/endangered/map/state/LA.html

Soil Surveys
http://websoilsurvey.NRCS.usda.gov

Other Comments:

APPENDIX B

EXISTING SITE PICTURES

LA 378 at I-10 N. Service Road, Looking North

LA 378 (Sampson St.) just south of Sulphur Avenue, looking north

LA 378 (Sampson Street) at Martha Street, looking north

LA 378 (Sampson Street) just north of Garden Lane, looking north

LA 378 (Westwood Road) looking north at transition from 4 lane to 2 lane facility

LA 378 (Westwood Road) looking south at transition from 4 lane to 2 lane facility

LA 378 (Westwood Road), looking north, w/Pinederosa Park on left

Westwood Road turning west to continue as Hollis Road, W. Fork of Calcasieu River beyond

LA 378 (Phillips Road) looking east

LA 378 (Phillips Road) looking west

LA 378 Intersection of Davis Road and Phillips Road, looking south

LA 378 West Fork Bridge, looking northeast

West Fork Bridge viewed from the water (looking south)

Junction of LA 378 and LA 378 spur, looking southwest

APPENDIX C

PUBLIC MEETING ADDENDA

- ADVERTISEMENT COPIES
- SIGN-IN SHEET COPIES
- COPY OF MEETING HANDOUT
- VERBAL COMMENTS GIVEN TO TRANSCRIPTIONIST
- WRITTEN COMMENTS RECEIVED

JENNINGS

Continued from A1

to be mindful of other needs of the city," Duhon said.

Issues such as a need for a new jail and technical college, employee pay raises, and street and drainage improvements are "not going away any time," he said.

"We have a fairly large budget for our city and recreation department," said councilman Trey Myers, who volunteers as a coach. "But there are things we can do as parents for our kids without having to pass a tax to do so."

Councilman Johnny Armentor said the group should consider fundraisers for the program to ease the burden on taxpayers. "It's not fair to burden Jennings (taxpayers)," he said. "We have a lot of elderly people struggling on fixed incomes."

Armentor said he has received 130 calls from people in his district voicing opposition to a new tax. Jennings residents would shoulder the responsibility of paying the tax, while those from outside of the parish would benefit, he said.

Parks and Recreation Director Brian Benoit said the city offers year-around opportunities for nearly 700 children and youths, including peewee and flag football, soccer, basketball, softball, baseball and swimming. Tennis and softball leagues are available to adults.

Beauregard Police Jury decides not to change dog ordinance

By Lauren Manary
lmanary@americanpress.com

DERIDDER — The Beauregard Police Jury on Tuesday decided not to change the parish ordinance on how many dogs people can keep on their property.

Some residents last week asked if the panel could adopt a law that would change the way backyard breeders do business. They had been seeking ways to stop a Ragley breeding operation that the sheriff said violated no laws.

"The more that you tack onto an ordinance or anything, you have to have somebody to enforce it," said Legislative Committee Chairman Teddy Welch. "Well, the sheriff would be the one that would have that task, and he's helping us with this. So therefore, we do not feel like we need to change our dog ordinance for this situation."

Ann Duhon, a neighbor of the Ragely breeder, and her friend Lynn Clopton asked the committee to investigate the premises. Clopton said a state law already on the books could have been enforced against the breeder — the kennel law, which mandates licensure for anyone "with five or more dogs and who breeds and sells dogs."

The statute, R.S. 3:2772, sets minimum licensure fees and lays out the penalties for violators, including up to a $500 fine and as many as six months in jail.

"I know what kind of headache this has been," Clopton said at the meeting. "I know you've had American Society for the Prevention of Cruelty to Animals, the Humane Society, you've had everybody on your butts. And it could have easily been avoided."

Sheriff Ricky Moses, who has been criticized by animal advocates for his lack of action against the breeder, said he made his first visit in the last week. He said deputies who accompanied him had been on the premises previously and told him the conditions had "much improved."

"I believe they're in agreement about reducing their numbers as advised by Dr. (Catherine) White," Moses said, referring to the veterinarian who conducted a report on behalf of the parish on Aug. 9. "And (the breeder) is continuing to work with us."

BONDS

Continued from A1

the mortgage loan interest rate.

"It really is the single most powerful benefit that you can provide to new homebuyers," Harris said.

The Calcasieu Trust Authority has had the mortgage credit certificates program in place since 2011. It expires Dec. 31.

Cheryl Burns, the board's vice chairman, said the decision allows the process to move forward to eventually present the project to the state Bond Commission. If the commission approves issuing the mortgage credit certificates, there must be a 90-day public notice before the program takes effect.

Burns said officials want the program to begin in January. It would last for three years or until the money runs out.

For more information on the program, call the mortgage credit certificates hotline at 304-0601.

Online: www.trustauthority.org

Judge's seizure order doesn't turn up LSU records

By The Associated Press

BATON ROUGE — A Baton Rouge judge ordered the local sheriff Tuesday to seize information about LSU's search for a new president, but the armed deputies returned to court empty-handed after university system officials said they had didn't have any documents to turn over.

"He demanded the documents. He received nothing," said state District Judge Janice Clark.

The response added to Clark's frustration over the LSU Board of Supervisors' refusal to provide information about the nearly three dozen candidates considered during its presidential search, despite Clark's April 30 order that the names be released.

A lawyer for the LSU Board of Supervisors said the information sought is held by a Texas-based consultant hired by the university — and an attorney for the local sheriff's office said East Baton Rouge Parish Sheriff Sid Gautreaux doesn't have jurisdiction to seize documents there.

The Advocate and The Times-Picayune newspapers filed a public records lawsuit against the LSU board after it wouldn't release information about the candidates board members considered before choosing the university system's new president, F. King Alexander.

Clark ruled four months ago that the 35 applicants, their resumes and other documents involving their qualifications were public records.

Library Card Sign-up Month in Allen Parish

Special to the American Press

OBERLIN — Allen Parish Libraries are recognizing September as Library Card Sign-up Month, an initiative sponsored by the American Library Association.

"While we have resources for all ages, we especially want to ensure our students from preschool through university turn to the library for materials, programs and services that support academic achievement," said Library Director Renee Grantham.

"Bulletin board and poster-making equipment available at our main branch in Oberlin can make those 'big projects' more affordable and easier to complete."

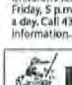
Tutoring sessions are available at each library, and students can use their library cards from home to access important educational resources — including World Book Online and HomeWorkLA through tutor.com. Many e-books are available through an online public access catalog.

Students and parents are encouraged to ask for help with finding appropriate Accelerated Reader books and materials for reports and school projects.

Online: www.allen.lib.la.us.

WHAT'S AHEAD

Swimming lessons: Foreman-Reynaud Community Center, adult lessons Tuesdays and Wednesdays, 5 p.m.-6 p.m. Children's lessons, Monday-Friday, 5 p.m.-6 p.m. Cost $2 a day. Call 436-2500 for more information.



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www.dunnsfishfarm.com

DEATHS

Continued from A5

Joyce E. Thompson

Joyce E. Thompson, 85, of Lake Charles, was born to the late James H. Hughey and Cora Alverda Hughey on May 18, 1928, in Olive Branch, Miss. Mrs. Thompson attended St. Mary's Catholic School in Port Arthur, Medical Technology colleges in Houston, Sowela Technical Institute and McNeese State University.

She worked in various medical fields: phlebotomy, medical and radiology technology, and nearly 30 years in nursing. She enjoyed reading, gardening, games of strategy, the arts and dancing around the house to Motown. Mrs. Thompson was a true dog person, having always had two or three furry friends to complete her home.

She was a firm believer in the love of Christ and the power of redemption and salvation. She leaves us only to slip away to the next room to join her beloved husband, M.C. Thompson, and family in heaven.

Joyce leaves a loving daughter, Julianna Farrar and her dedicated husband Will Farrar; two precious grandchildren, Steven and Ariana Farrar; a sister, Camilla Anne McBride; two nieces, Margaret Ann Walter and Sharon Stewart; a nephew, Andy McBride; Aunt Gladys Carter, Jocelyn and Stephanie Raimer, other dear relatives; numerous friends; and her beloved and devoted canine companions.

The family of Joyce Thompson would like to express their appreciation to those who have shown kindness and offered help during this time of stress and sorrow. May God continue to bless and keep you.

Graveside service was held at 3 p.m. Sunday, Sept. 8, 2013, in Consolata Cemetery under the direction of Johnson Funeral Home. The Rev. Chris Fuselier officiated. A gathering of family and friends was held prior to service.

In lieu of flowers, donations may be made to the Calcasieu Animal Shelter, 5500 Swift Plant Road, Lake Charles, LA 70601 or a shelter of choice.

Words of comfort to the family may be expressed at www.johnsonfuneralhome.net.

Thérèse Duhon Vidrine

Thérèse Duhon Vidrine, 62, of Sulphur, La., died Saturday, Sept. 7, 2013, in her residence.

Thérèse was born on Feb. 23, 1951, in Lake Charles, La. She was a 1969 graduate of St. Charles Academy in Lake Charles. Mrs. Vidrine has lived in Sulphur, La., for the past eight years. She had many friends throughout the Lake Area.

She is survived by one daughter, Skylar Dever Giardina and husband Will of Sulphur, La.; two sons, Adam Kendall Vidrine of Lafayette, La., and Brandon Mark Dever and wife Amy of Tomball, Texas; one sister, Mary Ann Johnson and husband Filmore of Lake Charles, La.; half-sister, Joyce Cunningham of Angleton, Texas; one brother, James Anthony Duhon and wife Lorraine of Ragley, La.; five grandchildren, William Reid Giardina, Brooks Payton Dever Giardina, Kerri Beth Racca, Jammi Anne Racca, Faith Olivia Dever; numerous nieces and nephews; a dear friend, Ron Vidrine of Lafayette, La.; and her very special and loyal friend, "Cooper."

Ms. Vidrine is preceded in death by one grandson, Payton Joseph Dever; and her parents, Anna Lou and Utile Duhon.

Her funeral service will be held on Thursday, Sept. 12, 2013, at 10 a.m. in Johnson Funeral Home. Deacon Bud Wagner will officiate. Burial will follow in Consolata Cemetery. Visitation will begin on Wednesday at 5 p.m. until 9 p.m. with a rosary to be held at 6 p.m. Visitation will continue on Thursday at 8 a.m. until the time of service.

Words of comfort to the family may be expressed at www.johnsonfuneralhome.net.

Joseph Doyle White

Joseph Doyle White of Vinton, died Thursday, Sept. 5, in a local hospital. Graveside service will be at 11 a.m. Thursday, Sept. 12, in the Galveston County Memorial Cemetery under the direction of Hayes Funeral Home in Hitchcock, Texas.

Bryan B. Williams

Bryan B. Williams, 74, of Oakdale, died Monday, Sept. 9, in a local hospital. Funeral service will be at 10 a.m. Friday, Sept. 13, in Beaver Creek Baptist Church. Interment will follow in Beaver Creek Cemetery under the direction of Rush Funeral Home, Oakdale.

Lora Louise Wrigley

Lora Louise Wrigley, 76, died Monday, Sept. 9, in her home. Service will be at 2 p.m. Thursday, Sept. 12, in Johnson Funeral Home.

DR. LYNN FORET
will be closing his office on
SEPTEMBER 18, 2013

Records will be stored at:
Avery Archives
1155 E. McNeese St.
Lake Charles, LA 70607
(337) 491-9522

PUBLIC MEETING NOTICE

State Project No. H.009488.1
STAGE 0 FEASIBILITY STUDY
LA HWY 378 IMPROVEMENTS
(Westlake to Moss Bluff)
CALCASIEU PARISH, LA

The Louisiana Department of Transportation and Development (LADOTD) is inviting interested citizens to attend a Public Meeting on the proposed improvement of LA 378, from I-10 in Westlake to Sam Houston Jones Parkway in Moss Bluff. The date, time and location of the meeting are as follows:

DATE / TIME: WEDNESDAY, September 18, 2013, 6:00 PM – 8:00 PM

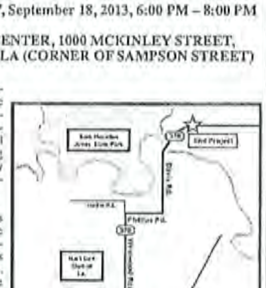
LOCATION: MANAGAN CENTER, 1000 MCKINLEY STREET, WESTLAKE, LA (CORNER OF SAMPSON STREET)

The purpose of the meeting is to provide information and to obtain public input on the three design alternatives for a proposed improvement of LA 378. A geometric feasibility study, traffic analysis, and environmental inventory of the three alternatives are being completed as part of a Stage 0 Feasibility Study. Data and information from the ongoing study will be presented at the meeting.

All interested parties and their representatives are invited to be present at the above date, time and location for the purpose of becoming acquainted with the project, reviewing findings to date, and providing comments and input. All written statements or comments may be submitted at the meeting, or may be mailed to the following address, postmarked within ten days following the meeting (by 9-28-13):

LA 378 Stage 0 Feasibility Study,
c/o N-Y Associates, Inc.
ATTN: Bruce J. Richards
2750 Lake Villa Dr. - Suite 100
Metairie, LA 70002

If you require special assistance due to a disability in order to participate in this Public Meeting, or if you have need of further information relating to this meeting, please call Mr. Bruce Richards of N-Y Associates, Inc. at (504) 885-0500.



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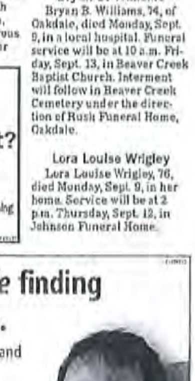

Lee Kinney, Insurance Specialist
337 528-9131

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DOTD proposes widening of Highway 378

Posted: Sep 12, 2013 10:23 PM CDT
Updated: Sep 13, 2013 10:16 AM CDT

By Erica Bivens - email

CALCASIEU PARISH, LA (KPLC) - Big changes are possible for Highway 378 between Moss Bluff and Westlake.

Right now, the Louisiana Department of Transportation and Development is studying three proposed options, including one that could impact Sam Houston Jones State Park.

And although it's just a feasibility study, which means no one particular option has been selected as of yet, residents say there are pros and cons to the options.

Highway 378 in Westlake is usually busy, but drivers say it's congested during rush hour.

Standing outside a daycare center on 378, Patricia Shahon said, "When I come and drop her off around 7:30 in the morning, I'll have to sit here for 10 to 15 minutes in order to just turn."

Recognizing that, DOTD is doing a Stage 0 Feasibility Study on widening the highway in Westlake.

"For example, you have that two lane section from John Stine Road to LA 378 Spur, so of course, we want to widen that out to be able to accommodate the traffic that's moving along in the corridor," explained DOTD public information officer, Deidra Druilhet.

And they're considering three options. Although the plans vary slightly, the one thing that is the same for all three is that 378 would be widened to four lanes instead of two.

Alternative A would closely follow the existing alignment but make improvements at the 90 degree turns at Westwood and Phillips Road, and at Phillips and Davis Road.

Alternative B would realign 378 from Hudson to Davis Road to the east of the existing roadway.

Alternative C would follow the existing alignment to the intersection of Westwood and Phillips Road and then realign the route to the west of the existing roadway.

When Shahon thought about widening the highway, she said, "I think that'd be very beneficial, it would help cut down on the accidents because there's a lot of accidents past here off Goos."

But one alternative cuts through Sam Houston Jones State Park.

"There is an alternative that would realign the road through the park but one thing I do need to emphasize is this is just a feasibility study. We have to look at every option," said Druilhet.

But Robert Landry thinks other options should be considered.

"I know there's some land on the other side of the river they can probably come across. It might take some residential land out of there but I think they should leave out the state park," said Landry.

DOTD officials say nothing is final and they're encouraging people to attend a public meeting next week to learn more. They also still have to gather impacts that are associated with each of the alternatives.

Meeting information:

Wednesday, Sept. 18 from 6 p.m. to 8 p.m. at the Managan Center, 1000 McKinley Street in Westlake (the corner of Sampson Street).

DOTD is accepting written statements or comments. They may be submitted at the meeting, or may be mailed to the following address, postmarked within 10 days following the meeting (by Sept. 28):

LA 378 Stage 0 Feasibility Study,

c/o N-Y Associates, Inc.

ATTN: Bruce J. Richards

2750 Lake Villa Dr. - Suite 100

Metairie, LA 70002

Those with special needs requiring special assistance at the meeting are asked to call Bruce Richards of N-Y Associates, Inc. at (504) 885-0500.

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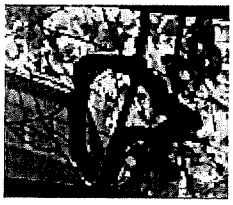

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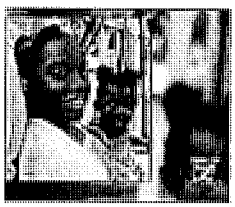

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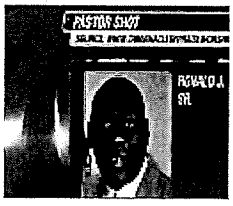

Pastor shot during church service, suspect arrested

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LA 378 Improvements (Westlake to Moss Bluff)
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	(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1.	George Tuttle	2869 Hudson Dr Westlake La.		
2.	KENNETH LESTER	1317 BERRY ST WL		
3.	Melissa J Adams	251 Phillips Road Longville, LA 70652	madams@beau.k12.la.us	
4.	SUSAN KELSO	235 Gahagan lane	yzskydancer@gmail.com	
5.	ABE FONTENOT	1700 AZALEA ST		
6.	Henry Duelm	704 Moss Rd	WL.	
7.	Joan Duelm	"	"	Byrs-2Neat@AOL.com
8.	James Armand	987 MELANIE AVE LC. LA		
9.	ROBIN & LINDA MATHIS	417 W. WEBER CIR, L.C., LA.		N/A

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	(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1.	Lisa Manuel	159 Ganagan Ln	Lhay411@netscape.net	
2.	David Manuel	159 Ganagan Ln.	David.Manuel@grace.com	
3.	Kathy Muller	208 Zinfandel Dr 70611	kfilo@yahoo.com	
4.	Shelly Appleby	c/o 3322 Westwood Rd WL 70669	shelly.appleby@gmail.com	
5.	C.J. Broussard, Sr	1200 Shelby Lane Westlake 70669	Jewman2@bellsouth.net	
6.	Crystal Mims	3454 Davis Rd. WL 70669	crpmims1@bellsouth.net	
7.	Chris Wallace	711 Hudson Dr	CNVwallace@bellsouth.net	
8.	Darrell Young	2216 Pitre St. W.L.	DSGAPLS@HOTMAIL.COM	
9.*	Anthony Pousson, Jr.	826 Garden Drive W.L., LA. 70669	(NONE).	

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	(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1.	Kevin Verret Jr	2208 Ellis Dr Westlake LA 70669	kverret007@gmail.com	Imperial Creasers Disc Golf Club
2.	Charles Hebert	2717 Independence Rd Westlake LA 70669		N/A
3.	Olive Mc Guire	204 Olin St West Lake LA 70669		
4.	Rose & Wayne Gray	1605 N Hilda	rosew@communicomm.com	
5.	Ray Hancock	2141 Ellis Dr, WL	rbh.tbh12@hotmail.com	
6.	Earl Collier	2215 mcCloud St	APopCorn2003@yahoo.com	
7.	Kenny Brown	2605 Amer Corner WL.	downtown1946@ychoo.com	
8.	Ruthie & Robert Whelan	3319 Julia St. L.C.	rlwhelan@yahoo.com	Jolly Roger Cycling
9.	Dwight Minton	2636 Laura Lane LC 70605		IMCAC

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(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1. Russell Shelton	712 Drew Lake Charles, LA 70601	butkik@aol.com	
2. Jerry D Demarest	105 Phillips RD, Westlake, La.		
3. Vernon McGuire Jr.	316 Olive Rd Westlake, LA 70669		
4. Randy Hoag	3825 Davis Road 70669		
5. David Booth	5524 Alexander Lane LC La 70605	david@boothenvironmental.com	
6. [illegible]	924 Sheeting Ln.		
7. Tiffany Runnels [illegible]	349 Fletcher rd	babygirl1202@yahoo.com	
8. STEPHEN RITTER	1692 S. PERKINS FERRY RD M.B. LA. 70611	STEPHENRITZ1 at YAHOO.COM	
9. Barry Hood	2989 Davis Rd	bhckhood@yahoo.com	

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	(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1.	CHARLES R & CAROL COOK	3708 BAKBAY CT WL	COOK70669@HOTMAIL.COM	
2.	Sheila Chase	3635 Cayton R. WL	sheilachase@gmail.com	
3.	DAN RACCA & JoAnn Racca	1324 Hi/MAST		
4.	Kurt Hamilton	844 Riversedge Rd Westlake LA.		
5.	Mark Adams	2304 May St. Westlake LA 70669	madams@netcommander.com	
6.	Donald Hanks	1906 Coffey Rd 70611	dphanks35@yahoo.com	
7.	Kim Hooks McMahon	866 Rivers Edge Rd	Kmcmahon214@yahoo.com	
8.	Michael McMahon	966 Rivers Edge Rd	mike@mikehooks.com	
9.	Jon Suttle	4944 Cypress Lake Dr Lake Charles La.		

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	(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1.	David Shelk + Pam	816 Martha St WL La 70669	bodyNsoltans@yahoo.com	Body & Sol
2.	Alicia Ball	4310 Ryan St. 70607	alicia@imcal.org	IMCAL
3.	Michelle Racca	1324 Hilma WL 70669	artcrazy28@yahoo.com	
4.	Jessie + Sandy Casey	1727 Deerfield Dr. LC 70611	spc200@hotmail.com	
5.	Dottie Harrington	4000 Topsy Rd. LC 70611		
6.	Don & Lesley Knight	1036 Hollis Rd Westlake		
7.	Bobby Le Jeune	3749 Cayton Rd		
8.	Donald Holme	125 Hudson		
9.	Caiti Landverleau	305 Armistead Ln. 70611		

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	(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1.	ELLEN DETERS	116 E. PARK MANOR DR. 70611	erdeters@camtel.net	N/A
2.	Michael Reid	2902 Bowie St Westlake 70669		
3.	Rufus Fruge'	913 Cooley Rd LakeCharles, LA 70611	rufusfruge@yahoo.com	N/A
4.	Paula Richey	2504 Straley Westlake 70669		N/A
5.	Chuck Richey	2504 STRALEY RD WESTLAKE 70669		N/A
6.	Carolyn (Tommie) Stutes	1630 Windy wood Wstlk 70669		
7.	Debbie & Greg Daigle	892 Rivers Edge Rd, Wstlk 70669		
8.	Carolyn & Robert Langley	2241 Tiffany Lane L.C. LA 70611		
9.	Andrew & Kathy Jinkle	2855 Jug Sayes Rd Lake Charles 70611		

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	(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1.	Sam Hanston Jones II	237 Shell Beach Dr. LC 70601	shjones62@gmail.com	Jones Family
2.	Lynell Benoit	501 Phillips Rd Westlake 70669	ibenoit@cpso.com	
3.	Debra Wilkins	503 Phillips Rd Westlake 70669	Dreamwe380@aol.com	
4.	Brenda Kelley	621 Hudson Dr WL 70669	Kelbydandg@aol.com	
5.	Richard & Shelly Hebert	901 Baker R. WL 70669		
6.	Clara Payne	997 Baker WL 70669	Cpaynela@gmail.com	
7.	Grant Bush	Lake Charles MPO		
8.	Wendy Becton	566 Rolling Hill Moss Bluff, La 70611	confederatejasmine@att.net	Family
9.	DERRICK SMITH	1070 HOLLIS RD. WESTLAKE, LA	—	—

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	(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1.	Michelle McInnis	1429 N. Morning Dr Lake Charles LA 70611	MMacinthebluff@gmail.com	Moss Bluff/ Ward one Economic Development Board
2.	Brian Racca	177 Gahagan Lake Charles, LA	~~Selen~~ Bluesbender@netcommander.com	
3.	Selena Racca	177 Gahagan Lake Charles, LA	"	
4.	Tony Colletta	1102 Emerald Cut Ln. L.C. La. 70611	Tonyc@CLMeQuipment.com	CLM EQUIPMENT
5.	Don Plauche.	2751 Williamsport Dr. Lake Charles, LA. 70611	Plaucheinc@aol.com	Plauche Inc.
6.	Mona & Brian LeJeune	668 Sharon Ln Lake Charles LA 70611		Camping friends of Sam Houston Jones Park
7.	Stephen Dwight	4832 Cypress Lake Dr Lake Charles, LA 70611	stephen@dwightlaw.com	Family
8.	Vicky Landry	657 Mims Rd. Westlake LA 70669	viclan@aol.com	
9.	Ernest M Droddy	5090 Lake Ct Lake Charles, La 70605	joanndroddy@gmail.com	

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	(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1.	Cecilia Richmond	507 Lumas Rd DeRidder, LA 70634	geauxnative@hughes.net	
2.	Maeghan Foreman	205 Maddox R Westlake La 70669		
3.	Shannon Ellis	1768 Pinewood Rd Lake Charles, LA 70611	Ellisfam5@yahoo.com	
4.	JEFF KUDLA	429 KIRBY ST LAKE CHARLES LA 70601	JEFF@KUDLAARCHITECT.com	
5.	Hershal Richard	1506 Kristle Lane LaKe Charles, La. 70611	hershal.richard@interfacesys.com	
6.	Clare + Eric Coleman	143 E Park Manor Circle LC 70611	clarissima80@gmail.com	
7.	Charles H. Prejean	120 Villa Dr WL, LA 70669		
8.	Kevin Pickard	902 Hollis Rd	Tammy_Renee1@yahoo.com	
9.	Jolynne + Nathan Dennis	518 Colonial Dr. LC, LA 70611	njdennis@bellsouth.net	

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	(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1.	Don Dugas	916 Simpson St, Ste E Westlake, LA	ddugas@fugro.com	Self
2.	Phil Johnson	500 Hilma St. Westlake, LA	thejohnsons_70669@hotmail.com	
3.	Delk Hoffpauir	2221 Walker Dr Westlake LA 70669		Self
4.	Norris J. Miller, Jr.	1717 Westlake, LA. 70669		Self
5.	Charles & Sandra Richard	4822 Topsy Rd. Lc, La 70611	sr123144@gmail.com	self-Campingfriends of Sam Houston
6.	Michael A. Savant	676 Santa Anna Dr L.C. LA 70611		Self
7.	Malon Dobson	P.O. Box 261 Lake Arthur, LA 70549		Self
8.	Ernest Burnthorn	1845 Hollow Cove Lane Lake Charles, LA. 70611	burnthornernie@gmail.com	Self
9.	Danny M Wade	3425 Davis 70669		

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	(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1.	ALAIN NEWMAN	6813 W. CALCASIEU DRIVE LAKE CHARLES, LA 70605	anewman@almobilenotary.net	Bicyclist
2.	Robert L. Moss	202 Phillips Road WESTLAKE LA 70669	RLMOSS53@AOL.COM	
3.	Thomas M. Miller	403 Phillips Rd. westlake 70669	NOMSW@bellsouth.net	
4.	Jimmy L. Miller	403 Phillips Rd. westlake 70669	NOMSW@bellsouth.net	
5.	James T. Strahan	3023 Crockett St. Lakestlake, LA 70669	Jamesstrahan@bellsouth.net	
6.	J.C. SKINNER	1031 ANN ST WESTLAKE	———	
7.	Roger Gilchrist	3216 Myrtle Springs Rd Westlake		
8.	JAMES MIMS	3454 Davis Rd WESTLAKE		
9.	STEPHEN KRAJICEK	600 RIVER EDGE DR WESTLAKE	SKRAJ@ME.COM	

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	(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1.	DOT Hicks	555 Ann Terrace Ave Wlk 70669	—	
2.	Wanda Ellis	507 Phillips Rd	wlhellis@yahoo.com	
3.	Lori Manuel	P.O. Box WL, LA 70669		
4.	Jerry Kirk	141 E. Park Manor Circle, LC, LA 70669		
5.	WM. Broussard	222 W. Dickhaye Rd. WL 70669	Warren Broussard@yahoo.com	
6.	Thomas Adams	251 Phillips Rd Longville LA	tadams@star-service.com	
7.	Mollie Todd	827 Garden Dr. WL	mtodd1014@hotmail.com	
8.	Tim & Liz Hall	209 Gahagan Ln LC LA 70611	tj_hall@yahoo.com	
9.	Kenny Nichols	2026 Coffey Rd LC LA 70611		

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	(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1.	DAVID STEWART			
2.	CAROL FUUTNETT			
3.	Harold Kennedy			
4.	Kae Ellender			
5.	Michael DeVille			
6.	Stefan Smith	1069 Kent Hill Rd. 70605		Lake Charles Racing (Bicycle Race Team)
7.	Perry + Lenda Vincent	3501 Davis Rd 70669		
8.	Steven + Jane Hebert	70669		
9.	Dalton Matt	70611		

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	(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1.	Samuel R. Thomasson	2207 Jones St. Westlake, LA. 70669		ME And Westlake
2.	JOHN DUHON	3007 Kari LN LAKE CHARLES LA 70611		NONE
3.	Stephanie Newman	4813 W. Calcasieu Dr Lake Charles LA 70611	stephanie@AIMobileNotary.Net	campure
4.	Ann Dradry	509 N. Lake Court Dr. Lake Charles, La. 70605		
5.	Ronnie L Foreman	10 HARMON Rd Sulphur LA 70663		
6.	Sue Moss	202 Phillips Rd Westlake LA 70669	sue-moss@ajg.com	—
7.	Nikki Hagen	1315 Hilma St WL 70669		
8.	Rhonda Carter	3001 Bowie St WL 70669		
9.	Richard Baggett	1309 S. Rue De Chene Westlake, LA		

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	(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1.	Cindy Human	331 Gateway Dr LC 70611	Cinhaman@yahoo.com	
2.	Russell Haman	331 Gateway Dr L.C. 70611	rhaman@cpda0.org	
3.	Rick Hendricks	2346 Bellfield LC 70611	rhendricks@beci.org	Beauregard Electric
4.	Dudley Pitre	686 Rivers Edge Rd 70669	dudleypitre@gmail.com	
5.	Billie Cormier	2701 Oliver Rd. 70669	bcormier73@yahoo.com	
6.	Walter Cormier	Same		
7.	Scott Spikes	208 Fontenot Rd. Westlake, LA 70669	Scottspikes@aol.com	
8.	Jack Houck	23007 Rivers Landing CT Katy TX 77494	P	
9.	Eddie Mims Kristy Mims	P.O. Box 723 Westlake, LA. 70669		

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	(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1.	Alison Michel	400N Peters NOLA 70130	acmichel@urbansystems.com	Urban Systems
2.	Randall P. Beaurard	1009A Elizabeth St.	Randall@Nrtcommender.com	
3.	Amy Nixon Emma Nixon	189 Gahagan Lane	acdruppy@aol.com	Concerned Citizen for Park
4.	Clyde & Betty Morgan	403 Phillips Rd	bjmorgan98@bellsouth.net	
5.	Randall Burleigh	1711 Hollis Rd Westlake		CPSB / Sasol
6.	Lewis M. Copley	3322 Westwood Rd Westlake		
7.	James George JAMES George	3302 Westwood Rd WL LA		Self
8.	CHRIS GASKIN	916 Sampson St. Suite E WLK,	cgaskin@fugro.com	Fugro Consultants Inc.
9.	Chris Wilye	1121 Beech St WSL LA 70669	cwilye@yahoo.com	Self

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	(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1.	WARREN LANDRY	1370 WALNUT DR. LAKE CHARLES, LA 70611	wlandryx@gmail.com	Contracted by Fisher
2.	Rebecca Elkins	PO Box 1045 / 1727 Windywood Rd. Westlake LA 70669	windywoodgirl@yahoo.com	
3.	Mark Duran	1411 TANYA LN Moss Bluff 70611	mlwduran@cs.com	
4.	Susan M. Fontenot	463 Reeves Rd L.C., 70611	susanmfont@gmail.com	
5.	Vickie & Wayne Doran	3933 Barrett Rd WLK 70669	Rpdoran@yahoo.com	
6.	Herb & Arlene Kane	5459 Doodle Jerry RD. Lake Charles LA. 70615		
7.	Jacob Racca	177 Gahagan Ln LC LA 70611	jake.racca@gmail.com	
8.	Hal McMillin	1423 N. Beach S Westlake LA.		
9.	GUY BRAME			CPPJ

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(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1. Robert Landry	419 Sam Houston Jones Parkway 70611	rlandry8@bellsouth.net	Service Tire & Auto / Cycling LCR / Billy Rogers
2. Alan Hohensee	1701 Palermo Dr, Sulphur 70663		self
3. Thomas Johnson		tejohnson@colpipe.com	self
4. Frank Webb	3077 Bordelon Rd LC 70611		
5. Traci Hedrick	2429 Stanley St. W.L.	tracimoss@yahoo.com	self
6. Dwayne Matthews	928 Bee Tree St WL	[illegible]	self
7. Randall Herbert	380 E. Weber Circle L.C. 70611		
8. Jill Lavender		jill@imcal.org	IMCAL
9. Nikki Little	2416 Dennis Lane LC / 408 Honeysuckle Lane WL	nml71@yahoo.com	Self

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September 18, 2013

	(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1.	Butch Jones	3721 Houston River Rd Westlake LA 70669		
2.	Christi Bird	721 Hudson Drive Westlake LA 70669		
3.	Tony Fullington	101 Villa Dr. Westlake, LA. 70669		
4.	Lisa Leeuwner	803 N. Division St Lake Charles, LA 70601		
5.	DANIELLE MCGAVOCK	1604 ST. JOHN BOSCO ST. WESTLAKE, LA 70669		
6.	Kenneth Eastmon	1308 S. Rue des Chenes Westlake, La. 70669		
7.	Dave Park	7041 Podrasny Rd LC. LA 70611	DWPARK@BELLSOUTH.NET	
8.	Eula Dunn	1424 Muskhogean Dr. L.C. La 70611		
9.	Barry Bernard	1738 South Woodland Forest Dr. L.C. LA 70611	BernardB.home@gmail.com	

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	(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1.	Nicole Adams	101 Sutherland Rd Lake Charles 70611		None
2.	Ed Pruitt	PO Box 164 WL		NA
3.	Barrie Ritter	1692 S. Perkins ferry Rd.	barreritz@yahoo.com	
4.	Loretta Ghariot	513 Hilma St WL	loretta.ghariot@gmail.com	
5.	Kirk Noreuil	1324 Laura St. Sulphur	knoreuil@suddenlink.net	
6.	Sylvia Del Carmen Duhon Michael Duhon	3281 Goos Rd. LC	sbdelcarmen@gmail.com	n/a
7.	Boyd and Shandell Moss 201 PHILLIPS RD.	201 PHILLIPS RD WESTLAKE	basmoss1@aol.com	NA
8.	David Racca	1324 Hilma St.	dr.Racca@yahoo.com	
9.	K. R. KLEPZIG	436 W PARK MANOR DR LAKE CHARLES, LA		

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	(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1.	Clyde Dennis	961 Newt Hodges Rd. Ragley	—	—
2.	Paul Hearn	204 Jackson Ave. Sulphur La 70663	hearnp@bellsouth.net	
3.	Dustin Cole	675 Marilyn Rd LC LA 70611	Dustin_cole@ymail.com	—
4.	Paul Trouth	9 P.O. Box 1822 Sul., LA. 70663	pt10958@yahoo.com	
5.	Marsha Montgomery	3647 Davis Rd Westlake LA 70669	harleydavidson95th@yahoo.com	
6. ✱	Collin Winkles	732 Sutherland Rd Moss Bluff LA 70611	Collin.Winkles@Yahoo.com	
7. ✱	Charles J. Ardoin II	1313 Argin Dr. Sulphur		
8. ✱	Charlie Atherton	122 Vine St Sulphur, La. 70663		
9.	Brian Racca	177 Gahagan Lane Lake Charles, LA 70611	Bluesbender@netcommander.com	

SIGN-IN SHEET

LA 378 Improvements (Westlake to Moss Bluff)
Stage 0 Feasibility Study
Public Meetings
September 18, 2013

	(Please Print Clearly) Print Name Here	Mailing Address	Email	Organization you are representing (if any)
1.	William A. Sommers	712 Larkspur Dr LC, LA 70611	WSommerssr@aol.com	ME
2.	TIM CONNER	1114 RYAN ST. LC. 70601	tconner@cppj.net	CPPJ
3.				
4.				
5.				
6.				
7.				
8.				
9.				

Name	Mailing Address	Email	Organization (if applicable)
RANDY HEBERT	706 LIVE OAK SULPHUR 70663	RANDY@BLACKIRONCOOK.COM	LA DUTCH OVEN SOCIETY (LDS)
Karen Northcutt	765 E. Bayou Pines, L.C. 70601	knorthcutt@bellsouth.net	Ingle Safari Realty (Realtor)
GREGORY A. ELLIOTT	2800 WESTWOOD RD WESTLAKE 70669	THE OUTPOST 48 @ YAHOO.COM	
Melissa Wiersema	1904 Bobby Jones Way Westlake LC	Melissa.wiersema@yahoo.com	
Brenda Doucet	1507 Co Hagelin		
Bruce Broussard Jr.	277 Hwy 171 N, Ste S, 70611		
Russell DEBHOTEL	337-309-1843	3625 Davis Rd.	
Cathie Jones		1120 Guillory St. Westlake, LA 70669	
Billy Flowers	810 Arrowhead Dr.	Billyflowers56@yahoo.com	MB 70611
Allen & Pamela Seal	858 River's Edge Road Westlake 70669	sealproperties@mac.com	
K. Jude + Jeanne B Sonnier	822 Bee Tree St. WL LA 70669		
Harry Shahan	402 West 4th Street DQ, LA 70637	Harry_Shahan@yahoo.com	

LA 378 Improvements (Westlake to Moss Bluff)
Calcasieu Parish

Stage "0" Feasibility Study
State Project No. H.009488.1

Open House Public Meeting
Project Information Handout

OPEN HOUSE MEETING FORMAT:

- Project staff members are situated at the exhibits in the meeting room. Feel free to ask them questions as you look at the exhibits.
- A court reporter is available to take your verbal comments. Please make sure to state your name and address for the record.
- You may also make a written comment for the record via the Comment Forms – one is included at the back of your handout.
- A PowerPoint presentation will play on a constant "loop" during the meeting. Feel free to watch it at any time during your visit.

PROJECT HISTORY:

Since the early part of the new century, there has been a desire to improve route LA 378 between Westlake and Moss Bluff. By 2006, the Metropolitan Planning Organization (IMCAL) had the project listed in its Metropolitan Transportation Plan and intended to have it placed in the Transportation Improvement Program as a DEMO funded project. A preliminary feasibility report was completed by Meyer Engineers in March, 2006 which explored possible improvements between John Stine Road and Sam Houston Jones Parkway. The project at hand began in earnest with a Resolution by the Calcasieu Parish Police Jury in September 2011 that requested that the LADOTD perform a feasibility study for widening LA 378 between John Stine Road and the LA 378 spur.

As a result of this request in the summer of 2012, the LADOTD issued a task order for N-Y Associates, Inc., under its existing Stage 0 Statewide Retainer, to complete a Stage 0 Feasibility Study to explore not only the widening and improvement of LA 378 between the LA 378 spur in Moss Bluff and John Stine Road in Westlake, but also to explore ways of improving the five-lane LA 378 section between John Stine Road and I-10.

PROJECT PURPOSE AND NEED

The purpose of this project is to improve traffic operations along LA 378 between the LA 378 spur in Moss Bluff and I-10 in Westlake. This would primarily be accomplished by converting the two-lane sections in the north to four-lane sections, but would also involve realignment of and physical improvements to the widened section, as well as geometric improvements to the southern section of LA 378 between John Stine Road and I-10.

The need for this project is as follows:

- The route serves as an access route to the petrochemical industry in Westlake as well as a route to the Sam Houston Jones State Park in Moss Bluff. Additionally, LA 378 is a hurricane evacuation route and an industrial emergency evacuation route for residents of the Westlake area.
- Traffic volumes along the roadway had increased tremendously over the last few decades, from below 5,000 vehicles per day in 1980 to around 15,000 vehicles currently. The route is highly congested during peak-hour times.
- LA 378 has a Level of Service below the minimum desired for an Urban Arterial roadway as defined in the Louisiana Department of Transportation and Development (LADOTD) design standards.
- Further growth is expected in the area with the development of the SASOL plant and other future industrial growth, further exacerbating the congestion.

If left unimproved, existing congestion and access problems can be expected to increase due to the continued growth. It is also important to enhance the overall transportation system to provide roadway network continuity, sufficient roadway access, mobility, and capacity improvements to meet future traffic demand. Roadway safety is also a priority.

PROJECT DESCRIPTION AND LIMITS

The project currently consists of three (3) alternatives: Alternatives A, B and C. Alternative A has one optional feature, a roundabout at Phillips and Davis Road intersection, and with that option is referred to as Alternative "A-2". Additionally, each Alternative can be divided into two segments of improvement: a southerly section, from I-10 to John Stine Road, where LA 378 is already a five-lane facility, and a northerly section, between John Stine Road and Sam Houston Jones Parkway, where the current two lane roadway would be widened and realigned. As such, it is possible to implement one alternative for the southern section, and a different one for the northern section.

Using LADOTD design criteria, it was determined to build new or widened roadway segments to UA-2 (Urban Arterial) highway standards, which would entail a 45 MPH design speed. As the required cross-section for this type of roadway is 170 ft. while the current right-of-way is approximately 110 ft., right-of-way will be required. The design was undertaken with the purpose of avoidance and minimization of impacts wherever possible.

The widened roadway segments will also need to meet LADOTD design standards for access and safety. As per LADOTD design criteria, an eighteen foot (18') median is required between the northbound and southbound lanes. Access will be limited as per the LADOTD's Engineering Design Standards Manual (EDSM) IV.2.1.4, which was put into effect in September 2008. The EDSM provides definitions and criteria for design of median openings on roadways where a median did not exist prior to the current project (i.e., 2 lane to 4 lane divided or 4 lane undivided to 4 lane divided). Most notably, median openings shall be spaced at least ½ mile (2,640 ft) and shall be directional u-turns. At locations where median openings are provide for u-turns, some bump-outs were also provided to enable truck u-turn movements.

Each of the alternatives is described in depth below:

ALTERNATIVE A

In the southern section (between I-10 and John Stine Road), Alternative A only includes two improvements, both of which are in the vicinity of the intersection with Sulphur Avenue. The turnout from eastbound Sulphur to southbound LA 378 would be replaced with a new turnout and an acceleration lane would be added. A raised median would also be installed north of Sulphur along the left (west bound) turn lane of LA 378. These improvements are expected to aid in safety.

In the northern section, beginning at John Stine Road, LA 378 would be widened and improved from two to four lanes. Instead of the existing "T" intersection with Phillips Road, under Alternative A the roadway will curve eastward to align with Phillips Road, and Westwood itself will be realigned to intersect with the new LA 378 in the roadway curve. Alignment A uses the Phillips Road alignment for a short distance, and instead of the existing "T" intersection at Davis Road, the roadway will curve northward to connect directly to Davis Road. Davis Road south of the intersection will be realigned to intersect at an acceptable angle, with the intersection occurring in the vicinity of the fire station driveway. North of this intersection, the new alignment will follow the Davis Road alignment with right-of-way being acquired mostly on the east (undeveloped) side. Near Barrett Lane, right-of-way will be acquired on the western side, and a new parallel lift bridge will be constructed to carry the two southbound lanes. The existing bridge will remain to carry the two northbound lanes. The intersection with Dennis Lane will be reconfigured along with the intersection with Sam Houston Jones Parkway. Just east of E. Park Manor Drive/ Winding Creek Drive, the roadway transitions back to the existing LA 378 five-lane section.

Build Alternative A also has an option (referred to as **Alternative A-2**) which features a roundabout at the Phillips Road/ Davis Road intersection instead of a curve. This enables the Davis Road section north of the intersection to more closely align with the existing road and would require less right-of-way.

ALTERNATIVE B

In the southern section (between I-10 and John Stine Road), Alternative B would include conversion of existing intersections to roundabouts at four locations: Sulphur Avenue, McKinley Street, Mulberry Street, and John Stine Road. Alternative B also includes installation of a raised median between the roundabouts. U-turn movements would be accomplished at these roundabout locations. These improvements are expected to aid in safety and access management.

In the northern section, beginning at John Stine Road, LA 378 would be widened and improved from two to four lanes. Near the intersection with Landry Road, the new roadway will begin to veer northeasterly. At Hudson Road, another roundabout will be installed. A new roadway will extend from this roundabout to the vicinity of the existing Davis Road/Phillips Road intersection, which will also be replaced with a roundabout. For access purposes, a roundabout is also to be placed at Villa Drive. Similar to Alternative A, a new parallel lift bridge will be constructed to carry the two southbound lanes and the existing bridge will remain to carry the two northbound lanes. The intersection with Dennis Lane will be reconfigured and the intersection with Sam Houston Jones Parkway will be converted to a roundabout. Just east of this roundabout, the roadway transitions back to the existing LA 378 five-lane section.

ALTERNATIVE C

In the southern section (between I-10 and John Stine Road), Alternative C would include conversion of existing intersections into "J-turns" at Sulphur Avenue and McKinley Street. The alternative also includes installation of a raised median with provisions for left turns and u-turns evenly spaced along the route. These improvements are expected to aid in safety and access management.

In the northern section, beginning at John Stine Road, LA 378 would be widened and improved from two to four lanes. At the intersection with Phillips Road, a roundabout will replace the existing intersection. Just north of Hollis Road, a new four-lane bridge across the West Fork of the Calcasieu River will be constructed, which will pass through Sam Houston Jones State Park. After returning to ground level, the new route will curve east, past Gahagan Lane and crossing Indian Bayou with a smaller bridge. The existing intersection with Sam Houston Jones Parkway will be relocated and re-configured, and the new roadway will connect to and transition to the existing LA 378 five-lane section just east of E. Park Manor Drive/ Winding Creek Drive.

Comment Form

LA 378 Improvements (Westlake to Moss Bluff)
Calcasieu Parish
Stage "0" Feasibility Study

Public Meeting – September 18th, 2013

State Project No. H.009488.1

The LA 378 Project Team would appreciate your comments on this project. Please write your comments below and give to a member of the Project Team or fold, tape, stamp and mail to the address on the back of this form or fax to (504) 885-0595. Thanks for your input.

Your Name: _____

Address: _____

_____

To ensure that your comments become part of the official meeting record, they should be post marked within ten calendar days following this meeting (by 9/28/13).

Place
Stamp
Here

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
Metairie, LA 70002

In Re: State Project No. H.009488.1
STAGE 0 FEASIBILITY STUDY
LA HWY 378 IMPROVEMENTS
(Westlake to Moss Bluff)
CALCASIEU PARISH, LA

WEDNESDAY, September 18, 2013
6:00 PM - 8:00 PM
MANAGAN CENTER, 1000 MCKINLEY STREET
WESTLAKE, LA

REPORTED BY: BETTY C. MINTON, RPR, CCR, LCR

* * *

WENDY BECTON:

Wendy Becton. My address is 566 Rolling Hill Drive, Lake Charles, 70611. I'm completely against Route C. I think they call it Alternative C. I do not want our park contaminated, changed or possibly closed. When the park affects hundreds of thousands of people throughout the state and country and these other routes would effect some people on those various different streets. It doesn't effect everybody coming out of the area, out of the state that camp and stay in our parks.

I'm also against them doing it because now the next nearest state park is, what, an hour and a half away if they close Sam Houston State.

ROBERT LANDRY:

Robert Landry, 419 Sam Houston Jones Parkway, 70611. I'm against Option C. I feel the revenue that the park develops is good for our area and it's a well-used park. Also Option C

would bring a road kind of close to our

kids baseball fields on 378.

STEFAN SMITH:

Stefan Smith, 1069 Kent Hill Road, 70605. I'm against Option C. I believe the park is a very big asset to Southwest Louisiana. I feel implementing Option C would just take that asset away from us. I really don't see the point of Option C since you didn't develop anything on that land anyway.

I don't think it's a good idea to have that much traffic going through a park where you have so many pedestrians walking, riding bikes, and just trying to enjoy the park to its full extent. That's it.

THOMAS JOHNSON:

Thomas Johnson, Lake Charles, 70611. I was just going to say I don't care for the option going through Sam Houston Jones Park, Option C.

RANDY HEBERT:

My name is Randy Hebert,

706 Live Oak Street, Sulphur, Louisiana, 70663, cell phone number (337)912-9394. I'm vice president of

the Louisiana Dutch Oven Society, a non-profit organization registered with the state.

I'm for Plan B because it's the least amount of impact to Sam Houston Jones State Park. It increases traffic flow from I-10 through Westlake to 171 leaving room for further expansion for a north I-10 loop.

NORRIS MILLER:

Norris Miller, 1717 Miller Avenue, Westlake, 70669. All I want to say is that I've lived here 20 years. This is in regards to Sam Houston Park all the time. This is for people that come from out of state, and all over to use the park. I can't even believe that somebody is thinking about moving through the wetlands, our only park that we have in this area. There is all kind of recreation but that's the only kind for people that like to ride

bikes or walk or do their things with the boats.

Plan B to me seems to be the best one. Let's don't mess up our wetlands and our park that we just

can't make everyday. Basically that's it. Thank you.

DWAYNE MATTHEWS:

Dwayne Matthews, 928 Bee Tree Street, Westlake, 70669. Okay. I think they should go with Alternative B. I don't think A or C should even be associated because I don't see why we should take out a part of our national history parks. That's the state. So that should be left completely alone.

MELISSA ADAMS:

Melissa Adams, 251 Phillips Road, Longville, 70652. All I want to say is the one that I don't want. I'm in opposition for the Alternative C that goes through the Sam Houston State Park.

DELLA HOFFPAUIR:

Della Hoffpauir, 2221 Walker

Drive, Westlake, 70669. I would be opposed to C but I'm not real sure of the turnarounds or roundabouts. And I like B preferably.

RUFUS FRUGE:

Rufus Fruge, 913 Cooley Road, Lake Charles, 70611. I thought that

the meeting tonight was pretty informative.

I personally enjoy -- I like Alternative C simply because it deals with less populated areas and I wish I could have seen where this went through Sam Houston State Park. I think that's very important but beyond that, in an anticipation of the increased economic development in our area as a result in the petrochemical industrial expansion that are soon to occur.

I think our focus should be more in the less populated areas for various reasons. But I think this is a good starting point and hopefully this project will continue.

RHONDA CORTEZ:

Rhonda Cortez, 3001 Bowie, Westlake, 70669. I understand that we need to improve the roads but with all of the roundabouts they are talking about, it is going to be like a dog chasing it's tail. No one is going to let the people in because they're going to be worried about them getting to where they need to go.

BRENDA KELLEY:

My name is Brenda Kelley, 621 Hudson Drive, Westlake, 70669. I spoke with the engineer in regard to Alternate B that impacts Hudson Drive and he suggested that I formally request that consideration be given to moving the turnaround slightly north by Hudson to impact fewer houses because there is a large wooded area where we have the impact.

He said they were trying not to impact the park and the golf course to the east, but if they moved it to the north slightly, which he thought was feasible, would save the impact on the

houses at this end of Hudson.

The only other thing I would like to request is there have been three fatalities at the intersection at Hudson Drive and Westwood and now 378, and we have repeatedly requested a traffic light there. And according to the information handed out today, there's 15,000 cars daily using this road.

We were told before after the

first two fatalities there was not enough traffic for the state to justify putting one, since this study will take a while, given that there are three fatalities.

And with the addition of the golf course adding another lane of traffic into this already dangerous intersection, I'd like to go on the record requesting one more time that the state consider putting a traffic light as this intersection.

THOMAS ADAMS:

My name is Thomas Adams, 251

Phillips Road, Longville, 70652. And I'm opposed to the route which takes the proposed roadway through Sam Houston Jones State Park. I feel like at all cost that piece of Southwest Louisiana needs to be preserved and any alternative destroying the integrity of the park and it's intended purpose, I'm totally against. Thank you.

ROBERT WHELAN:

Hi, this is Robert Whelan, 3319 Julia Street, Lake Charles. I'm opposed to any road or any highway

passing through Sam Houston State Park. That's one of our greatest assets in Southwest Louisiana. If anything, we should be expanding our park and not making it smaller. The way it is now would destroy the park and it would be non-useable. Thank you.

JACOB RACCA:

Jacob Brian Racca, 177 Gahagan Lane, 70611. I think if they just continue the original plans for the I-210 loop that it would alleviate all

of these issues that are going on right now with the route to go because it would bring together north, south, east, west, DeQuincy, Moss Bluff, Sulphur everyone. And -- I believe some of the right-of-ways already have been cleared, but I'm not sure. But I think that would be a much more wise project especially with the Sasol expansion. The interpretation of where 210 will continue from will be right there. And we're going -- if Lake Charles continues to grow, we will need a loop anyway. Thank you.

SUSAN KELSO:

I'm Dr. Susan Kelso. I live with my husband and our three dogs right in the park. The park is across the street from us. The park is to the east of us and the river is on the south. We watch all of the birds, the animals, listen to the owls, see the cypress trees, and really appreciate nature out there.

We see lots of people from Lake Charles who come out to enjoy nature and be quiet to have the peacefulness of the trees and the plants and animals, as well as people from out of town.

And we really are concerned about creating the traffic, the noise and even some of these alternatives cutting the park in two. So we hope to maintain the sanctuary of nature that we have there for other people also to walk their dogs and ride their bicycles and to enjoy this beautiful place in Lake Charles. Thank you.

RANDALL HERBERT:

My name is Randall Herbert, 380 E Weber Circle, 70611. After looking

at the proposal A, B and C, I believe Proposal A will be the best and most economical.

NATHAN DENNIS:

My name is Nathan Dennis, 518 Colonial Drive, Lake Charles, 70611. I would like to just comment on the Alternative A and B, the northern

section of the proposed projects. I would like to request that there be a reconsideration of the location of the bridge on the west side of the current bridge to the east side of the current bridge so as not to impact homeowners and residences and businesses that are currently on the west side.

The east side location of the bridge would not impact any current residents or businesses. Thank you.

MARSHA MONTGOMERY:

Marsha Montgomery, 3647 Davis Road, Westlake, 70669. I wanted to say that I was opposed -- most opposed to Option C which would send the highway through Sam Houston Jones State Park. Our property is directly across from the park and there's lots of wildlife

that we notice just being on the border: Wild Eagles, owls, beavers, alligators. I don't know how they could measure the environmental impact, the noise pollution, disturbing the esthetic value of the park.

It's just a great resource in our area that we can go to. It's very cost efficient for families to get away and enjoy nature. And I don't want to see it disturbed in any way. Thank you.

JAMES DESHOTEL:

My name is James R. Deshotel. I live at 3625 Davis Road. I like A out of the three. I like A because it would help my business instead of killing my business and it wouldn't hurt my land or none of that -- the other would hurt my business. I just can't afford that. I can't work now. I'm not old enough to draw Social Security yet. I'm getting close. And I just -- I'm just trying to do what's best for me.

And they got a lot of traffic. I got to stop fifteen, twenty minutes

every morning in my driveway just to leave, and if I'm coming back in the afternoon, I've got to do the same thing in the afternoon. Thank you.

CHARLIE ATHERTON:

Charlie Atherton, 122 Vine Street, Sulphur, Louisiana, 70663. My interest -- my favorite is for Alternative C for Sampson Street would go straight north. And my preference would be for it to go straight north and tie directly into Sutherland Road because that allows the traffic to proceed -- high speed traffic to go north on Sutherland Road up to Dunn Ferry Road. And then when they turn west on Dunn Ferry Road, it takes you all of the way to Highway 27 in Sulphur which gives you like a western loop which is something we don't have at this point. Thank you.

CHARLES ARDOIN:

Charles J. Ardoin, II, 1313 Argin, Sulphur, 70663. The main reason I came was to help protect our park. I'm a cyclist and have worked on the trails and things and been riding out

there for years. My first of all
concern is that the park be protected,

all the prime, pristine areas we have
we need to keep the traffic out of
there and protect what we have.
Otherwise Option A is looking
pretty good. I think just talking to
the representatives looking at the
maps, this is the first time I've
looked at the options myself, and I'm
pretty favorable towards that A if that
-- my two cents helps a little bit.
That's it.
(HEARING CONCLUDED AT 8 P.M.)

CERTIFICATE

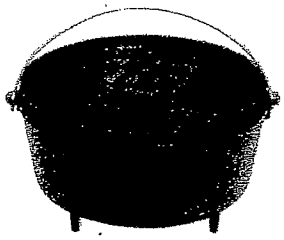
This certificate is valid only for a transcript accompanied by my seal stamped in blue ink on this page.

I, BETTY CURRY MINTON, RPR, CCR, LCR in and for the State of Louisiana, as the officer before whom this testimony was taken, do hereby certify that the Public Hearing on September 18 of 2013, at the Managan Center, 1000 McKinley Street, Westlake, Louisiana. That this testimony was reported by me in stenotype reporting method, was prepared, transcribed by me, is true and correct to the best of my ability. I am not related to counsel, in no manner associated with counsel or any of the interested parties to this litigation, and I am not concerned with the outcome thereof.

This 19th day of September 2013, Lake Charles, Louisiana.

_____

Betty Curry Minton, RPR, CCR, LCR



September 27, 2013

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
Metairie, LA 70002

Re: State Project No. H009488.1

Dear Sirs;

I am pleased to provide these comments for your careful consideration as the alternatives are considered for State Project No. H009488.1, LA 378 improvements. During the public hearing there were three basic alternatives presented. The alternatives were insufficient as a "no action" alternative must also be considered as well. This alternative was not presented and should have been. I recommend that the no action alternative also be considered and given full evaluation along with all alternatives.

I am a member of a special interest outdoor group which utilizes the park on a regular basis. We have many members and participants in our organizations. We have regular events in the park and a roadway such as this would have a definite negative impact on our activities.

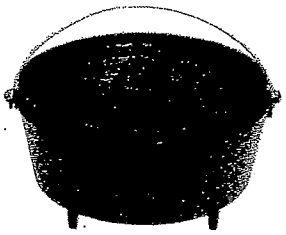
The **Louisiana Dutch Oven Society** has a chapter, *Le Chien Cookers*, which regularly meets in the Sam Houston Jones State Park for our activities. We have standing and have a special interest to protect the park – ALL OF IT. We maintain that not one square inch of the park should be given up for this roadway development.

Alternatives A and B may be reasonable, however Alternative C which allows the road extension to pass through a major portion of Sam Houston Jones State Park is not a reasonable alternative. Our park is very important to us. We utilize the park on a regular basis. Any transportation throughway will be disruptive to the mission of the park and to all the users of the park. Not one square inch of the park should be given up for this or any other similar roadway. The loss of wetlands at this particular location is not acceptable and they cannot be replaced. The additional traffic noise and air pollutants at such close proximity are not acceptable. The loss of valuable wild lands and hiking trails as well as visual pollution all make this an unwanted and unreasonable alternative.

NOT ONE SQUARE INCH OF OUR STATE PARK SHALL BE GIVEN UP!

Yours Truly,

A.C. Maxfield
504 Cody St.
Sulphur, LA. 70663



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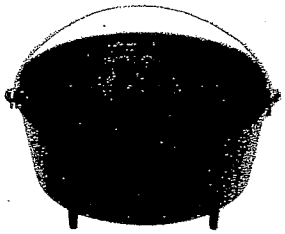
RANDY HEBERT
V.P. LA DUTCH OVEN SOCIETY

706 LIVE OAK
SULPHUR, LA



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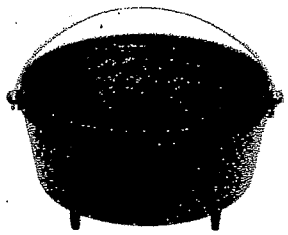
2712 Mossy Ann Dr.
Sulphur, La 70663



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NOT ONE SQUARE INCH OF OUR STATE PARK SHALL BE GIVEN UP!

Yours Truly,

Ronald J Henry 583-4981
192 Red Rose Dr Sulphur La 70665

September 27, 2013

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
Metairie, LA 70002

Re: State Project No. H009488.1

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Yours Truly, Donald E Richard

1151 S R Cooley RD
Longville La. 70652
(337) 302-7912.

September 20, 2013

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
Metairie, LA 70002

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NOT ONE SQUARE INCH OF OUR STATE PARK SHALL BE GIVEN UP!

Yours Truly,

Kelley R. Klepzig
456 W. Park Manor Dr
Lake Charles, LA 70611

left turns should be allowed on Hwy 378, i.e. there should be no raised medians. During high traffic times, left turns will be made at the round-abouts, by necessity. But most of the time, left turns should be made where where needed, without going to a roundabout, thereby saving time and our nation's energy resources

September 20, 2013

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
Metairie, LA 70002

Re: State Project No. H009488.1

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Yours Truly,

Les Wainwright
109 Crestwood St
Lake Charles
LA

September 20, 2013

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
Metairie, LA 70002

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Yours Truly,

Paul W. Hearn

Paul Hearn
204 Jackson Ave.
Sulphur, La 70663

September 20, 2013

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
Metairie, LA 70002

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Yours Truly,

Jim Pousson
569 Little Bucks Dr.
Lake Charles, LA 70611

September 20, 2013

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
Metairie, LA 70002

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Yours Truly,

Jeanie Poussou
569 Little Burns
Lake Charles La 70611

September 20, 2013

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
Metairie, LA 70002

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Yours Truly,

Mohamed El Mogyar
4820 Livingston St.
Lake Charles, LA 70607

September 20, 2013

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
Metairie, LA 70002

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Yours Truly,

Rene Strauwasser
2425 Brent Keith Dr,
Lake Charles, LA 70605

September 20, 2013

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
Metairie, LA 70002

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Yours Truly,

Mike VanEtten

Mike VANETTEN
1025 Mouton Ave
Parks, LA 70582

September 20, 2013

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
Metairie, LA 70002

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Yours Truly,

Daniel T. Plummer
4104 Beau Chene Dr.
Lake Charles, LA 70605

September 20, 2013

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
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Yours Truly,

Linda Manuel

P.S. I grew up in Sam Houston Jones State Park and it is more important now because of ~~com~~ so much development springing up.

September 20, 2013

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
Metairie, LA 70002

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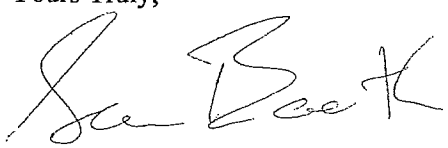

SEAN BOOTH
5740 California Trl.
Lake Charles, LA 70605
(337) 884-4974

KENNETH R. EASTMAN, D.C.
Doctor of Chiropractic
POST OFFICE BOX 277
WESTLAKE, LOUISIANA 70669

TELEPHONE OFF.: 436-3145
FAX: 436-5435

September 23, 2013

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates Inc.
2750 Villa Dr, Suite 100
Metairie, LA 70002

Dear Sirs:
I attended the public meeting in Westlake, LA regarding the Hwy 378 improvements the other evening. Of the three options presented, A, B, and C, I feel very strongly that option "C" is a very poor choice and would prefer nothing be done if that were the only option.

Alternative "B" is a good option except for all the roundabouts and the raised median along Sampson St. Westlake is an aging community and I strongly feel that the roundabouts would create problems for older people. Additionally, the center turning lane serves the people of this community well. Removing that option by raising the median and forcing people to U-Turn at a roundabout would interfere with the normal business in this town, even though it would probably enhance traffic flow through the town during shift time. However we are concerned with the other 22 hours of the day, not just traffic during shift time. I have mentioned this to several people in Westlake and they are as opposed to this plan as they are to alternative "B".

Alternative "A" is the best and most cost effective way to improve the current situation. But this option would be even better if a new road is extended from Hudson Dr. to the intersection of Davis Rd./Phillips Rd. as suggested in alternative "B". Roundabouts at these two intersections also make sense because they do not affect the business section of Westlake.

Please add these comments to the official record.

Sincerely,

Kenneth R. Eastman, D.C.

Kenneth R. Eastman, D.C.

September 25, 2013

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
Metairie, LA 70002

Re: State Project No. H009488.1

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Not only do we kayak regularly at the park, but we also hike, bike, picnic, camp, fish, and hold special events such as my sons' high school graduation party at this wonderful highly-utilized community facility.

We have standing and have a special interest to protect the park – ALL OF IT. We maintain that not one square inch of the park should be given up for this roadway development.

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Sam Houston Jones State Park has been one of my favorite places since I moved to Moss Bluff in 2007. Please protect this park!

Sincerely,

Angie Dilmore

Angie Dilmore
Moss Bluff resident

7/20/15

To whom it may concern,

The proposed new route, on Exit Hwy 336, going through Sam Houston Jones State Park is silly. Of course it is. To consider the destruction of state property that serves families, community organizations, churches, also is very silly. Please remove that alternative asap.

Sincerely,
Margaret Li

RECEIVED
SEP 26 2013
N-Y ASSOCIATES, INC.

Comment Form

LA 378 Improvements (Westlake to Moss Bluff)
Calcasieu Parish
Stage "0" Feasibility Study

Public Meeting – September 18th, 2013

State Project No. H.009488.1

The LA 378 Project Team would appreciate your comments on this project. Please write your comments below and give to a member of the Project Team or fold, tape, stamp and mail to the address on the back of this form or fax to (504) 885-0595. Thanks for your input.

I am the Vice President of the local bicycle racing team, Lake Charles Racing (LCR). We have many members of our team that utilize the park's amenities regularly. We also host ~~a~~ mountain bike races at the park. Alternative C would have a definitive negative impact on our activities. Our park is very important to us and should not be destroyed by putting any roadway through it. The loss of wetlands is not acceptable and can not be replaced. The loss of valuable wetlands, bike/hiking trails as well as pollution make this an unwanted and unreasonable alternative

Your Name: Stefan Smith
Address: 1069 Kent Hill Rd.
Lake Charles, LA 70605

To ensure that your comments become part of the official meeting record, they should be post marked within ten calendar days following this meeting (by 9/28/13).

RECEIVED

SEP 2 7 2013

N-Y ASSOCIATES, INC.

September 27, 2013

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
Metairie, LA 70002

Re: State Project No. H009488.1

To Whom It May Concern,

I am the owner of River Less Paddled, an outdoor store in Lake Charles, LA. I have regularly used the park for years for a variety of activities, including camping, hiking, biking, kayaking, and disc golf. Many of my customers use the park for one or more of these activities.

Alternatives A and B may be reasonable, however Alternative C which allows the road extension to pass through a major portion of Sam Houston Jones State Park is not a reasonable alternative. Our park is very important to us. We utilize the park on a regular basis. Any transportation throughway will be disruptive to the mission of the park and to all the users of the park. Not one square inch of the park should be given up for this or any other similar roadway. The loss of wetlands at this particular location is not acceptable and they cannot be replaced. The additional traffic noise and air pollutants at such close proximity are not acceptable. The loss of valuable wild lands and hiking trails as well as visual pollution all make this an unwanted and unreasonable alternative.

Yours Truly,

Roman S. Ryder

Comment Form

LA 378 Improvements (Westlake to Moss Bluff)
Calcasieu Parish
Stage "0" Feasibility Study

Public Meeting – September 18th, 2013

State Project No. H.009488.1

The LA 378 Project Team would appreciate your comments on this project. Please write your comments below and give to a member of the Project Team or fold, tape, stamp and mail to the address on the back of this form or fax to (504) 885-0595. Thanks for your input.

SCRAP PLAN "C". PLAN "B" IS VERY PROMISING BUT WE NEED TO BE ASSURED THE TRAFFIC CIRCLES WILL KEEP THE TRAFFIC FLOWING. PLEASE CONSIDER THE COMPLETION OF THE I-210 LOOP. EVEN IF IT IS DONE IN STAGES. HWY 171 IS ALREADY AT MAX FLOW AND GETTING WORSE. THE 378 PROJECT IS A GOOD 1ST STEP. KEEP UP THE GOOD PROGRESS.

Your Name:

Address: Robin Mathis
417 W Weber Cir
Lake Charles, LA 70611-5233

To ensure that your comments become part of the official meeting record, they should be post marked within ten calendar days following this meeting (by 9/28/13).

Comment Form

LA 378 Improvements (Westlake to Moss Bluff)
Calcasieu Parish
Stage "0" Feasibility Study

Public Meeting – September 18th, 2013

State Project No. H.009488.1

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I Am greatly opposed to Any loss of Sam Houston Jones State Park Property. This is our part of L-A! Alternative A seems to be the Best Selection — Less disruption of downtown Westlake And a Safer Highway 378 West of the West Fork River

Your Name: Robert D Langley
Address: 2241 Tiffany Dr
Lake Charles La. 70611

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Comment Form

LA 378 Improvements (Westlake to Moss Bluff)
Calcasieu Parish
Stage "0" Feasibility Study

Public Meeting – September 18th, 2013

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1. I greatly OPPOSE Alternative C!!
Protect our SHJ park & Wildlife. People need Parks!!
2. Choose to affect homes and neighborhoods the LEAST.
Noisy traffic in Business area is More Acceptable than Home, Residential areas.
Protect our Homes, Parks, People & Wildlife for sustainable quality of Life.

Your Name: Carolyn Langley
Address: 2241 Tiffany Lane
Lake Charles, LA 70611

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Calcasieu Parish
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I AM IN FAVOR OF ALTERNATIVE C
THIS WOULD ALLOW FOR THE MAJORITY
OF THE CONSTRUCTION TO BE COMPLETED
WITHOUT DISPLACING TRAFFIC DURING
THE CONSTRUCTION PHASE.

Your Name: KENNETH LESTER
Address: 1317 BEECH ST
WESTLAKE LA 70669

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Comment Form

LA 378 Improvements (Westlake to Moss Bluff)
Calcasieu Parish
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Public Meeting – September 18th, 2013

State Project No. H.009488.1

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We are for Alternative B. It is the shortest Route and would not disrupt either of the two parks. It is mostly woods thru Hudson Rd + Davis Rd and the homes that would be affected are older and everyone we spoke to would be willing to sell. We think this section of this plan should be started and completed to keep traffic flowing when construction starts to widen Simpson St + Hwy 378 to Moss Bluff and these areas have only one lane to travel on. We are against Alternative A because due to the safety of Children and it would disrupt Ponderosa Park. This section of Simpson should be made a 25mph zone. There also would be more homes involved on this route and more work involved to move more water + gas pipelines. With Alternative B this area by the park would be left alone for Bailey's to continue to enjoy. We attended the meting and it was clear the majority of the people want Alternative B.

Thank you,

Your Name: Michael Spikes

Address: 208 Fontenot Rd
Westlake LA 70669

To ensure that your comments become part of the official meeting record, they should be post marked within ten calendar days following this meeting (by 9/28/13).

504-885-0595

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LA 378 Improvements (Westlake to Moss Bluff)
Calcasieu Parish
Stage "0" Feasibility Study

Public Meeting – September 18th, 2013

State Project No. H.009488.1

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Regarding Plan 'A' - Why is the planned right of way acquisition to the West at Barrett Lane, as opposed to the east as it is for the rest of Davis Rd.?

More Homes will be impacted to immediate West at Barrett than to the East.

Plan 'C'. How can we be having a discussion about a 4 lane through a State Park?? This proposal should be taken "off the table." I was told that this proposal was deemed to be Cost prohibitive in the Meyer Study, in addition to the obvious environmental impact.

Your Name: Selena Racca
Address: 171 Gahagan Lane
Lake Charles, LA 70611

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Comment Form

LA 378 Improvements (Westlake to Moss Bluff)
Calcasieu Parish
Stage "0" Feasibility Study

Public Meeting – September 18th, 2013

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ALTERNATE "C" WOULD BE THE IDEAL ROUTE BUT GOING THE PARK MAKES IMPRACTICAL, THE MOST PRACTICAL ROUTE WOULD BE ALTERNATE "B", THE TRAFFIC WOULD FLOW EASIER BECAUSE THE CURVES IN THE ROAD WOULD NOT BE AS SHARP.

HOPEFULLY THIS WILL BE A REALITY THIS TIME.

Your Name: DERRICK D. SMITH

Address: 1030 HOLLIS ROAD
WESTLAKE, LA. 70669

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Comment Form

LA 378 Improvements (Westlake to Moss Bluff)
Calcasieu Parish
Stage "0" Feasibility Study

Public Meeting – September 18th, 2013

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Sept. 18, 2013

Let's Flip a Coin

&

Get the Show on the Road!

Your Name: J. C. SKINNER

Address: 1034 ANN
West Lake, La. 1-337-439-4743

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2013
ASSOCIATES INC

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Comment Form

LA 378 Improvements (Westlake to Moss Bluff)
Calcasieu Parish
Stage "0" Feasibility Study

Public Meeting – September 18th, 2013

State Project No. H.009488.1

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Prefer "Plan A" WITH FEWER ROUNDABOUTS - AND NO MEDIANS - SEEMS THE MEDIANS WOULD JUST TAKE UP SPACE THAT COULD POSSIBLY BE USED FOR A MIDDLE OR EXTRA LANE FOR TURNING

THANKS!

Your Name: SHIRLEY HEBERT
Address: 901 BAKER RD
WESTLAKE, LA 70669

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9-25-13

Dear Mr. Richards,

My name is Mary Allison Conner. I am a resident of Lake Charles. I'm a graduate student at McNeese State University and I have a full time job. My absolute favorite, most relaxing pastime is jogging at Sam Houston Jones State Park. [illegible] working as hard as I do, this is the only time I get to [illegible]. I drive out to [illegible] to do so at least two times a week, [illegible]. This, I'm officially writing to oppose the proposal [illegible] to be built through the park. This proposal would personally affect me in a negative way; as this is the only state park within driving distance [illegible] Charles. I, and many others would be missing out on this luxurious place. I implore you to not build a [illegible] pollutant highway through one of [illegible] most beautiful parks as it would ruin a perfectly [illegible] attraction. If I had [illegible] one [illegible] I would [illegible]. But mainly I don't want you to extend Hwy 378 through Sam Houston Jones State Park. Please.

Please do NOT extend Hwy 378 through Sam Houston Jones State Park!

Desperately,

Mary Allison Conner
337-884-2[illegible]56
404 Bl[illegible]man St
Lake Charles LA 70[illegible]

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LA 378 Improvements (Westlake to Moss Bluff)
Calcasieu Parish
Stage "0" Feasibility Study

Public Meeting – September 18th, 2013

State Project No. H.009488.1

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I oppose option C

Your Name: William Smith William Franklin

Address: 821 Rampart St
Lake Charles LA 70607

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LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suit
Metairie, LA 70002

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LA 378 Improvements (Westlake to Moss Bluff)
Calcasieu Parish
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Public Meeting – September 18th, 2013

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I disagree with Option C. Our State Park is a priceless resource and Our community uses this park for a lot of events. It is a beautiful place to camp, enjoy a lazy Sunday afternoon, feed the deeds with our children & I could go on & on. Please please look elsewhere to construct a road & bridge to link the Moss Bluff & Westlake Communities. Please do not ruin our Park.

Thanks

Your Name: Jeanelle Matte
Address: 1745 N. Gabriel St
Lake Charles LA 70611

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LA 378 Improvement
Stage 0 Feasibility Study
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2750 Lake Villa Drive, Suit
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I am opposed to Option C, which would destroy parts of Sam Houston Jones State Park.

Your Name: Katherine Farrar
Address: 913 Lorraine DR
Lake Charles, LA 70611

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LA 378 Improvement
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2750 Lake Villa Drive, Suit
Metairie, LA 70002

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I am opposed to option C, Sam Houston Jones State Park is irreplaceable. The benefits of the park are far greater than any potential benefit of this route for the road.

Your Name: Kenneth Farrar
Address: 913 Lorraine Dr.
Lake Charles, LA 70611

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September 27, 2013

VIA FACSIMILE NO. (504) 885-0595

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
Metairie, LA 70002

Re: State Project No. H009488.1

Dear Sirs;

I am pleased to provide these comments for your careful consideration as the alternatives are considered for State Project No. H009488.1, LA 378 improvements. During the public hearing there were three basic alternatives presented. The alternatives were insufficient as a "no action" alternative must also be considered as well. This alternative was not presented and should have been. **I recommend that the no action alternative also be considered and given full evaluation** along with all alternatives.

I am a member of a special interest outdoor group which utilize the park on a regular basis. We have many members and participants in our organizations. We have regular events in the park and a roadway such as this would have a definite negative impact on our activities.

I am a member of the "Pelican Paddlers" a kayak group. The members of this group live in an around the area of these great waterways and parks, and we urge you to cease and desist the tentative project of destroying the wholeness of the park.

We have standing and have a special interest to protect the park – ALL OF IT. **We maintain that not one square inch of the park should be given up for this roadway development.**

Alternatives A and B may be reasonable, however Alternative C which allows the road extension to pass through a major portion of Sam Houston Jones State Park is not a reasonable alternative. Our park is very important to us. We utilize the park on a regular basis. Any transportation throughway will be disruptive to the mission of the park and to all the users of the park. Not one square inch of the park should be given up for this or any other similar roadway. The loss of wetlands at this particular location is not acceptable and they cannot be replaced. The additional traffic noise and air pollutants at such close proximity are not acceptable. The loss of valuable wild lands, wildlife, and hiking trails as well as visual pollution all make this an unwanted and unreasonable alternative.

I have been using the state park since 1980. The pristine condition and the beauty of the park make it one of Southwest Louisiana's Treasures.

NOT ONE SQUARE INCH OF OUR STATE PARK SHALL BE GIVEN UP!

Yours Truly,

Renee' Markwood
3526 Joan Street
Lake Charles, LA 70605
(337) 436-0522
rmarkwood@psnlaw.com

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suit
Metairie, LA 70002

Comment Form

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Calcasieu Parish
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As a resident of Moss Bluff, I am against proposal "C". Sam Houston Park is our big attraction. Considering how concerned our state is with tourism, tearing down half the park for a highway just doesn't make sense. Please leave our park alone.

Your Name: Michelle Reeves
Address: 1085 Belleview Dr.
Moss Bluff, LA 70611

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LA 378 Improvements (Westlake to Moss Bluff)
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My family and I live near Sam Houston Jones State Park. We would be affected by Option 3 so my comments are somewhat diluted by our personal impact. However, my view is not totally diminished since the very reason we chose to live where we live is the same reason Option 3 is not a good alternative. The Park area is a secluded area where people can go to enjoy the seclusion, the wildlife, just nature in general. Unfortunately, there are too few such areas remaining and any action to impose on those that remain should be carefully considered. In this case, other options avoiding use of the Park would certainly be better in terms of overall impact.

I have a suggestion that is not part of the three (3) options presented. All current options originate at I-10 and go north through Westlake. While all of the attention has been on the north end expansion, I think we should reconsider our starting at I-10 in Westlake. This southern portion of this route, for all 3 options, goes through the city and an elementary school zone. No matter what is done on the north end, the central and south end of this project will suffer in terms of traffic flow. I would like to see options considered that take LA 378 west rather than south or something similar. Taking the Moss Bluff and other traffic from the north to the west would be of greater benefit in terms of traffic flow. The route as it now exists could still handle that traffic headed east into Lake Charles but a majority of the traffic is heading west to the industrial areas. Options that extend LA 378 west rather than south should be studied. Otherwise, I believe a lot of money will be expended improving LA 378 but the overall traffic flow gain will be minimal.

Tim and Elizabeth Hall
209 Gahagan Lane
Lake Charles, LA 70611

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suit
Metairie, LA 70002

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LA 378 Improvements (Westlake to Moss Bluff)
Calcasieu Parish
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Public Meeting – September 18th, 2013

State Project No. H.008488.1

The LA 378 Project Team would appreciate your comments on this project. Please write your comments below and give to a member of the Project Team or fold, tape, stamp and mail to the address on the back of this form or fax to (504) 885-0595. Thanks for your input.

I do not like Alternative C. It will ruin Sam Houston State Park.

Your Name: LeAnna LaVergne
Address: 3200 Westwood Rd Trlr 88
Westlake, LA 70669

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The option C making the Roadway go thru Sam Houston Park would be a terrible option. The park is used by many local RVers Campers, Cyclists, mountain bikers as well as others that want a safe place to exercise or relax with their family. The state park also brings tourists here & the wetlands, trees and natural habitate can not be replaced by rebuilding or moving areas of the park. It would be a terrible Loss to the citizens of this area. Option B would be my vote.

Your Names Stephanie Newman
Address: 4813 W Calcasieu DR
Lake Charles LA 70605

To ensure that your comments become part of the official meeting record, they should be post marked within ten calendar days following this meeting (by 9/28/13).

The U TURNS in option C would be terrible for RVers & Boaters.

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Plan C going through Sam Houston Jones Park would greatly impact those RV'ers coming to the park through [illegible] etc, the roundabouts etc would be a mean problem for people pulling their RV. Also the plan would impact the [illegible] RV'ers, cyclists, runners, hikers, boaters, frisbee golfers and all others; the quiet, beautiful with nature serenity would go away for these people and they would not come anymore. Our park is enjoying great participation by all presently.

Your Name: ALAIN NEWMAN Jr.
Address: 6813 W. Calcasieu Drive
Lake Charles, La 70605

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I oppose option C

Your Name: Natalie Gouldin
Address: 321 Rampart
Lake Charles, LA 70607

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Option C is the most expensive and should not even be an option. Sam Houston Jones State Park is a beautiful place for families to visit and camp out; it does not need a major road running right through it. I believe widening the current road is the most economical i makes common sense, but that would seem reasonable, so I'm not sure it will happen.

Your Name: Karen M. Guidry
Address: 3828 Harvard St.
Lake Charles, LA 70607

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I live less than 3 miles from Sam Houston Jones State Park and am horrified to learn of the possible "Alternative C" that could be done, developing a highway and bridge system through the park. Under NO circumstances should this be done. This beautiful piece of property with it's Wildlife, a true representation of the Lft Wetlands with its Cypress trees, camping, trails, etc Should be preserved! I would much rather "Alternative A" be used

Your Name: Shannon Ellis
Address: 1768 Pinewood Rd
Lake Charles Lt 70611

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Very opposed to "Alternative C" plan of developing through Sam Houston Jones State Park. This option should not have even be considered. "Alternative B" would be a better option

Your Name: Roger Ellis
Address: 1168 Pinehurst Rd
Lake Charles, LA 70611

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I do not believe we should drive a hwy through Sam Houston park. Option A is better option. Roundabouts will help traffic flow. Bridge is too expensive + not needed Please do not choose option C.

Your Name: Ryan Landreneau
Address: 305 Armistead Ln.
Moss Bluff, LA 70611

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NO to "Alternative C"

I am horribly surprised that cutting through Sam Houston State Park is even being considered. With other options on the table, something this extreme should absolutely Not be done! This beautiful park adds so much character and brings so many visitors to the Westlake/Moss Bluff area. Wetlands are a major characteristic of SWLA and should be preserved.

Thank You!

Your Name: Caiti Landreneau
Address: 3665 Armstead Ln.
Lake Charles, LA 70611

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September 27, 2013

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
Metairie, LA 70002

Re: State Project No. H009488.1

Dear Sirs;

I am pleased to provide these comments for your careful consideration as the alternatives are considered for State Project No. H009488.1, LA 378 improvements. During the public hearing there were three basic alternatives presented. The alternatives were insufficient as a "no action" alternative must also be considered as well. This alternative was not presented and should have been. I recommend that the no action alternative also be considered and given full evaluation along with all alternatives.

My family, friends and I have used the facilities of the park for many years for boating, hiking, bike riding and picnicking. It is a wonderful and important asset to the community

We have a special interest to protect the park – ALL OF IT. We maintain that not one square inch of the park should be given up for this roadway development.

Alternatives A and B may be reasonable, however Alternative C which allows the road extension to pass through a major portion of Sam Houston Jones State Park is not a reasonable alternative. Our park is very important to us. We utilize the park on a regular basis. Any transportation throughway will be disruptive to the mission of the park and to all the users of the park. Not one square inch of the park should be given up for this or any other similar roadway. The loss of wetlands at this particular location is not acceptable and they cannot be replaced. The additional traffic noise and air pollutants at such close proximity are not acceptable. The loss of valuable wild lands and hiking trails as well as visual pollution all make this an unwanted and unreasonable alternative.

I have been using the state park since 1970. It is hard enough to develop parkland for the benefit of the community. The idea of destroying part of a long established and well used park for a roadway makes no sense.

NOT ONE SQUARE INCH OF OUR STATE PARK SHALL BE GIVEN UP!

Yours Truly,

James R Nieset

James R. Nieset

September 20, 2013

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
Metarie, LA 70002

Re: State Project No. H009488.1

Dear Sirs;

I am pleased to provide these comments for your careful consideration as the alternatives are considered for State Project No. H009488.1, LA 378 improvements. During the public hearing there were three basic alternatives presented. The alternatives were insufficient as a "no action" alternative must also be considered as well. This alternative was not presented and should have been. WE recommend that the no action alternative also be considered and given full evaluation along with all alternatives.

I represent several special interest outdoor groups which utilize the park on a regular basis. We have approximately 1,000 persons who are members or participants in our organizations. Some of our members and leaders utilize the park 7 days a week. These organizations have regular events in the park and a roadway such as this would have a definite negative impact on all of our activities. The outdoor organizations are as follows:

- **Gulf Coast Bird Club:** a local bird-watching organization utilizing the park regularly since its inception in 1983. We currently have a monthly bird walk in the park.
- **The Le Chein:** the Southwest Louisiana Chapter of the Louisiana Dutch Oven Society which meets in the park monthly and has since its inception several years ago.
- **The Louisiana Hiking Club:** with statewide membership, hikes are scheduled in the park and members hike the trails on a regular basis.
- **The Pelican Paddlers:** A canoe and kayak paddling club which utilizes the Park for camping and Indian Marias and the West Fork on a regular basis for paddling activities.
- **B Cyclists:** a local bicycling group which hold monthly bike rides from and in the park on both hard roads and the trails on a regular basis.

These groups have standing and have a special interest to protect the park – ALL OF IT. We maintain that not one square inch of the park should be given up for this roadway development.

Alternatives A and B may be reasonable, however Alternative C which allows the road extension to pass through a major portion of Sam Houston Jones State Park is not a reasonable alternative. Our park is very important to us. We utilize the park on a regular basis. Any transportation throughway will be disruptive to the mission of the park and to all the users of the park. Not one square inch of the park should be given up for this or any other similar roadway. The loss of wetlands at this particular location is not acceptable and they cannot be replaced. The additional

traffic noise and air pollutants at such close proximity are not acceptable. The loss of valuable wild lands and hiking trails as well as visual pollution all make this an unwanted and unreasonable alternative.

I have been using the state park since the 1960's. The swamp, Lake Gibson, area which Alternative C is proposed to go through is a vital wetland which has supported heron rookeries in the past years. I have personally viewed and recorded an endangered species present in this particular swamp: the Red Cockaded Woodpecker. This is a valuable and vital area which should not be disturbed and should remain an important part of Sam Houston Jones State Park and not a traffic thoroughfare. NOT ONE SQUARE INCH OF THIS AREA SHALL BE GIVEN UP!

Yours for a Healing Environment,

David R. Booth CHMM, QEP

Principal Environmental Scientist

Comment Form

LA 378 Improvements (Westlake to Moss Bluff)
Calcasieu Parish
Stage "0" Feasibility Study

Public Meeting – September 18th, 2013

State Project No. H.009488.1

The LA 378 Project Team would appreciate your comments on this project. Please write your comments below and give to a member of the Project Team or fold, tape, stamp and mail to the address on the back of this form or fax to (504) 885-0595. Thanks for your input.

Alternative C would be a bad choice
for a community I feel we need to protect
our State Park. This would be a great detriment
to our community & environment. This
State park has served a purpose for our
state & community. The park & surrounding
area is a popular recreational area for
adults & children to enjoy biking, hiking, camping,
fishing & nature. By increasing traffic flow
this area would take this away & endanger our
health community to enjoy the park. I question
why officials would want to lessen the quality
of Sam Houston State Park. The purpose of this

Your Name: ____________________

Address: ____________________

____

To ensure that your comments become part of the official meeting record, they should be post marked within ten calendar days following this meeting (by 9/28/13).

highway is to impact Westlake & Moss Bluff. Because this Alternative C only has negative impacts and is most expensive & most dangerous

Alternative B seems to be a better solution.

The highway would be routed away from Prien Lake Park & the Ball field location, there can be more for recreation for bike & hiking paths for the community to enjoy.

I feel a heavy traveled highway near these parks such as Alternative A & C would be expensive & dangerous for this area.

Kim [illegible] McMahon
846 Rivers Edge Rd
Westlake, La. 70669

Comment Form

LA 378 Improvements (Westlake to Moss Bluff)
Calcasieu Parish
Stage "0" Feasibility Study

Public Meeting – September 18th, 2013

State Project No. H.009488.1

My family and I live near Sam Houston Jones State Park. We would be affected by Option 3 so my comments are somewhat diluted by our personal impact. However, my view is not totally diminished since the very reason we chose to live where we live is the same reason Option 3 is not a good alternative. The Park area is a secluded area where people can go to enjoy the seclusion, the wildlife, just nature in general. Unfortunately, there are too few such areas remaining and any action to impose on those that remain should be carefully considered. In this case, other options avoiding use of the Park would certainly be better in terms of overall impact.

I have a suggestion that is not part of the three (3) options presented. All current options originate at I-10 and go north through Westlake. While all of the attention has been on the north end expansion, I think we should reconsider our starting at I-10 in Westlake. This southern portion of this route, for all 3 options, goes through the city and an elementary school zone. No matter what is done on the north end, the central and south end of this project will suffer in terms of traffic flow. I would like to see options considered that take LA 378 west rather than south or something similar. Taking the Moss Bluff and other traffic from the north to the west would be of greater benefit in terms of traffic flow. The route as it now exists could still handle that traffic headed east into Lake Charles but a majority of the traffic is heading west to the industrial areas. Options that extend LA 378 west rather than south should be studied. Otherwise, I believe a lot of money will be expended improving LA 378 but the overall traffic flow gain will be minimal.

Tim and Elizabeth Hall
209 Gahagan Lane
Lake Charles, LA 70611

9/20/13

RESPONSE TO HWY 378 PROPOSALS

I have read the newspaper coverage and attended the open house regarding the above. I will be affected by Plan B as I own my home at 621 Hudson Dr. in Westlake. My family has been here since 1960 when this was a shell road. I think we were the first house here.

As someone who enjoys birdwatching and bird photography at Sam Houston Jones State Park, I would not like to see the highway consume part of the park even though this may affect my home property. There is so little natural area left for the wildlife that we need to preserve all that we can.

Selfishly I would like to see the changes made at the Phillips Road area as I would not be impacted. But it does seem that fewer homes would be targeted for removal under this plan versus the Hudson Drive to Phillips plan. That is an important criteria. Whatever proposal is made to the state, it should be the one that calls for the destruction of the fewer number of homes. Many folks in our area like me are senior citizens who are on fixed incomes. Fair market value for a home does not take into consideration the cost of land in our area to build a smaller affordable home and existing homes cost too much due to the land value. So there is a definite economic hardship involved.

In speaking with an engineer about the Hudson proposal, he told me they were trying not to impact the park. And I would imagine the new golf course. I am sure the city politics have weighed in to protect their interest. They recently took in that land on that side of 378 but chose not to take in this side. So you see the priority of the city is to protect its interests.

I asked the engineer why the proposed roundabout was not located a little bit more north into the 40 wooded acres at the intersection of Hudson and 378 to minimize the impacts for the families at the end of Hudson Drive. The proposal calls for the curving of 378 to begin as far back as Landry Road travel over the end of W Wayside Drive which has a vacant lot on it. The engineer said that he thought they could bump it up more north into the wooded area so as not to affect the homes on Hudson.

One of the owners of that 40 acre tract Jerry Kirk said it would leave them with parcels hard to use but he thought this was the best proposal. I would suggest the state buy the entire parcel and use the adjoining wooded acres as a noise buffer for the homes on both sides of the new highway. To make this more palatable to adjacent home owners, maybe walking trails could be allowed in the wooded part. These woods house lots of birds and wildlife. I have seen a bobcat come across the road, coyotes and small foxes. Lots of woodpeckers and other birds nest in the trees. I watch them from my front porch bench. This approach would certainly make this proposal more acceptable to me as an adjacent property owner.

Finally, at the open house, I gave the court reporter a verbal statement about road safety. **There have been 3 fatalities at the corner of Hudson and 378. Two before the golf course went in and added a fourth street at the intersection. Last July 4th, 2012 my 49 year old cousin was killed at that corner. After the first two fatalities around 2002 we were told this was a state road and there was not enough**

traffic to warrant a traffic light. Yet shortly thereafter one was installed at Phillips and Davis. We have just as much plant traffic as that intersection and I do not know of any fatalities at that location. Eighteen wheelers keep going in the ditch as you turn from 378 onto Phillips and wrecks occur, but not near as frequently as the Hudson-378 statistics. The multiple jurisdictions make statistics hard to come by. To the left is the city road into the golf course, then the state 378, and then back to the parish for Hudson.

While this study is proceeding, it would seem warranted to me with the thousands of vehicles traveling this road daily and the number of accidents and the fatalities and the added street coming into the intersection now from the golf course that a traffic light is long overdue. If a light had been at this corner, these three men would at least have had a chance of being alive today. Right now, you take your life in your hands if you try to turn left on 378 from Hudson Drive in the morning or in the evening when the plant is changing shifts.

I believe that the state has now documented the need for a traffic light by releasing the thousands of vehicles traveling through this four way intersection when you see the number of wrecks occurring and the fatalities. This intersection is much more dangerous than Phillips-Davis. I believe DODT has documented its own liability now by confirming the daily traffic. I hope you include this concern in your final report and even earlier as a by product of this process which suggests more immediate action is needed now for traffic safety while this other matter plays out.

Thank you.

Brenda Kelley
Brenda Kelley
621 Hudson Drive

Westlake, La. 70669

* Please check out walking trail park established at Ragley intersection in Beauregard Parish where Hwys 171, 12, and 190 meet.

I am diametrically opposed to any encroachment on Sam Houston Jones Park.

The park is an icon for a large area of our state, and is an oasis in a desert of fast vehicles, loud noises and a constant view of local industry.

Sam Houston provides an escape to a country setting with all the amenities in the form of awesome trees, wooded trails and water resources for an individual or for a family, that cannot be found otherwise near the area in which we live. To defile this sanctuary with highways, bridges and other destructive assaults on the beauty of nature, would be ludicrous.

I realize industry provides jobs for people, and they are needed. However, they have gobbled up all property that provided any aesthetic value, and continue to do so. Case in point, is the soon to be destruction of the beautiful property along Houston River Road.

Sam Houston Park, our park, is a refuge for all who wish to escape and forget for a short while, what exist in the outside world.

In regard to the other two plans, much work and forethought must be expended before, and if, they will ever be able to achieve the goals of the planners and promoters.

James Strahan
James Strahan
3023 Crockett Street
Westlake, LA 70669
Phone: (337) 436-5473

September 20, 2013

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
Metairie, LA 70002

Re: State Project No. H009488.1

Dear Sirs;

I am pleased to provide these comments for your careful consideration as the alternatives are considered for State Project No. H009488.1, LA 378 improvements. During the public hearing there were three basic alternatives presented. The alternatives were insufficient as a "no action" alternative must also be considered as well. This alternative was not presented and should have been. I recommend that the no action alternative also be considered and given full evaluation along with all alternatives.

I am a member of a special interest outdoor group which utilize the park on a regular basis. We have many members and participants in our organizations. We have regular events in the park and a roadway such as this would have a definite negative impact on our activities.

I have attended mountain bike races held at the park and this will directly impact our groups ability to effectively hold the event.

We have standing and have a special interest to protect the park – ALL OF IT. We maintain that not one square inch of the park should be given up for this roadway development.

Alternatives A and B may be reasonable, however Alternative C which allows the road extension to pass through a major portion of Sam Houston Jones State Park is not a reasonable alternative. Our park is very important to us. We utilize the park on a regular basis. Any transportation throughway will be disruptive to the mission of the park and to all the users of the park. Not one square inch of the park should be given up for this or any other similar roadway. The loss of wetlands at this particular location is not acceptable and they cannot be replaced. The additional traffic noise and air pollutants at such close proximity are not acceptable. The loss of valuable wild lands and hiking trails as well as visual pollution all make this an unwanted and unreasonable alternative.

NOT ONE SQUARE INCH OF OUR STATE PARK SHALL BE GIVEN UP!

Yours Truly,

Ian Wright

September 20, 2013

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
Metairie, LA 70002

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I am a member of a special interest outdoor group which utilize the park on a regular basis. We have many members and participants in our organizations. We have regular events in the park and a roadway such as this would have a definite negative impact on our activities!

The new Bob Memorial Disk Golf Club

We have standing and have a special interest to protect the park – ALL OF IT! We maintain that not one square inch of the park should be given up for this roadway development.

Alternatives A and B may be reasonable, however Alternative C which allows the road extension to pass through a major portion of Sam Houston Jones State Park is not a reasonable alternative. Our park is very important to us. We utilize the park on a regular basis. Any transportation throughway will be disruptive to the mission of the park and to all the users of the park. Not one square inch of the park should be given up for this or any other similar roadway. The loss of wetlands at this particular location is not acceptable and they cannot be replaced. The additional traffic noise and air pollutants at such close proximity are not acceptable. The loss of valuable wild lands and hiking trails as well as visual pollution all make this an unwanted and unreasonable alternative. Not to mention the destructive construction to wildlife and forest preserves.

I have been using the state park since 2005 and would like to go on enjoying its spiritual contributions.

NOT ONE SQUARE INCH OF OUR STATE PARK SHALL BE GIVEN UP!

Yours Truly, D'Ellen Myers

September 27, 2013

LA 378 Improvement
Stage 0 Feasibility Study
c/o N-Y Associates, Inc.
2750 Lake Villa Drive, Suite 100
Metairie, LA 70002

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Pelican Paddlers

Sabine Whitewater Club

We have standing and have a special interest to protect the park – ALL OF IT. We maintain that not one square inch of the park should be given up for this roadway development.

Alternatives A and B may be reasonable, however Alternative C which allows the road extension to pass through a major portion of Sam Houston Jones State Park is not a reasonable alternative. Our park is very important to us. We utilize the park on a regular basis. Any transportation throughway will be disruptive to the mission of the park and to all the users of the park. Not one square inch of the park should be given up for this or any other similar roadway. The loss of wetlands at this particular location is not acceptable and they cannot be replaced. The additional traffic noise and air pollutants at such close proximity are not acceptable. The loss of valuable wild lands and hiking trails as well as visual pollution all make this an unwanted and unreasonable alternative.

I have been using the state park since 1995.

NOT ONE SQUARE INCH OF OUR STATE PARK SHALL BE GIVEN UP!

Yours Truly, Ashley Cormier

LA 378 Stage "0" Feasibility Traffic Study

Calcasieu Parish, Louisiana

Image Source: LADOTD

Prepared by

URBAN SYSTEMS inc.

400 N Peters Street, Suite 206
New Orleans, Louisiana 70130
504.523.5511 504.523.5522 f

STATE OF LOUISIANA
ALISON M. CATARELLA
License No. 30261
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
alison catarella mued
3/31/14

In Association with

N-Y Associates, Inc.
2750 Lake Villa Drive
Metairie, LA 70002

Prepared for

Louisiana Department of
Transportation and Development

USI Project #: 11-100
March 2014

Traffic Study

LA 378 Widening/Realignment
John Stine Road (Westlake) to LA 378 Spur (Moss Bluff)
Stage "0" Feasibility Study

Introduction

This report summarizes the methodology and findings of a traffic study to assess the effects of improving the LA 378 corridor between Interstate 10 and Sam Houston Jones Parkway in Westlake, Louisiana. The purpose of the project is to connect the five-lane segments in Westlake and Moss Bluff with a realigned and expanded roadway, to eliminate the right angle turns in the route and to provide added roadway capacity. The existing LA 378 corridor consists of a five-lane section with a two-way left turn lane from I-10 to John Stine Road and a two-lane undivided section from John Stine Road to LA 378 Spur (Sam Houston Jones Parkway). Proposed improvements include converting the five-lane section to a divided roadway and widening the two-lane section to a four lane divided section. Figure 1 presents a vicinity map of the study area.

Figure 1 - Study Area
(Image Source: LADOTD)

Three alternative alignments for the northern section of LA 378 between John Stine Road and Sam Houston Jones Parkway were identified and are presented in Figures 2, 3 and 4.

Source: N-Y Associates, Inc

1800' 900' 0 1800' 3600'

SCALE IN FEET

Figure 2
Alternatives A1-A2

LA 378 Stage "0"
Traffic Study
Calcasieu, Louisiana

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Project # 11-100

Source: N-Y Associates, Inc

Figure 3
Alternative B

1800' 900' 0 1800' 3600'

SCALE IN FEET

LA 378 Stage "0"
Traffic Study
Calcasieu, Louisiana

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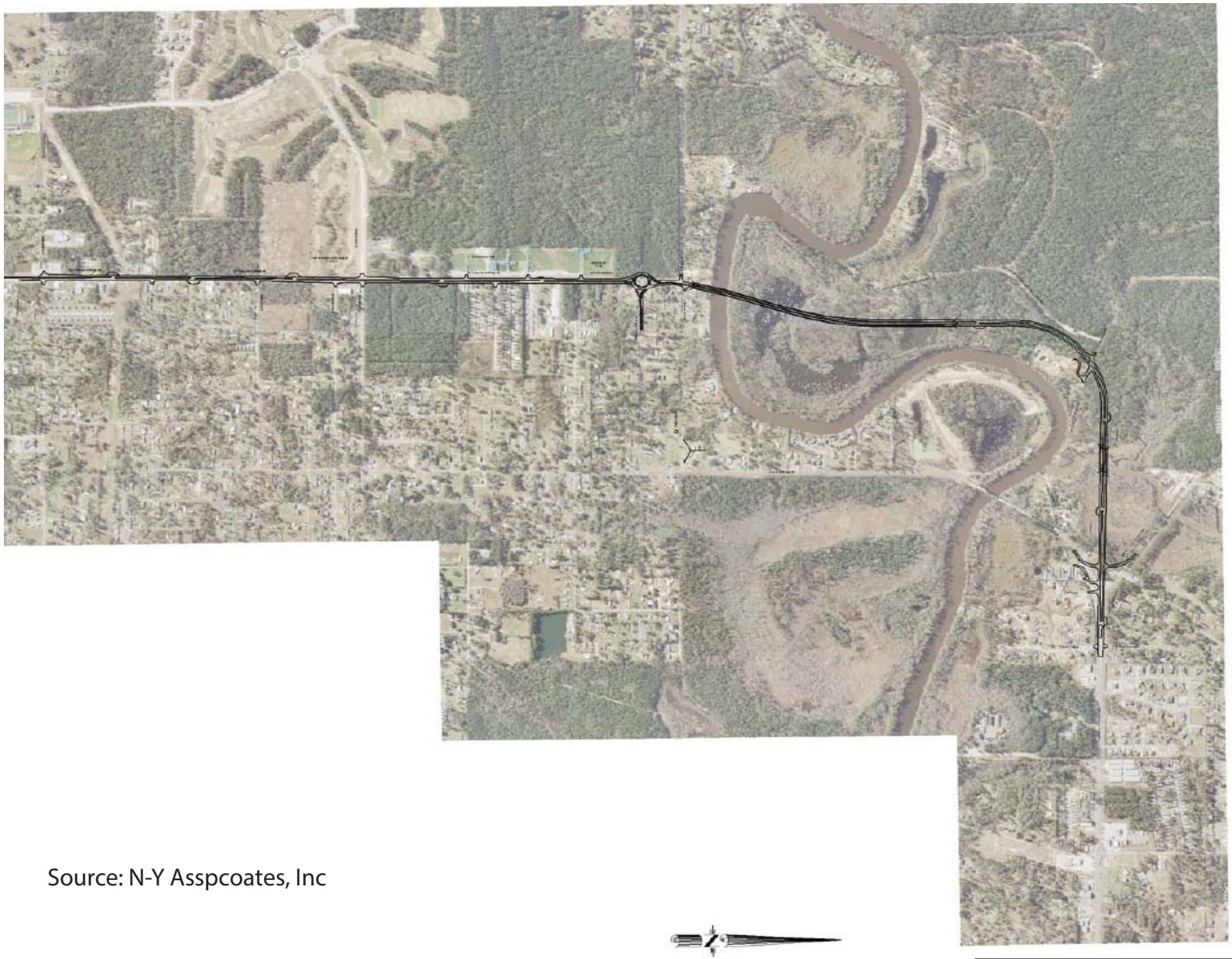
Project # 11-100



Source: N-Y Asspcoates, Inc

1800' 900' 0 1800' 3600'

SCALE IN FEET

Figure 4
Alternative C

LA 378 Stage "0"
Traffic Study
Calcasieu, Louisiana

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Project # 11-100

Methodology

The objective of this traffic study was to determine the feasibility of improving LA 378 in the study area. Traffic volume data was collected to determine the base year 2013 traffic conditions. No Build traffic volumes were projected for a design year of 2028. Crash data was reviewed to identify potential opportunities to improve safety on the corridor.

Alternative improvement strategies were developed based on existing traffic demand, roadway network, land use and LADOTD guidelines on access management and the Engineering Directives and Standards Manual (EDSMs). Traffic volumes were developed for the alternatives for both 2013 and 2028. Capacity analysis was used to determine level of service and delay estimates for comparison between alternatives. VISSIM modeling was used to provide visualization of the alternatives.

Study Area

The study area includes LA 378 between I-10 and Sam Houston Jones Parkway.

The subject intersections include the following existing signalized intersections:

- I-10 Service Road at I-10 Eastbound on ramp/off ramp
- Sampson Street (LA 378) at I-10 Westbound ramps
- Sampson Street (LA 378) at I-10 Eastbound ramps
- Westwood Road/Sampson Street (LA 378) at John Stine Road
- Sampson Street (LA 378) at McKinley Street
- Sampson Street (LA 378) at Sulphur Avenue (LA 379)
- Davis Road (LA 378) at Phillips Road (LA 378)

The subject intersections also included the following existing unsignalized intersections:

- Phillips Road (LA 378) at Hollis Road (LA 378)
- Westwood Road (LA 378) at Hudson Drive/National Drive
- Robert Road at Davis Road (LA 378)
- Sampson Street (LA 378) at Sam Houston Jones Parkway

LA 378 is oriented in a general north-south direction except between Davis and Hollis Road where it “dog-legs” to the west before resuming a north-south orientation. The cross section varies from an undivided roadway at Sam Houston Jones Parkway to five lane section with a two way left turn lane between John Stine Road and Sulphur Avenue, and a four lane undivided section south of Sulphur Avenue. LA 378 services both residential and commercial land uses in the area.

Data Collection

Existing traffic volume, speed, classification and travel time data was collected within the project study area. The majority of the traffic count data was collected in September 2012.

Seven day twenty-four hour classification counts with speed data were collected along LA 378 with pneumatic tubes. Twenty-four hour turning movement counts with classification data were collected on each approach of the subject intersections using video data collection equipment. The tube data was compared to the turning movement count data for accuracy and to provide input for capacity analysis and VISSIM modeling inputs.

Classification data from both the tube and turning movement counts was reviewed to determine heavy vehicle percentages. Reported percentages ranged from 0.25% to 6%. In general, the percentages were higher in the area between Sulphur Avenue and the southern project limits including the I-10 ramps, more predominantly in the AM peak. Five percent (5%) heavy vehicles was used for this area in the AM peak analysis including turning movements to and from Sulphur Avenue. Although the data indicated truck percentages as low as 0.25% in the northern section, a conservative value of two percent (2%) was selected for all PM peak analysis as well as for all movements north of Sulphur Avenue in the AM peak analysis.

The peak hours were determined to be 7:00 AM to 8:00 AM and 4:45 PM to 5:45 PM based on the turning movement count data. Figure 5 presents the resulting 2013 peak hour intersection turning movement counts. This figure also presents the daily volumes at the tube count locations. These twenty-four hour counts were not adjusted using seasonal factors and are presented as measured.

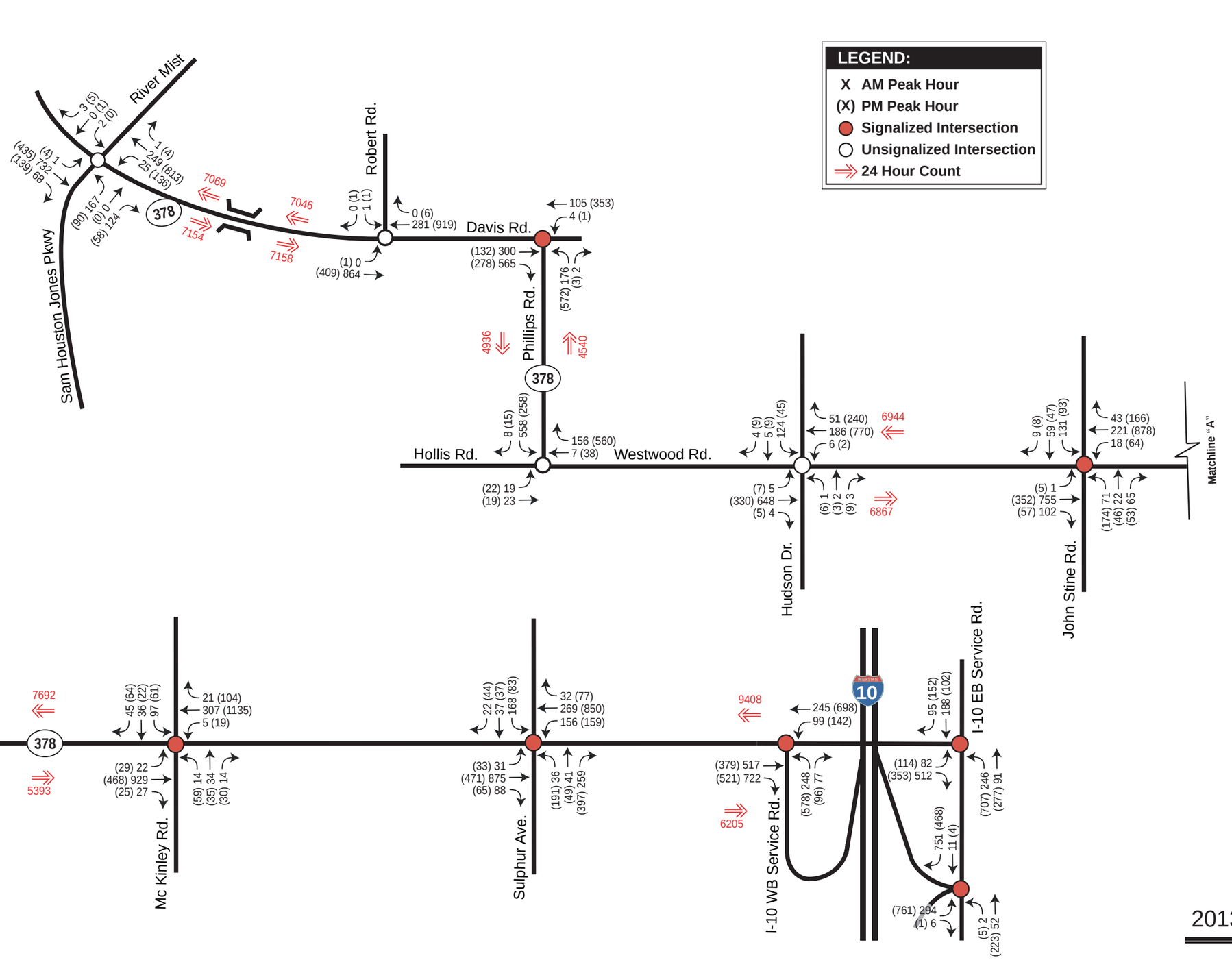

Figure 5

2013 Existing Volumes

LA 378 Stage "0"
Traffic Study
Calcasieu Parish, LA

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Project # 11-100

The peak hour factors for each turning movement were calculated and the results examined to determine a representative peak hour factor for use in the capacity analysis. The selected peak hour factors were 0.9 for the LA 378 approach traffic and 0.8 for the side streets movements.

Fifteen (15) minute spot intersection turning movement counts were collected for the AM and PM peaks at twenty (20) locations along the LA 378 corridor. This included minor side streets and major driveways. These counts were utilized to estimate AM and PM peak hour turning movements at these locations and are presented in Figure 6.

Speed data collected along LA 378 within the study area was analyzed to determine the 85th percentile speed, mean (average) speed and 10 miles per hour (MPH) pace speed. This data was used to evaluate whether the posted speed limits are appropriate and if speeding was occurring. The resulting values are presented in Figure 7. LADOTD EDSM VI.1.1.1 states:

…the numerical value of the speed limit should not be set below the upper limit of the 10 mile per hour pace, that is the 10 mile per hour speed range containing the largest percentage of vehicles in the sample of spot speeds.
In general, speed limits higher than the 85 percentile are not considered reasonable and safe and speed limits below the 85 percentile do not facilitate the orderly movement of traffic, cannot be enforced effectively and are not voluntarily observed by motorist.

Based on the speed data and the EDSM guidance, the following changes to the posted speed limits could be considered:

- From 35 mph to 40 mph between Sulphur Avenue and John Stine Road
- From 45 mph to 50 mph between John Stine Road and Phillips Road
- From 50 mph to 55 mph between Davis Road and Sam Houston Jones Parkway

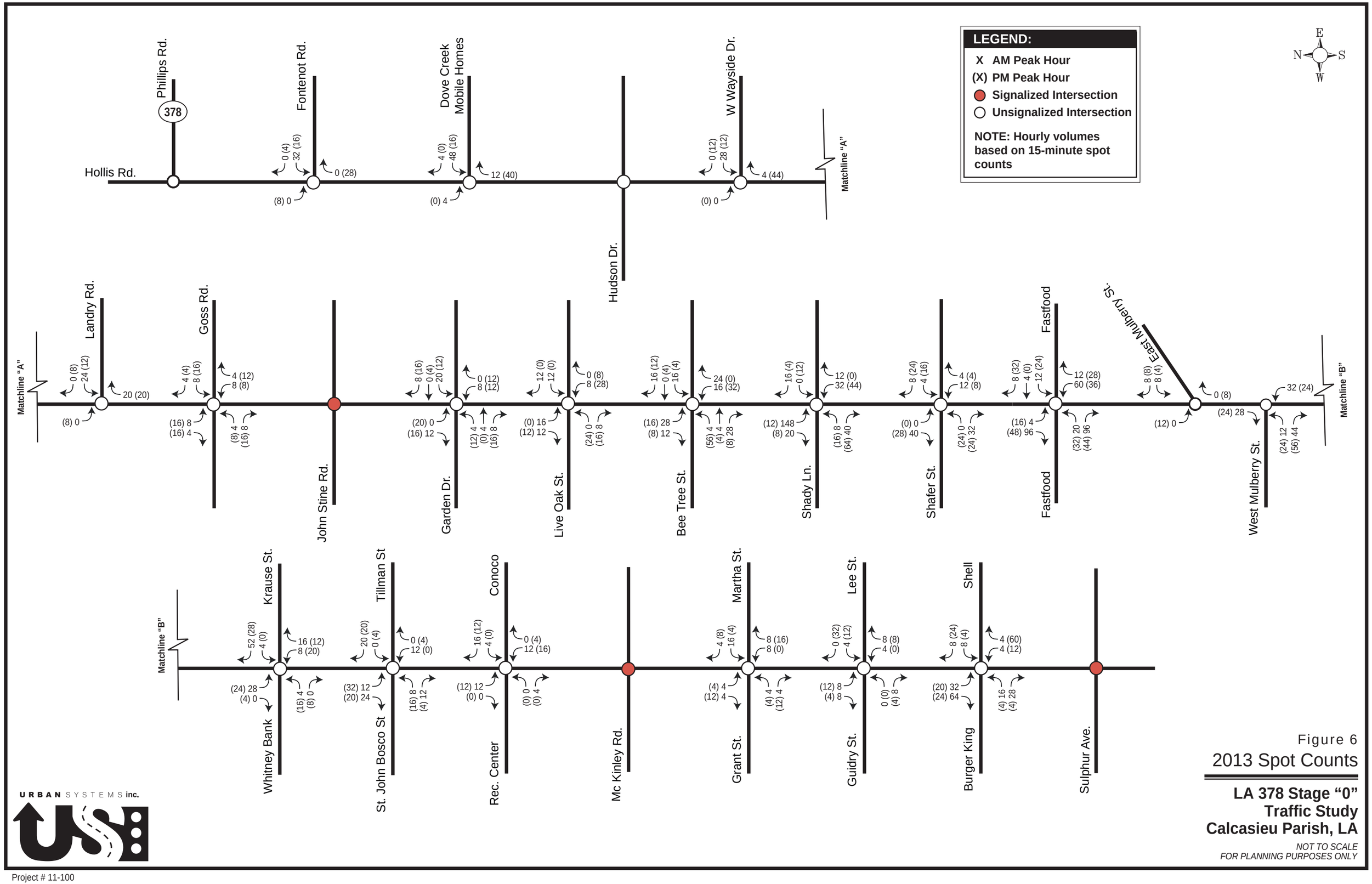

Figure 6

2013 Spot Counts

LA 378 Stage "0"
Traffic Study
Calcasieu Parish, LA

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Project # 11-100

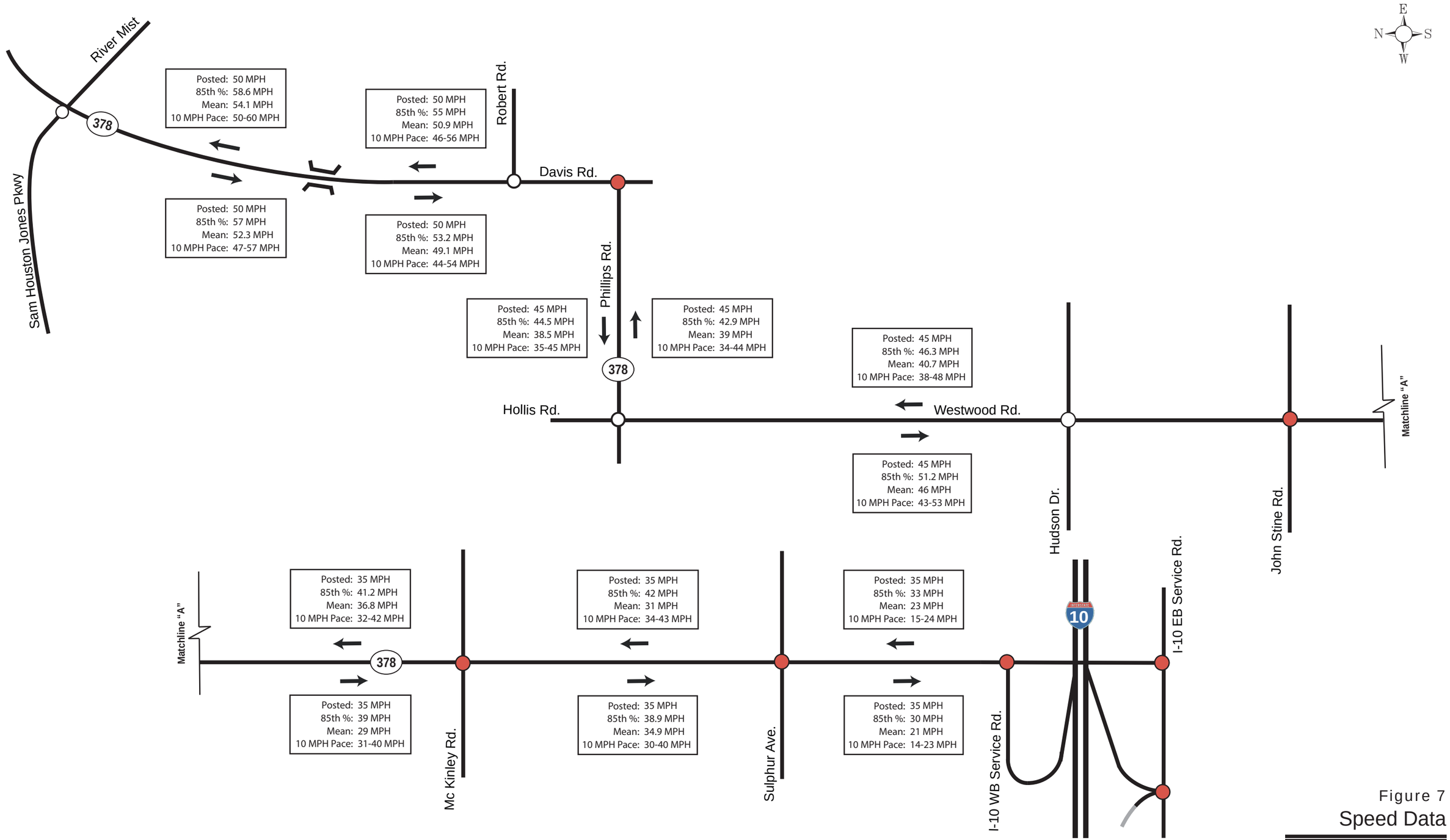


Figure 7

Speed Data

LA 378 Stage "0"
Traffic Study
Calcasieu Parish, LA

NOT TO SCALE
FOR PLANNING PURPOSES ONLY

URBAN SYSTEMS inc.

Project # 11-100

A field visit was conducted in May 2013 to document traffic control information, observe traffic patterns in the area and record travel times. During the peak periods, the corridor was travelled in both directions. Video recordings were taken to document field conditions. Table 1 presents the resulting travel time data.

Table 1
Travel Time Data

LA 378 Segment	Travel Time (minutes:seconds)			
	AM Peak		PM Peak	
	NB	SB	NB	SB
between I-10 W ramps and Sulphur Avenue	0:42	1:27	1:03	1:29
between Sulphur Avenue and McKinley	0:46	0:54	0:59	0:41
between McKinley and John Stine	2:56	2:21	3:19	1:41
between John Stine and Hudson	1:06	1:33	1:10	1:03
between Hudson Drive and Hollis Road	1:02	0:56	0:59	0:54
between Hollis Road and Davis Road	1:28	2:29	1:29	1:20
between Davis Road and Sam Houston Jones Parkway	1:43	1:40	1:32	1:45
Total Time	**9:43**	**11:20**	**10:31**	**8:53**

A review of Table 1 indicates the expected commuting pattern and resulting increased travel times. Traffic is heavier in the morning southbound headed from the rural and suburban areas towards the plants and the interstate. The opposite is true in the evening.

Crash Data Review

Crash reports for both intersections and roadway segments within the study area were provided by LADOTD for 2009, 2010 and 2011. The crash reports were reviewed to identify correctible crash patterns for use in developing alternatives.

The following were identified during the review of intersection crash data:

I-10 Service Road: Left turn collisions involving left turning motorists from the I-10 Service Road eastbound onto LA 378 occurred during the permitted left turn phase.

I-10 Westbound Ramps: Left turn crashes involving left turning motorist from the LA 378 northbound onto the I-10 westbound ramps occurred during the permitted left turn phase.

Sulphur Avenue*:* Rear end collisions occurred within the channelized eastbound right turn lane on the Sulphur Avenue motorists looking north for a gap in traffic could not see that the vehicle ahead of them stopped suddenly.

Mulberry Street: Collisions occurred due to the awkward skew angles and separation of the eastbound and westbound approaches of Mulberry Street.

John Stine Road: Right angle crashes occurred from motorist running the red indication and left turn crashes occurred on LA 378 northbound during the permitted left turn phase.

Sam Houston Jones Parkway: Right angle collisions involving left turning motorists into and out of Sam Houston Jones Parkway occurred from motorist attempting a left turn in an inadequate gap in the high speed LA 378 traffic. The Sam Houston Jones Parkway approach is located in the middle of a horizontal curve on LA 378.

The following were identified during the review of roadway segment crash data:

LA 378 north of Sulphur Avenue: Collisions occurred involving left turning vehicles using the center two-way left turn lane for access to and from the Burger King and Shell Gas Station just north of the Sulphur Avenue intersection.

LA 378 between Mulberry Street and Shady Lane: Collisions occurred on LA 378 in this section involving motorists using the center two-way left turn lane to access the various land uses.

Capacity Analysis Criteria

Capacity analyses were performed for the roadway segments and subject intersections within the project study area for each of the project scenarios. The various types of analyses performed for this study included two-lane highway, multi-lane highway, unsignalized and signalized intersection and roundabout. Roadway analysis was performed using Highway Capacity Software (HCS+) v 5.4. Signalized and unsignalized intersection and U-turn analyses were performed using Synchro 8.0 software. Roundabout analysis was conducted using SIDRA 5.1 with parameters based on the "*Roundabout Analysis: Required Settings and Standards for SIDRA 5.1*" brochure published by LADOTD.

Levels of Service (LOS) represent a qualitative and quantitative evaluation of the traffic operation of a road segment and/or intersection using procedures developed by the Transportation Research Board and contained in the Highway Capacity Manual, Special Report 209. The Highway Capacity Manual (HCM) procedures have been adapted to computer based analysis packages.

Two-Lane Section Capacity Analysis

For two-lane highways that facilitate shorter trips and multiple trip purposes, the Highway Capacity Manual measures LOS quality by percent-time-spent-following. LOS A describes the highest quality of traffic service, when motorists are able to travel at their desired speed. LOS B characterizes a slightly higher impedance of traffic flow. LOS C describes further increases in flow, resulting in noticeable increases in platoon formation, platoon size, and frequency of passing impediments. LOS D describes unstable traffic flow. The two opposing traffic streams begin to operate separately at higher volume levels, as passing becomes extremely difficult. At LOS E, traffic flow conditions have a "percent

time-spent-following" greater than 80 percent. Passing is virtually impossible and platooning becomes intense, as slower vehicles or other interruptions are encountered. LOS F represents heavily congested flow with traffic demand exceeding capacity. Volumes are lower than capacity and speeds are highly variable. Table 2 presents Level of Service criteria for two-lane highways.

Table 2
Level of Service Criteria for Two-Lane Highways

Level of Service (Class II Highways)	Percent Time Spent Following
A	≤40
B	>40 and ≤55
C	>55 and ≤70
D	>70 and ≤85
E	>85

Multi-Lane Section Capacity Analysis

According to the Highway Capacity Manual, level of service on a multi-lane highway is characterized by three performance measures:

- Density, in terms of passenger cars per mile per lane (the primary performance measure);
- Speed, in terms of mean passenger car speed; and
- Volume to capacity ratio.

LOS A describes completely free-flow conditions. The operation of vehicles is virtually unaffected by the presence of other vehicles, and operations are constrained only by the geometric features of the highway and by driver preferences. LOS B also indicates free-flow, although the presence of other vehicles becomes noticeable. Average travel speeds are the same as in LOS A, but drivers have slightly less freedom to maneuver. In LOS C, the influence of traffic density on operations becomes evident. The ability to maneuver within the traffic stream is clearly effected by other vehicles. At LOS D, the ability to maneuver is severely restricted due to traffic congestion. Travel speed is reduced by the increasing volume. LOS E represents operations at or near capacity, an unstable level. LOS F represents forced or breakdown flow. Table 3 presents Level of Service criteria for multi-lane highways.

Table 3
Level of Service Criteria for Multi-Lane Highways

Level of Service (Free-Flow Speed 45 mph)	Maximum Density Passenger cars per mile per lane
A	≤11
B	>11 and ≤18
C	>18 and ≤26
D	>26 and ≤35
E	>35 and ≤45
F	>45

The analysis methods used are considered appropriate for this type of study and are the widely accepted practice of evaluating impacts on traffic operations.

Intersection Capacity Analysis

Levels of Service range from LOS A, a condition of little or no delay to LOS F, a condition of capacity breakdown represented by heavy delay and congestion. Level of Service B is characterized as stable flow. Level of Service C is considered to have a stable traffic flow, but is becoming susceptible to congestion with general levels of comfort and convenience declining noticeably. Level of Service D approaches unstable flow as speed and freedom to maneuver are severely restricted, and LOS E represents unstable flow at or near capacity levels with poor levels of comfort and convenience. Tables 4 and 5 present Level of Service criteria for unsignalized and signalized intersections, respectively.

Table 4
Level of Service Criteria for Un-signalized Intersections

Level of Service	Control Delay Per Vehicle (Sec/Veh)
A	≤ 10
B	> 10 and ≤ 15
C	>15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Table 5
Level of Service Criteria for Signalized Intersections

Level of Service	Control Delay Per Vehicle (Sec/Veh)
A	≤10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Existing Conditions Capacity Analysis

The 2013 existing traffic volumes, access points, lengths of segments, speed and lane widths were entered into HCS+ software for each roadway segment. The results are presented in Tables 6 and 7.

A review of Tables 6 and 7 indicates that the southern five lane section has excess capacity in the existing conditions. Analysis indicates LOS D and LOS E conditions on the two-lane section with a volume to capacity ratio near 0.5. The poor LOS compared to the volume capacity ratio is a function of the impact of left and right turning vehicles that impact the through traffic.

The 2013 existing traffic volumes, geometry and intersection control were entered into Synchro 8.0 software to determine the expected capacity and Levels of Service for each subject intersections. The signalized intersection analysis was based on current timing and phasing information obtained from the Traffic Signal Inventories and field observations. The results are presented in Table 8.

Table 6
LA 378 Roadway Segments
Base Conditions Multilane Segment Capacity Analysis

Roadway Segment	AM Peak		PM Peak	
	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)
LA 378 between I-10 Westbound ramps and Sulphur Ave				
LA 378 Northbound	A	6.2	B	15.9
LA 378 Southbound	B	15.7	B	11.2
LA 378 between Sulphur Ave and McKinley St				
LA 378 Northbound	A	4.1	B	15.7
LA 378 Southbound	B	13.0	A	7.0
LA 378 between McKinley St and John Stine Rd				
LA 378 Northbound	A	4.5	B	15.3
LA 378 Southbound	B	12.0	A	6.3

Table 7
LA 378 Roadway Segments
Base Conditions Two-Lane Segment Capacity Analysis

Roadway Segment	AM Peak		PM Peak	
	LOS	V/C	LOS	V/C
LA 378 between John Stine Rd and Hudson Dr				
LA 378 Northbound	D	0.40	E	0.51
LA 378 Southbound				
LA 378 between Hudson Dr and Hollis Rd				
LA 378 Northbound	D	0.30	D	0.39
LA 378 Southbound				
LA 378 between Hollis Rd and Bridge				
LA 378 Northbound	D	0.40	D	0.46
LA 378 Southbound				
LA 378 between Bridge and Sam Houston Jones Pkwy				
LA 378 Northbound	D	0.40	E	0.50
LA 378 Southbound				

Table 8
Base Conditions Intersection Analysis Results

Intersection Approach	2013			
	AM Peak		PM Peak	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)
I-10 EB Service Rd @ Ramps				
OVERALL	**B**	**10.7**	**B**	**15.0**
Service Rd Eastbound	A	4.0	A	7.0
Service Rd Westbound	A	9.1	A	9.1
Ramps Southbound	B	16.0	C	21.2
LA 378 @ I-10 EB Service Road				
OVERALL	**B**	**12.8**	**B**	**13.8**
Service Rd Eastbound	A	4.4	A	8.9
Service Rd Westbound	B	12.8	B	16.2
LA 378 Southbound	B	18.2	C	24.1
LA 378 @ I-10 N. Service Road				
OVERALL	**B**	**12.2**	**B**	**13.8**
Service Rd Eastbound	B	17.2	B	19.2
LA 378 Northbound	A	4.3	A	7.7
LA 378 Southbound	B	12.8	B	15.1
LA 378 @ Sulphur Avenue				
OVERALL	**C**	**31.5**	**C**	**31.2**
Sulphur Ave Eastbound	C	32.6	D	41.1
Sulphur Ave Westbound	D	36.4	C	33.2
LA 378 Northbound	C	26.7	C	29.2
LA 378 Southbound	C	32.0	C	22.2
LA 378 @ McKinley Road				
OVERALL	**B**	**10.4**	**B**	**10.7**
McKinley Rd Eastbound	C	21.3	C	25.0
McKinley Rd Westbound	C	28.8	C	25.0
LA 378 Northbound	A	5.5	A	9.1
LA 378 Southbound	A	7.5	A	6.1
LA 378 @ John Stine Road				
OVERALL	**C**	**27.5**	**E**	**73.3**
John Stine Rd Eastbound	C	31.5	F	90.5
John Stine Rd Westbound	C	34.9	D	54.8
LA 378 Northbound	B	17.1	F	91.4
LA 378 Southbound	C	28.1	B	19.7
LA 378 @ Hudson Drive				
Hudson Dr Eastbound	C	16.8	C	22.0
Hudson Dr Westbound	D	30.2	E	46.7
LA 378 Northbound	A	0.2	A	0.1
LA 378 Southbound	A	0.1	A	0.3
LA 378 @ Hollis Road				
Hollis Rd Southbound	A	2.3	A	3.5
Phillips Rd Westbound	C	23.0	C	18.1
LA 378/Phillips Rd @ Davis Road				
OVERALL	**B**	**18.1**	**B**	**19.7**
LA 378 Eastbound	B	14.7	C	29.4
Davis Rd Northbound	A	4.4	B	14.3
LA 378 Southbound	C	20.7	B	11.5
LA 378 @ Robert Road				
Robert Rd Westbound	C	24.8	D	31.2
LA 378 @ Sam Houston Jones Parkway				
LA 378 Eastbound	A	0.9	A	1.3
LA 378 Westbound	A	0.1	A	0.1
River Mist Northbound	C	15.7	C	17.5
Sam Houston Jones Pwy Southbound	C	20.0	D	28.6

A review of Table 8 indicates reasonable operating conditions under existing traffic demand is expected in the study area with the exception of the intersection of John Stine Road in the PM peak hour. This is consistent with field conditions as this is where the road transitions from a five-lane to a two-lane section and congestion was observed. Queuing was observed for the eastbound approach of the I-10 eastbound service road at LA 378 for left turning vehicles.

Access Management

The LADOTD Access Management policies were utilized as guidelines during alternative development. The following Engineering Directives and Standards Manual (EDSM's) apply:

EDSM VI.3.1.6 Installation of New Traffic Signals
EDSM IV.2.1.4 Multi-Lane Roadways and Median Openings
EDSM VI.1.1.5 Roundabout Safety and Approval

LADOTD EDSM VI.3.1.6, states that all new signals shall meet Warrant 1A or Warrant 7 (crash experience), must be spaced at least ½ mile from an adjacent signal and service a public road on the minor approach.

LADOTD EDSM IV.2.1.4, states the following definitions and criteria for design of median openings on roadways where a median did not exist prior to the current project (i.e. two-lane to four-lane divided):

- *A full access median opening is defined as a median opening that allows all directions of movement including lefts, thru, rights, and u-turns when necessary.*
- *A partial median opening is defined as a median opening that allows for lefts from the mainline and right-in / right-out from the side street. This opening does not allow for left or thru traffic from the side street (driveway).*
- *Median openings shall be spaced at least ½ mile and shall be directional u-turns.*
- *Full access median openings shall be designed only for public roadways that meet MUTCD Traffic Signal Warrant 1A (100%) and shall be spaced ½ mile (2,640 ft) from another median opening. Full access median openings shall be designed with left turn lanes where the storage lengths have been verified by the District Traffic Operations Engineer.*

Introducing a raised median also reduces conflicts by eliminating left turn movements at most intersections. Conflicts from left turns would still be present at full access median openings.

LADOTD EDSM VI.1.1.5 states that roundabouts may be justified based on the following:

- *Intersections with poor visibility as long as stopping sight distance to the roundabout will be provided.*
- *Intersections with 5 or more reported crashes, of types susceptible to correction by a roundabout, have occurred within a 12 month period, each crash involving*

personal injury or property damage apparently exceeding the applicable requirements for a reportable crash.

- *Increases capacity of an intersection.*
- *Intersections with limited space for queuing.*
- *Intersections with difficult skew angles, significant offsets, odd number of approaches or close spacing to other intersections.*
- *Intersections where U-turns need to be accommodated.*

A detailed roundabout study per EDSM VI.1.1.5 will be required during a later stage of the project (Stage 1 Environmental or Stage 3 Design) for each roundabout location in the final corridor layout.

Existing driveway spacing is significantly less than the current spacing requirements in the LADOTD Access Connections Policy. Implementing access management practices like reducing driveway density, driveway sharing for adjacent land uses and eliminating driveways in the functional area of intersections could improve traffic operations along the corridor by reducing conflict points and improving mobility for through traffic.

The Highway Safety Manual states:

Access management provides or manages access to land development while simultaneously preserving traffic safety, capacity, and speed on the surrounding road system, this address congestion, capacity loss and crashes on the nation's roadways.

Traffic Signal Warrant Analysis

To aid in the development of alternatives, traffic signal warrant analysis was conducted based on the existing traffic volumes, intersection geometry, speed and location at the subject intersections. Based on the EDSM requirements, full median openings and traffic signal installations must satisfy the MUTCD signal Warrant 1A. The requirements for Warrant 1A include a minimum number of vehicles on the major and minor roadways for any eight hours on an average day.

The MUTCD, Section 4C.01 gives the following standards for justifying traffic control signals:

> *An engineering study of traffic conditions, pedestrian characteristics, and physical characteristics of the location shall be performed to determine whether installation of a traffic control signal is justified at a particular location.*
>
> *The investigation of the need for a traffic control signal shall include an analysis of the applicable factors contained in the following traffic signal warrants and other factors related to existing operation and safety at the study location:*
>
> *Warrant 1, Eight-Hour Vehicular Volume.*
> *Warrant 2, Four-Hour Vehicular Volume.*
> *Warrant 3, Peak Hour.*

Warrant 4, Pedestrian Volume.
Warrant 5, School Crossing.
Warrant 6, Coordinated Signal System.
Warrant 7, Crash Experience.
Warrant 8, Roadway Network.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic signal"

For the purposes of this study only Warrants 1, 2, 3 and 7 were considered.

Existing traffic volumes, roadway geometry, speed and crash data were input into PC-Warrants software. The *Manual on Uniform Traffic Control Devices 2009 Edition* (MUTCD) provides lower thresholds for justifying a traffic signal on high speed roadways and in rural communities. The MUTCD states:

If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area on an isolated community having a population of less than 10,000, the traffic volumes in the 70 percent columns in Table 4C-1 may be used in place of the 100 percent columns.

The lower thresholds were utilized in the warrant analysis for the subject intersections north of Sulphur Avenue. The results of the traffic signal warrant analyses are presented in Table 9. The warrant analysis documentation is included in the Appendix.

Table 9
Signal Warrant Analysis Results

LA 378 Intersection	2009 MUTCD Traffic Signal Warrant								
	1	1A	1B	1 A&B	2	3	3A	3B	7
I-10 Service Road	S	S	S	S	S	S	S	S	NS
I-10 WB Ramps	S	S	S	S	S	S	S	S	S
Sulphur Avenue	S	S	NS	S	S	S	S	S	NS
McKinley Street	S	S	S	S	S	S	S	S	NS
John Stine Road	S	S	S	S	S	S	S	S	NS
Hudson Drive	S	NS	S	NS	S	S	S	S	NS
Hollis Road	NS	NS	NS	NS	S	S	S	S	NS
Davis Road	S	S	NS	S	S	S	S	S	NS
Sam Houston Jones Parkway	S	S	S	S	S	S	S	S	NS

S = Satisfied, NS = Not Satisfied

A review of Table 9 indicates that the unsignalized intersection of Hudson Drive and Hollis Road should remain unsignalized. The unsignalized intersection of Sam Houston Jones Parkway met Warrant 1A indicating that signalization and/or a full access median opening could be considered. The existing signalized intersections met volume Warrant 1A.

Alternative Development

The initial development of alternatives involved reviewing the volume data, existing conditions capacity analysis results and safety data for each subject intersection. The following potential intersection configurations were considered for each location that met Warrant 1A:

- Superstreets (J-turns)
- Roundabouts
- Traditional Signals

For each of these, various lane configurations, median opening and control were considered. J-turn alternatives considered unsignalized, signalized and with and without partial median openings. Roundabout alternatives considered various lane configurations and lane assignments. Traditional signal alternatives considered various lane configurations, phasing and timing.

The initial intersection evaluation at the following intersections indicated only one option for the reasons stated.

Southern I-10 Service Road at I-10 eastbound on/off ramps - Remain as is, signalized for all alternatives.

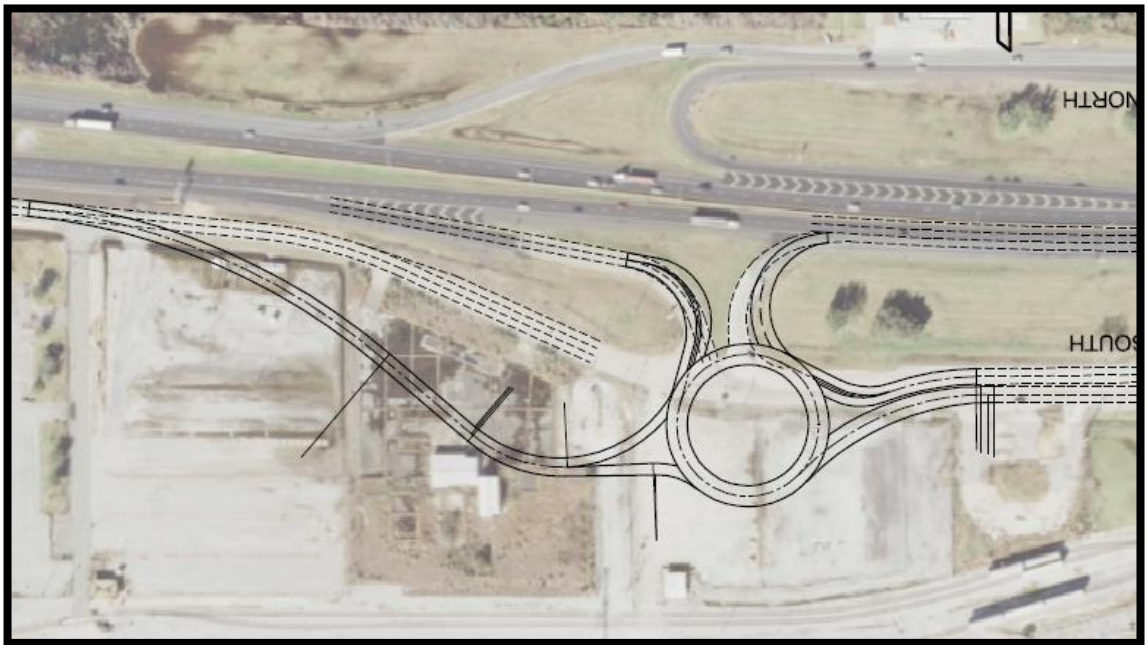
- Operational and/or safety deficiencies were not identified.
- J-turns were determined to not be feasible to do the roadway alignments that currently require a sharp right turn from the interstate ramp that enters the service road in both a curve and a transition area from three to two-lanes with limited right of way. This is depicted in Photo 1.

Photo 1

Sources: Aerial – LADOTD

- Due to the angle of interstate ramp approaches, it was determined that a roundabout would not be geometrically feasible. The impact to adjacent industrial sites also makes a roundabout in this location undesirable. The potential roundabout layout is included in Photo 2.

Photo 2

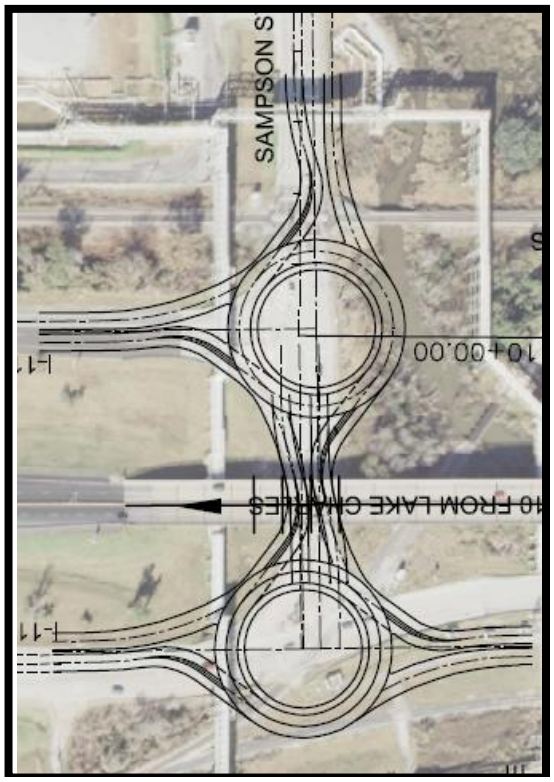


Sources: Aerial - LADOTD, Roundabout Geometry – N-Y Associates

Southern and Northern I-10 Service Road Intersections – Eliminate eastbound permitted left turns at southern intersection and northbound permitted left turns at the northern intersection for safety for all alternatives.

- Operational deficiencies were not identified.
- Eliminating permitted left turns could reduce crashes.
- J-turns were determined to not be feasible as it would be an unexpected condition in-between and in-close proximity to two full access signalized intersections.
- A roundabout was determined to not be feasible at this location due to right-of-way limitations as well as the close proximity of the existing I-10 overpass, pipe racks over the roadway and a nearby at-grade railroad crossing. The potential roundabout layout and location is depicted in Photos 3 and 4

Photo 3



Sources: Aerial - LADOTD, Roundabout Geometry – N-Y Associates

Photo 4

The other subject intersections were determined to be eligible for various configurations and control depending on the alignment of LA 378. With potential intersection configurations identified, the various options were combined with the original three alternative alignments to form three logical corridor alternatives in addition to the No Build. Alternative A included two options at the intersection of Davis Road. The alternatives are defined as follows:

No Build is maintaining the existing roadway geometry and traffic control as is.

Alternative A-1 is a minimal impact corridor project with the least variation from existing conditions in the southern section which does not require widening.

Alternative A-2 is Alternative A-1 with a roundabout at Davis Road in lieu of a signal.

Alternative B includes a raised median throughout the study limits and incorporates roundabouts at the subject intersections that met Warrant 1A and at intersections in between to allow U-turns at or about ½ mile spacing.

Alternative C is a superstreet concept with a combination of unsignalized and signalized J-turn intersections.

The three alternatives can be separated into a southern section (LA 378 between I-10 and John Stine) and a northern section (LA 378 between John Stine and Sam Houston Jones Parkway). The southern and northern sections could be interchanged with one another in later stages of the project.

Alternative A-1

The following describes the proposed modifications for each intersection along Alternative Alignment A-1.

Sulphur Avenue Remove the sweeping channelized eastbound right turn and replace with a standard right turn lane parallel to the through lane. This will provide motorists a better line of sight to see oncoming traffic while making a right turn versus looking over their shoulder for safety. The right turn could be signalized with an overlap for efficiency.

LA 378 north of Sulphur Avenue Install a 200’ center median using barrier curb or a separating device such as flex posts to prohibit lefts into/out of Burger King & Shell Gas station to reduce conflicts for safety.

McKinley Street No proposed modifications..

John Stine Road Eliminate northbound and southbound permitted left turns for safety, and add a northbound through lane, a northbound right turn lane and an eastbound left turn lane.

Hudson Drive Convert to right-in/right-out

Hollis Road Realign and convert to right-in/right-out only.

Davis Road Realign with the fire station driveway and provide preemption for the signal. A roundabout was also considered for this alignment

Sam Houston Jones Parkway/River Mist Convert to unsignalized J-turn intersection with a directional median opening for LA 378 northbound left turns only.

Alternative A-1 includes the following proposed U-turn locations to provide access with appropriate spacing:

Southbound U-turn, north of John Stine Road
Northbound U-turn, north of Goss Road
Southbound U-turn, north of Landry Road
Northbound U-turn, north of Hudson Drive
Southbound U-turn, south of Fontenot Road
Northbound U-turn, between Davis Road and Hollis Road
Northbound U-turn, north of Davis Road (may not be needed)
Southbound U-turn, south of River Bluff Lane

Alternative A-2

The only variation from Alternative A-1 is a roundabout at the Davis Road intersection instead of a signal.

Alternative B

Alternative B includes introducing a raised median from south of Sulphur Avenue to the new four lane divided section. The following intersections are proposed to be converted to a multi-lane roundabout to replace the existing signal:

- **Sulphur Avenue**
- **McKinley Street**
- **John Stine Road**

The following intersections are proposed to be converted to a multi-lane roundabout to provide a location for U-turns with appropriate spacing between intersections.

- **Mulberry Street**
- **Hudson Drive**
- **Villa Drive**

Sam Houston Jones Parkway/River Mist Convert to a multi-lane roundabout to service traffic demand and provide access as it meets Warrant 1A.

Phillips Road Form a single multilane roundabout with the new alignment.

Barrett Lane Provide a partial median opening for northbound left turns.

Alternative C

Alternative C is a superstreet concept that includes introducing a raised median from south of Sulphur Avenue to the new four lane divided section. This alternative includes removing the existing West Fork Creek Bridge and dead-ending Davis Road on either side. The following describes the proposed control at each intersection:

Sulphur Avenue Convert to a signalized J-turn intersection with left turns from LA 378 allowed. The Sulphur approaches would be right-in/right-out only with unsignalized J-turns on either side. Eastbound approach of Sulphur Avenue proposed to include dual eastbound right turns.

McKinley Street Convert to a signalized J-turn intersection with left turns from LA 378 allowed. The McKinley Street approaches would be right-in/right out only with unsignalized J-turns on either side.

John Stine Road Convert to a signalized J-turn intersection with no left turns from any direction. The John Stine approaches would be right-in/right out only with unsignalized J-turns on either side. The northbound approach of LA 378 is proposed to include a northbound right turn only lane.

Hudson Drive Convert to right-in/right-out

Hollis Road Convert to right-in/right-out

Phillips Road Convert to a multilane roundabout just south of proposed elevated section.

Sam Houston Jones Parkway/River Mist Convert to a unsignalized J-turn intersection with no left turns from any direction. The Sam Houston Jones Parkway and River Mist approaches would be right-in/right out only with unsignalized J-turns on either side.

Alternative C includes the following proposed U-turn locations to provide access with appropriate spacing:

Southbound U-turn, north of Mulberry Lane
Northbound U-turn, north of Shady Lane
Southbound U-turn, north of Goss Road
Northbound U-turn, north of Landry Road
Southbound U-turn, north of Hudson Drive
Northbound U-turn, at Dove Creek motor homes
Southbound U-turn, north of new bridge/elevated section
Northbound U-turn, east of Gahagan Lane

Traffic Volume Projections

The alternatives were to be analyzed for both the 2013 base year and the 2028 design year. The 2013 existing conditions traffic volumes were re-routed through the various alternatives to develop U-turn volumes and account for changes to existing access. Spot count data and trip generation based on surrounding land use were used to develop the mid-intersection and U-turn volumes. The resulting 2013 volume projections for Alternatives A (1 and 2), B and C are presented in Figures 8, 9 and 10 respectively.

Traffic volume projections for the design year 2028 were developed based on existing traffic volumes and IMCAL regional transportation model data and engineering judgment. The model data provided by IMCAL included 2014 and 2034 daily traffic projections on the corridor both with and without the alternative alignments. Using the various data sources, projected annual growth rates were estimated to vary from 0.5 percent to 2.0 percent per year for design period. The data indicated a higher growth rate in the northern section of LA 378 which is expected due to more undeveloped land compared to the southern section. A 1.0% growth rate was utilized on LA 378 north of Phillips Road. A 0.5% growth rate was utilized on LA 378 south of Phillips Road to I-10. The rates used on the side street varied based on actual data collected. The growth rates on the side streets ranged from 0.5% to 2%.

In addition to the projected growth rate applied to existing count data, the future SASOL plant in the area was considered for the 2028 design year. According to the IMCAL consultant, the transportation model included an additional 250 employees in the TAZ during the design period. Data provided by Calcasieu Parish indicated that SASOL would generate approximately 1,290 additional jobs by 2018.

Additional trips were added to the network volumes to account for the additional 1,000 employees estimated for SASOL taking into consideration multiple shifts, shift changes that occur outside of the peak hour and administrative staff that would work a typical nine to five schedule. The resulting 2028 volume projections for the No Build are presented in Figure 11. The No Build volumes were re-routed and mid-block trips estimated using the same methodology as with the 2013 projections. The resulting 2028 volume projections for Alternatives A-1 and A-2, B and C are presented in Figures 12, 13 and 14 respectively.

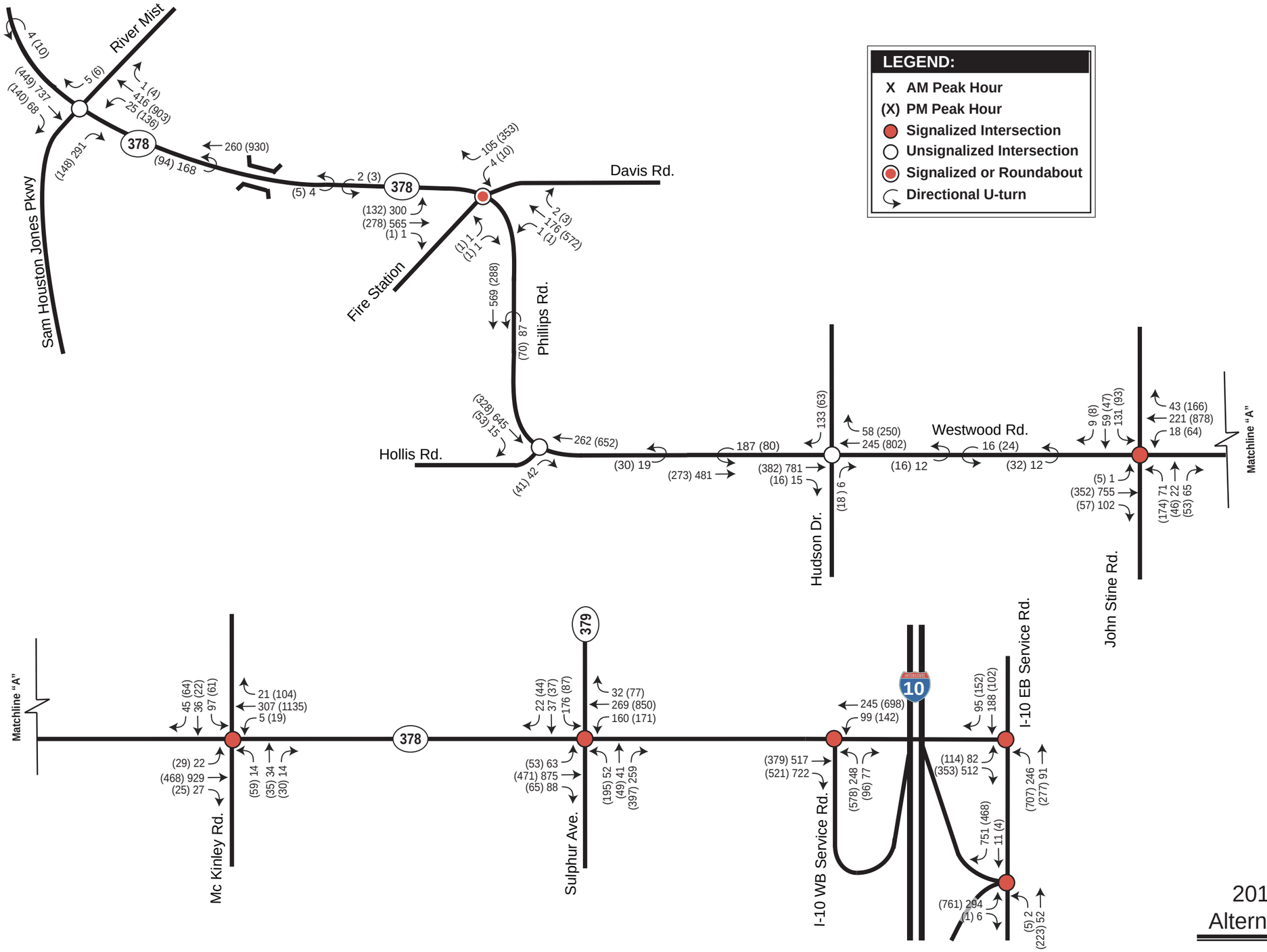


Figure 8

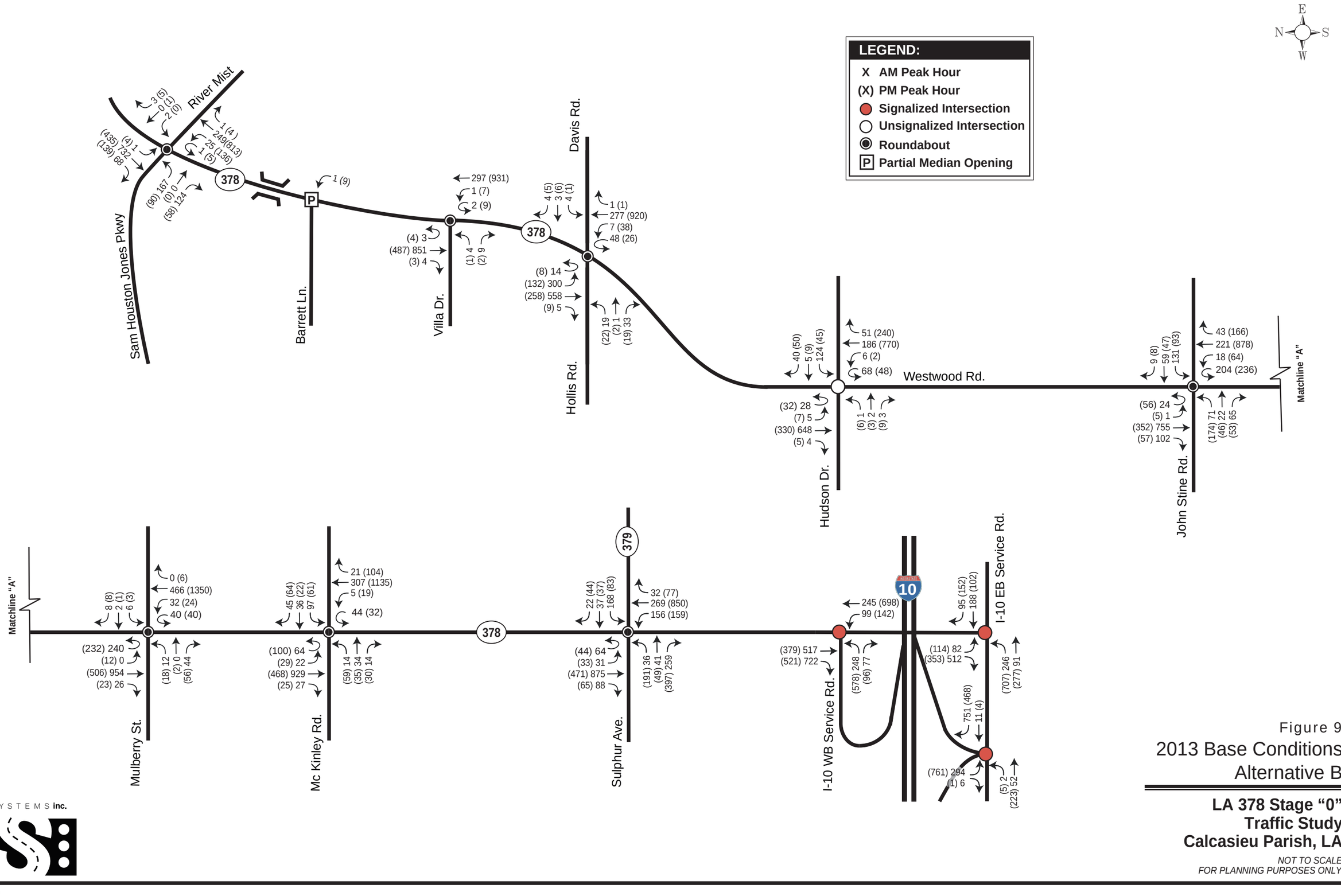
2013 Base Conditions
Alternatives A-1 and A-2

LA 378 Stage "0"
Traffic Study
Calcasieu Parish, LA

NOT TO SCALE
FOR PLANNING PURPOSES ONLY

URBAN SYSTEMS inc.

Project # 11-100



URBAN SYSTEMS inc.

Figure 9
2013 Base Conditions
Alternative B

LA 378 Stage "0"
Traffic Study
Calcasieu Parish, LA

NOT TO SCALE
FOR PLANNING PURPOSES ONLY

Project # 11-100

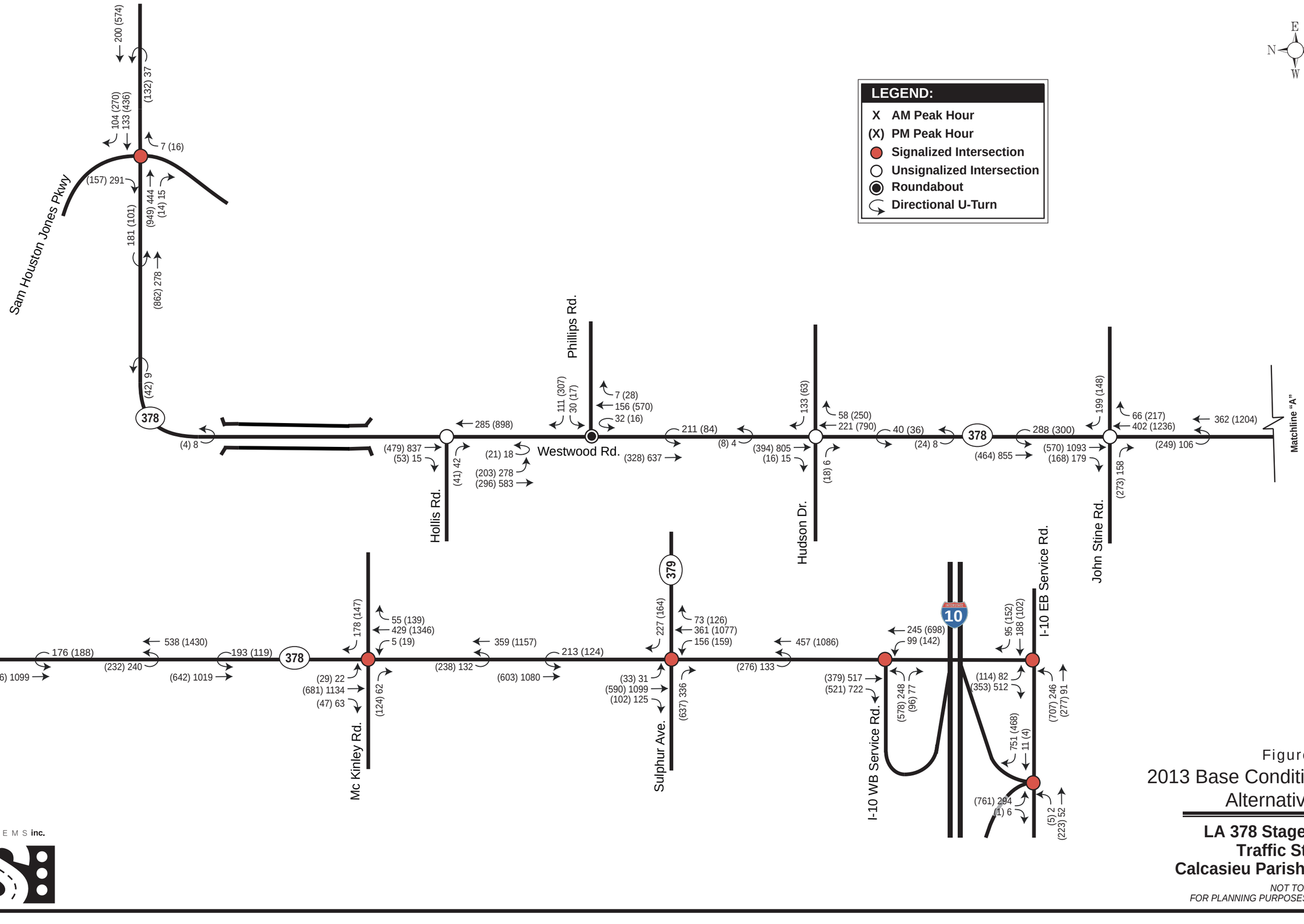


Figure 10

2013 Base Conditions
Alternative C

LA 378 Stage "0"
Traffic Study
Calcasieu Parish, LA

NOT TO SCALE
FOR PLANNING PURPOSES ONLY

URBAN SYSTEMS inc.

Project # 11-100

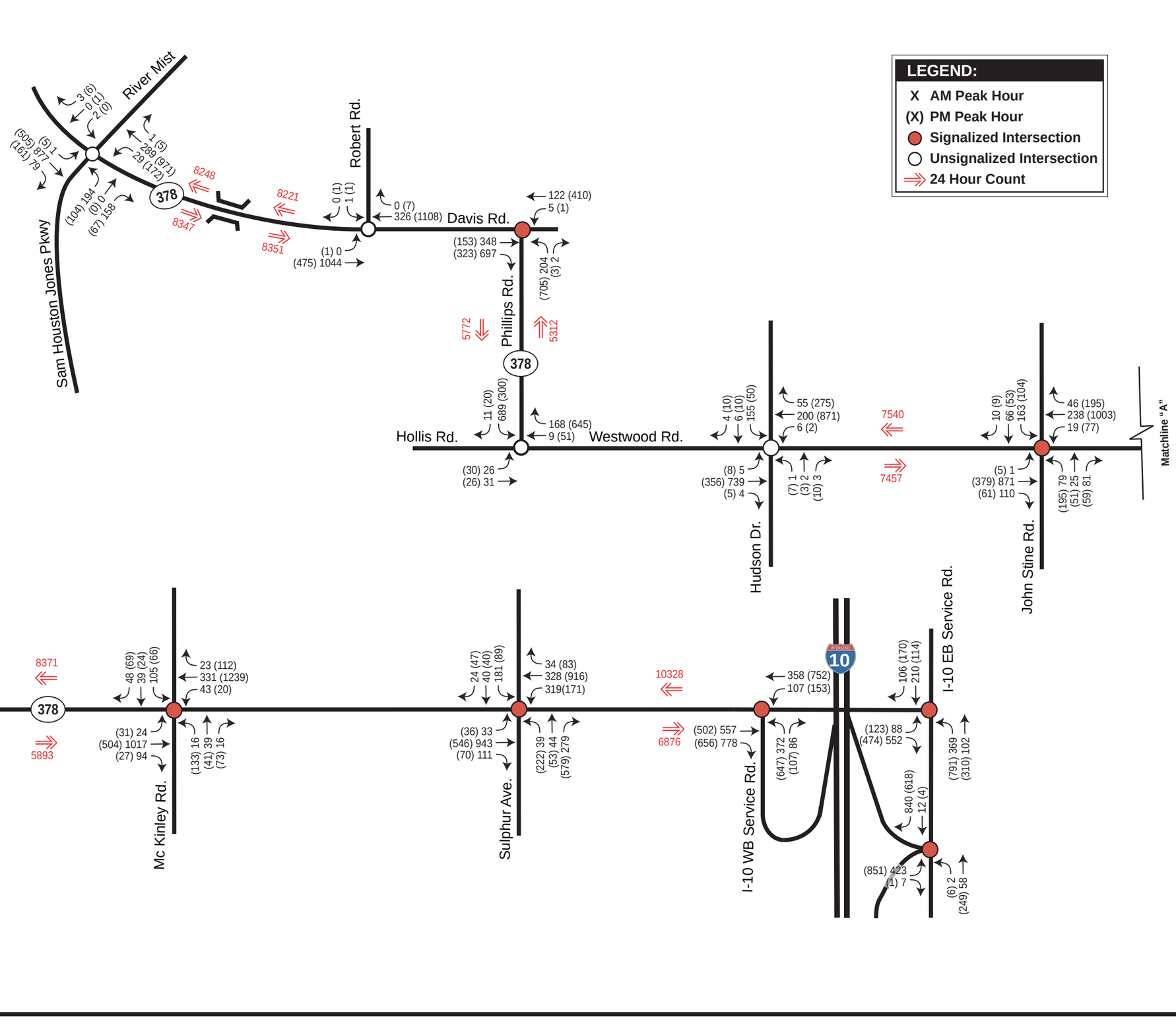


Figure 11

2028 No Build

LA 378 Stage "0"
Traffic Study
Calcasieu Parish, LA

NOT TO SCALE
FOR PLANNING PURPOSES ONLY

URBAN SYSTEMS inc.

Project # 11-100

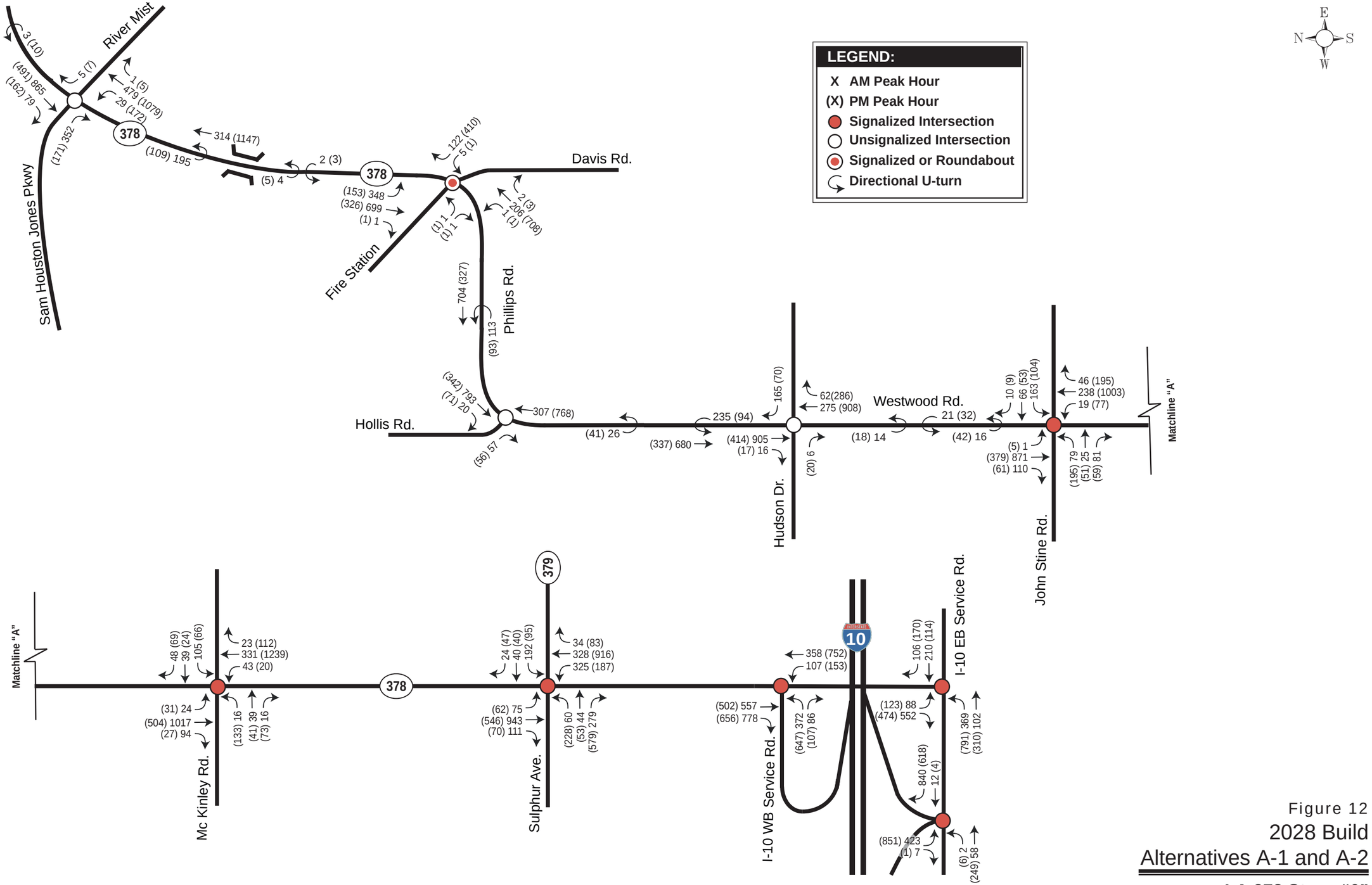


Figure 12
2028 Build
Alternatives A-1 and A-2

LA 378 Stage "0"
Traffic Study
Calcasieu Parish, LA

NOT TO SCALE
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Project # 11-100

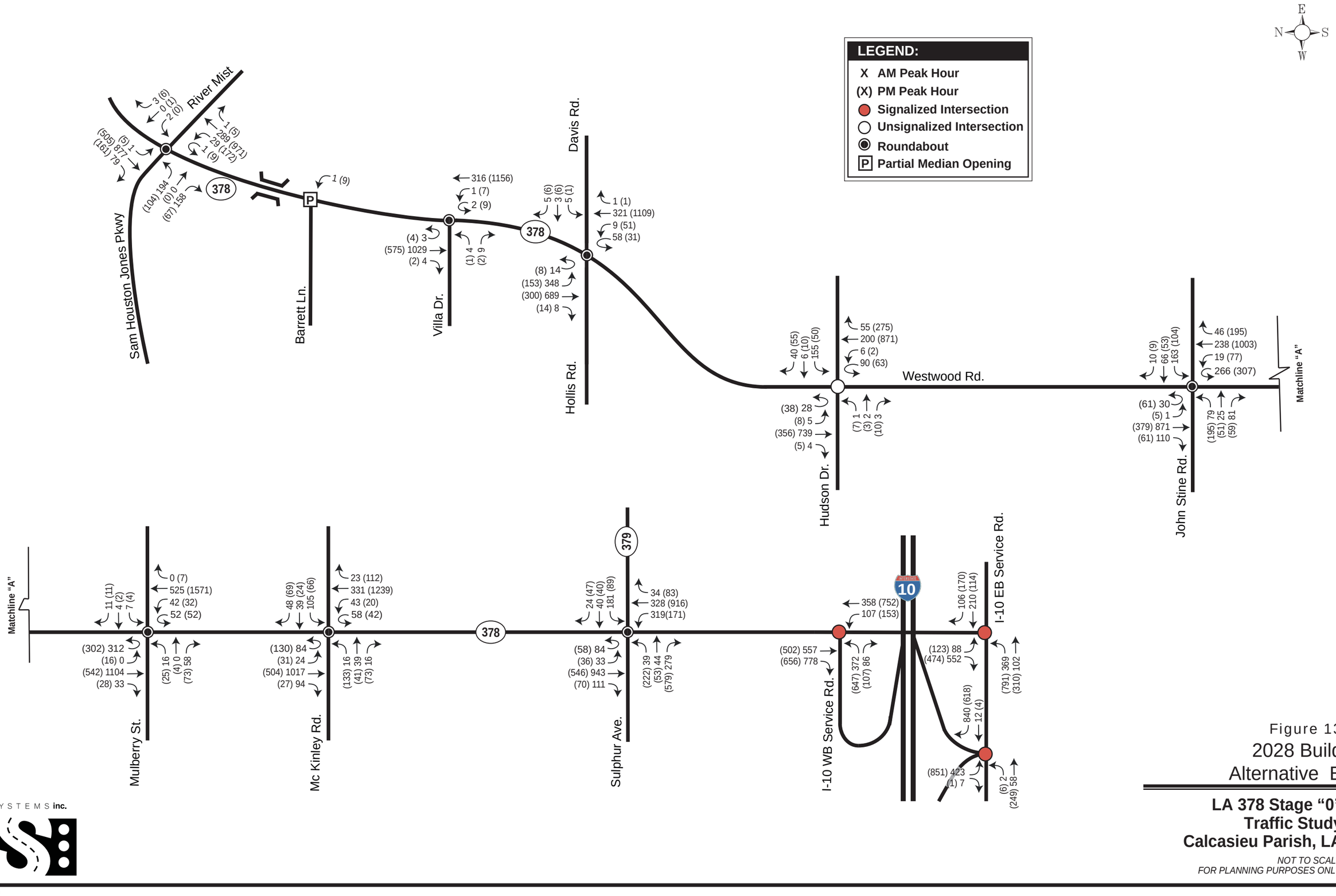

Figure 13
2028 Build
Alternative B

LA 378 Stage "0"
Traffic Study
Calcasieu Parish, LA

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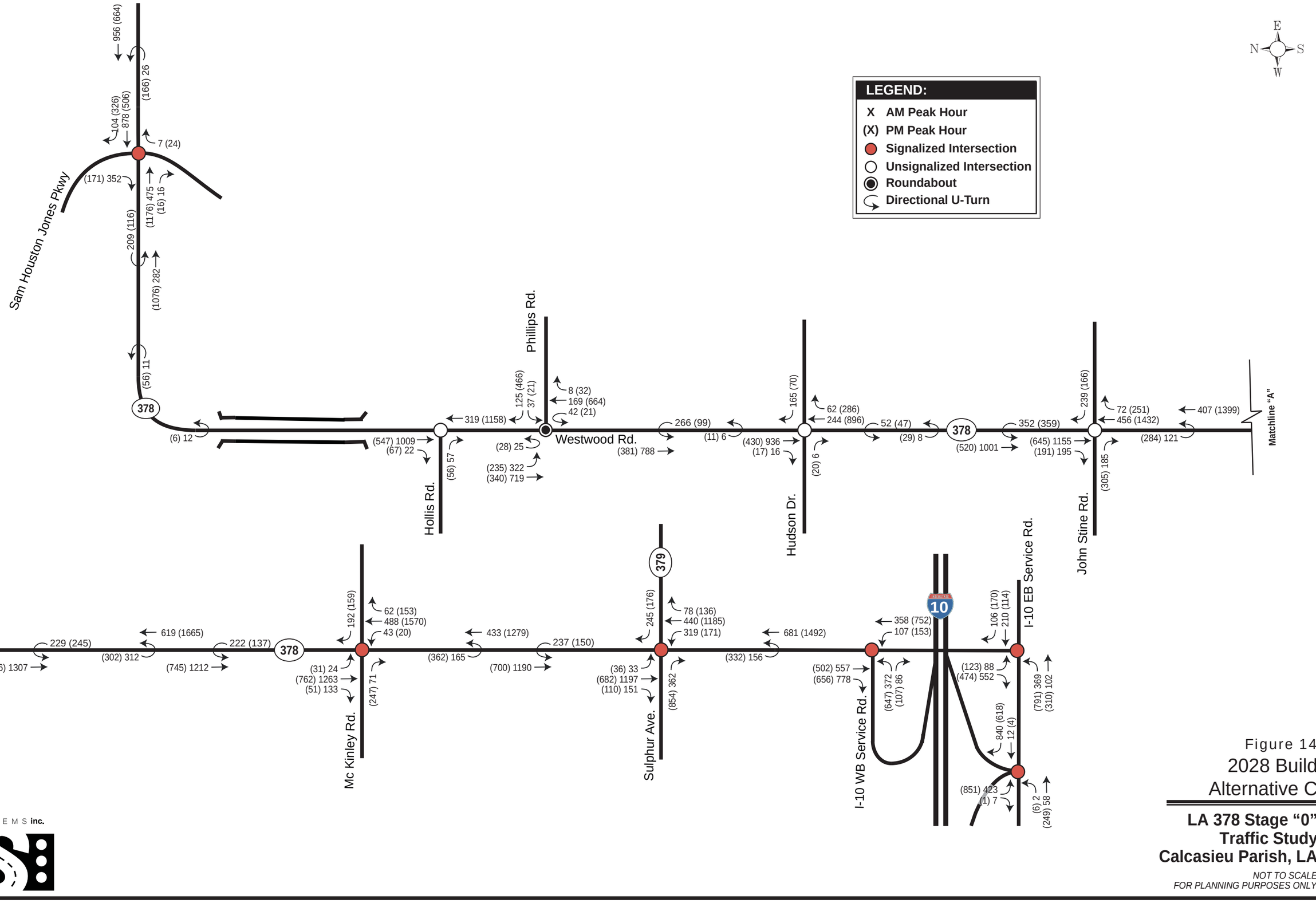
Project # 11-100



URBAN SYSTEMS inc.

Figure 14
2028 Build
Alternative C

LA 378 Stage "0"
Traffic Study
Calcasieu Parish, LA

NOT TO SCALE
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Project # 11-100

Capacity Analysis of Alternatives

The 2013 and 2028 projected traffic volumes were entered into HCS+ software for each roadway segment to compare alternatives. The results of the analysis for AM and PM peaks are presented in Tables 10 and 11, respectively.

A review of Tables 10 and 11 indicates that Alternatives A-1, A-2, B and C are expected to provide better level of services and more capacity compared to the No Build condition, with the most significant impact north of John Stine Road where the two-lane section is widened to four.

Table 12 presents the No Build analysis results for all intersections. The following intersections are proposed to include the same improvements in each Build alternative:

- I-10 eastbound ramps at the Service Road
- LA 378 at the I-10 Service Road
- LA 378 at I-10 westbound Ramps
- LA 378 at Hudson Drive

These intersections were analyzed for the 2013 Build, 2028 No Build and Build scenarios using Synchro 8.0 software. The results of the analysis are presented in Table 13.

A review of Table 13 indicates an increase in delay where permitted lefts are eliminated in the Build scenarios. The eastbound approach of the I-10 eastbound Service Road at LA 378 is expected to operate acceptably; however, queues are still expected. Re-striping of the eastbound approach to allow dual left turns could be considered to reduce queues as existing pavement for dual receiving lanes on LA 378 is available.

The following major intersections were analyzed to compare the alternatives to the No Build condition in 2013 and 2028:

- LA 378 at Sulphur Avenue
- LA 378 at McKinley Road
- LA 378 at John Stine Road
- LA 378 at Sam Houston Jones Parkway

Synchro software was used for the No Build, Alternatives A-1, A-2 and C analysis. Alternative B was analyzed using SIDRA software to compare roundabout control to signalized control. The Synchro and SIDRA analysis results cannot be compared between alternatives due to differences in capacity formulas used by the different software's. The U-turn volumes were omitted in the SIDRA signalized intersection analysis. Tables 14 and 15 present Level of Service criteria for the AM and PM peaks, respectively.

Table 10
LA 378 Roadway Segments Analysis Results for AM Peak

Intersection Approach	No Build				Alternative A-1 ans A-2				Alternative B				Alternative C			
	2013		2028		2013		2028		2013		2028		2013		2028	
	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)
LA 378 between I-10 Westbound ramps and Sulphur Avenue																
LA 378 Northbound	A	6.2	A	9.2	A	6.2	A	9.2	A	6.2	A	9.2	A	6.2	A	9.2
LA 378 Southbound	B	15.7	B	16.9	B	15.7	B	16.9	B	15.7	B	16.9	B	15.7	B	16.9
LA 378 between Sulphur Avenue and McKinley Street																
LA 378 Northbound	A	4.1	A	4.9	A	4.1	A	4.9	A	4.7	A	5.7	A	6.1	A	7.4
LA 378 Southbound	B	13.0	B	14.2	B	13.0	B	14.2	B	13.0	B	14.2	B	14.9	B	16.6
LA 378 between McKinley Street and John Stine Road																
LA 378 Northbound	A	4.5	A	4.8	A	4.5	A	4.8	A	4.5	A	4.8	A	7.4	A	8.3
LA 378 Southbound	B	12.0	B	13.8	B	12.0	B	13.8	B	12.7	B	14.8	B	14.8	B	17.3
LA 378 between John Stine Road and Hudson Drive																
LA 378 Northbound	D*	0.40*	E*	0.46*	A	3.6	A	3.9	A	3.6	A	3.9	A	7.2	A	8.3
LA 378 Southbound					A	10.3	B	11.8	A	10.4	B	12.0	B	15.3	B	16.2
LA 378 between Hudson Drive and Hollis Road																
LA 378 Northbound	D*	0.30*	D*	0.33*	A	4.4	A	5.1	A	3.8	A	4.3	A	4.1	A	4.7
LA 378 Southbound					A	9.2	A	10.7	A	7.6	A	10.9	A	9.5	B	11.1
LA 378 between Hollis Road and Bridge																
LA 378 Northbound	D*	0.40*	E*	0.48*	A	3.3	A	3.8	A	3.5	A	4.1	A	1.9	A	2.1
LA 378 Southbound					A	10.1	B	12.2	A	10.2	B	12.3	A	6.6	A	8.1
LA 378 between Bridge and Sam Houston Jones Parkway																
LA 378 Northbound	D*	0.40*	E*	0.47*	A	5.2	A	6.0	A	3.2	A	3.8	A	6.8	A	7.8
LA 378 Southbound					B	12.1	B	14.4	A	10.1	B	12.2	B	11.5	B	13.8

* Tw o-lane highw ay segment LOS criteria are based on v/c. Multilane highw ay segment LOS criteria are based on density (pc/mi/ln).

Table 11
LA 378 Roadway Segments Analysis Results for PM Peak

Intersection Approach	PM Peak															
	No Build				Alternative A-1 ans A-2				Alternative B				Alternative C			
	2013		2028		2013		2028		2013		2028		2013		2028	
	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)
LA 378 between I-10 Westbound ramps and Sulphur Avenue																
LA 378 Northbound	B	15.9	B	17.4	B	15.9	B	17.4	B	15.9	B	17.4	B	15.9	B	17.4
LA 378 Southbound	B	11.2	B	14.4	B	11.2	B	14.4	B	11.2	B	14.4	B	11.2	B	14.4
LA 378 between Sulphur Avenue and McKinley Street																
LA 378 Northbound	B	15.7	B	17.1	B	15.7	B	17.1	B	16.1	B	17.6	C	18.7	C	21.7
LA 378 Southbound	A	7.0	A	8.0	A	7.0	A	8.0	A	7.0	A	8.0	A	10.0	B	12.6
LA 378 between McKinley Street and John Stine Road																
LA 378 Northbound	B	15.3	B	17.6	B	15.3	B	17.6	B	15.3	B	17.6	C	18.2	C	21.1
LA 378 Southbound	A	6.3	A	6.8	A	6.3	A	6.8	A	7.6	A	8.4	A	9.2	A	10.3
LA 378 between John Stine Road and Hudson Drive																
LA 378 Northbound	E*	0.51*	E*	0.57*	B	12.7	B	14.5	B	12.7	B	14.5	B	16.6	C	19.2
LA 378 Southbound					A	5.0	A	5.3	A	5.2	A	5.7	A	8.9	A	10.0
LA 378 between Hudson Drive and Hollis Road																
LA 378 Northbound	D*	0.39*	D*	0.44*	A	10.1	B	11.4	A	9.7	B	11.2	A	9.9	B	11.2
LA 378 Southbound					A	4.6	A	5.0	A	4.0	A	5.1	A	4.8	A	5.2
LA 378 between Hollis Road and Bridge																
LA 378 Northbound	D*	0.46*	E*	0.55*	B	11.3	B	13.7	B	11.6	B	14.0	A	6.2	A	7.2
LA 378 Southbound					A	5.0	A	5.9	A	5.0	A	5.8	A	3.4	A	3.9
LA 378 between Bridge and Sam Houston Jones Parkway																
LA 378 Northbound	E*	0.50*	E*	0.60*	B	12.3	B	14.8	B	11.3	B	13.7	A	9.5	A	10.9
LA 378 Southbound					A	6.9	A	7.8	A	5.8	A	6.7	A	6.7	A	7.7

* Two-lane highway segment LOS criteria are based on v/c. Multilane highway segment LOS criteria are based on density (pc/mi/ln).

Table 12
2028 No Build Intersection Analysis Results

Intersection Approach	2028			
	AM Peak		PM Peak	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)
I-10 EB Service Rd @ Ramps				
OVERALL	**B**	**12.9**	**B**	**17.9**
Service Rd Eastbound	A	4.9	A	7.4
Service Rd Westbound	B	11.9	B	10.9
Ramps Southbound	B	16.0	C	26.1
LA 378 @ I-10 EB Service Road				
OVERALL	**B**	**13.1**	**B**	**18.6**
Service Rd Eastbound	A	6.8	B	16.6
Service Rd Westbound	B	15.0	B	16.0
LA 378 Southbound	B	17.2	C	24.2
LA 378 @ I-10 N. Service Road				
OVERALL	**B**	**13.5**	**B**	**15.4**
Service Rd Eastbound	B	18.1	C	22.8
LA 378 Northbound	A	5.5	A	8.0
LA 378 Southbound	B	14.6	B	15.7
LA 378 @ Sulphur Avenue				
OVERALL	**D**	**52.0**	**E**	**58.3**
Sulphur Ave Eastbound	C	33.0	F	100.2
Sulphur Ave Westbound	D	42.0	C	33.4
LA 378 Northbound	E	58.1	D	45.0
LA 378 Southbound	E	57.9	C	27.9
LA 378 @ McKinley Road				
OVERALL	**B**	**11.2**	**B**	**15.8**
McKinley Rd Eastbound	C	21.5	E	56.9
McKinley Rd Westbound	C	30.6	C	27.1
LA 378 Northbound	A	6.0	A	10.0
LA 378 Southbound	A	8.9	A	6.3
LA 378 @ John Stine Road				
OVERALL	**C**	**32.9**	**F**	**115.0**
John Stine Rd Eastbound	D	42.4	F	83.1
John Stine Rd Westbound	D	48.2	E	62.4
LA 378 Northbound	B	18.5	F	163.4
LA 378 Southbound	C	31.2	C	23.0
LA 378 @ Hudson Drive				
Hudson Dr Eastbound	C	18.8	D	27.2
Hudson Dr Westbound	E	46.9	F	72.4
LA 378 Northbound	A	0.2	A	0.1
LA 378 Southbound	A	0.1	A	0.4
LA 378 @ Hollis Road				
Hollis Rd Southbound	A	2.4	A	3.7
Phillips Rd Westbound	F	58.3	D	27.2
LA 378/Phillips Rd @ Davis Road				
OVERALL	**C**	**30.0**	**D**	**45.0**
LA 378 Eastbound	C	26.3	F	84.3
Davis Rd Northbound	A	4.5	B	17.5
LA 378 Southbound	C	34.2	B	13.4
LA 378 @ Robert Road				
Robert Rd Westbound	D	33.5	F	51.1
LA 378 @ Sam Houston Jones				
LA 378 Eastbound	B	10.2	A	9.3
LA 378 Westbound	A	7.9	B	10.5
River Mist Northbound	C	23.3	C	20.9
Sam Houston Jones Pwy Southbound	D	26.9	F	51.8

Table 13
LA 378 Build and No Build Intersection Analysis Results

Intersection Approach	AM Peak								PM Peak							
	Synchro								Synchro							
	2013				2028				2013				2028			
	No Build		Build*		No Build		Build*		No Build		Build*		No Build		Build*	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)
I-10 EB Service Road @ Ramps																
OVERALL	**B**	**10.7**	**B**	**10.7**	**B**	**12.9**	**B**	**12.9**	**B**	**15.0**	**B**	**15.0**	**B**	**17.9**	**B**	**17.9**
Service Rd Eastbound	A	4.0	A	4.0	A	4.9	A	4.9	A	7.0	A	7.0	A	7.4	A	7.4
Service Rd Westbound	A	9.1	A	9.1	B	11.9	B	11.9	A	9.1	A	9.1	B	10.9	B	10.9
Ramps Southbound	B	16.0	B	16.0	B	16.0	B	16.0	C	21.2	C	21.2	C	26.1	C	26.1
LA 378 @ I-10 EB Service Road																
OVERALL	**B**	**12.8**	**B**	**16.4**	**B**	**13.1**	**C**	**24.2**	**B**	**13.8**	**C**	**26.3**	**B**	**18.6**	**D**	**35.1**
Service Rd Eastbound	A	4.4	B	15.4	A	6.8	D	35.8	A	8.9	C	21.5	B	16.6	C	34.9
Service Rd Westbound	B	12.8	B	15.2	B	15.0	B	17.1	B	16.2	C	32.3	B	16.0	C	35.0
LA 378 Southbound	B	18.2	B	17.7	B	17.2	B	18.6	C	24.1	C	34.0	C	24.2	D	35.6
LA 378 @ I-10 N. Service Road																
OVERALL	**B**	**12.2**	**B**	**12.9**	**B**	**13.5**	**B**	**14.4**	**B**	**13.8**	**B**	**15.2**	**B**	**15.4**	**B**	**16.9**
Service Rd Eastbound	B	17.2	B	17.3	B	18.1	B	18.2	B	19.2	C	21.3	C	22.8	C	24.4
LA 378 Northbound	A	4.3	A	8.2	A	5.5	A	8.5	A	7.7	A	9.9	A	8.0	B	10.6
LA 378 Southbound	B	12.8	B	12.9	B	14.6	B	15.0	B	15.1	B	15.0	B	15.7	B	16.4
LA 378 @ Hudson Drive																
Hudson Dr Eastbound	C	16.8	B	11.6	C	18.8	B	12.4	C	22.0	A	9.8	D	27.2	A	9.9
Hudson Dr Westbound	D	30.2	B	10.3	E	46.9	B	10.6	E	46.7	B	14.6	F	72.4	C	16.4
LA 378 Northbound	A	0.2	-	-	A	0.2	-	-	A	0.1	-	-	A	0.1	-	-
LA 378 Southbound	A	0.1	-	-	A	0.1	-	-	A	0.3	-	-	A	0.4	-	-

* Build scenario is for all three alternatives.

Table 14
LA 378 Major Intersections for AM Peak Analysis Results

Intersection Approach	2013										2028									
	No Build		Build Alt. A-1 and A-2		Build Alt. B				Build Alt. C		No Build		Build Alt. A-1 and A-2		Build Alt. B				Build Alt. C	
	Synchro		Synchro		Sidra Signalized*		Sidra Roundabout		Synchro		Synchro		Synchro		Sidra Signalized		Sidra Roundabout		Synchro	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)
LA 378 @ Sulphur Avenue																				
OVERALL	**C**	**31.5**	**D**	**35.1**	**C**	**34.2**	**B**	**12.3**	**B**	**14.9**	**D**	**52.0**	**D**	**48.0**	**D**	**40.2**	**B**	**19.2**	**B**	**17.2**
Sulphur Ave Eastbound	C	32.6	C	27.6	C	23.3	B	16.8	B	17.4	C	33.0	C	28.6	C	25.8	C	23.5	B	18.0
Sulphur Ave Westbound	D	36.4	D	47.9	D	47.3	B	15.4	B	15.2	D	42.0	D	53.7	D	48.0	B	18.9	B	15.0
LA 378 Northbound	C	26.7	C	23.5	C	31.7	A	8.9	B	11.8	E	58.1	D	47.7	D	47.4	B	10.1	B	14.9
LA 378 Southbound	C	32.0	D	39.9	D	36.2	B	11.4	B	15.5	E	57.9	D	54.2	D	39.0	C	23.0	B	18.8
LA 378 @ McKinley Road																				
OVERALL	**B**	**10.4**	**B**	**12.6**	**B**	**18.6**	**A**	**8.3**	**B**	**12.4**	**B**	**11.2**	**B**	**14.1**	**C**	**25.7**	**A**	**9.5**	**B**	**15.3**
McKinley Rd Eastbound	C	21.3	B	12.3	C	29.3	B	13.4	B	15.4	C	21.5	B	12.5	C	31.7	B	14.5	B	15.8
McKinley Rd Westbound	C	28.8	B	15.3	D	51.4	B	12.3	B	15.9	C	30.6	B	15.9	E	61.3	B	13.1	B	16.0
LA 378 Northbound	A	5.5	A	9.3	B	10.6	A	7.3	A	9.1	A	6.0	B	10.5	B	18.2	A	8.1	B	10.8
LA 378 Southbound	A	7.5	B	13.3	B	13.8	A	7.6	B	13.0	A	8.9	B	15.2	C	21.0	A	9.1	B	17.1
LA 378 @ John Stine Road																				
OVERALL	**C**	**27.5**	**C**	**21.8**	**D**	**38.5**	**B**	**11.5**	-	-	**C**	**32.9**	**C**	**28.6**	**D**	**36.8**	**B**	**15.8**	-	-
John Stine Rd Eastbound	C	31.5	C	30.3	E	60.5	B	19.9	C	24.5	D	42.4	C	27.8	E	74.5	D	35.3	D	32.4
John Stine Rd Westbound	C	34.9	C	30.4	E	73.0	B	13.8	B	11.8	D	48.2	C	31.8	E	67.0	B	15.7	B	13.0
LA 378 Northbound	B	17.1	B	15.1	C	23.5	B	10.3	-	-	B	18.5	B	17.7	B	15.4	B	10.8	-	-
LA 378 Southbound	C	28.1	B	19.9	C	29.9	A	9.9	-	-	C	31.2	C	31.3	C	27.1	B	14.6	-	-
LA 378 @ Sam Houston Jones Parkway																				
OVERALL	-	-	-	-	**B**	**14.1**	**A**	**8.9**	**A**	**5.6**	-	-	-	-	**B**	**16.3**	**B**	**11.2**	**B**	**11.3**
LA 378 Eastbound	A	9.5	A	9.6	A	7.5	A	7.0	A	5.2	B	10.2	B	10.3	A	8.2	A	7.2	A	8.1
LA 378 Westbound	A	7.8	-	-	A	8.0	A	5.5	A	4.4	A	7.9	-	-	A	8.5	A	5.5	B	11.4
River Mist Northbound	C	15.7	A	9.7	C	27..9	B	10.6	A	6.4	C	23.3	A	10.0	C	28.8	B	11.1	A	8.9
Sam Houston Jones Pwy Southbound	C	20.0	C	20.3	C	34.2	B	19.0	A	7.0	D	26.9	E	36.5	D	41.5	C	28.1	B	15.4

* U-turns were omitted from signalized SIDRA analyes

Table 15
LA 378 Major Intersections for PM Peak Analysis Results

Intersection Approach	2013										2028									
	No Build		Build Alt. A-1 and A-2		Build Alt. B				Build Alt. C		No Build		Build Alt. A-1 and A-2		Build Alt. B				Build Alt. C	
	Synchro		Synchro		Sidra Signalized*		Sidra Roundabout		Synchro		Synchro		Synchro		Sidra Signalized		Sidra Roundabout		Synchro	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)
LA 378 @ Sulphur Avenue																				
OVERALL	**C**	**31.2**	**C**	**31.1**	**C**	**32.1**	**B**	**11.6**	**B**	**17.1**	**E**	**58.3**	**D**	**39.0**	**C**	**34.3**	**B**	**16.3**	**C**	**23.7**
Sulphur Ave Eastbound	D	41.1	C	32.0	C	26.7	B	13.0	B	18.6	F	100.2	D	49.8	C	32.7	C	22.1	C	34.6
Sulphur Ave Westbound	C	33.2	D	35.7	D	37.4	C	22.6	B	15.2	C	33.4	D	36.4	D	37.6	C	32.1	B	15.6
LA 378 Northbound	C	29.2	C	26.1	D	35.2	B	10.6	B	18.6	D	45.0	C	28.0	D	36.3	B	13.4	C	22.9
LA 378 Southbound	C	22.2	D	38.0	C	31.1	A	8.4	B	13.3	C	27.9	D	43.7	C	32.2	A	8.8	B	14.3
LA 378 @ McKinley Road																				
OVERALL	**B**	**10.7**	**B**	**15.3**	**C**	**26.3**	**A**	**9.4**	**B**	**12.0**	**B**	**15.8**	**B**	**18.1**	**D**	**48.2**	**B**	**14.8**	**B**	**17.3**
McKinley Rd Eastbound	C	25.0	B	13.8	D	52.9	B	12.9	B	19.4	E	56.9	B	19.0	E	72.4	B	16.8	C	23.9
McKinley Rd Westbound	C	25.0	B	14.4	D	53.2	C	21.0	C	23.1	C	27.1	B	15.1	E	64.8	D	43.0	C	24.5
LA 378 Northbound	A	9.1	B	17.6	B	18.6	A	8.3	B	12.1	A	10.0	C	21.4	D	50.2	B	14.0	B	19.4
LA 378 Southbound	A	6.1	B	10.3	B	13.2	A	8.0	A	8.0	A	6.3	B	10.5	C	25.8	A	8.4	A	9.1
LA 378 @ John Stine Road																				
OVERALL	**E**	**73.3**	**C**	**25.3**	**D**	**52.3**	**B**	**13.4**	**-**	**-**	**F**	**115.0**	**C**	**30.7**	**E**	**80.0**	**C**	**22.0**	**-**	**-**
John Stine Rd Eastbound	F	90.5	C	32.7	E	60.5	B	19.2	C	19.1	F	83.1	C	34.5	F	80.7	C	26.3	D	25.6
John Stine Rd Westbound	D	54.8	C	33.7	F	99.2	C	26.3	C	22.3	E	62.4	C	34..9	F	99.2	E	75.8	D	32.7
LA 378 Northbound	F	91.4	C	23.7	D	50.9	B	11.9	-	-	F	163.4	C	31.7	F	93.9	B	18.3	-	-
LA 378 Southbound	B	19.7	C	20.8	C	31.0	A	9.1	-	-	C	23.0	C	23.3	C	31.6	B	10.3	-	-
LA 378 @ Sam Houston Jones Parkway																				
OVERALL	**-**	**-**	**-**	**-**	**B**	**10.5**	**A**	**7.5**	**A**	**5.2**	**-**	**-**	**-**	**-**	**B**	**13.3**	**A**	**7.9**	**A**	**5.8**
LA 378 Eastbound	A	8.8	A	9.0	B	10.0	A	7.1	A	4.9	A	9.3	A	9.3	B	13.2	A	7.4	A	5.5
LA 378 Westbound	A	9.7	-	-	A	7.1	A	6.5	A	4.2	B	10.5	-	-	A	8.3	A	6.9	A	4.2
River Mist Northbound	C	17.5	B	12.1	C	21.0	B	12.6	B	10.3	C	20.9	B	13.3	C	25.7	B	13.9	B	12.6
Sam Houston Jones Pwy Southbound	D	28.6	B	11.4	C	24.4	B	13.2	B	10.7	F	51.8	B	12.0	C	30.2	B	13.9	B	13.6

* U-turns were omitted from signalized SIDRA analyes

A review of Tables 14 and 15 indicates the proposed alternatives are expected to provide similar or better levels of service than the No Build conditions at these four intersections in both peak periods. Alternatives A-1 and A-2 would maintain the existing access in the southern section, but results in the highest number of conflict points. Both Alternatives B and C include significantly reduced conflict points compared to Alternatives A-1 and A-2 with acceptable operational conditions expected. Alternative B would result in slower speeds throughout the corridor due to the traffic calming affect of the roundabouts. Alternative C is most conducive to the thru traffic on LA 378 with the less conflict points than Alternatives A-1 and A-2.

The existing intersections of LA 378 at Hollis, Phillips and Davis Roads are expected to have significantly different configurations between alternatives. Alternative A-1 includes realigning Davis Road with the fire station driveway to the north and signalizing with preemption for the fire trucks. Alternative A-2 provides a roundabout instead of a signal at the realigned Davis Road/ fire Station driveway intersection. The realignment of LA 378 in Alternative B eliminates the connection between Davis Road at LA 378. A roundabout is provided at the intersection of Phillips Road and realigned LA 378 in this alternative. Table 16 presents a comparison of the major intersection that will service the traffic currently on LA 378 at Hollis, Phillips and/or Davis Roads in each alternative. The No Build scenario is not compared because the movements occur at different intersections.

A review of Table 16 indicates similar operational conditions are expected with Alternatives A-1, A-2, B and C at the major intersections of LA 378 at Hollis, Phillips and Davis Roads except with the signalized condition in Alternative B which is only shown for comparison purposes.

Table 16
LA 378 at Hollis/ Davis/ Phillips Rd
Intersection Analysis Results

Intersection Approach	Alt. A-1		Alt. A-2				Alt. B				Alt. C			
	Synchro Signalized		Sidra Signalized		Sidra Roundabout		Sidra Signalized		Sidra Roundabout		Sidra Signalized		Sidra Roundabout	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)
LA 378 @ Hollis/Davis/ Phillips Road - 2013 AM Peak														
OVERALL	**B**	**11.1**	**B**	**17.8**	**A**	**8.0**	**B**	**12.3**	**A**	**8.6**	**A**	**9.2**	**A**	**8.2**
LA 378 Northbound	A	6.5	B	19.6	B	12.6	D	36.1	B	13.0	A	7.1	A	8.4
LA 378 Southbound	B	11.5	B	15.9	A	7.2	B	12.2	A	8.2	A	8.7	A	8.0
Fire Station/ Hollis	B	14.0	C	27.9	B	12.0	C	31.2	A	9.9	-	-	-	-
Davis Rd/ Phillips Rd	B	14.8	C	28.7	A	6.6	A	6.6	A	8.7	B	14.5	A	8.9
LA 378 @ Hollis/Davis/ Phillips Road - 2028 AM Peak														
OVERALL	**B**	**13.7**	**B**	**18.7**	**A**	**8.0**	**B**	**13.6**	**A**	**8.8**	**A**	**9.3**	**A**	**8.4**
LA 378 Northbound	A	6.6	C	22.0	B	13.0	D	42.2	B	14.6	A	7.5	A	9.0
LA 378 Southbound	B	15.0	B	16.5	A	7.1	B	13.6	A	8.2	A	8.6	A	8.2
Fire Station/ Hollis	B	14.0	C	27.7	B	12.7	C	32.7	B	10.5	-	-	-	-
Davis Rd/ Phillips Rd	B	14.9	C	29.1	A	6.8	A	7.3	A	9.3	B	15.2	A	9.1
LA 378 @ Hollis/Davis/ Phillips Road - 2013 PM Peak														
OVERALL	**B**	**11.9**	**C**	**24.2**	**B**	**10.9**	**B**	**11.0**	**A**	**7.5**	**B**	**10.2**	**A**	**8.4**
LA 378 Northbound	A	7.6	B	18.1	B	11.8	D	39.9	B	11.6	A	6.9	A	7.0
LA 378 Southbound	A	8.3	B	14.5	A	7.1	B	12.8	A	8.1	B	12.3	A	8.5
Fire Station/ Hollis	B	14.0	C	34.6	B	10.2	C	25.4	B	10.9	-	-	-	-
Davis Rd/ Phillips Rd	C	21.6	D	42.4	B	13.5	A	8.5	A	7.0	B	12.8	B	10.8
LA 378 @ Hollis/Davis/ Phillips Road - 2028 PM Peak														
OVERALL	**B**	**10.6**	**C**	**24.4**	**B**	**13.4**	**B**	**12.3**	**A**	**7.9**	**B**	**13.1**	**B**	**10.4**
LA 378 Northbound	A	9.2	C	20.3	B	12.1	D	44.3	B	12.0	A	7.2	A	7.4
LA 378 Southbound	A	10.0	B	14.7	A	7.0	B	14.7	A	8.2	B	16.1	A	8.6
Fire Station/ Hollis	A	7.8	C	34.6	B	10.5	C	25.8	B	12.0	-	-	-	-
Davis Rd/ Phillips Rd	B	13.4	D	40.7	C	22.0	A	9.4	A	7.5	B	17.4	B	16.2

Analysis was conducted to compare locations where motorists are expected to U-turn due to raised median in Alternatives A-1 and A-2. Unsignalized U-turn analysis was conducted using Synchro software for the highest volume locations only. The results are presented in Table 17.

Table 17
LA 378 Alternatives A-1 and A-2 U-turn Analysis Results

Intersection Approach	2013				2028			
	AM		PM		AM		PM	
	Synchro Unsignalized		Synchro Unsignalized		Synchro Unsignalized		Synchro Unsignalized	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)
NB U-turn North of Hudson Drive								
LA 378 Northbound	B	10.4	A	8.9	B	12.5	A	9.3
NB U-turn Btw Westwood Drive and Davis								
LA 378 Eastbound/Northbound	B	11.2	A	9.0	B	12.8	A	9.2
WB U-Turn West of Sam Houston Jones Parkway								
LA 378 Westbound	A	8.8	C	16.2	A	9.1	C	21.1

A review of Table 17 indicates that the proposed U-turns are expected to operate acceptably.

The roundabouts at minor intersections in Alternative B that were included to provide for U-turn movements were analyzed in SIDRA. The results are presented in Table 18.

Table 18
LA 378 Alternative B Intersections Analysis Results

Intersection Approach	2013				2028			
	Sidra Roundabout				Sidra Roundabout			
	AM Peak		PM Peak		AM Peak		PM Peak	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)
LA 378 @ Mulberry Street								
OVERALL	**A**	**8.1**	**A**	**9.7**	**A**	**8.8**	**B**	**16.8**
Mulberry St Eastbound	B	13.8	B	11.8	B	15.9	B	12.6
Mulberry St Westbound	B	12.5	B	18.5	B	13.3	C	27.0
LA 378 Northbound	A	8.0	B	10.0	A	8.8	C	21.0
LA 378 Southbound	A	7.8	A	8.6	A	8.3	A	9.2
LA 378 @ Hudson Drive								
OVERALL	**A**	**8.2**	**A**	**7.0**	**A**	**8.7**	**A**	**7.2**
Hudson Dr Eastbound	B	10.1	A	9.9	B	10.9	B	10.2
Hudson Dr Westbound	B	12.6	B	13.7	B	13.2	B	14.7
LA 378 Northbound	A	7.8	A	6.3	A	8.1	A	6.4
LA 378 Southbound	A	7.1	A	6.8	A	7.6	A	7.0
LA 378 @ Villa Drive								
OVERALL	**A**	**5.3**	**A**	**5.4**	**A**	**5.3**	**A**	**5.3**
Villa Dr Eastbound	B	12.0	B	10.5	B	12.7	B	10.8
LA 378 Northbound	A	5.3	A	5.3	A	5.3	A	5.3
LA 378 Southbound	A	5.2	A	5.3	A	5.2	A	5.3

A review of Table 18 indicates the roundabouts proposed to provide access are expected to operate acceptably.

Analysis was conducted to compare locations where motorists are expected to U-turn and perform a J-turn movement in Alternative C. Unsignalized U-turn analysis was conducted using Synchro software for the highest volume locations only. The results are presented in Table 19.

Table 19
LA 378 Alternative C U-turn Analysis Results

Intersection Approach	2013				2028			
	AM		PM		AM		PM	
	Synchro Unsignalized		Synchro Unsignalized		Synchro Unsignalized		Synchro Unsignalized	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)
SB U-turn South of Sulphur Avenue								
LA 378 Southbound	B	10.2	C	19.5	B	12.5	D	33.5
NB U-turn North of Sulphur Avenue								
LA 378 Northbound	C	19.4	B	11.6	C	22.3	B	12.7
SB U-turn South of Mc Kinley Road								
LA 378 Southbound	A	9.4	C	21.3	B	10.0	C	25.0
NB U-turn North of Mc Kinley Road								
LA 378 Northbound	C	18.0	B	12.0	C	22.9	B	13.3
SB U-turn North of Mulberry Street								
LA 378 Southbound	B	10.9	D	30.7	B	11.8	E	43.2
NB U-turn North of Shady Lane								
LA 378 Northbound	C	19.8	B	12.5	D	26.0	B	13.9
SB U-turn South of John Stine Road								
LA 378 Southbound	A	9.5	C	22.7	A	9.8	D	29.4
NB U-turn North of John Stine Road								
LA 378 Northbound	B	14.9	B	10.3	C	17.6	B	10.8
NB U-turn at Dove Creek Motorhomes								
LA 378 Northbound	B	12.0	A	9.2	B	13.9	A	9.6
WB U-Turn West of Sam Houston Jones Parkway								
LA 378 Westbound	A	8.9	C	15.1	A	8.9	C	19.3
EB U-turn East of Sam Houston Jones Parkway								
LA 378 Eastbound	A	8.4	B	11.3	C	16.7	B	12.3

A review of Table 19 indicates that signalization may be considered in the future at the southbound U-turn north of Mulberry Street. All other unsignalized U-turn locations are expected to operate at LOS D or better through the design year.

VISSIM Analysis Tool

VISSIM is a micro-simulation analysis tool for analyzing the operations of small or large network systems. The models can simulate the highway/urban street, transit, pedestrian, and/or bicyclist traffic types. Each vehicle, pedestrian, bicyclist, and interaction is simulated individually. Simulation modeling is a useful tool for comparing potential alternatives and improvements.

Detailed data, including roadway and traffic parameters, is coded in the model to simulate traffic conditions and driver behavior. Data coding begins with "drawing" in the roadway network on top of an aerial background image, following the roadway alignments and curvatures. Roadway parameters are entered for the number of lanes, lane drops/additions, intersection geometry, and turn pocket lengths.

The model is coded to simulate control for the intersection of two roadways (e.g. an intersection, interchange, or a driveway). The appropriate intersection control is assigned via stop signs, traffic signals, and/or yielding of right-of-way.

Projected Condition VISSIM Models

Projected condition VISSIM models were coded for a "low" and "high" volume peak condition for the No Build and A-1, B and C alternative scenarios. The "low" volume peak condition represents the volumes projected for the 2028 design year.

The VISSIM models were un-calibrated for visualization only and not used for analysis. These models were presented at the public meeting to help the public envision the alternatives.

Safety Benefits

The potential safety benefits of each alternative were evaluated based on the proposed geometry, roadway characteristics, intersection control, access management and traffic volumes. Where analysis methods were not available, crash modification factors (CMF) were identified. According to the American Association of State Highway and Transportation Officials (AASHTO) *Highway Safety Manual* (HSM), *1st Edition,* a CMF is a numerical value that estimates how effective a given safety countermeasure or set of countermeasures will be in reducing crashes at a specific location.

Roadway Segments

Four roadway segments were chosen to be representative of the various roadways sections in the study area. These are as follows:

- LA 378 between I-10 and McKinley Street
- LA 378 between McKinley Street and John Stine Road
- LA 378 between John Stine Road and Phillips Road
- LA 378 between Phillips Road and Sam Houston Jones Parkway

Volumes and segment characteristics were input into an analysis spreadsheet that utilizes the HCM predictive method to determine the yearly predicted number of crashes on the four segments along LA 378. Table 20 presents the resulting predicted crash rates for the Build and No Build conditions for both the base and design years.

Table 20
Comparison of Roadway Sections
with Predictive Method

LA 378 Roadway Segment	Predicted Crash Rate (crashes/mi/yr)							
	2013 Base Year				2028 Design Year			
	No Build	Alt A-1 and A-2	Alt B	Alt C	No Build	Alt A-1 and A-2	Alt B	Alt C
Between I-10 and McKinley Street	9.7	9.7	5.1	5.1	10.6	10.6	5.5	5.5
Between McKinley Street and John Stine Road	9.9	9.9	3.7	3.7	10.7	10.7	4.1	4.1
Between John Stine Road and Phillips Road	4.3	2.7	2.7	2.7	4.7	3.0	3.0	3.0
Between Phillips Road and Sam Houston Jones Parkway	3.8	2.7	2.7	2.5	4.6	3.2	3.2	3.0

A review of Table 20 indicates that converting the existing two-lane undivided or five-lane sections to a four-lane raised median section is expected to result in a reduction in crashes. Alternatives B and C are proposed to have a raised median section from I-10 to John Stine Road. All four alternatives are proposed to have a raised median section from John Stine Road to Sam Houston Jones Parkway. Introducing a raised median reduces the number of conflict points by eliminating left turn movements at most intersections which improves safety. Conflicts from left turns would still be present at full access median opening.

Intersections

Predictive method calculations were not available at the time of this report for converting full access intersections to J-turns or roundabouts.

Roundabouts have been shown to significantly decrease the number and severity of collisions when compared to traditional intersections. Roundabouts are designed for low speed operation and virtually eliminate the possibility of right angle (T-bone) crashes.

Table 21 presents the CMFs for conversion of signalized and unsignalized intersections to roundabouts as identified in the HSM.

Table 21
CMFs for Conversion of Traditional Intersections
Into a Roundabout

Setting (Intersection Type)	Crash Type (Severity)	CMF	Standard Error
Converting Signalized Intersection into a Roundabout			
One or Two Lanes	All Types (All Severities)	0.52	0.06
	All Types (Injury)	0.22	0.07
Converting Unsignalized Intersection into a Roundabout			
One or Two Lanes	All Types (All Severities)	0.56	0.05
	All Types (Injury)	0.18	0.04

Based on Table 21, when converting to a roundabout, the total number of predicted crashes is expected to be 52% of the base condition crashes for a traditional signalized intersection and 56% for a traditional two-way stop control intersection. Also, the number of predicted crashes involving injury is expected to be 22% of the base condition injury crashes for a traditional signalized intersection and 18% for a traditional two-way stop controlled intersection.

The HSM does not provide CMFs for converting signalized or unsignalized intersections to a J-turn intersection. J-turn configurations traditionally improve safety by eliminating the through and left turn movements from the minor streets, reducing the number of conflict points compared to a full access intersection.

Elimination of multiple driveways and/or driveway sharing could benefit safety by reducing the number of conflict points along LA 378. Removing driveways in the functional area of the intersections on LA 378 would also reduce conflict points and improve safety at the intersections.

Construction Cost Estimate

An estimate of the potential construction and maintenance costs for traffic signals were calculated based on average construction costs at the time of this report and known variables. Unknown variables such as required Right Of Way acquisition and utility relocation were not included. Table 22 presents a summary of the estimated construction costs for each of the proposed alternatives.

Table 22
Comparison of Traffic Signal
Construction Cost

ITEM	Unit Cost	No Build		Alternative A-1		Alternative A-2		Alternative B		Alternative C	
		Quant.	Total Cost	Quant.	Total Cost	Quant.	Total Cost	Quant.	Total Cost	Quant.	Total Cost
New Signal	$200K	--	--	3	$600K	2	$400K	--	--	1	$200K
Signal Modification	$7.5K	--	--	2	$15K	2	$15K	2	$15K	2	$15K
Signal Removal	$10K	--	--	--	--	--	--	4	$40K	3	$30K
Total	--	--	--	**$615,000**		**$415,000**		**$55,000**		**$245,000**	
Signal Maintenance	$2,4K (per/year)	7	$16.8K	7	$16.8K	6	$14.4K	3	$7.2K	6	$14.4K
Annual Total (Cost/Year)	--	**$16.8K**		**$16.8K**		**$14.4K**		**$7.2K**		**$14.4K**	

A review of Table 22 indicates that the cost associated with traffic signals varies considerably between alternatives.

Conclusions

This report summarized a traffic study to assess the effects of improving the LA 378 corridor between Interstate 10 and Sam Houston Jones Parkway in Westlake, Louisiana. Proposed improvements included converting the five-lane section to a divided roadway and widening the two-lane section to a four lane divided section in three alternatives. Various alignments were considered for the northern section of LA 378 to eliminate the dog-leg.

Existing traffic volume, speed, classification and travel time data was collected within the project study area. The majority of the traffic count data was collected in September 2012.

Based on speed data collected and guidance from LADOTD EDSM VI.1.1.1, raising speed limits along LA 378 could be considered.

Crash reports, provided by LADOTD, were reviewed to identify correctible crash patterns for use in developing alternatives.

Existing roadway capacity analysis indicated that the southern five lane section has excess capacity in the existing conditions. Analysis indicated poor levels of service on the two-lane section with a volume to capacity ratio near 0.5. The poor LOS compared to the volume capacity ratio is a function of the impact of left and right turning movements that delay through traffic.

Existing intersection analysis indicated reasonable operating conditions the exception of the intersection of John Stine Road in the PM peak hour. This was consistent with field conditions as this is where the road transitions from a five-lane to a two-lane section.

Existing traffic signal warrants analysis indicated that the unsignalized intersection of Hudson Drive and Hollis Road should remain unsignalized. The unsignalized intersection of Sam Houston Jones Parkway met Warrant 1A indicating that signalization and/or a full access median opening could be considered. The remaining existing signalized intersections satisfied signal warrants.

Based on LADOTD Access Management guidelines, potential intersection configurations and four alternative alignments to remove the dog-leg, the alternatives were defined as follows:

- No Build is maintaining the existing roadway geometry and traffic control as is.
- Alternative A-1 is a minimal impact corridor project with the least variation from existing conditions in the southern section which does not require widening.
- Alternative A-2 is Alternative A-1 with a roundabout at Phillips Road / Davis Road in lieu of a signal.
- Alternative B includes a raised median throughout the study limits and incorporates roundabouts at the subject intersections that met Warrant 1A and at intersections in between to allow U-turns at or about ½ mile spacing.
- Alternative C is a superstreet concept with a combination of unsignalized and signalized J-turn intersections.

Introducing a raised median reduces conflicts by eliminating left turn movements at most intersections. Conflicts from left turns would still be present at full access median opening. Additional access management such as elimination of multiple lane driveways and/or driveway sharing could benefit safety by reducing the number of access points along LA 378. Shared driveway usage could also reduce the number of vehicles accessing LA 378.

The northern section of Alternative A-1 or A-2 combined with the southern section of Alternative C could be considered.

Roundabouts and J-turns at the intersections of LA 378 at the I-10 ramps and I-10 eastbound service roadway were determined not feasible due to geometry. Signal modifications for LA 378 at the I-10 westbound ramps and I-10 eastbound service road are proposed for all build alternatives. Re-striping of the I-10 eastbound service road approach to allow dual left turns could be considered to reduce queues as existing pavement for dual receiving lanes on LA 378 is available.

Traffic volume projections for the design year 2028 were developed based on existing traffic volumes and IMCAL regional transportation model data and engineering judgment. In addition to the projected growth rate applied to existing count data, traffic associated with the future SASOL plant in the area was included in the 2028 design year projections.

Projected roadway analysis indicated Alternatives A-1, A-2, B and C are expected to provide better LOS and more capacity compared to the No Build condition, with the most

significant impact north of John Stine Road.

Intersection capacity analysis indicated improved operational conditions in Alternatives A-1, A-2, B and C compared to the No Build. All four alternatives, based on design year traffic analysis, were determined to be feasible.

Projected condition VISSIM models were coded for a "low" and "high" volume peak condition for the No Build and three alternative scenarios. These models were un-calibrated and were presented at the public meeting.

The following presents a safety assessment of the alternatives:

- Alternatives A-1 and A-2 would maintain the existing access in the southern section, but that result in the highest number of conflict points compared to Alternatives B and C.
- Alternative B would result in slower speeds throughout the corridor.
- Alternative C is conducive to the thru traffic on LA 378.

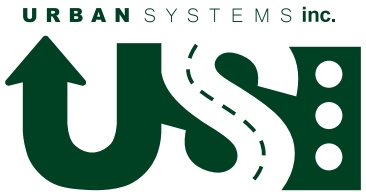
Based on the HSM predictive method, converting the existing two-lane undivided or five-lane sections to a four-lane raised median section is expected to result in a reduction in crashes.

The cost associated with traffic signals is expected to vary significantly.

Recommendations

The four alternatives analyzed in this Stage "0" Feasibility Study were determined to be feasible based on traffic operations and safety. It is recommended that all move forward to the next stage in the LADOTD process. NEPA requires the No Build scenario also move forward to the next stage of the LADOTD process. Should the northern alignment in Alternative C be deemed unfeasible due to other considerations, the southern section of Alternative C with the northern section of Alternatives A-1 or A-2 could be considered.

Signal modifications for LA 378 at the I-10 westbound ramps and I-10 eastbound service road and re-striping of the I-10 eastbound service road approach to allow dual left turns to reduce queues could be considered as part of this project or separately.



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APPENDIX

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

TRAFFIC AND PLANNING SECTION

TRAFFIC SIGNAL INVENTORY

FORM TSI -1 (REV. 1/92)

INTERSECTION: La 378 (Sampson Street) at La 379 (Sulphur Ave.) NO. 00104

DISTRICT 07 PARISH Calcasieu 010 CITY Westlake 0915

TYPE SIGNAL Volume Density VD INSTALLATION DATE: _____ LATEST REVISION DATE: _____

INTERVAL

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

FLASH TIME OF OPERATION _____

TIME (SEC.)																						OS-1 _____
TIME (%)																						OS-2 _____
FORCE OFF (SEC)																						OS-3 _____

TIME OF OPERATION _____ DIAL NO. _____ TOTAL CYCLE LENGTH _____ SEC.

TIME (SEC.)																						OS-1 _____
TIME (%)																						OS-2 _____
FORCE OFF (SEC)																						OS-3 _____

TIME OF OPERATION _____ DIAL NO. _____ TOTAL CYCLE LENGTH _____ SEC.

TIME (SEC.)																						OS-1 _____
TIME (%)																						OS-2 _____
FORCE OFF (SEC)																						OS-3 _____

TIME OF OPERATION _____ DIAL NO. _____ TOTAL CYCLE LENGTH _____ SEC.

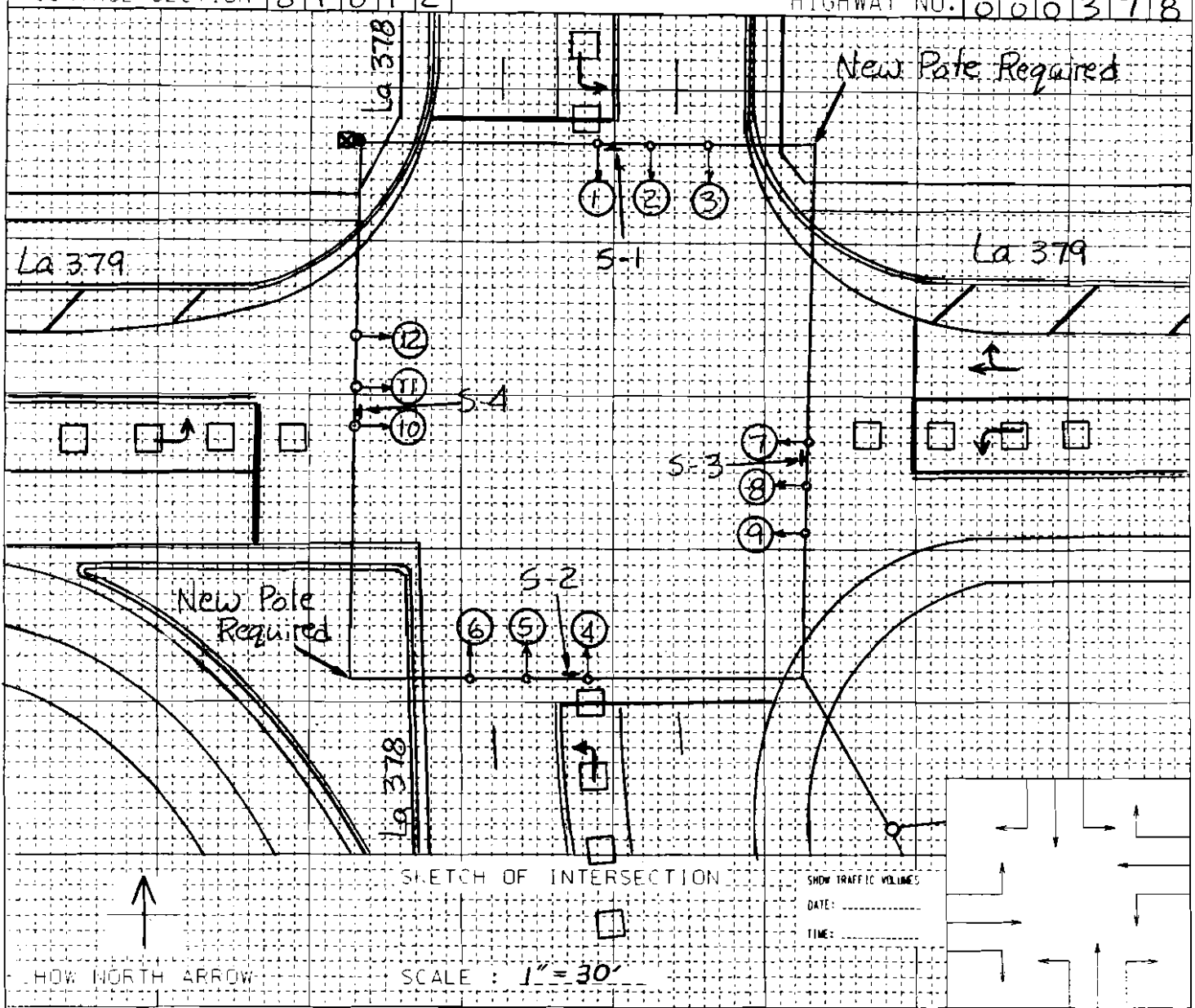
R=RED
Y=YELLOW
G=GREEN
⟵=ARROW
WA=WALK
WT=WAIT
DW=DON'T WALK
ABR=LENS
TURN=LENS

FACE NO.	SIGNAL FACE			INDICATIONS	
TOTAL	2,3,5,6 (4)	8,9,11,12 (4)		4,10 (2)	
	(R) 12	(R) 12	◯ __	(R) 12	◯ __
	(Y) 12	(Y) 12	◯ __	(Y) 12	◯ __
	(G) 12	(G) 12	◯ __	(⟵) 12 (G) 12	◯◯ __ __
FACE NO.				1,7	
TOTAL				(2)	
SHOW OTHERS	PEDESTRIAN SIG.			(R) 12	◯ __
	▭	◯		12 (✓) 12 (Y)	◯◯ __ __
	▭	◯		(⟵) 12 (G) 12	◯◯ __ __

ACTUATED CONTROLLER TIMING DATA

FUNCTION	A	B	C	D	E	F	G	H
ACTIVE PHASES (ON/OFF)								
MINIMUM GREEN	5	20	5	5	10	5		
PASSAGE	2	3	2	2	3	2		
MAX. INTERVAL I	30	40	30	30	30	30		
MAX. INTERVAL II	30	40	30	30	30	30		
YELLOW CLEARANCE	4.5	4.5	4.5	4.5	4.5	4.5		
RED CLEARANCE	1.0	1.0	1.0	1.0	1.0	1.0		
TIME BEFORE REDUCTION								
TIME TO REDUCE								
MINIMUM GAP								
ADDED INITIAL								
WALK								
PED CLEAR								
RECALL (L,N,SR,ML,MX)		SR						
DETECTOR # UNDER PHASE								

CONTROL SECTION 8 1 0 1 2 HIGHWAY NO. 0 0 0 3 7 8



SKETCH OF INTERSECTION

SHOW TRAFFIC VOLUMES
DATE: .....
TIME: .....

SHOW NORTH ARROW

SCALE : 1"=30'

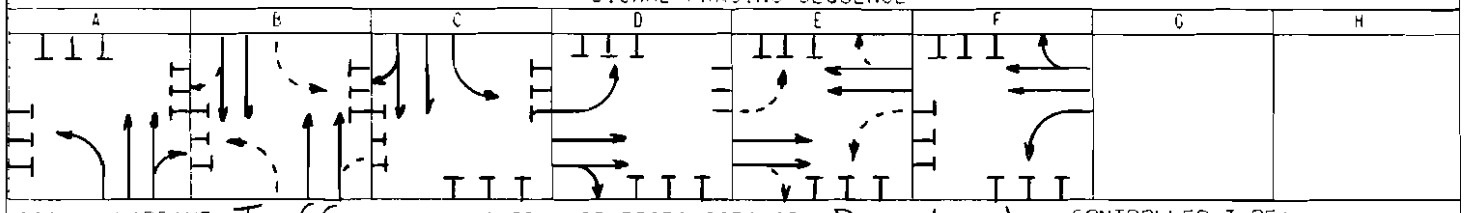
WOOD POLE
METAL POLE
SPAN WIRE
SIGNAL FACE & NO.
PEDESTRIAN SIGNAL & NO.
LOOP DETECTOR

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
35 MPH on La 378

SIGNAL PHASING SEQUENCE



SIGNAL WARRANT: Traffic MAINTENANCE RESPONSIBILITY: Department CONTROLLER TYPE:

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

REMARKS: S-1, S-2, S-3, S-4 : Left Turn Yield on Green

FORM TEX-[illegible]PE..

TRAFFIC SIGNAL INVENTORY

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION

TSI NO. 10-105

SHEET: 1 OF 5

INTERSECTION: LA 378 (Sampson) @ I-10 N. Service Road

CITY: Westlake | **PARISH:** Calcasieu | **INSTALLATION DATE:**

TYPE SIGNAL: Fully Actuated | **LAST REVISION DATE:**

PHASES		Φ1			Φ4			Φ2 + Φ6												FL
INTERVALS		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
SIGNAL FACES	1	←G/G	←Y/Y	R				G	G	G										Y
	2	G	Y	R				G	G	G										Y
	3	G	Y	R				G	G	G										Y
	4							G	Y	R										Y
	5							G	Y	R										Y
	6				G	Y	R													R
	7				G	Y	R													R
	8																			
	9																			
	10																			
	11																			
	12																			
	13																			
	14																			
	15																			
	16																			

HOURS OF FLASHING OPERATION: Emergency Only

TIME	SEC		4.0	1.0		4.0	1.0		4.0	1.0										Offset =
	%																			
FORCE OFF	SEC																			sec
	%																			

PLAN = 1 CYCLE LENGTH = TIMES OF OPERATION =

TIME	SEC																			Offset =
	%																			
FORCE OFF	SEC																			sec
	%																			

PLAN = 2 CYCLE LENGTH = TIMES OF OPERATION =

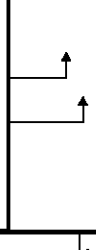
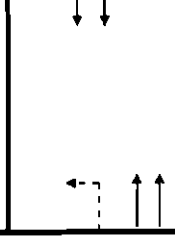
TIME	SEC																			Offset =
	%																			
FORCE OFF	SEC																			sec
	%																			

PLAN = 3 CYCLE LENGTH = TIMES OF OPERATION =

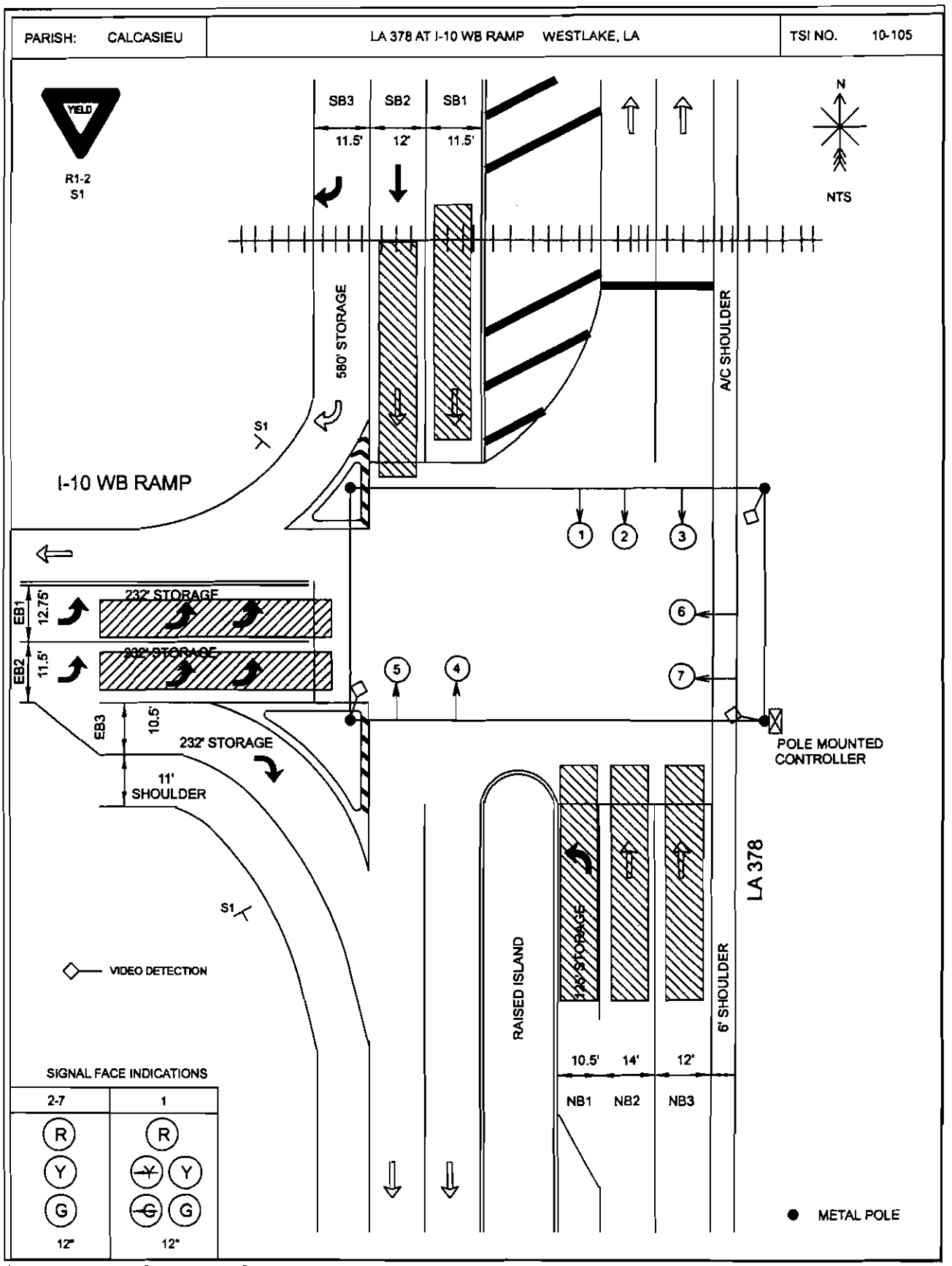
TIME	SEC																			Offset =
	%																			
FORCE OFF	SEC																			sec
	%																			

PLAN = CYCLE LENGTH = TIMES OF OPERATION =

PHASING SEQUENCE

Φ1	Φ4	Φ2 + Φ6			
					

SIGNAL WARRANTS:	MAINTAINED BY: Department	CONTROLLER MANUF: Naztec	SYSTEM #:
MASTER/ SLAVE:	MASTER AT TSI #:	COORDINATED WITH TSI #'S:	



10-105 LA 378 (Sampson) @ I-10 N. Service Rd.dgn 5/22/2008 12:41:58 PM

TRAFFIC SIGNAL INVENTORY			TSI NO. 10-105						
LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION						SHEET: 3 OF 5			
CONTROL SECTION: 810-12	**HIGHWAY:** LA 378						**PARISH:** Calc.		

Phase Timing Parameters

Phase Designation		1	2	3	4	5	6	7	8
Movement Description		←	↓		→		↑		
PARAMETER	RANGE								
MIN GREEN (MIN I)	0 - 99.0	10	15		5		15		
EXTENSION GAP	0 - 9.9	2.0	2.3		2.0		2.3		
MAX GREEN I (MAX I)	0 - 99.0	15	45		20		45		
MAX GREEN II (MAX II)	0 - 99.0	20	60		20		60		
YELLOW CLEARANCE (YEL)	3 - 9.9	4.0	4.0		4.0		4.0		
RED CLEARANCE (RED)	0 - 9.9	1.0	1.0		1.0		1.0		
WALK (WALK)	0 - 99.0								
PED CLEARANCE (P CLR)	0 - 99.0								
ADDED INITIAL GREEN	0 - 9.9								
TIME TO REDUCE	0 - 99.0								
TIME BEFORE REDUCTION	0 - 99.0								
MIN GAP	0 - 9.9								
MAX INITIAL GREEN	0 - 99								
WALK 2	0 - 99.0								
PED CLEARANCE 2	0 - 99.0								
MAX 3	0 - 99.0								
MAX EXTENSION	0 - 99.0								
RECALL	CODES	MON	MIN		MOF		MIN		
LOOP # - DELAY (sec)	0 - 99.0								
LOOP # - EXTEND (sec)	0 - 9.9								

RECALL FUNCTIONS

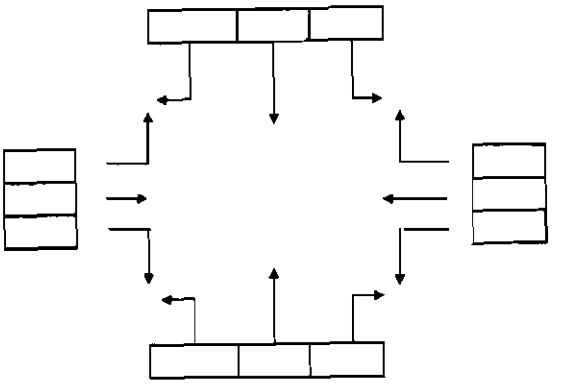
MON	MEMORY ON
MOF	MEMORY OFF
MIN	MINIMUM
MAX	MAXIMUM
PMN	PEDESTRIAN AND MINIMUM
PMX	PEDESTRIAN AND MAXIMUM

Note 1:

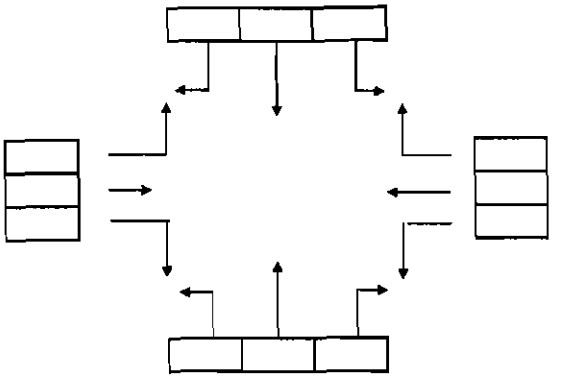
Note 2:

Note 3:

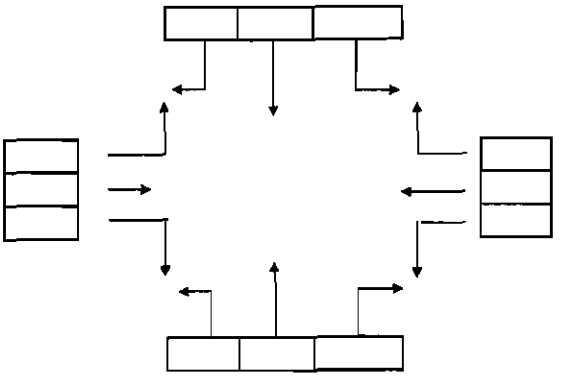
TRAFFIC SIGNAL INVENTORY	TSI NO. 10-105
LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION	SHEET: 4 OF 5
CONTROL SECTION: 810-12 **HIGHWAY:** LA 378	**PARISH:** Calcasieu



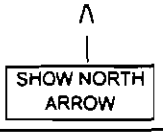
AM PEAK HOUR:



MIDDAY PEAK HOUR:



PM PEAK HOUR:



TRAFFIC VOLUMES - VPH

Peak Hour Factor ( )

LOOP #	COUNT & SIZE	PHASE #	MOVEMENT DESCRIPTION

TRAFFIC SIGNAL INVENTORY

TSI NO. 10-105

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION

SHEET: 5 OF 5

CONTROL SECTION: 810-12 **HIGHWAY:** LA 378 **PARISH:** Calc.

Modification & Inspection Record

DATE	DESCRIPTION
	Required: Install video detection as indicated

TRAFFIC SIGNAL INVENTORY

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION

TSI NO. 10-131

SHEET: 1 OF 5

INTERSECTION: LA 378 (Sampson) @ John Stine Road

CITY: Westlake | **PARISH:** Calcasieu | **INSTALLATION DATE:**

TYPE SIGNAL: Fully Actuated-Isolated | **LAST REVISION DATE:**

PHASES → / INTERVALS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	FL
SIGNAL FACES 1	←G/R	←Y/R	R	G	Y	R													Y
2				G	Y	R													Y
3				G	Y	R				R/G→	R/Y→	R							Y
4				G	Y	R													Y
5				G	Y	R													Y
6	←G/R	←Y/R	R	G	Y	R													Y
7										←G/G	←Y/Y	R							R
8										G	Y	R							R
9							←G/G	←Y/Y	R										R
10							G	Y	R										R
11																			
12																			
13																			
14																			
15																			
16																			

Emergency Only

HOURS OF FLASHING OPERATION

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
TIME	SEC		4.5	1.0		4.5	1.0		4.5	1.0		4.5	1.0							Offset =
	%																			
FORCE OFF	SEC																			sec
	%																			

PLAN = 1 CYCLE LENGTH = Free Operation TIMES OF OPERATION = S-S: All Day

TIME	SEC																			Offset =
	%																			
FORCE OFF	SEC																			sec
	%																			

PLAN = 2 CYCLE LENGTH = TIMES OF OPERATION =

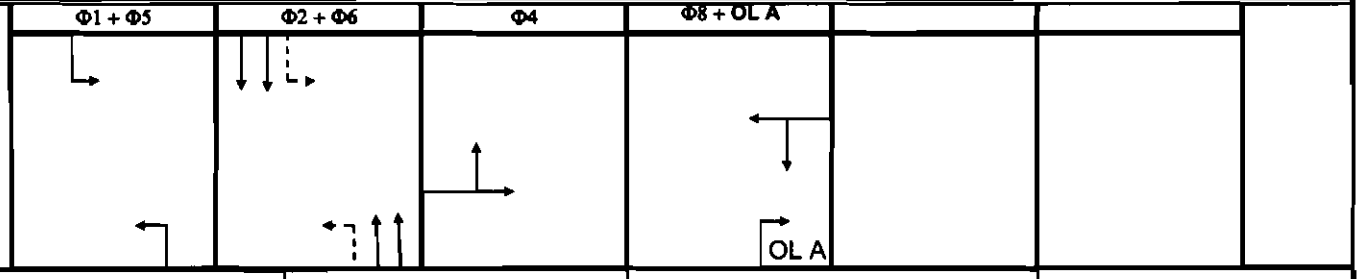
TIME	SEC																			Offset =
	%																			
FORCE OFF	SEC																			sec
	%																			

PLAN = 3 CYCLE LENGTH = TIMES OF OPERATION =

TIME	SEC																			Offset =
	%																			
FORCE OFF	SEC																			sec
	%																			

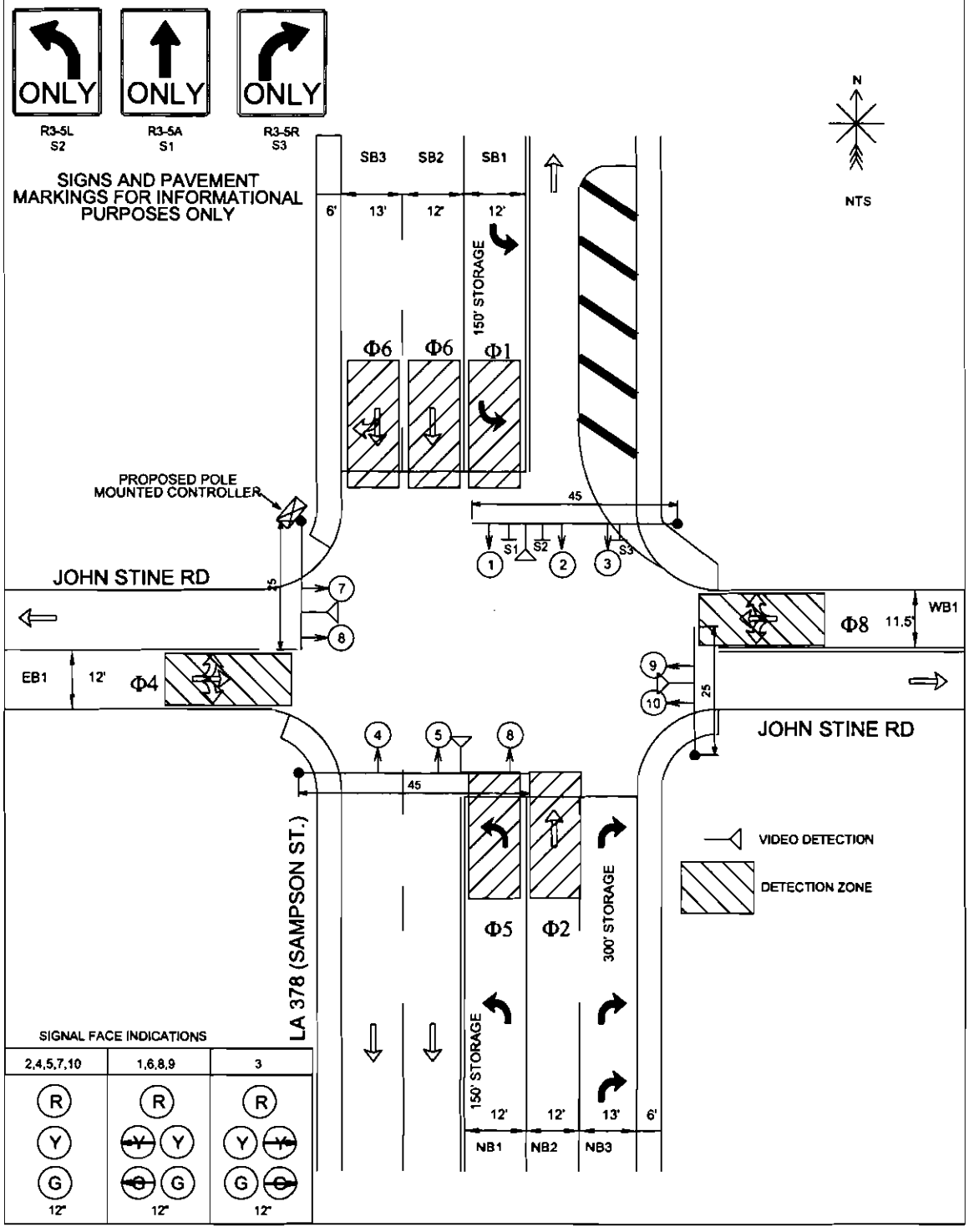
PLAN = CYCLE LENGTH = TIMES OF OPERATION =

PHASING SEQUENCE



SIGNAL WARRANTS:	MAINTAINED BY: Department	CONTROLLER MANUF: Naztec TS 2	SYSTEM #:
MASTER/ SLAVE: N/A	MASTER AT TSI #: N/A	COORDINATED WITH TSI #'S: N/A	

PARISH: CALCASIEU	LA 378 (SAMPSON ST) AT JOHN STINE RD WESTLAKE, LA	TSI NO. 10-131



TRAFFIC SIGNAL INVENTORY									TSI NO. 10-131
LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION							SHEET: 3 OF 5		
CONTROL SECTION: 810-12	**HIGHWAY:** LA 378						**PARISH:** Calc.		

Phase Timing Parameters

Phase Designation		1	2	3	4	5	6	7	8
Movement Description									
PARAMETER	RANGE								
MIN GREEN (MIN I)	0 - 99.0	4	15		6	4	15		6
EXTENSION GAP	0 - 9.9	2.3	5.0		2.5	2.3	5.0		2.5
MAX GREEN I (MAX I)	0 - 99.0	10	45		20	10	45		20
MAX GREEN II (MAX II)	0 - 99.0	15	50		25	15	50		25
YELLOW CLEARANCE (YEL)	3 - 9.9	4.5	4.5		4.5	4.5	4.5		4.5
RED CLEARANCE (RED)	0 - 9.9	1.0	1.0		1.0	1.0	1.0		1.0
WALK (WALK)	0 - 99.0								
PED CLEARANCE (P CLR)	0 - 99.0								
ADDED INITIAL GREEN	0 - 9.9								
TIME TO REDUCE	0 - 99.0								
TIME BEFORE REDUCTION	0 - 99.0								
MIN GAP	0 - 9.9								
MAX INITIAL GREEN	0 - 99								
WALK 2	0 - 99.0								
PED CLEARANCE 2	0 - 99.0								
MAX 3	0 - 99.0								
MAX EXTENSION	0 - 99.0								
RECALL	CODES	MOF	MIN		MOF	MOF	MIN		MOF
LOOP # - DELAY (sec)	0 - 99.0								
LOOP # - EXTEND (sec)	0 - 9.9								

RECALL FUNCTIONS

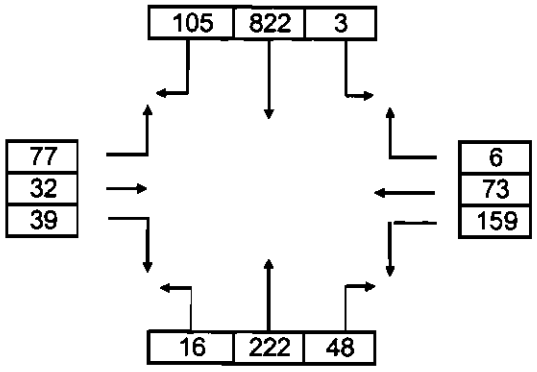
MON	MEMORY ON
MOF	MEMORY OFF
MIN	MINIMUM
MAX	MAXIMUM
PMN	PEDESTRIAN AND MINIMUM
PMX	PEDESTRIAN AND MAXIMUM

Note 1:

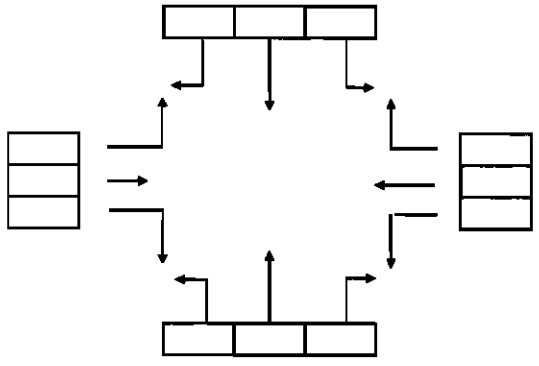
Note 2:

Note 3:

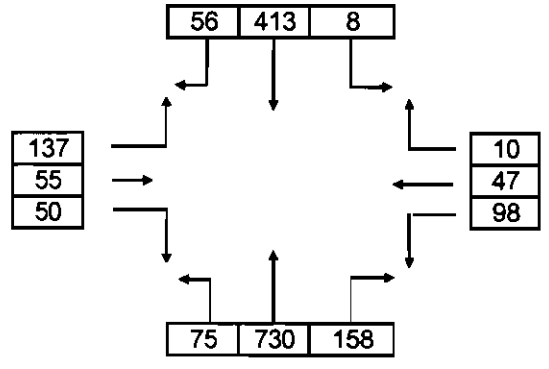
TRAFFIC SIGNAL INVENTORY	TSI NO. 10-131
LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION	SHEET: 4 OF 5
CONTROL SECTION: 810-12 **HIGHWAY:** LA 378	**PARISH:** Calcasieu



AM PEAK HOUR: 7-8 AM 2-19-08



MIDDAY PEAK HOUR:



PM PEAK HOUR: 5-6PM 2-18-08

Λ
|
SHOW NORTH ARROW

TRAFFIC VOLUMES - VPH

Peak Hour Factor ( )

LOOP #	COUNT & SIZE	PHASE #	MOVEMENT DESCRIPTION

TRAFFIC SIGNAL INVENTORY

TSI NO. 10-131

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION | SHEET: 5 OF 5

CONTROL SECTION: 810-12 | **HIGHWAY:** LA 378 | **PARISH:** Calc.

Modification & Inspection Record

DATE	DESCRIPTION
	Required: Install fully actuated traffic signal as indicated
	Required: Remove existing traffic signal.

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

TRAFFIC AND PLANNING SECTION

TRAFFIC SIGNAL INVENTORY

FORM TSI -1 (REV. 1/92)

INTERSECTION: I-10 (South) Frontage Road at I-10 EB Off Ramp NO. 00153

DISTRICT 07 PARISH Calcasieu 010 CITY Westlake 0915

TYPE SIGNAL: Semi-Actuated Isolated INSTALLATION DATE: _____ 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	R	R	R	R	G	Y																	R
2	R	R	R	R	G	Y																	R
3	G	G	G←	Y←	R	R																	Y
4	G	G	G	Y	R	R																	Y
5	G	Y	R	R	R	R																	Y
6	G	Y	R	R	R	R																	Y
7																							
8																							
9																							
10																							
11																							
12																							
13																							
14																							
15																							
16																							

FLASH TIME OF OPERATION Emergency Only

TIME	SEC.																					OS-1	
	%																					OS-	
FORCE OFF (SEC.)																						OS-3	

TIME OF OPERATION _____ DIAL NO. _____ TOTAL CYCLE LENGTH _____ SEC.

TIME	SEC.																						
	%																						
FORCE OFF (SEC.)																						OS-3	

TIME OF OPERATION 11 PM-6 AM DIAL NO. _____ TOTAL CYCLE LENGTH _____ SEC.

TIME	SEC.																					OS-1	
	%																					OS-2	
FORCE OFF (SEC.)																						OS-3	

TIME OF OPERATION _____ DIAL NO. _____ TOTAL CYCLE LENGTH _____ SEC.

FACE NO. / TOTAL: 1,2,4-6 / 5

R=RED, Y=YELLOW, G=GREEN, ←=ARROW, WA=WALK, WT=WAIT, DW=DON'T WALK, (=SEC. LEN.,)=SEC. LEN.

SIGNAL FACE INDICATIONS

(R) 12	○ --	○ --	○ --	○ --
(Y) 12	○ --	○ --	○ --	○ --
(G) 12	○ --	○ --	○○	○○
			-- --	-- --

FACE NO. / TOTAL: 3 / 1

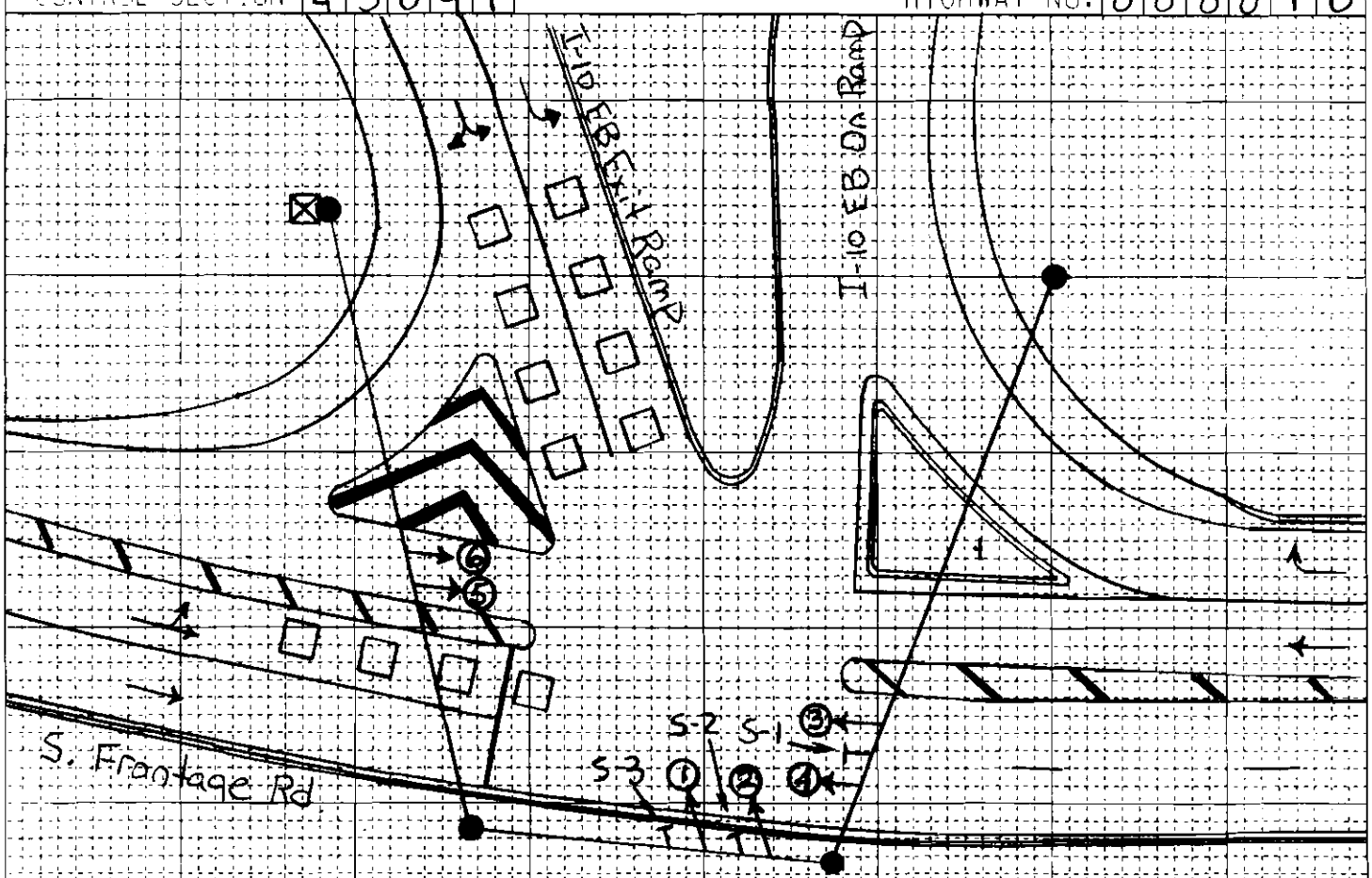
SHOW OTHERS: PEDESTRIAN SIG.

			(R) 12	○ --
	▭	○	12 12 (Y) (Y)	○○
	▭	○	(←) (G)	○○
			12 12	-- --

ACTUATED CONTROLLER TIMING DATA

FUNCTION	A	B	C	D	E	F	G	H
ACTIVE PHASES (ON/OFF)								
MINIMUM GREEN	15	4	7					
PASSAGE	0	3.0	3.4					
MAX. INTERVAL I	60	15	28					
MAX. INTERVAL II								
YELLOW CLEARANCE	4.5	4.5	4.5					
RED CLEARANCE	0.5	0.5	0.5					
TIME BEFORE REDUCTION								
TIME TO REDUCE								
MINIMUM GAP								
ADDED INITIAL								
WALK								
PED CLEAR								
RECALL (L,NL,SR,ML,MX)	MAX	NL	NL					
DETECTOR # UNDER PHASE								

CONTROL SECTION 4 5 0 9 1 | HIGHWAY NO. 0 0 0 0 1 0

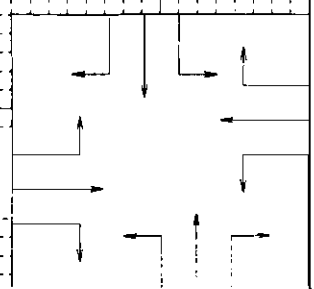


SKETCH OF INTERSECTION

SHOW TRAFFIC VOLUMES
DATE: _____
TIME: _____

SHOW NORTH ARROW

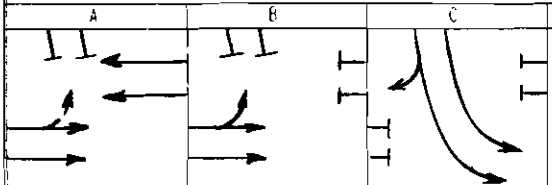
SCALE : 1"=30'



- 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: 40 MPH on Frontage Rd.

SIGNAL PHASING SEQUENCE

A	B	C	D	E	F	G	H
							

SIGNAL WARRANT: Traffic MAINTENANCE RESPONSIBILITY: Department CONTROLLER TYPE: Kentron

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

REMARKS: S-1: Left Turn Yield on Green

S-2 → ONLY S-3 → OK

FORM TSI (REV.)

TRAFFIC SIGNAL INVENTORY

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION

TSI NO. 10-154

SHEET: 1 OF 5

INTERSECTION: LA 378 (Sampson) @ I-10 S. Frontage Road

CITY: Westlake | **PARISH:** Calcasieu | **INSTALLATION DATE:**

TYPE SIGNAL: Fully Actuated | **LAST REVISION DATE:**

PHASES	Φ5			Φ4			Φ2 + Φ6												FL
INTERVALS →	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1				G	Y	R													Y
2				G	Y	R													Y
3	←~~G~~/G	←~~Y~~/Y	R				G	G	G										Y
4	G	Y	R				G	G	G										Y
5	G	Y	R				G	G	G										Y
6							G	Y	R										R
7							G	Y	R										R
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			

SIGNAL FACES

HOURS OF FLASHING OPERATION: Emergency Only

TIME	SEC		4.0	1.0		4.0	1.0		4.0	1.0									Offset =
	%																		
FORCE OFF	SEC																		sec
	%																		

PLAN = 1 CYCLE LENGTH = TIMES OF OPERATION =

TIME	SEC																		Offset =
	%																		
FORCE OFF	SEC																		sec
	%																		

PLAN = 2 CYCLE LENGTH = TIMES OF OPERATION =

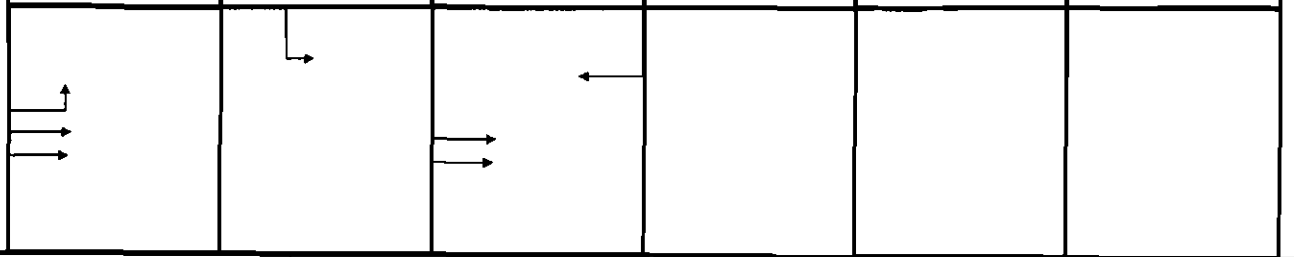
TIME	SEC																		Offset =
	%																		
FORCE OFF	SEC																		sec
	%																		

PLAN = 3 CYCLE LENGTH = TIMES OF OPERATION =

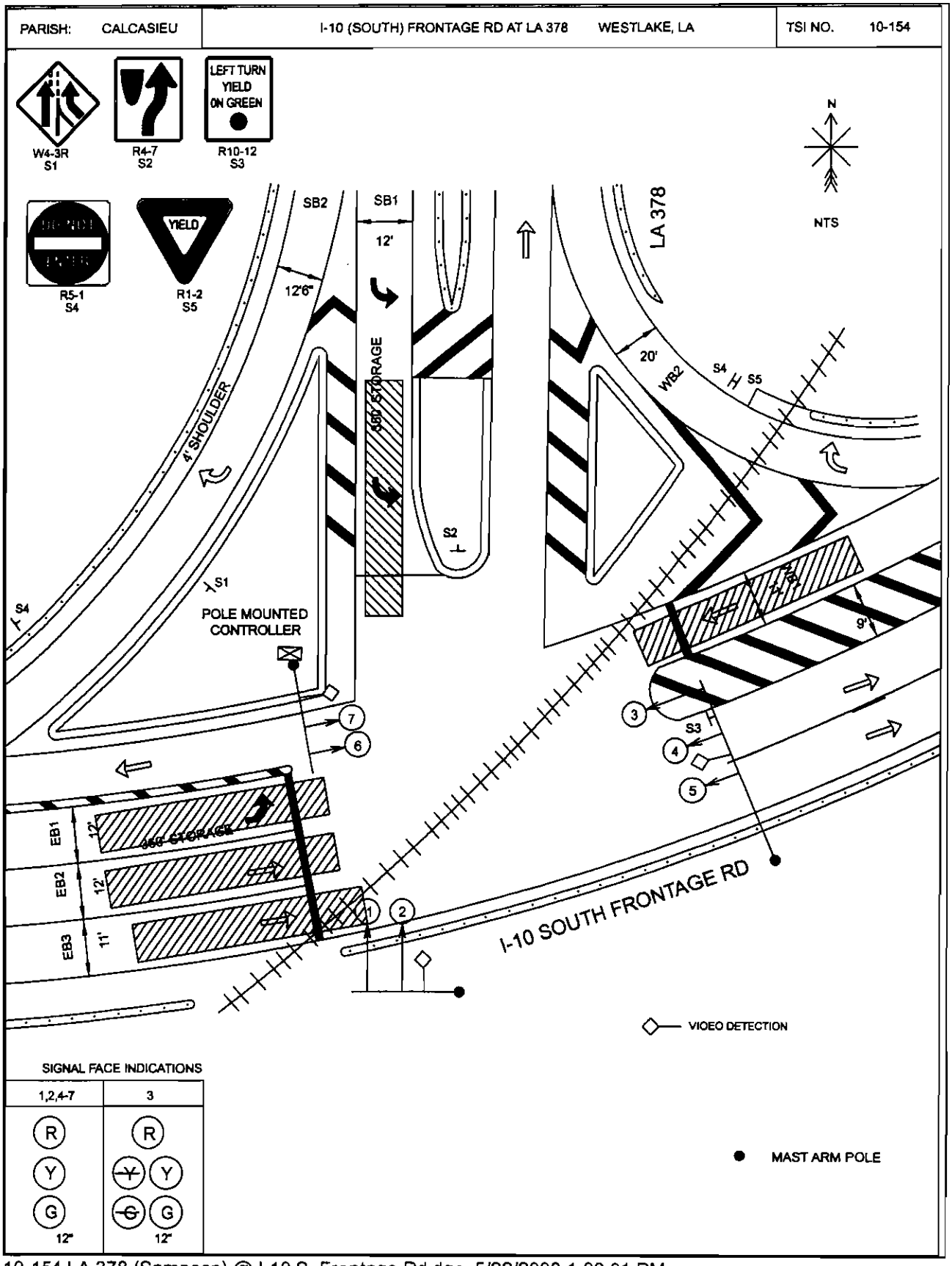
TIME	SEC																		Offset =
	%																		
FORCE OFF	SEC																		sec
	%																		

PLAN = CYCLE LENGTH = TIMES OF OPERATION =

PHASING SEQUENCE



SIGNAL WARRANTS:	MAINTAINED BY: Department	CONTROLLER MANUF: Naztec	SYSTEM #:
MASTER/ SLAVE:	MASTER AT TSI #:	COORDINATED WITH TSI #'S:	



10-154 LA 378 (Sampson) @ I-10 S. Frontage Rd.dgn 5/22/2008 1:06:01 PM

TRAFFIC SIGNAL INVENTORY	TSI NO. 10-154
LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION	SHEET: 3 OF 5
CONTROL SECTION: 450-91 **HIGHWAY:** I-10	**PARISH:** Calc.

Phase Timing Parameters

Phase Designation		1	2	3	4	5	6	7	8
Movement Description			→		↳	↱	←		
PARAMETER	RANGE								
MIN GREEN (MIN I)	0 - 99.0		15		5	10	15		
EXTENSION GAP	0 - 9.9		2.3		2.0	2.0	2.3		
MAX GREEN I (MAX I)	0 - 99.0		45		20	15	45		
MAX GREEN II (MAX II)	0 - 99.0		60		20	20	60		
YELLOW CLEARANCE (YEL)	3 - 9.9		4.0		4.0	4.0	4.0		
RED CLEARANCE (RED)	0 - 9.9		1.0		1.0	1.0	1.0		
WALK (WALK)	0 - 99.0								
PED CLEARANCE (P CLR)	0 - 99.0								
ADDED INITIAL GREEN	0 - 9.9								
TIME TO REDUCE	0 - 99.0								
TIME BEFORE REDUCTION	0 - 99.0								
MIN GAP	0 - 9.9								
MAX INITIAL GREEN	0 - 99								
WALK 2	0 - 99.0								
PED CLEARANCE 2	0 - 99.0								
MAX 3	0 - 99.0								
MAX EXTENSION	0 - 99.0								
RECALL	CODES		MIN		MOF	MON	MIN		
LOOP # - DELAY (sec)	0 - 99.0								
LOOP # - EXTEND (sec)	0 - 9.9								

RECALL FUNCTIONS

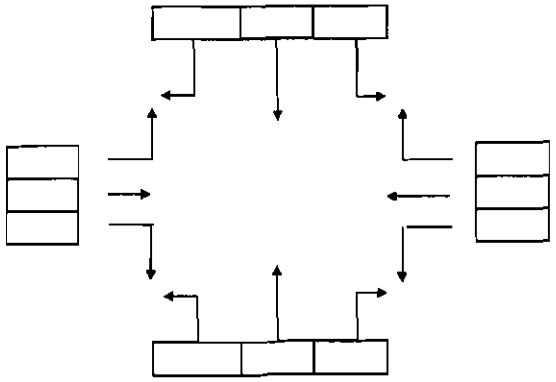
MON	MEMORY ON
MOF	MEMORY OFF
MIN	MINIMUM
MAX	MAXIMUM
PMN	PEDESTRIAN AND MINIMUM
PMX	PEDESTRIAN AND MAXIMUM

Note 1:

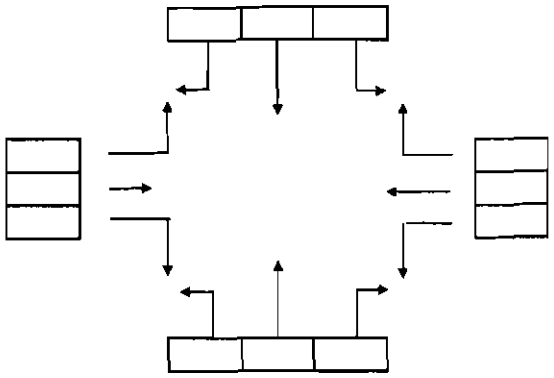
Note 2:

Note 3:

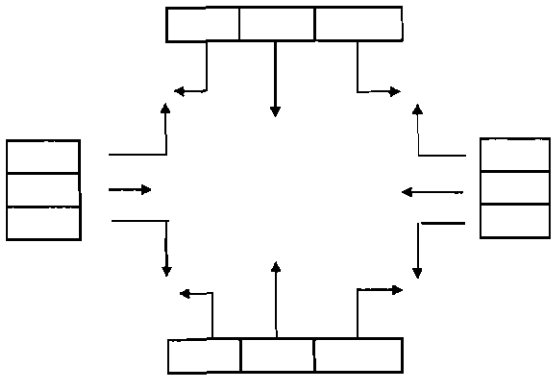
TRAFFIC SIGNAL INVENTORY	TSI NO. 10-154
LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION	SHEET 4 OF 5
CONTROL SECTION: 450-91 **HIGHWAY:** I-10	**PARISH:** Calcasieu



AM PEAK HOUR:



MIDDAY PEAK HOUR:



PM PEAK HOUR:

^
|
SHOW NORTH ARROW

TRAFFIC VOLUMES - VPH

Peak Hour Factor ( )

LOOP #	COUNT & SIZE	PHASE #	MOVEMENT DESCRIPTION

TRAFFIC SIGNAL INVENTORY

TSI NO. 10-154

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT/ TRAFFIC SECTION | SHEET: 5 OF 5

CONTROL SECTION: 450-91 | **HIGHWAY:** I-10 | **PARISH:** Calc.

Modification & Inspection Record

DATE	DESCRIPTION
	Required: Install video detection as indicated

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

TRAFFIC AND PLANNING SECTION

TRAFFIC SIGNAL INVENTORY

FORM TSI -1 (REV. 1/92)

INTERSECTION: Phillips Road (La 378) at Davis Road (La 378) I.D. 00163

DISTRICT 07 PARISH Calcasieu 010 CITY: _____

TYPE SIGNAL Fully Actuated INSTALLATION DATE: _____ LATEST REVISION DATE: _____

SIGNAL FACE NOS.	INTERVAL 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	R	R																Y
2	G	Y	R	R	R	R																Y
3	G	Y	R	R	R	R																Y
4	G	Y	R	R	R	R																Y
5	R	R	R	G	Y	R																R
6	R	R	R	G	Y	R																R
7																						
8																						
9																						
10																						
11																						
12																						
13	MAX			MAX																		
14	MAX			MAX																		
15	MAX			MAX																		
16																						
TIME (SEC.)	4.0	4.0	0.8	3.0	4.0	0.8																
TIME (%)																						
FORCE OFF (SEC.)																						

FLASH TIME IF INTERRUPTED Emergency Only

OS-1_____ OS-2_____ OS-3_____

TIME OF OPERATION_____ DIAL NO._____ TOTAL CYCLE LENGTH_____SEC.

TIME (SEC.)																						
TIME (%)																						
FORCE OFF (SEC.)																						

OS-1_____ OS-2_____ OS-3_____

TIME OF OPERATION_____ DIAL NO._____ TOTAL CYCLE LENGTH_____SEC.

TIME (SEC.)																						
TIME (%)																						
FORCE OFF (SEC.)																						

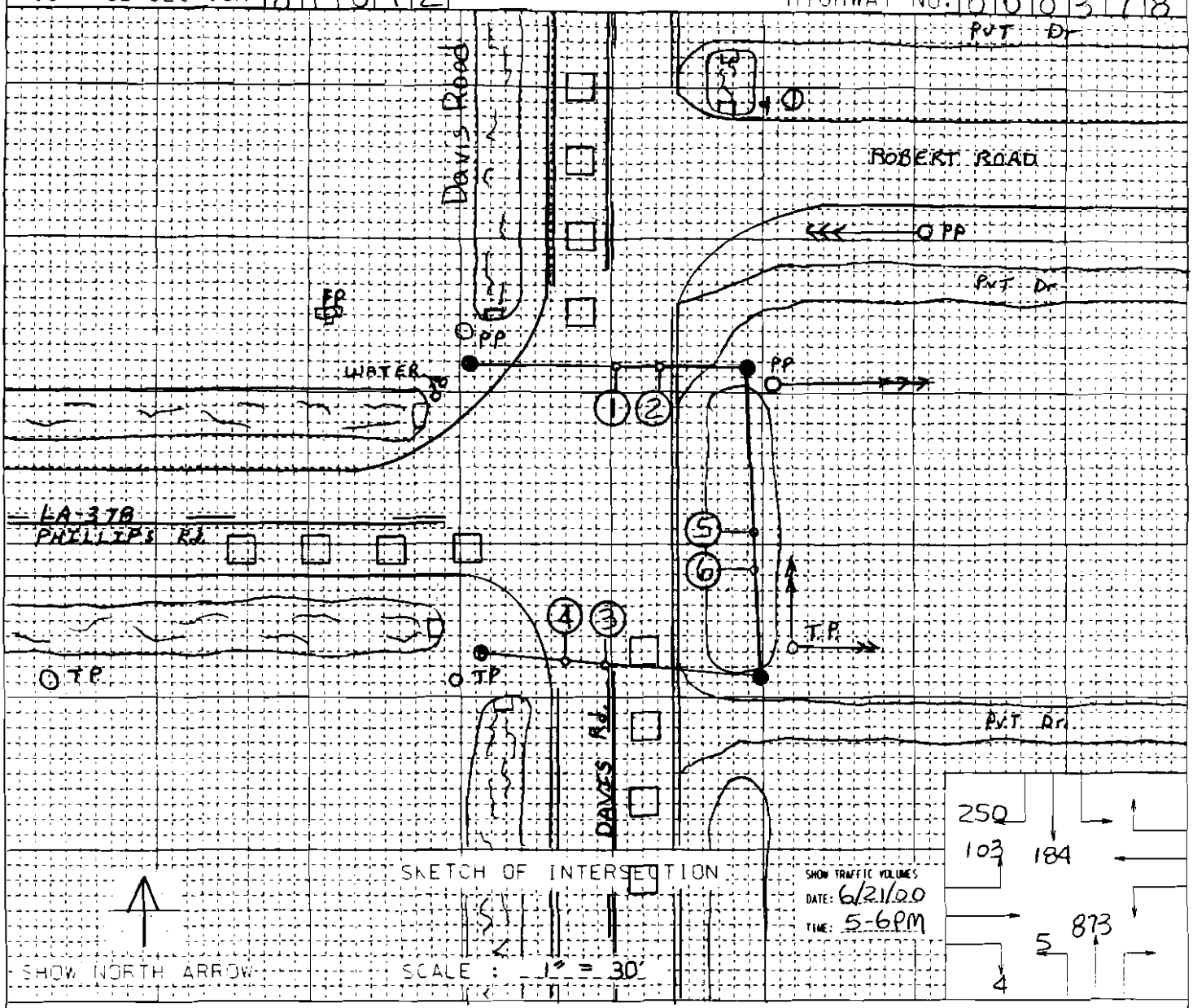
OS-1_____ OS-2_____ OS-3_____

TIME OF OPERATION_____ DIAL NO._____ TOTAL CYCLE LENGTH_____SEC.

FACE NO.	SIGNAL FACE INDICATIONS					
	1-6					
TOTAL	6					
R=RED Y=YELLOW G=GREEN ←=ARROW WA=WALK WT=WAIT DW=DON'T WALK 8=8" LENS 12=12" LENS	(R) 12	○ --	○ --	○ -- --	○ -- --
	(Y) 12	○ --	○ --	○ -- --	○ -- --
	(G) 12	○ --	○ --	○○ -- --	○○ -- --
FACE NO.						
TOTAL						
SHOW OTHERS	PEDESTRIAN SIG.			○ -- -- --	○ -- -- --
	▭	○		○○ -- --	○○ -- --
	▭	○		○○ -- --	○○ -- --

ACTUATED CONTROLLER TIMING DATA								
FUNCTION	A	B	C	D	E	F	G	H
ACTIVE PHASES (ON/OFF)								
MINIMUM GREEN	10	5						
PASSAGE	2.5	2.5						
MAX. INTERVAL I	40	30						
MAX. INTERVAL II	40	30						
YELLOW CLEARANCE	4.0	4.0						
RED CLEARANCE	0.8	0.8						
TIME BEFORE REDUCTION								
TIME TO REDUCE								
MINIMUM GAP								
ADDED INITIAL								
WALK								
PED CLEAR								
RECALL (L,NL,SR,ML,MX)	OFF	OFF						
DETECTOR # UNDER PHASE								

CONTROL SECTION 8 1 0 1 2 HIGHWAY NO. 0 0 0 3 7 8



- 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
45 MPH on La 378

SIGNAL PHASING SEQUENCE

A	B	C	D	E	F	G	H

SIGNAL WARRANT: Interruption MAINTENANCE RESPONSIBILITY: Department CONTROLLER TYPE:

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

REMARKS: Install traffic signal

FORM TCI -2 (REV. 10-90)

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

TRAFFIC AND PLANNING SECTION

TRAFFIC SIGNAL INVENTORY

FORM TSI -1 (REV. 1/92)

INTERSECTION: La 378 (Sampson St.) at McKinley St. I.D. 00099

DISTRICT 07 PARISH Calcasieu 010 CITY Westlake 0915

TYPE SIGNAL: Fixed Time Interconnected 02 INSTALLATION DATE: _____ LATEST REVISION DATE: 5/18/92

FLASH TIME OF OPERATION 11PM-5:30A

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	G	Y	R	R																		Y
2	G	Y	R	R																		Y
3	G	Y	R	R																		Y
4	G	Y	R	R																		Y
5	R	R	G	Y																		R
6	R	R	G	Y																		R
7	R	R	G	Y																		R
8	R	R	G	Y																		R
9																						
10																						
11																						
12																						
13																						
14																						
15																						
16																						
TIME SEC.	44.1	4.2	17.5	4.2																		
TIME %	63	6	25	6																		
FORCE OFF (SEC)																						

05-1 40 %

05-2 _____

05-3 _____

TIME OF OPERATION 5:30 AM-11 PM DIAL NO. 1 TOTAL CYCLE LENGTH 70 SEC.

TIME SEC.																						
TIME %																						
FORCE OFF (SEC)																						

05-1 _____

05-2 _____

05-3 _____

TIME OF OPERATION _____ DIAL NO. _____ TOTAL CYCLE LENGTH _____ SEC.

TIME SEC.																						
TIME %																						
FORCE OFF (SEC)																						

05-1 _____

05-2 _____

05-3 _____

TIME OF OPERATION _____ DIAL NO. _____ TOTAL CYCLE LENGTH _____ SEC.

FACE NO. SIGNAL FACE INDICATIONS

FACE NO. 1-8

TOTAL 8

R=RED
Y=YELLOW
G=GREEN
← =ARROW
WA=WALK
WT=WAIT
DW=DON'T WALK
G=GRN LENS
Y=YEL LENS

R 12
Y 12
G 12

FACE NO.

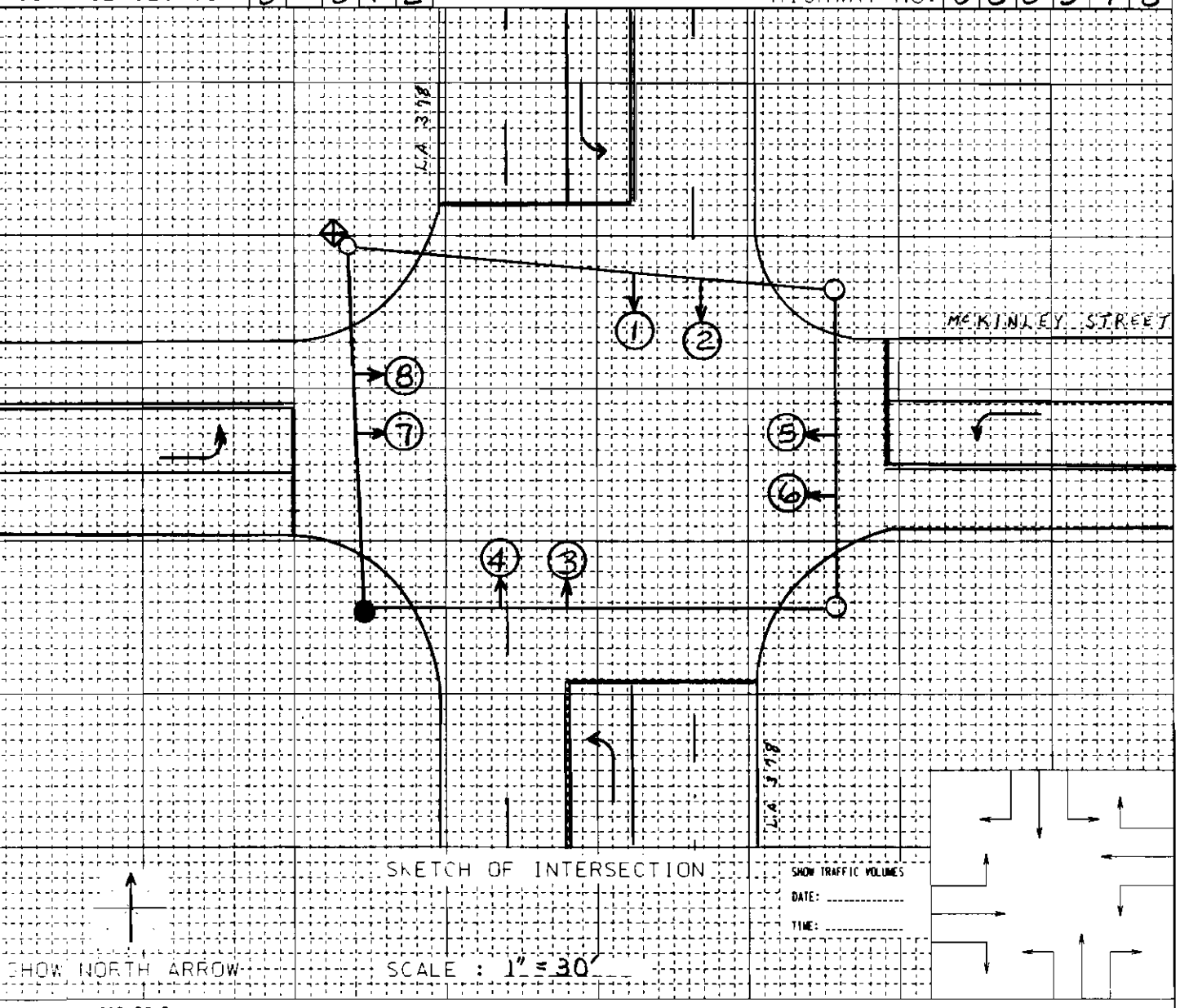
TOTAL

SHOW OTHERS PEDESTRIAN SIG.

ACTUATED CONTROLLER TIMING DATA

FUNCTION	A	B	C	D	E	F	G	H
ACTIVE PHASES (ON/OFF)								
MINIMUM GREEN								
PASSAGE								
MAX. INTERVAL I								
MAX. INTERVAL II								
YELLOW CLEARANCE								
RED CLEARANCE								
TIME BEFORE REDUCTION								
TIME TO REDUCE								
MINIMUM GAP								
ADDED INITIAL								
WALK								
PED CLEAR								
RECALL (L,N,SR,ML,MX)								
DETECTOR = UNDER PHASE								

CONTROL SECTION 8 1 0 1 2 HIGHWAY NO. 0 0 0 3 7 8



SKETCH OF INTERSECTION

SHOW TRAFFIC VOLUMES
DATE: .....
TIME: .....

SHOW NORTH ARROW

SCALE : 1" = 30'

- 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

SIGNAL PHASING SEQUENCE

A	B	C	D	E	F	G	H

SIGNAL WARRANT: Traffic MAINTENANCE RESPONSIBILITY: Department CONTROLLER TYPE: Marbelite

OTHER SIGNALS WITHIN SYSTEM (NOS.) : 104 MASTER CONTROLLER LOCATION (NO.) : 104

REMARKS:

FORM TSI -2 (REV. [illegible])

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Calcasieu Parish
LA 378 at I-10 SW EB Ramps
AM Peak

File Name : I-10 SW @ EB Ramps AM
Site Code : 11-100
Start Date : 9/19/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

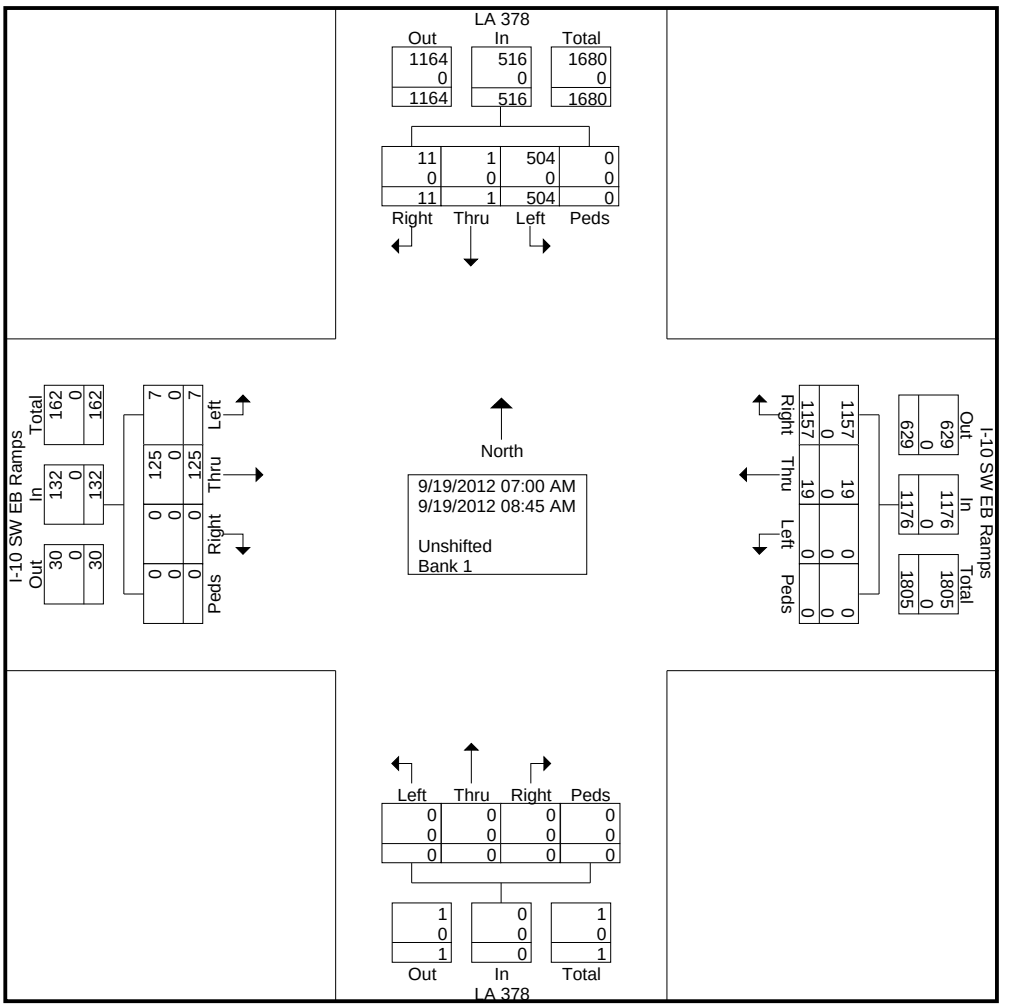
	LA 378 Southbound					I-10 SW EB Ramps Westbound					LA 378 Northbound					I-10 SW EB Ramps Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	78	1	2	0	81	0	5	124	0	129	0	0	0	0	0	2	11	0	0	13	223
07:15 AM	74	0	3	0	77	0	5	209	0	214	0	0	0	0	0	0	17	0	0	17	308
07:30 AM	70	0	0	0	70	0	0	230	0	230	0	0	0	0	0	0	10	0	0	10	310
07:45 AM	72	0	1	0	73	0	1	188	0	189	0	0	0	0	0	0	14	0	0	14	276
Total	294	1	6	0	301	0	11	751	0	762	0	0	0	0	0	2	52	0	0	54	1117
08:00 AM	54	0	3	0	57	0	1	118	0	119	0	0	0	0	0	2	22	0	0	24	200
08:15 AM	53	0	1	0	54	0	3	106	0	109	0	0	0	0	0	0	13	0	0	13	176
08:30 AM	54	0	1	0	55	0	2	92	0	94	0	0	0	0	0	0	25	0	0	25	174
08:45 AM	49	0	0	0	49	0	2	90	0	92	0	0	0	0	0	3	13	0	0	16	157
Total	210	0	5	0	215	0	8	406	0	414	0	0	0	0	0	5	73	0	0	78	707
Grand Total	504	1	11	0	516	0	19	1157	0	1176	0	0	0	0	0	7	125	0	0	132	1824
Apprch %	97.7	0.2	2.1	0		0	1.6	98.4	0		0	0	0	0		5.3	94.7	0	0		
Total %	27.6	0.1	0.6	0	28.3	0	1	63.4	0	64.5	0	0	0	0	0	0.4	6.9	0	0	7.2	
Unshifted	504	1	11	0	516	0	19	1157	0	1176	0	0	0	0	0	7	125	0	0	132	1824
% Unshifted	100	100	100	0	100	0	100	100	0	100	0	0	0	0	0	100	100	0	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Calcasieu Parish
LA 378 at I-10 SW EB Ramps
AM Peak

File Name : I-10 SW @ EB Ramps AM
Site Code : 11-100
Start Date : 9/19/2012
Page No : 2



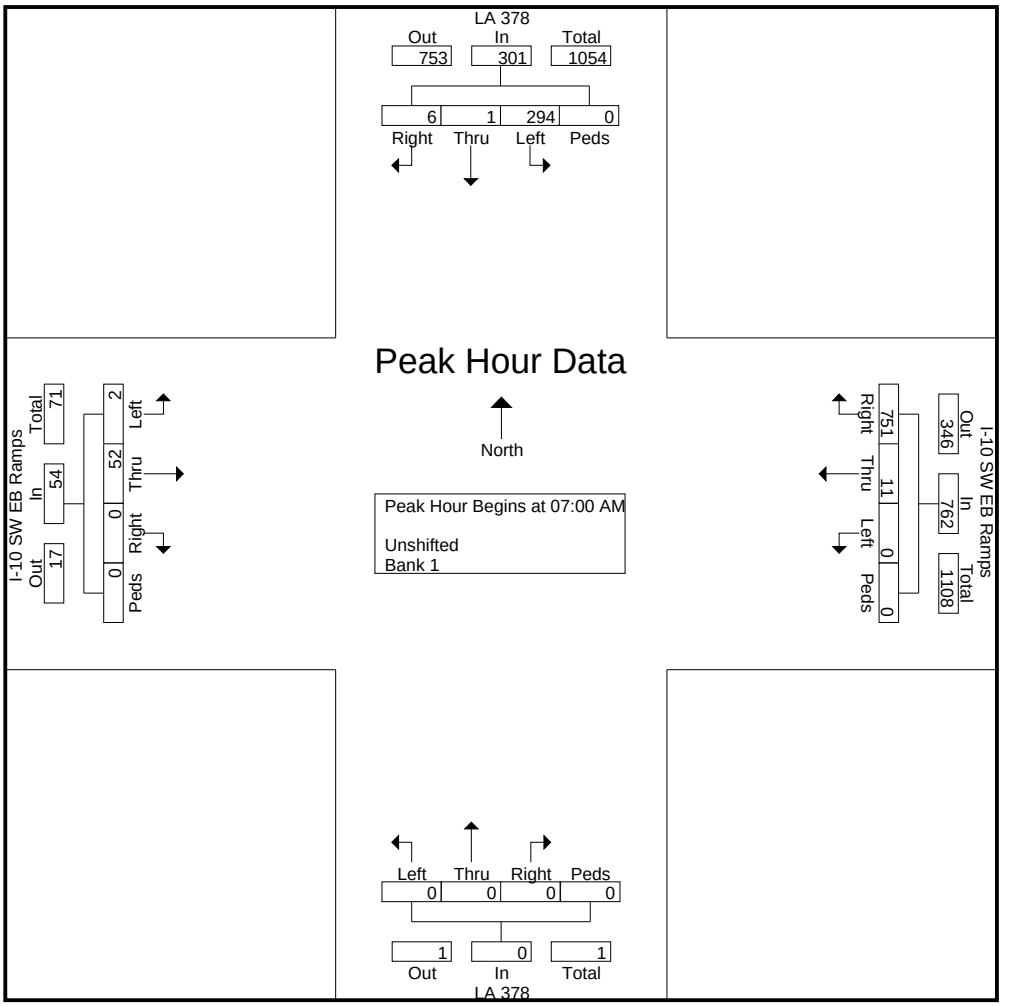
Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Calcasieu Parish
LA 378 at I-10 SW EB Ramps
AM Peak

File Name : I-10 SW @ EB Ramps AM
Site Code : 11-100
Start Date : 9/19/2012
Page No : 3

	LA 378 Southbound					I-10 SW EB Ramps Westbound					LA 378 Northbound					I-10 SW EB Ramps 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 Analysis From 7:00:00 AM to 8:45:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 7:00:00 AM																					
7:00:00 AM	**78**	**1**	2	0	**81**	0	**5**	124	0	129	0	0	0	0	0	**2**	11	0	0	13	223
7:15:00 AM	74	0	**3**	0	77	0	5	209	0	214	0	0	0	0	0	0	**17**	0	0	**17**	308
7:30:00 AM	70	0	0	0	70	0	0	**230**	0	**230**	0	0	0	0	0	0	10	0	0	10	**310**
7:45:00 AM	72	0	1	0	73	0	1	188	0	189	0	0	0	0	0	0	14	0	0	14	276
Total Volume	294	1	6	0	301	0	11	751	0	762	0	0	0	0	0	2	52	0	0	54	1117
% App. Total	97.7	0.3	2	0		0	1.4	98.6	0		0	0	0	0		3.7	96.3	0	0		
PHF	.942	.250	.500	.000	.929	.000	.550	.816	.000	.828	.000	.000	.000	.000	.000	.250	.765	.000	.000	.794	.901



Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Calcasieu Parish
LA 378 at I-10 SW EB Ramps
PM Peak

File Name : I-10 SW @ EB Ramps PM
Site Code : 11-100
Start Date : 9/19/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

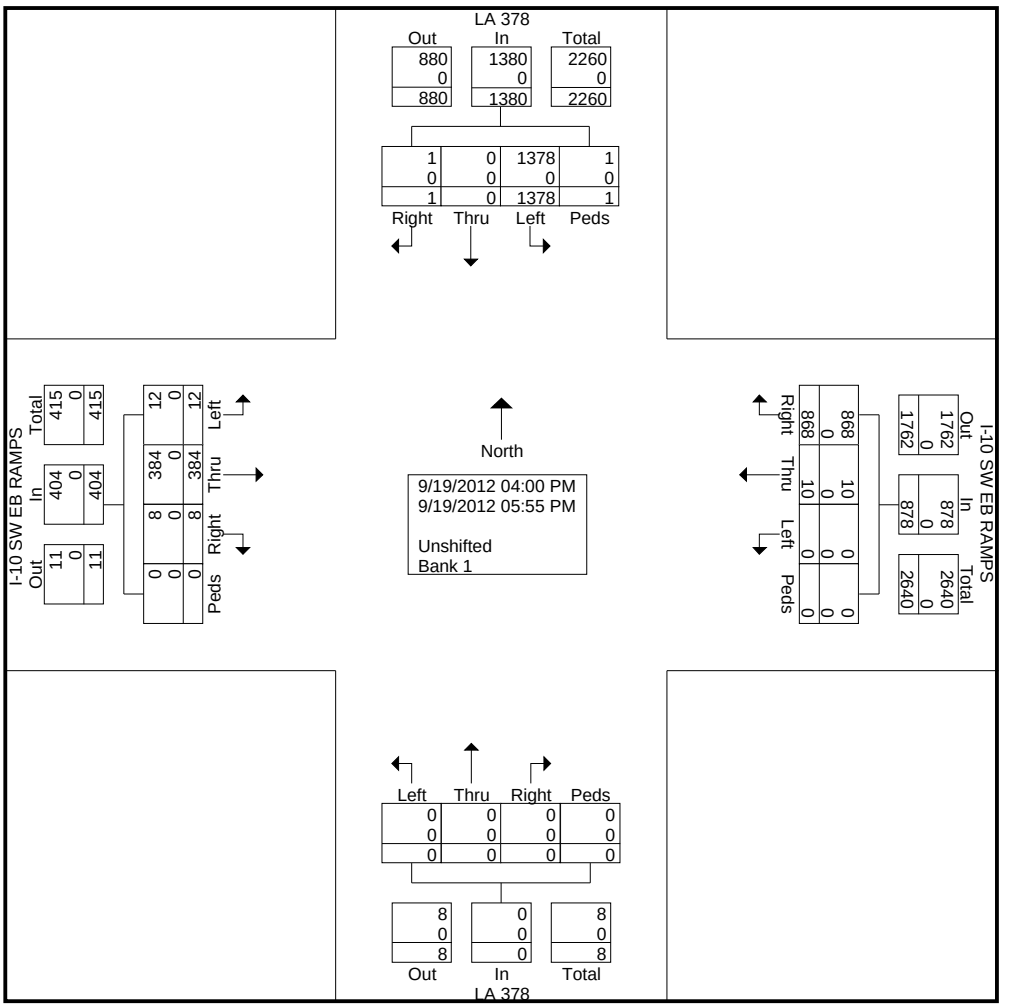
	LA 378 Southbound					I-10 SW EB RAMPS Westbound					LA 378 Northbound					I-10 SW EB RAMPS Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	29	0	0	0	29	0	1	39	0	40	0	0	0	0	0	1	12	0	0	13	82
04:05 PM	55	0	0	0	55	0	1	53	0	54	0	0	0	0	0	1	14	0	0	15	124
04:10 PM	60	0	0	0	60	0	0	39	0	39	0	0	0	0	0	1	15	0	0	16	115
04:15 PM	55	0	0	0	55	0	0	31	0	31	0	0	0	0	0	1	15	0	0	16	102
04:20 PM	47	0	0	0	47	0	0	23	0	23	0	0	0	0	0	0	8	0	0	8	78
04:25 PM	59	0	0	0	59	0	0	29	0	29	0	0	0	0	0	0	13	0	0	13	101
04:30 PM	61	0	0	0	61	0	0	36	0	36	0	0	0	0	0	0	22	0	0	22	119
04:35 PM	48	0	0	0	48	0	1	37	0	38	0	0	0	0	0	3	9	0	0	12	98
04:40 PM	57	0	0	0	57	0	2	29	0	31	0	0	0	0	0	0	17	0	0	17	105
04:45 PM	56	0	0	0	56	0	0	37	0	37	0	0	0	0	0	0	19	4	0	23	116
04:50 PM	56	0	0	0	56	0	0	27	0	27	0	0	0	0	0	1	16	0	0	17	100
04:55 PM	47	0	1	0	48	0	1	32	0	33	0	0	0	0	0	2	7	4	0	13	94
Total	630	0	1	0	631	0	6	412	0	418	0	0	0	0	0	10	167	8	0	185	1234
05:00 PM	57	0	0	0	57	0	0	30	0	30	0	0	0	0	0	0	16	0	0	16	103
05:05 PM	68	0	0	0	68	0	1	33	0	34	0	0	0	0	0	0	34	0	0	34	136
05:10 PM	71	0	0	0	71	0	0	36	0	36	0	0	0	0	0	0	20	0	0	20	127
05:15 PM	67	0	0	0	67	0	0	32	0	32	0	0	0	0	0	0	17	0	0	17	116
05:20 PM	72	0	0	0	72	0	1	45	0	46	0	0	0	0	0	1	13	0	0	14	132
05:25 PM	58	0	0	0	58	0	0	40	0	40	0	0	0	0	0	1	18	0	0	19	117
05:30 PM	72	0	0	0	72	0	0	21	0	21	0	0	0	0	0	0	10	0	0	10	103
05:35 PM	85	0	0	0	85	0	0	72	0	72	0	0	0	0	0	0	16	0	0	16	173
05:40 PM	52	0	0	0	52	0	1	63	0	64	0	0	0	0	0	0	37	0	0	37	153
05:45 PM	46	0	0	0	46	0	1	39	0	40	0	0	0	0	0	0	9	0	0	9	95
05:50 PM	57	0	0	1	58	0	0	30	0	30	0	0	0	0	0	0	11	0	0	11	99
05:55 PM	43	0	0	0	43	0	0	15	0	15	0	0	0	0	0	0	16	0	0	16	74
Total	748	0	0	1	749	0	4	456	0	460	0	0	0	0	0	2	217	0	0	219	1428
Grand Total	1378	0	1	1	1380	0	10	868	0	878	0	0	0	0	0	12	384	8	0	404	2662
Apprch %	99.9	0	0.1	0.1		0	1.1	98.9	0		0	0	0	0		3	95	2	0		
Total %	51.8	0	0	0	51.8	0	0.4	32.6	0	33	0	0	0	0	0	0.5	14.4	0.3	0	15.2	
Unshifted	1378	0	1	1	1380	0	10	868	0	878	0	0	0	0	0	12	384	8	0	404	2662
% Unshifted	100	0	100	100	100	0	100	100	0	100	0	0	0	0	0	100	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Calcasieu Parish
LA 378 at I-10 SW EB Ramps
PM Peak

File Name : I-10 SW @ EB Ramps PM
Site Code : 11-100
Start Date : 9/19/2012
Page No : 2



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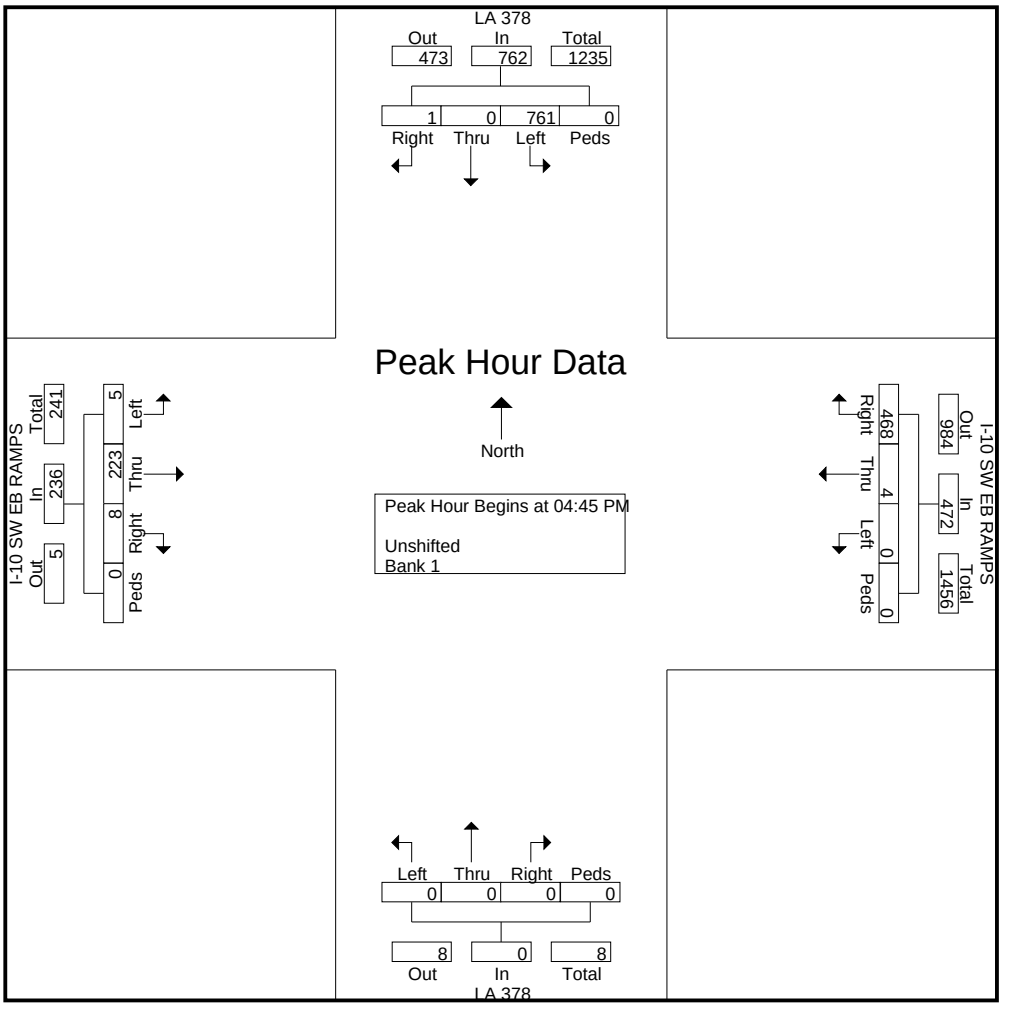
400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Calcasieu Parish
LA 378 at I-10 SW EB Ramps
PM Peak

File Name : I-10 SW @ EB Ramps PM
Site Code : 11-100
Start Date : 9/19/2012

	LA 378 Southbound					I-10 SW EB RAMPS Westbound					LA 378 Northbound					I-10 SW EB RAMPS 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 Analysis From 04:00 PM to 05:55 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	56	0	0	0	56	0	0	37	0	37	0	0	0	0	0	0	19	**4**	0	23	116
04:50 PM	56	0	0	0	56	0	0	27	0	27	0	0	0	0	0	1	16	0	0	17	100
04:55 PM	47	0	**1**	0	48	0	**1**	32	0	33	0	0	0	0	0	**2**	7	4	0	13	94
05:00 PM	57	0	0	0	57	0	0	30	0	30	0	0	0	0	0	0	16	0	0	16	103
05:05 PM	68	0	0	0	68	0	1	33	0	34	0	0	0	0	0	0	34	0	0	34	136
05:10 PM	71	0	0	0	71	0	0	36	0	36	0	0	0	0	0	0	20	0	0	20	127
05:15 PM	67	0	0	0	67	0	0	32	0	32	0	0	0	0	0	0	17	0	0	17	116
05:20 PM	72	0	0	0	72	0	1	45	0	46	0	0	0	0	0	1	13	0	0	14	132
05:25 PM	58	0	0	0	58	0	0	40	0	40	0	0	0	0	0	1	18	0	0	19	117
05:30 PM	72	0	0	0	72	0	0	21	0	21	0	0	0	0	0	0	10	0	0	10	103
05:35 PM	**85**	0	0	0	**85**	0	0	**72**	0	**72**	0	0	0	0	0	0	16	0	0	16	**173**
05:40 PM	52	0	0	0	52	0	1	63	0	64	0	0	0	0	0	0	**37**	0	0	**37**	153
Total Volume	761	0	1	0	762	0	4	468	0	472	0	0	0	0	0	5	223	8	0	236	1470
% App. Total	99.9	0	0.1	0		0	0.8	99.2	0		0	0	0	0		2.1	94.5	3.4	0		
PHF	.746	.000	.083	.000	.747	.000	.333	.542	.000	.546	.000	.000	.000	.000	.000	.208	.502	.167	.000	.532	.708



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400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Miovision Scout
Turning Movement Count
Westlake, LA
Calcasieu Parish

File Name : Sampson St (LA 378) @ I-10 Service Rd_Perkins St
Site Code : 11-100
Start Date : 9/19/2012
Page No : 1

Groups Printed- Car - Medium - Heavy

	Sampson St (LA 378) Southbound				Perkins St Westbound				I-10 Service Rd Eastbound				
Start Time	Left	Right	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Int. Total
01:30 PM	20	61	0	81	22	31	0	53	73	45	0	118	252
01:45 PM	25	45	0	70	22	33	0	55	63	33	0	96	221
Total	45	106	0	151	44	64	0	108	136	78	0	214	473
02:00 PM	21	57	0	78	25	31	0	56	74	39	0	113	247
02:15 PM	24	40	0	64	20	40	0	60	75	38	0	113	237
02:30 PM	24	62	0	86	21	21	0	42	109	48	0	157	285
02:45 PM	32	61	0	93	24	28	0	52	94	48	0	142	287
Total	101	220	0	321	90	120	0	210	352	173	0	525	1056
03:00 PM	19	63	0	82	18	28	0	46	82	38	0	120	248
03:15 PM	13	68	0	81	36	39	0	75	102	32	0	134	290
03:30 PM	21	104	0	125	22	26	0	48	142	58	0	200	373
03:45 PM	20	56	0	76	18	27	0	45	111	31	0	142	263
Total	73	291	0	364	94	120	0	214	437	159	0	596	1174
04:00 PM	11	90	0	101	32	25	0	57	139	45	0	184	342
04:15 PM	24	57	0	81	27	35	0	62	150	48	0	198	341
04:30 PM	15	73	0	88	34	36	0	70	172	51	0	223	381
04:45 PM	26	77	0	103	19	35	0	54	160	54	0	214	371
Total	76	297	0	373	112	131	0	243	621	198	0	819	1435
05:00 PM	29	61	0	90	35	35	0	70	177	78	0	255	415
05:15 PM	28	82	0	110	19	50	0	69	191	64	0	255	434
05:30 PM	31	133	0	164	29	32	0	61	179	81	0	260	485
05:45 PM	20	54	0	74	17	15	0	32	140	40	0	180	286
Total	108	330	0	438	100	132	0	232	687	263	0	950	1620
06:00 PM	13	55	0	68	25	31	0	56	137	47	0	184	308
06:15 PM	15	35	0	50	20	18	0	38	116	43	0	159	247
06:30 PM	10	74	0	84	13	24	0	37	112	41	0	153	274
06:45 PM	17	38	0	55	11	22	0	33	67	30	0	97	185
Total	55	202	0	257	69	95	0	164	432	161	0	593	1014
07:00 PM	24	28	0	52	15	17	0	32	100	37	0	137	221
07:15 PM	14	42	1	57	10	15	0	25	79	25	0	104	186
07:30 PM	5	34	0	39	11	17	0	28	80	44	0	124	191
07:45 PM	3	18	1	22	7	17	0	24	77	37	0	114	160
Total	46	122	2	170	43	66	0	109	336	143	0	479	758
08:00 PM	5	20	0	25	16	22	0	38	71	38	0	109	172
08:15 PM	2	20	0	22	17	20	1	38	65	43	0	108	168
08:30 PM	4	21	0	25	8	20	0	28	61	28	0	89	142
08:45 PM	2	22	0	24	12	19	0	31	50	18	0	68	123
Total	13	83	0	96	53	81	1	135	247	127	0	374	605
09:00 PM	3	18	0	21	10	19	0	29	59	24	0	83	133
09:15 PM	1	16	0	17	8	17	0	25	63	33	0	96	138
09:30 PM	1	19	0	20	13	13	0	26	51	12	0	63	109
09:45 PM	3	16	0	19	16	10	0	26	41	21	0	62	107
Total	8	69	0	77	47	59	0	106	214	90	0	304	487

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Sampson St (LA 378) @ I-10 Service Rd_Perkins St
Site Code : 11-100
Start Date : 9/19/2012
Page No : 2

Groups Printed- Car - Medium - Heavy

	Sampson St (LA 378) Southbound				Perkins St Westbound				I-10 Service Rd Eastbound				
Start Time	Left	Right	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Int. Total
10:00 PM	5	21	0	26	16	14	0	30	29	16	0	45	101
10:15 PM	2	15	1	18	17	12	0	29	37	21	0	58	105
10:30 PM	2	12	0	14	6	7	0	13	25	26	0	51	78
10:45 PM	2	14	0	16	9	6	0	15	28	23	0	51	82
Total	11	62	1	74	48	39	0	87	119	86	0	205	366
11:00 PM	3	17	1	21	11	10	0	21	20	15	0	35	77
11:15 PM	2	10	1	13	11	13	0	24	16	14	0	30	67
11:30 PM	2	13	0	15	7	8	0	15	18	13	0	31	61
11:45 PM	3	17	1	21	5	15	0	20	7	6	0	13	54
Total	10	57	3	70	34	46	0	80	61	48	0	109	259
12:00 AM	1	18	0	19	6	11	0	17	13	12	0	25	61
12:15 AM	5	8	0	13	8	13	0	21	9	6	0	15	49
12:30 AM	0	9	1	10	5	8	0	13	5	0	0	5	28
12:45 AM	8	14	0	22	7	6	0	13	11	6	0	17	52
Total	14	49	1	64	26	38	0	64	38	24	0	62	190
01:00 AM	5	8	0	13	6	9	0	15	6	9	0	15	43
01:15 AM	5	10	0	15	5	6	0	11	7	10	0	17	43
01:30 AM	8	1	1	10	4	4	0	8	3	7	0	10	28
01:45 AM	4	6	2	12	6	13	0	19	5	0	0	5	36
Total	22	25	3	50	21	32	0	53	21	26	0	47	150
02:00 AM	1	2	1	4	13	4	0	17	11	3	0	14	35
02:15 AM	2	5	0	7	4	9	0	13	4	4	0	8	28
02:30 AM	2	1	0	3	7	6	0	13	7	2	0	9	25
02:45 AM	0	2	0	2	5	5	0	10	9	7	0	16	28
Total	5	10	1	16	29	24	0	53	31	16	0	47	116
03:00 AM	4	5	0	9	1	4	0	5	6	2	0	8	22
03:15 AM	1	4	0	5	3	5	0	8	9	2	0	11	24
03:30 AM	2	8	0	10	5	4	0	9	5	2	0	7	26
03:45 AM	4	13	0	17	0	1	0	1	4	4	0	8	26
Total	11	30	0	41	9	14	0	23	24	10	0	34	98
04:00 AM	3	5	0	8	5	6	0	11	10	2	0	12	31
04:15 AM	2	11	0	13	3	1	0	4	15	0	0	15	32
04:30 AM	2	13	0	15	7	3	0	10	14	2	0	16	41
04:45 AM	12	24	0	36	6	4	0	10	21	4	0	25	71
Total	19	53	0	72	21	14	0	35	60	8	0	68	175
05:00 AM	7	38	0	45	4	6	0	10	23	5	0	28	83
05:15 AM	9	25	0	34	13	10	0	23	32	19	0	51	108
05:30 AM	16	60	0	76	16	9	0	25	35	12	0	47	148
05:45 AM	19	37	0	56	14	11	0	25	41	15	0	56	137
Total	51	160	0	211	47	36	0	83	131	51	0	182	476
06:00 AM	11	42	0	53	7	12	0	19	65	19	0	84	156
06:15 AM	19	62	0	81	22	15	0	37	63	25	0	88	206
06:30 AM	40	75	0	115	14	38	0	52	88	26	0	114	281
06:45 AM	32	65	0	97	26	18	0	44	89	29	0	118	259
Total	102	244	0	346	69	83	0	152	305	99	0	404	902
07:00 AM	12	96	0	108	25	23	0	48	68	22	0	90	246

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Sampson St (LA 378) @ I-10 Service Rd_Perkins St
Site Code : 11-100
Start Date : 9/19/2012
Page No : 3

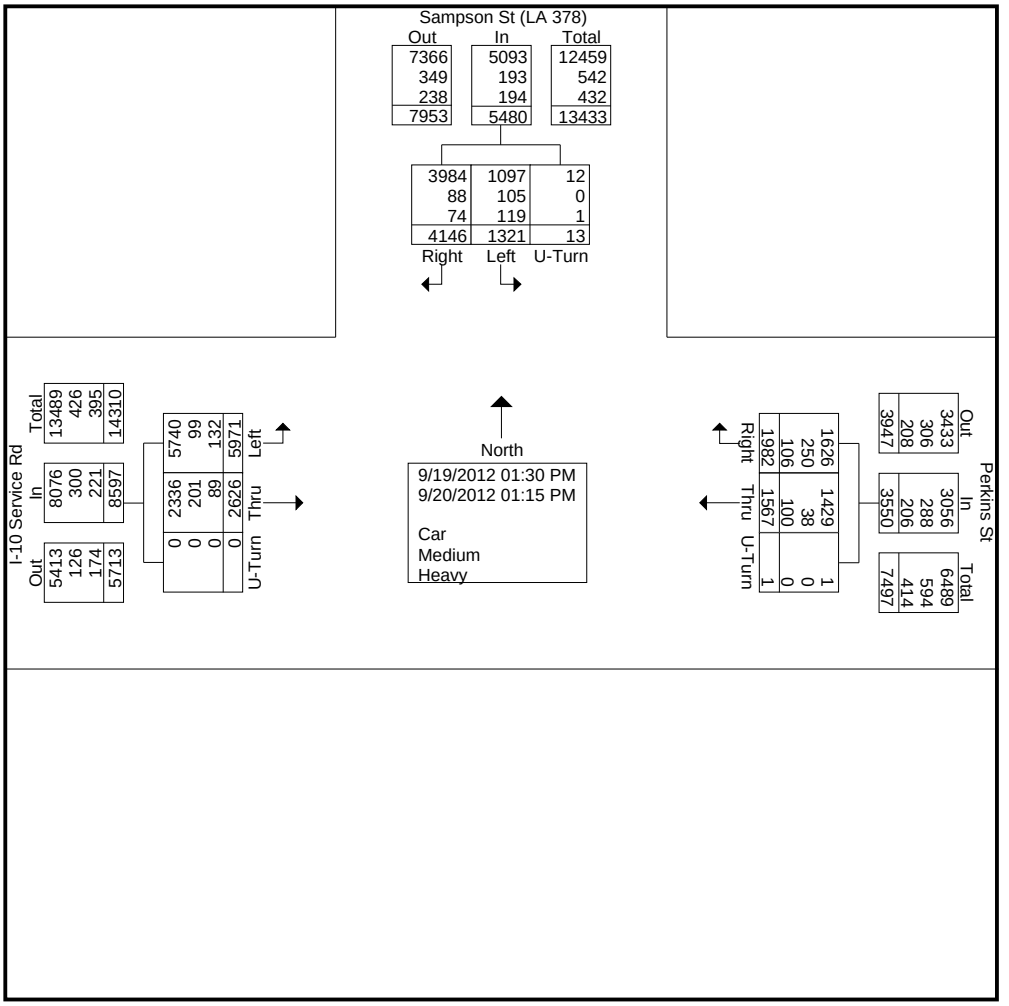
Groups Printed- Car - Medium - Heavy

	Sampson St (LA 378) Southbound				Perkins St Westbound				I-10 Service Rd Eastbound				
Start Time	Left	Right	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Int. Total
07:15 AM	15	127	0	142	45	27	0	72	69	25	0	94	308
07:30 AM	23	148	0	171	65	23	0	88	52	25	0	77	336
07:45 AM	32	141	0	173	53	22	0	75	57	19	0	76	324
Total	82	512	0	594	188	95	0	283	246	91	0	337	1214
08:00 AM	20	88	0	108	18	24	0	42	62	22	0	84	234
08:15 AM	17	83	1	101	23	27	0	50	55	37	0	92	243
08:30 AM	19	90	1	110	27	25	0	52	43	33	0	76	238
08:45 AM	26	56	0	82	32	29	0	61	59	28	0	87	230
Total	82	317	2	401	100	105	0	205	219	120	0	339	945
09:00 AM	16	53	0	69	23	18	0	41	48	23	0	71	181
09:15 AM	19	49	0	68	16	30	0	46	43	38	0	81	195
09:30 AM	17	55	0	72	18	35	0	53	50	31	0	81	206
09:45 AM	22	67	0	89	10	31	0	41	45	30	0	75	205
Total	74	224	0	298	67	114	0	181	186	122	0	308	787
10:00 AM	15	42	0	57	18	30	0	48	68	35	0	103	208
10:15 AM	22	35	0	57	9	28	0	37	42	29	0	71	165
10:30 AM	19	60	0	79	32	33	0	65	57	32	0	89	233
10:45 AM	22	39	0	61	12	30	0	42	66	37	0	103	206
Total	78	176	0	254	71	121	0	192	233	133	0	366	812
11:00 AM	22	51	0	73	15	41	0	56	79	33	0	112	241
11:15 AM	17	57	0	74	19	39	0	58	71	42	0	113	245
11:30 AM	37	54	0	91	16	33	0	49	83	34	0	117	257
11:45 AM	21	37	0	58	17	33	0	50	101	43	0	144	252
Total	97	199	0	296	67	146	0	213	334	152	0	486	995
12:00 PM	24	60	0	84	19	42	0	61	85	39	0	124	269
12:15 PM	20	40	0	60	14	35	0	49	84	41	0	125	234
12:30 PM	28	66	0	94	22	31	0	53	93	39	0	132	279
12:45 PM	21	53	0	74	28	25	0	53	65	39	0	104	231
Total	93	219	0	312	83	133	0	216	327	158	0	485	1013
01:00 PM	16	39	0	55	17	42	0	59	86	39	0	125	239
01:15 PM	29	50	0	79	18	32	0	50	88	51	0	139	268
Grand Total	1321	4146	13	5480	1567	1982	1	3550	5971	2626	0	8597	17627
Apprch %	24.1	75.7	0.2		44.1	55.8	0		69.5	30.5	0		
Total %	7.5	23.5	0.1	31.1	8.9	11.2	0	20.1	33.9	14.9	0	48.8	
Car	1097	3984	12	5093	1429	1626	1	3056	5740	2336	0	8076	16225
% Car	83	96.1	92.3	92.9	91.2	82	100	86.1	96.1	89	0	93.9	92
Medium	105	88	0	193	38	250	0	288	99	201	0	300	781
% Medium	7.9	2.1	0	3.5	2.4	12.6	0	8.1	1.7	7.7	0	3.5	4.4
Heavy	119	74	1	194	100	106	0	206	132	89	0	221	621
% Heavy	9	1.8	7.7	3.5	6.4	5.3	0	5.8	2.2	3.4	0	2.6	3.5

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Sampson St (LA 378) @ I-10 Service Rd_Perkins St
Site Code : 11-100
Start Date : 9/19/2012
Page No : 4

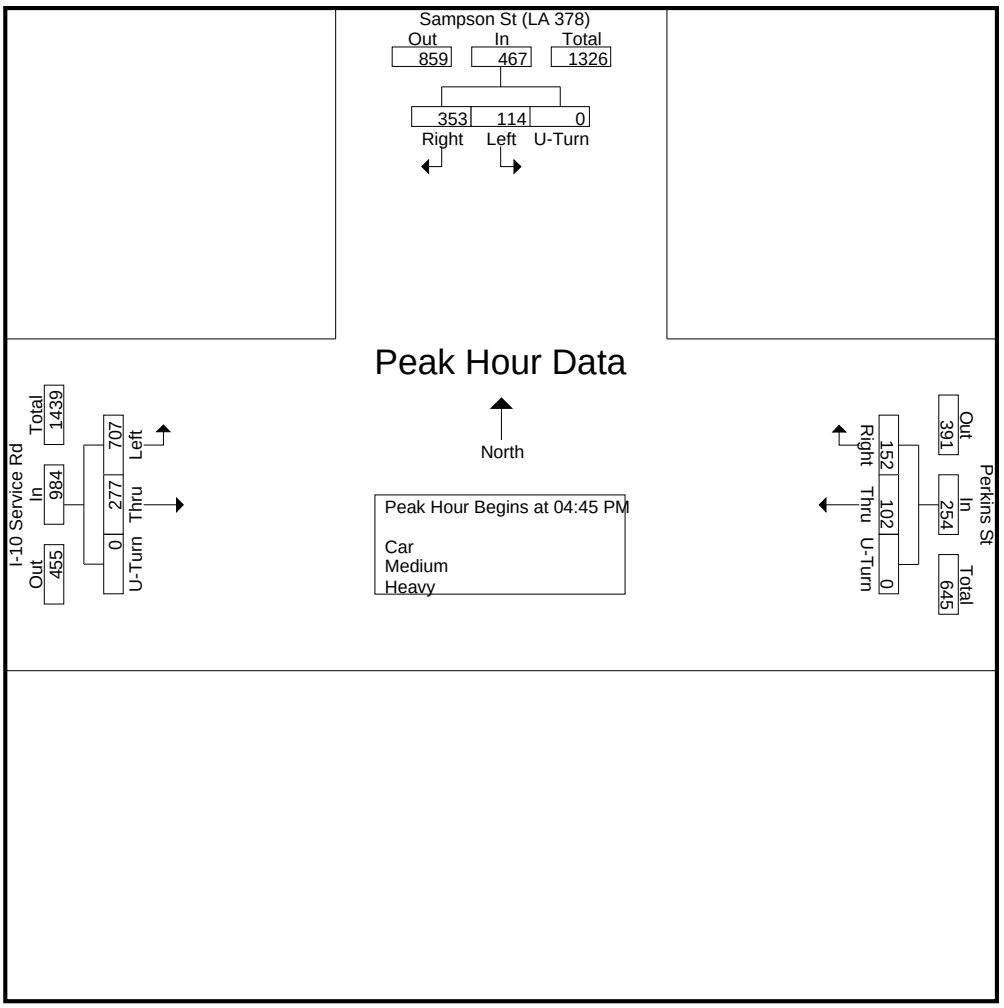


Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Sampson St (LA 378) @ I-10 Service Rd_Perkins St
Site Code : 11-100
Start Date : 9/19/2012
Page No : 5

	Sampson St (LA 378) Southbound				Perkins St Westbound				I-10 Service Rd Eastbound				
Start Time	Left	Right	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	26	77	0	103	19	35	0	54	160	54	0	214	371
05:00 PM	29	61	0	90	**35**	35	0	**70**	177	78	0	255	415
05:15 PM	28	82	0	110	19	**50**	0	69	**191**	64	0	255	434
05:30 PM	**31**	**133**	0	**164**	29	32	0	61	179	**81**	0	**260**	**485**
Total Volume	114	353	0	467	102	152	0	254	707	277	0	984	1705
% App. Total	24.4	75.6	0		40.2	59.8	0		71.8	28.2	0		
PHF	.919	.664	.000	.712	.729	.760	.000	.907	.925	.855	.000	.946	.879

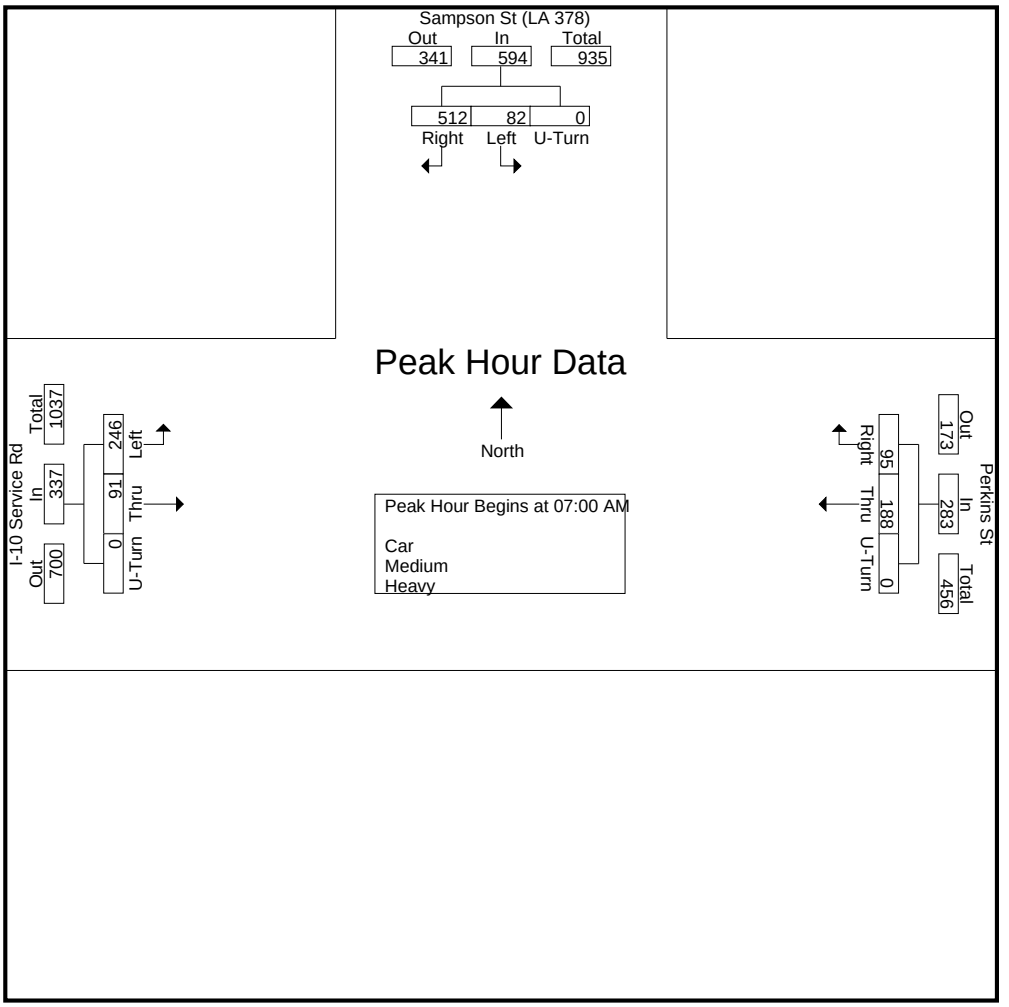


Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Sampson St (LA 378) @ I-10 Service Rd_Perkins St
Site Code : 11-100
Start Date : 9/19/2012
Page No : 6

	Sampson St (LA 378) Southbound				Perkins St Westbound				I-10 Service Rd Eastbound				
Start Time	Left	Right	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	12	96	0	108	25	23	0	48	68	22	0	90	246
07:15 AM	15	127	0	142	45	**27**	0	72	**69**	**25**	0	**94**	308
07:30 AM	23	**148**	0	171	**65**	23	0	**88**	52	25	0	77	**336**
07:45 AM	**32**	141	0	**173**	53	22	0	75	57	19	0	76	324
Total Volume	82	512	0	594	188	95	0	283	246	91	0	337	1214
% App. Total	13.8	86.2	0		66.4	33.6	0		73	27	0		
PHF	.641	.865	.000	.858	.723	.880	.000	.804	.891	.910	.000	.896	.903



Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Miovision Scout
Turning Movement Count
Westlake, LA
Calcasieu Parish

File Name : Sampson St (LA 378) @ I-10 WB Ramp
Site Code : 11-100
Start Date : 9/19/2012
Page No : 1

Groups Printed- Car - Medium - Heavy

	Sampson St (LA 378) Southbound				Sampson St (LA 378) Northbound				I-10 WB Ramp Eastbound				
Start Time	Thru	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Int. Total
01:15 PM	73	83	0	156	36	66	0	102	55	21	0	76	334
01:30 PM	64	101	0	165	36	67	0	103	53	14	0	67	335
01:45 PM	48	78	0	126	35	62	0	97	82	21	0	103	326
Total	185	262	0	447	107	195	0	302	190	56	0	246	995
02:00 PM	55	59	0	114	30	75	0	105	59	19	0	78	297
02:15 PM	39	70	0	109	39	61	1	101	61	19	0	80	290
02:30 PM	71	74	0	145	28	105	0	133	67	17	0	84	362
02:45 PM	65	86	0	151	35	103	0	138	88	25	0	113	402
Total	230	289	0	519	132	344	1	477	275	80	0	355	1351
03:00 PM	62	97	0	159	24	82	0	106	76	18	0	94	359
03:15 PM	75	89	0	164	42	102	0	144	88	11	0	99	407
03:30 PM	100	106	0	206	28	144	0	172	68	17	0	85	463
03:45 PM	59	91	0	150	22	112	0	134	78	19	0	97	381
Total	296	383	0	679	116	440	0	556	310	65	0	375	1610
04:00 PM	99	121	0	220	21	142	0	163	96	9	0	105	488
04:15 PM	51	90	0	141	31	150	0	181	91	22	0	113	435
04:30 PM	79	114	0	193	33	170	0	203	120	20	0	140	536
04:45 PM	82	120	0	202	29	163	0	192	150	18	0	168	562
Total	311	445	0	756	114	625	0	739	457	69	0	526	2021
05:00 PM	62	113	0	175	36	180	0	216	176	24	0	200	591
05:15 PM	95	126	0	221	41	161	0	202	140	25	0	165	588
05:30 PM	140	162	0	302	36	194	0	230	112	29	0	141	673
05:45 PM	57	105	0	162	18	135	0	153	54	15	0	69	384
Total	354	506	0	860	131	670	0	801	482	93	0	575	2236
06:00 PM	62	94	0	156	32	134	0	166	76	12	0	88	410
06:15 PM	32	52	0	84	15	93	1	109	39	11	0	50	243
06:30 PM	76	106	0	182	28	133	0	161	73	12	0	85	428
06:45 PM	38	61	0	99	12	77	0	89	71	16	0	87	275
Total	208	313	0	521	87	437	1	525	259	51	0	310	1356
07:00 PM	35	61	0	96	17	104	0	121	52	16	0	68	285
07:15 PM	41	58	0	99	14	80	0	94	58	15	0	73	266
07:30 PM	37	38	0	75	16	80	0	96	1	1	0	2	173
07:45 PM	21	39	0	60	15	79	0	94	0	2	0	2	156
Total	134	196	0	330	62	343	0	405	111	34	0	145	880
08:00 PM	29	25	0	54	21	74	0	95	0	1	0	1	150
08:15 PM	25	25	0	50	16	67	0	83	1	0	0	1	134
08:30 PM	25	27	0	52	18	63	0	81	0	0	0	0	133
08:45 PM	23	30	0	53	15	53	0	68	0	0	0	0	121
Total	102	107	0	209	70	257	0	327	1	1	0	2	538
09:00 PM	19	13	0	32	17	61	0	78	0	2	0	2	112
09:15 PM	17	30	0	47	17	62	0	79	0	1	0	1	127
09:30 PM	18	21	0	39	12	52	0	64	1	1	1	3	106
09:45 PM	18	8	0	26	12	39	0	51	0	0	0	0	77
Total	72	72	0	144	58	214	0	272	1	4	1	6	422

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Sampson St (LA 378) @ I-10 WB Ramp
Site Code : 11-100
Start Date : 9/19/2012
Page No : 2

Groups Printed- Car - Medium - Heavy

	Sampson St (LA 378) Southbound				Sampson St (LA 378) Northbound				I-10 WB Ramp Eastbound				
Start Time	Thru	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Int. Total
10:00 PM	24	22	1	47	14	30	1	45	1	3	0	4	96
10:15 PM	18	13	0	31	10	40	0	50	0	0	0	0	81
10:30 PM	16	10	1	27	5	26	1	32	0	0	0	0	59
10:45 PM	13	5	0	18	8	23	1	32	0	1	1	2	52
Total	71	50	2	123	37	119	3	159	1	4	1	6	288
11:00 PM	20	0	1	21	1	32	3	36	0	0	1	1	58
11:15 PM	13	0	0	13	0	29	0	29	0	0	0	0	42
11:30 PM	11	0	0	11	1	18	4	23	0	0	0	0	34
11:45 PM	15	0	0	15	0	15	8	23	0	0	0	0	38
Total	59	0	1	60	2	94	15	111	0	0	1	1	172
12:00 AM	13	0	0	13	2	20	3	25	2	0	0	2	40
12:15 AM	8	0	0	8	2	18	1	21	6	3	0	9	38
12:30 AM	5	4	1	10	6	10	0	16	12	5	2	19	45
12:45 AM	5	6	0	11	8	9	0	17	12	17	0	29	57
Total	31	10	1	42	18	57	4	79	32	25	2	59	180
01:00 AM	4	6	0	10	7	8	0	15	12	9	0	21	46
01:15 AM	7	2	0	9	4	8	1	13	8	7	0	15	37
01:30 AM	2	0	0	2	0	9	0	9	4	8	0	12	23
01:45 AM	9	0	0	9	0	18	1	19	2	2	0	4	32
Total	22	8	0	30	11	43	2	56	26	26	0	52	138
02:00 AM	5	1	1	7	2	15	0	17	3	1	2	6	30
02:15 AM	2	3	0	5	10	1	0	11	2	4	0	6	22
02:30 AM	1	6	0	7	8	5	0	13	6	1	0	7	27
02:45 AM	1	4	0	5	5	6	0	11	1	1	0	2	18
Total	9	14	1	24	25	27	0	52	12	7	2	21	97
03:00 AM	5	4	0	9	5	5	0	10	5	4	0	9	28
03:15 AM	3	7	0	10	5	8	0	13	12	2	0	14	37
03:30 AM	8	8	0	16	4	5	0	9	5	2	0	7	32
03:45 AM	17	17	0	34	0	6	0	6	9	1	0	10	50
Total	33	36	0	69	14	24	0	38	31	9	0	40	147
04:00 AM	6	20	0	26	7	9	0	16	13	1	0	14	56
04:15 AM	10	23	0	33	1	15	0	16	8	4	0	12	61
04:30 AM	16	52	0	68	3	14	0	17	12	2	0	14	99
04:45 AM	22	60	0	82	5	20	0	25	17	10	0	27	134
Total	54	155	0	209	16	58	0	74	50	17	0	67	350
05:00 AM	38	85	0	123	7	21	0	28	22	8	0	30	181
05:15 AM	26	108	0	134	10	31	0	41	30	10	0	40	215
05:30 AM	58	131	0	189	10	34	0	44	35	19	0	54	287
05:45 AM	38	126	0	164	11	40	0	51	35	16	0	51	266
Total	160	450	0	610	38	126	0	164	122	53	0	175	949
06:00 AM	43	157	0	200	16	68	0	84	54	15	0	69	353
06:15 AM	56	201	0	257	14	62	0	76	75	21	0	96	429
06:30 AM	84	227	0	311	35	91	0	126	77	36	0	113	550
06:45 AM	75	182	0	257	19	88	0	107	70	22	0	92	456
Total	258	767	0	1025	84	309	0	393	276	94	0	370	1788
07:00 AM	104	165	0	269	22	68	0	90	62	12	0	74	433

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Sampson St (LA 378) @ I-10 WB Ramp
Site Code : 11-100
Start Date : 9/19/2012
Page No : 3

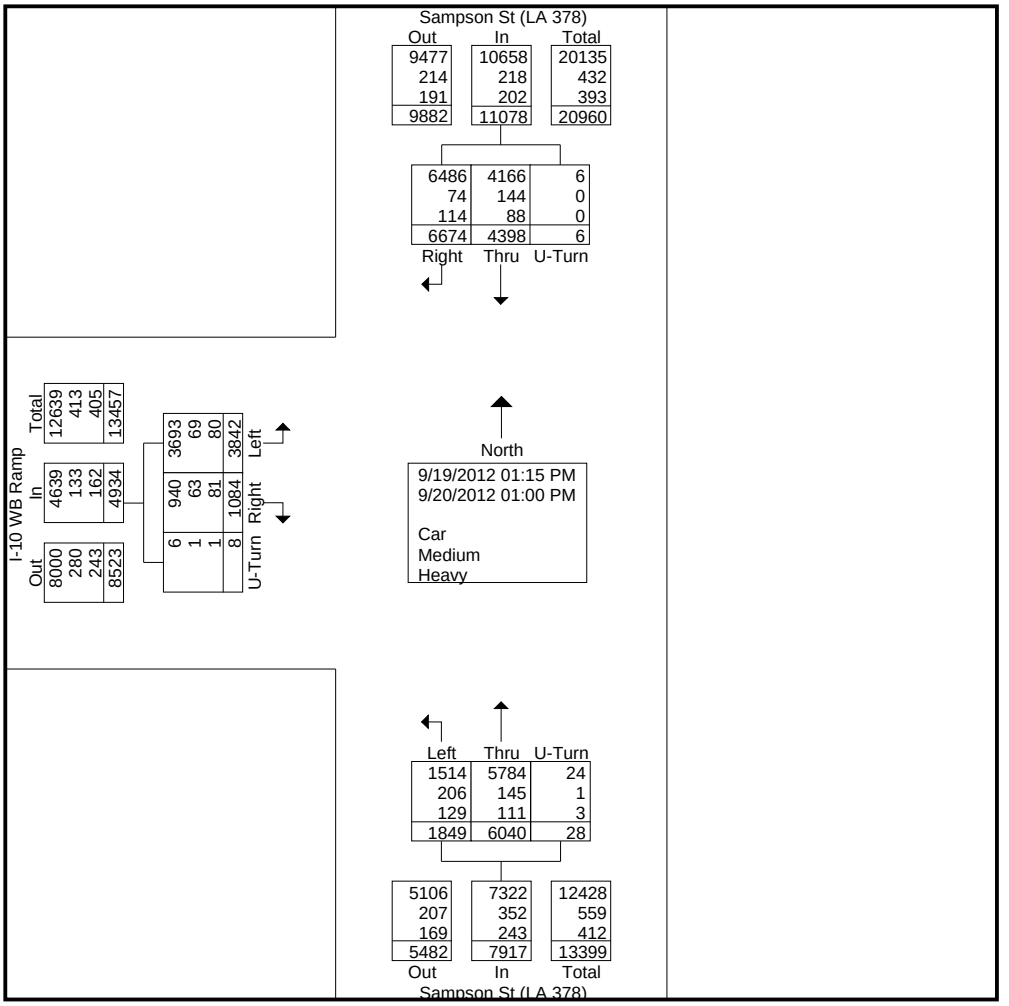
Groups Printed- Car - Medium - Heavy

	Sampson St (LA 378) Southbound				Sampson St (LA 378) Northbound				I-10 WB Ramp Eastbound				
Start Time	Thru	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Int. Total
07:15 AM	129	196	0	325	30	72	0	102	64	20	0	84	511
07:30 AM	149	200	0	349	27	48	0	75	66	20	0	86	510
07:45 AM	135	161	0	296	20	57	0	77	56	25	0	81	454
Total	517	722	0	1239	99	245	0	344	248	77	0	325	1908
08:00 AM	86	136	0	222	24	62	0	86	46	18	0	64	372
08:15 AM	93	100	0	193	26	57	0	83	24	15	0	39	315
08:30 AM	90	113	0	203	26	47	0	73	46	16	0	62	338
08:45 AM	58	102	0	160	28	57	0	85	30	26	0	56	301
Total	327	451	0	778	104	223	0	327	146	75	0	221	1326
09:00 AM	60	92	0	152	18	50	0	68	30	13	0	43	263
09:15 AM	52	98	0	150	25	43	0	68	40	8	0	48	266
09:30 AM	58	68	0	126	31	57	0	88	43	15	0	58	272
09:45 AM	79	84	0	163	28	48	0	76	48	13	0	61	300
Total	249	342	0	591	102	198	0	300	161	49	0	210	1101
10:00 AM	48	99	0	147	24	73	0	97	41	9	0	50	294
10:15 AM	35	65	1	101	20	32	0	52	39	20	1	60	213
10:30 AM	64	117	0	181	30	76	0	106	38	15	0	53	340
10:45 AM	49	72	0	121	29	67	0	96	58	14	0	72	289
Total	196	353	1	550	103	248	0	351	176	58	1	235	1136
11:00 AM	58	74	0	132	37	84	0	121	40	10	0	50	303
11:15 AM	68	87	0	155	25	85	0	110	52	14	0	66	331
11:30 AM	62	88	0	150	34	78	1	113	46	21	0	67	330
11:45 AM	52	93	0	145	38	98	0	136	52	13	0	65	346
Total	240	342	0	582	134	345	1	480	190	58	0	248	1310
12:00 PM	59	95	0	154	38	89	0	127	46	17	0	63	344
12:15 PM	49	64	0	113	37	83	0	120	68	12	0	80	313
12:30 PM	75	81	0	156	32	90	0	122	67	20	0	87	365
12:45 PM	55	75	0	130	32	61	1	94	62	20	0	82	306
Total	238	315	0	553	139	323	1	463	243	69	0	312	1328
01:00 PM	42	86	0	128	46	76	0	122	42	10	0	52	302
Grand Total	4398	6674	6	11078	1849	6040	28	7917	3842	1084	8	4934	23929
Apprch %	39.7	60.2	0.1		23.4	76.3	0.4		77.9	22	0.2		
Total %	18.4	27.9	0	46.3	7.7	25.2	0.1	33.1	16.1	4.5	0	20.6	
Car	4166	6486	6	10658	1514	5784	24	7322	3693	940	6	4639	22619
% Car	94.7	97.2	100	96.2	81.9	95.8	85.7	92.5	96.1	86.7	75	94	94.5
Medium	144	74	0	218	206	145	1	352	69	63	1	133	703
% Medium	3.3	1.1	0	2	11.1	2.4	3.6	4.4	1.8	5.8	12.5	2.7	2.9
Heavy	88	114	0	202	129	111	3	243	80	81	1	162	607
% Heavy	2	1.7	0	1.8	7	1.8	10.7	3.1	2.1	7.5	12.5	3.3	2.5

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Sampson St (LA 378) @ I-10 WB Ramp
Site Code : 11-100
Start Date : 9/19/2012
Page No : 4

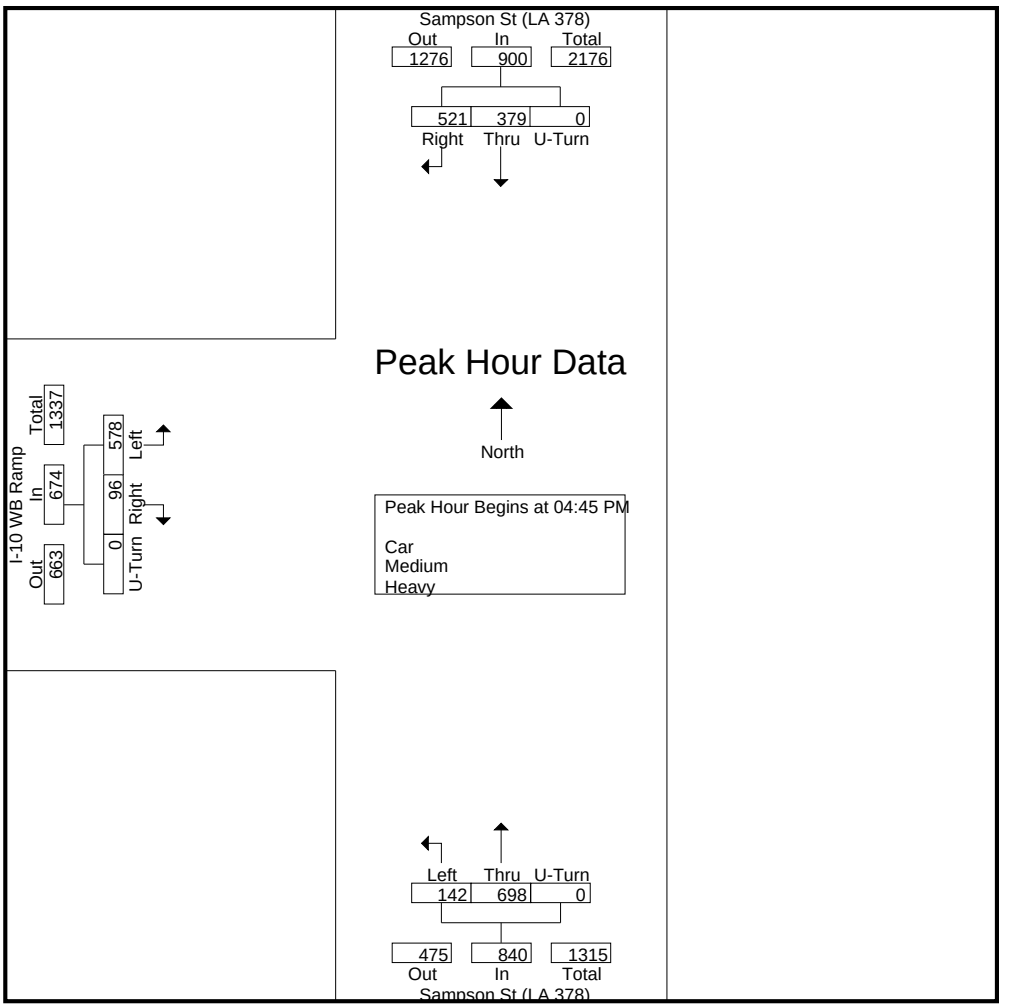


Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Sampson St (LA 378) @ I-10 WB Ramp
Site Code : 11-100
Start Date : 9/19/2012
Page No : 5

	Sampson St (LA 378) Southbound				Sampson St (LA 378) Northbound				I-10 WB Ramp Eastbound				
Start Time	Thru	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	82	120	0	202	29	163	0	192	150	18	0	168	562
05:00 PM	62	113	0	175	36	180	0	216	**176**	24	0	**200**	591
05:15 PM	95	126	0	221	**41**	161	0	202	140	25	0	165	588
05:30 PM	**140**	**162**	0	**302**	36	**194**	0	**230**	112	**29**	0	141	**673**
Total Volume	379	521	0	900	142	698	0	840	578	96	0	674	2414
% App. Total	42.1	57.9	0		16.9	83.1	0		85.8	14.2	0		
PHF	.677	.804	.000	.745	.866	.899	.000	.913	.821	.828	.000	.843	.897

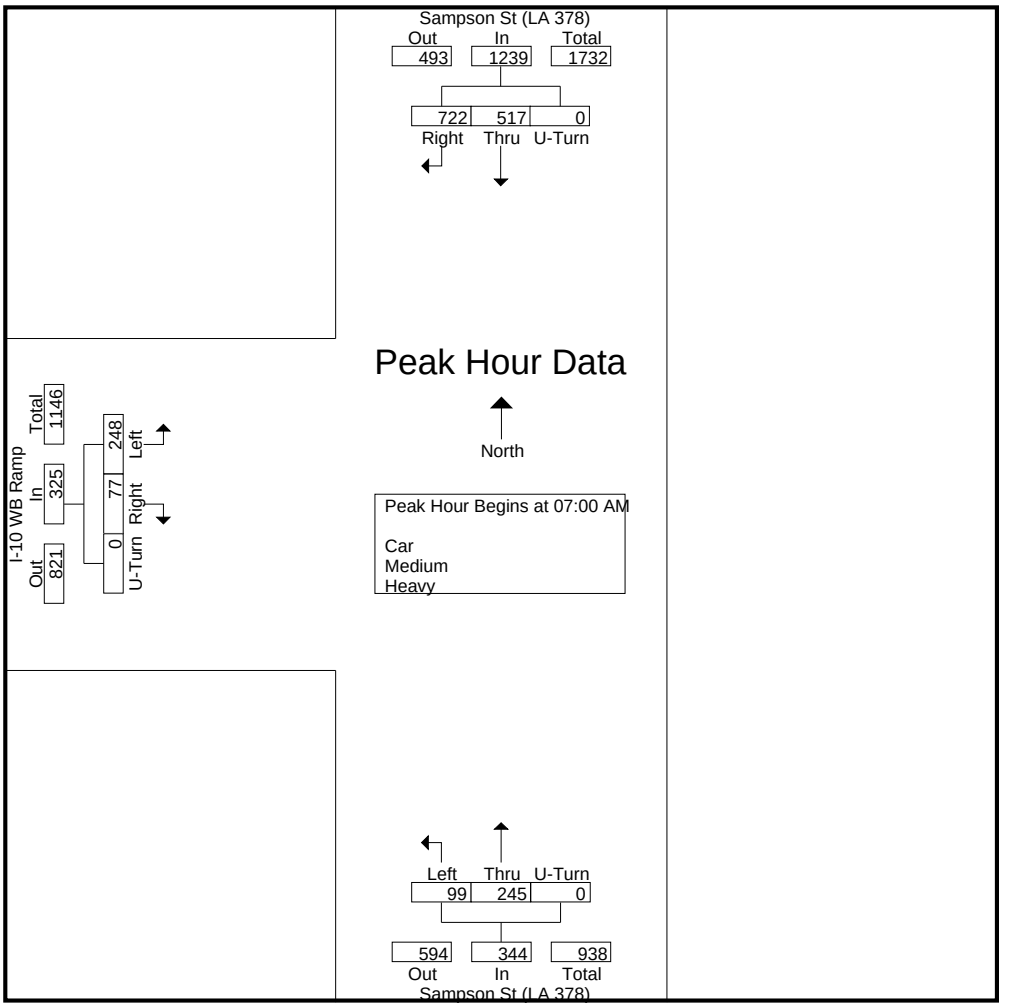


Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Sampson St (LA 378) @ I-10 WB Ramp
Site Code : 11-100
Start Date : 9/19/2012
Page No : 6

	Sampson St (LA 378) Southbound				Sampson St (LA 378) Northbound				I-10 WB Ramp Eastbound				
Start Time	Thru	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	104	165	0	269	22	68	0	90	62	12	0	74	433
07:15 AM	129	196	0	325	**30**	**72**	0	**102**	64	20	0	84	**511**
07:30 AM	**149**	**200**	0	**349**	27	48	0	75	**66**	20	0	**86**	510
07:45 AM	135	161	0	296	20	57	0	77	56	**25**	0	81	454
Total Volume	517	722	0	1239	99	245	0	344	248	77	0	325	1908
% App. Total	41.7	58.3	0		28.8	71.2	0		76.3	23.7	0		
PHF	.867	.903	.000	.888	.825	.851	.000	.843	.939	.770	.000	.945	.933



Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Miovision Scout
Turning Movement Count
Westlake, LA
Calcasieu Parish

File Name : Sampson St (LA 378) @ Sulpher
Site Code : 11-100
Start Date : 11/14/2012
Page No : 1

Groups Printed- Car - Medium - Heavy

	Sampson St (LA 378) Southbound					Sulphur Ave Westbound					Sampson St (LA 378) Northbound					Sulphur Ave Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	4	180	36	0	220	39	9	2	0	50	45	52	8	0	105	7	9	49	0	65	440
07:15 AM	11	239	11	0	261	46	16	13	0	75	46	95	10	0	151	7	6	71	0	84	571
07:30 AM	10	277	21	0	308	50	4	6	0	60	38	59	10	0	107	12	15	81	0	108	583
07:45 AM	6	179	20	0	205	33	8	1	0	42	27	63	4	0	94	10	11	58	0	79	420
Total	31	875	88	0	994	168	37	22	0	227	156	269	32	0	457	36	41	259	0	336	2014
08:00 AM	4	144	22	0	170	24	5	3	0	32	22	60	8	0	90	11	5	38	0	54	346
08:15 AM	4	135	20	0	159	18	4	2	1	25	30	50	4	0	84	5	5	44	0	54	322
08:30 AM	5	140	16	0	161	22	2	5	0	29	23	55	6	0	84	13	6	52	0	71	345
08:45 AM	8	104	13	0	125	9	4	9	0	22	27	66	7	0	100	8	3	45	0	56	303
Total	21	523	71	0	615	73	15	19	1	108	102	231	25	0	358	37	19	179	0	235	1316
04:00 PM	5	94	17	0	116	24	11	16	0	51	24	198	8	0	230	66	14	100	0	180	577
04:15 PM	6	99	18	0	123	14	5	7	0	26	33	180	7	0	220	22	15	67	0	104	473
04:30 PM	8	104	12	0	124	17	9	10	0	36	39	247	13	0	299	36	14	94	0	144	603
04:45 PM	12	119	16	0	147	24	9	13	0	46	47	237	22	0	306	40	9	118	0	167	666
Total	31	416	63	0	510	79	34	46	0	159	143	862	50	0	1055	164	52	379	0	595	2319
05:00 PM	8	125	20	0	153	21	8	12	0	41	33	237	19	0	289	50	14	115	0	179	662
05:15 PM	6	123	11	0	140	16	8	8	0	32	52	279	25	0	356	48	16	81	0	145	673
05:30 PM	7	104	18	0	129	22	12	11	0	45	27	97	11	0	135	53	10	83	0	146	455
05:45 PM	6	98	9	0	113	16	7	9	0	32	27	232	18	0	277	22	12	38	0	72	494
Total	27	450	58	0	535	75	35	40	0	150	139	845	73	0	1057	173	52	317	0	542	2284
Grand Total	110	2264	280	0	2654	395	121	127	1	644	540	2207	180	0	2927	410	164	1134	0	1708	7933
Apprch %	4.1	85.3	10.6	0		61.3	18.8	19.7	0.2		18.4	75.4	6.1	0		24	9.6	66.4	0		
Total %	1.4	28.5	3.5	0	33.5	5	1.5	1.6	0	8.1	6.8	27.8	2.3	0	36.9	5.2	2.1	14.3	0	21.5	
Car	103	2241	276	0	2620	390	104	118	1	613	497	2176	168	0	2841	400	151	1080	0	1631	7705
% Car	93.6	99	98.6	0	98.7	98.7	86	92.9	100	95.2	92	98.6	93.3	0	97.1	97.6	92.1	95.2	0	95.5	97.1
Medium	1	15	4	0	20	4	2	0	0	6	11	21	10	0	42	8	3	15	0	26	94
% Medium	0.9	0.7	1.4	0	0.8	1	1.7	0	0	0.9	2	1	5.6	0	1.4	2	1.8	1.3	0	1.5	1.2
Heavy	6	8	0	0	14	1	15	9	0	25	32	10	2	0	44	2	10	39	0	51	134
% Heavy	5.5	0.4	0	0	0.5	0.3	12.4	7.1	0	3.9	5.9	0.5	1.1	0	1.5	0.5	6.1	3.4	0	3	1.7

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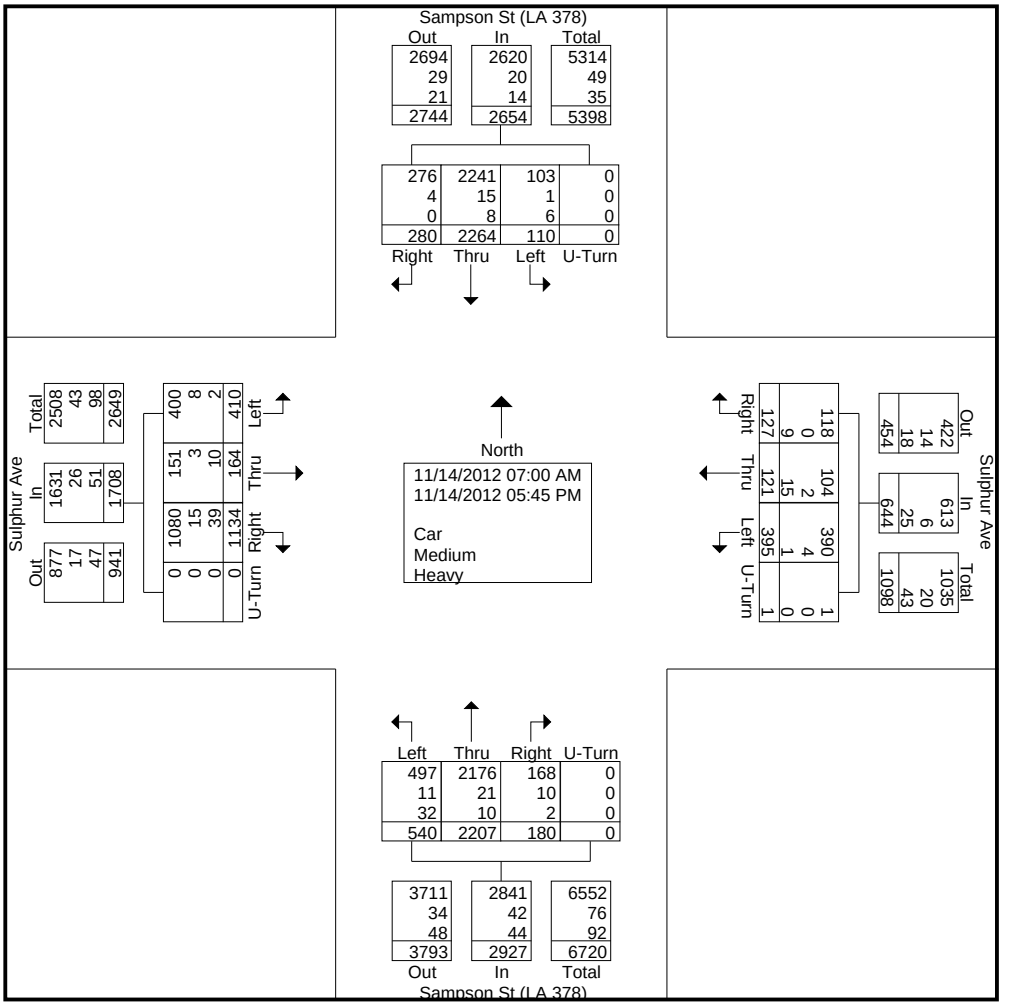
400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Sampson St (LA 378) @ Sulpher
Site Code : 11-100
Start Date : 11/14/2012
Page No : 2



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File Name : Sampson St (LA 378) @ Sulpher
Site Code : 11-100
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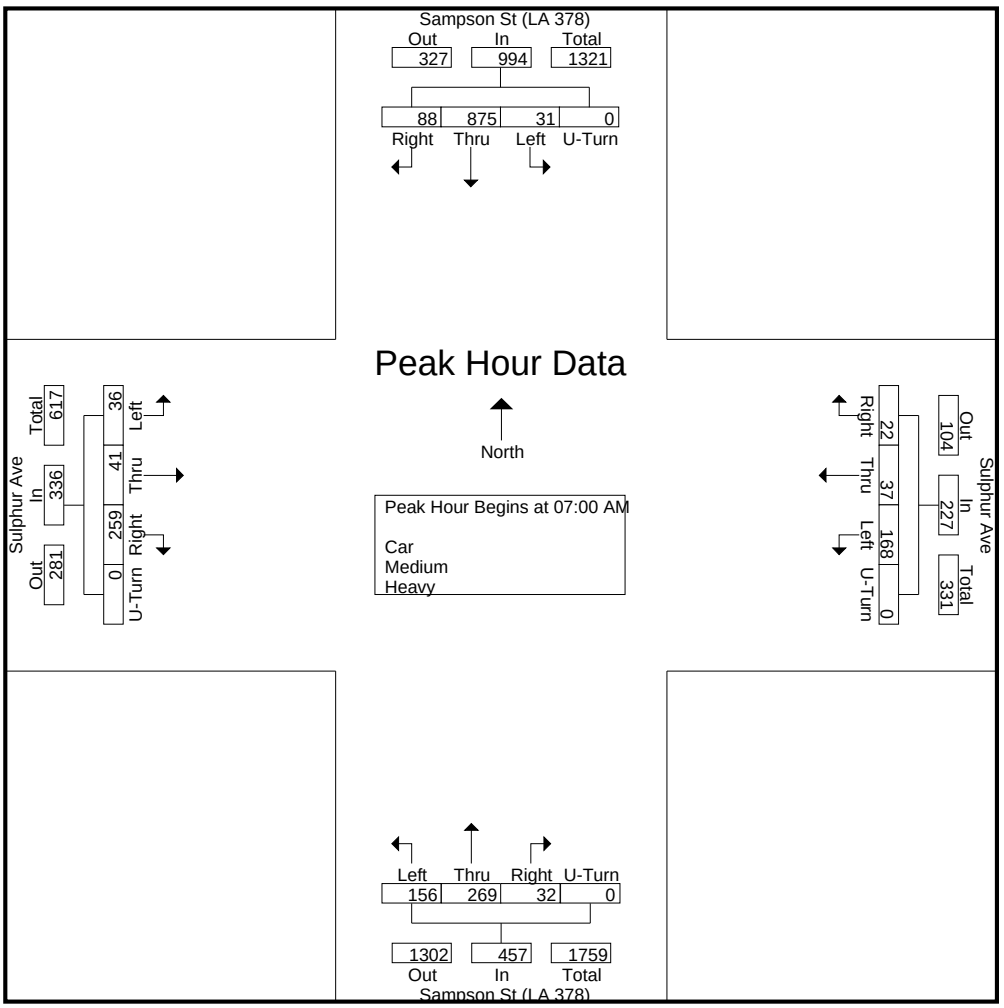
	Sampson St (LA 378) Southbound					Sulphur Ave Westbound					Sampson St (LA 378) Northbound					Sulphur Ave Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	4	180	**36**	0	220	39	9	2	0	50	45	52	8	0	105	7	9	49	0	65	440
07:15 AM	**11**	239	11	0	261	46	**16**	**13**	0	**75**	**46**	**95**	**10**	0	**151**	7	6	71	0	84	571
07:30 AM	10	**277**	21	0	**308**	**50**	4	6	0	60	38	59	10	0	107	**12**	**15**	**81**	0	**108**	**583**
07:45 AM	6	179	20	0	205	33	8	1	0	42	27	63	4	0	94	10	11	58	0	79	420
Total Volume	31	875	88	0	994	168	37	22	0	227	156	269	32	0	457	36	41	259	0	336	2014
% App. Total	3.1	88	8.9	0		74	16.3	9.7	0		34.1	58.9	7	0		10.7	12.2	77.1	0		
PHF	.705	.790	.611	.000	.807	.840	.578	.423	.000	.757	.848	.708	.800	.000	.757	.750	.683	.799	.000	.778	.864



Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Sampson St (LA 378) @ Sulpher
Site Code : 11-100
Start Date : 11/14/2012
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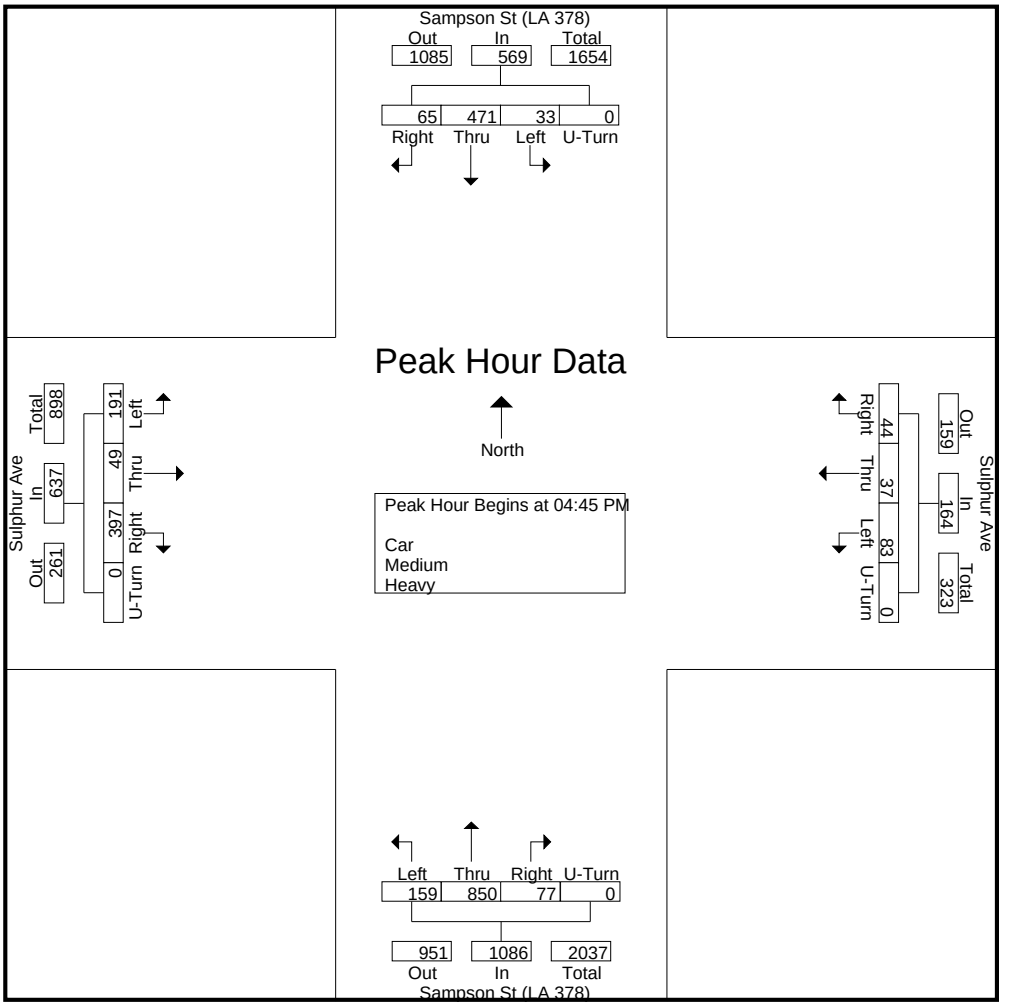
	Sampson St (LA 378) Southbound					Sulphur Ave Westbound					Sampson St (LA 378) Northbound					Sulphur Ave Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	**12**	119	16	0	147	**24**	9	**13**	0	**46**	47	237	22	0	306	40	9	**118**	0	167	666
05:00 PM	8	**125**	**20**	0	**153**	21	8	12	0	41	33	237	19	0	289	50	14	115	0	**179**	662
05:15 PM	6	123	11	0	140	16	8	8	0	32	**52**	**279**	**25**	0	**356**	48	**16**	81	0	145	**673**
05:30 PM	7	104	18	0	129	22	**12**	11	0	45	27	97	11	0	135	**53**	10	83	0	146	455
Total Volume	33	471	65	0	569	83	37	44	0	164	159	850	77	0	1086	191	49	397	0	637	2456
% App. Total	5.8	82.8	11.4	0		50.6	22.6	26.8	0		14.6	78.3	7.1	0		30	7.7	62.3	0		
PHF	.688	.942	.813	.000	.930	.865	.771	.846	.000	.891	.764	.762	.770	.000	.763	.901	.766	.841	.000	.890	.912



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New Orleans, LA 70130
504-523-5511

Miovision Scout
Turning Movement Count
Westlake, LA
Calcasieu Parish

File Name : Sampson St (LA 378) @ McKinley St
Site Code : 11-100
Start Date : 9/18/2012
Page No : 1

Groups Printed- Car - Medium - Heavy

	Sampson St (LA 378) Southbound					McKinley St Westbound					Sampson St (LA 378) Northbound					McKinley St Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
09:00 AM	11	113	3	0	127	13	4	3	0	20	2	62	6	0	70	2	3	2	0	7	224
09:15 AM	8	112	4	0	124	14	5	12	0	31	1	71	2	0	74	4	7	3	0	14	243
09:30 AM	3	109	3	0	115	14	7	7	0	28	2	64	9	0	75	3	7	3	0	13	231
09:45 AM	4	86	2	0	92	18	2	18	0	38	4	68	11	0	83	6	3	4	0	13	226
Total	26	420	12	0	458	59	18	40	0	117	9	265	28	0	302	15	20	12	0	47	924
10:00 AM	6	93	4	0	103	14	4	9	0	27	1	69	6	0	76	3	3	5	0	11	217
10:15 AM	8	88	2	0	98	11	7	11	0	29	2	78	8	0	88	1	2	5	0	8	223
10:30 AM	12	106	5	0	123	16	3	5	0	24	5	86	4	0	95	3	5	3	0	11	253
10:45 AM	7	77	3	0	87	16	2	13	0	31	2	77	5	0	84	4	4	1	0	9	211
Total	33	364	14	0	411	57	16	38	0	111	10	310	23	0	343	11	14	14	0	39	904
11:00 AM	8	88	4	0	100	12	5	7	0	24	3	97	19	0	119	4	5	2	0	11	254
11:15 AM	5	119	6	0	130	12	2	10	0	24	5	115	16	0	136	5	4	3	0	12	302
11:30 AM	3	140	4	0	147	12	4	13	0	29	5	128	19	0	152	14	7	7	0	28	356
11:45 AM	6	105	7	0	118	12	4	8	0	24	1	110	8	0	119	4	3	9	0	16	277
Total	22	452	21	0	495	48	15	38	0	101	14	450	62	0	526	27	19	21	0	67	1189
12:00 PM	1	101	10	0	112	11	6	7	0	24	5	123	12	1	141	7	9	1	0	17	294
12:15 PM	4	110	9	0	123	9	2	8	0	19	3	112	11	0	126	3	0	5	0	8	276
12:30 PM	3	120	6	0	129	10	8	6	0	24	2	123	6	0	131	6	6	2	0	14	298
12:45 PM	11	100	5	0	116	9	4	5	0	18	4	91	10	0	105	5	4	4	0	13	252
Total	19	431	30	0	480	39	20	26	0	85	14	449	39	1	503	21	19	12	0	52	1120
01:00 PM	10	112	4	0	126	12	1	7	0	20	2	104	15	0	121	4	4	5	0	13	280
01:15 PM	6	97	2	0	105	12	4	11	0	27	1	101	16	0	118	2	2	3	0	7	257
01:30 PM	7	91	3	0	101	13	4	11	0	28	4	95	14	0	113	10	4	4	0	18	260
01:45 PM	7	92	4	0	103	12	6	7	0	25	1	112	16	0	129	4	4	1	0	9	266
Total	30	392	13	0	435	49	15	36	0	100	8	412	61	0	481	20	14	13	0	47	1063
02:00 PM	2	86	3	0	91	18	2	6	0	26	4	122	11	0	137	6	4	1	0	11	265
02:15 PM	0	105	2	0	107	9	4	11	0	24	2	135	10	0	147	5	3	2	0	10	288
02:30 PM	3	99	5	0	107	12	7	10	0	29	2	134	12	0	148	4	5	1	0	10	294
02:45 PM	10	99	3	0	112	15	1	18	0	34	1	143	6	0	150	7	3	3	0	13	309
Total	15	389	13	0	417	54	14	45	0	113	9	534	39	0	582	22	15	7	0	44	1156
03:00 PM	14	121	2	0	137	15	8	20	0	43	4	150	11	0	165	1	6	3	0	10	355
03:15 PM	3	132	6	0	141	10	6	16	0	32	2	148	18	0	168	8	2	7	0	17	358
03:30 PM	6	123	3	0	132	11	4	6	0	21	2	235	22	0	259	9	9	7	0	25	437
03:45 PM	4	104	6	0	114	12	8	8	0	28	5	158	11	0	174	10	7	3	0	20	336
Total	27	480	17	0	524	48	26	50	0	124	13	691	62	0	766	28	24	20	0	72	1486
04:00 PM	9	104	2	0	115	15	7	9	0	31	6	273	16	0	295	7	7	6	0	20	461
04:15 PM	6	101	7	0	114	16	8	14	0	38	4	243	23	0	270	5	7	8	0	20	442
04:30 PM	7	126	4	0	137	19	9	7	0	35	4	232	23	0	259	9	6	4	0	19	450
04:45 PM	6	102	5	0	113	13	8	18	0	39	4	232	29	0	265	15	10	1	0	26	443
Total	28	433	18	0	479	63	32	48	0	143	18	980	91	0	1089	36	30	19	0	85	1796
05:00 PM	1	130	4	0	135	15	3	11	0	29	4	293	28	0	325	15	10	4	0	29	518
05:15 PM	5	105	8	0	118	14	6	14	0	34	6	320	23	0	349	11	4	6	0	21	522
05:30 PM	10	131	8	0	149	19	5	21	0	45	5	290	24	0	319	18	11	19	0	48	561
05:45 PM	6	106	3	0	115	18	6	13	0	37	4	211	18	0	233	9	8	3	0	20	405
Total	22	472	23	0	517	66	20	59	0	145	19	1114	93	0	1226	53	33	32	0	118	2006

Urban Systems Associates, Inc.

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File Name : Sampson St (LA 378) @ McKinley St
Site Code : 11-100
Start Date : 9/18/2012
Page No : 2

Groups Printed- Car - Medium - Heavy

	Sampson St (LA 378) Southbound					McKinley St Westbound					Sampson St (LA 378) Northbound					McKinley St Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
06:00 PM	3	79	4	0	86	14	5	17	0	36	3	143	16	0	162	5	4	2	0	11	295
06:15 PM	7	99	6	0	112	12	3	8	0	23	4	148	15	0	167	4	2	1	0	7	309
06:30 PM	7	94	4	0	105	12	4	8	0	24	3	116	8	0	127	6	2	2	0	10	266
06:45 PM	2	74	4	0	80	12	1	7	0	20	1	150	15	0	166	4	3	3	0	10	276
Total	19	346	18	0	383	50	13	40	0	103	11	557	54	0	622	19	11	8	0	38	1146
07:00 PM	5	84	5	0	94	15	2	6	0	23	3	135	8	0	146	4	3	0	0	7	270
07:15 PM	4	80	7	0	91	7	3	2	0	12	2	102	16	0	120	12	3	2	0	17	240
07:30 PM	3	71	2	0	76	3	2	7	0	12	2	93	6	0	101	3	2	6	0	11	200
07:45 PM	3	78	3	0	84	5	2	7	0	14	3	103	10	0	116	2	3	2	0	7	221
Total	15	313	17	0	345	30	9	22	0	61	10	433	40	0	483	21	11	10	0	42	931
08:00 PM	0	58	2	0	60	4	0	10	0	14	5	101	9	0	115	3	2	1	0	6	195
08:15 PM	3	57	3	0	63	4	1	2	0	7	3	77	15	0	95	1	4	2	0	7	172
08:30 PM	0	39	3	0	42	2	2	1	0	5	2	70	9	0	81	3	1	1	0	5	133
08:45 PM	3	53	0	0	56	2	2	5	0	9	2	84	10	0	96	2	3	1	0	6	167
Total	6	207	8	0	221	12	5	18	0	35	12	332	43	0	387	9	10	5	0	24	667
09:00 PM	4	37	4	0	45	2	1	6	0	9	4	54	4	0	62	4	3	0	0	7	123
09:15 PM	2	23	5	0	30	7	1	2	0	10	2	45	5	0	52	0	4	3	0	7	99
09:30 PM	3	31	1	0	35	1	2	1	0	4	1	44	1	0	46	2	2	3	0	7	92
09:45 PM	4	33	1	0	38	0	2	3	0	5	0	31	1	0	32	1	2	0	0	3	78
Total	13	124	11	0	148	10	6	12	0	28	7	174	11	0	192	7	11	6	0	24	392
10:00 PM	2	28	0	0	30	1	0	0	0	1	1	32	3	0	36	2	0	0	0	2	69
10:15 PM	1	23	2	0	26	0	1	0	0	1	1	31	3	0	35	0	1	0	0	1	63
10:30 PM	0	17	0	0	17	1	0	0	0	1	1	21	1	0	23	0	1	0	0	1	42
10:45 PM	0	6	0	0	6	1	0	0	0	1	0	23	3	0	26	1	0	0	0	1	34
Total	3	74	2	0	79	3	1	0	0	4	3	107	10	0	120	3	2	0	0	5	208
11:00 PM	1	12	0	0	13	0	0	0	0	0	0	16	1	0	17	0	0	0	0	0	30
11:15 PM	0	7	2	0	9	1	0	1	0	2	0	19	1	0	20	0	0	2	0	2	33
11:30 PM	0	10	2	0	12	1	0	2	0	3	1	15	2	0	18	0	0	0	0	0	33
11:45 PM	1	5	0	0	6	1	0	0	0	1	0	18	0	0	18	0	0	1	0	1	26
Total	2	34	4	0	40	3	0	3	0	6	1	68	4	0	73	0	0	3	0	3	122
12:00 AM	0	5	1	0	6	1	0	0	0	1	0	7	2	0	9	0	0	0	0	0	16
12:15 AM	0	8	0	0	8	1	0	1	0	2	0	10	1	0	11	0	0	0	0	0	21
12:30 AM	0	7	1	0	8	0	0	0	0	0	0	8	2	0	10	0	0	0	0	0	18
12:45 AM	1	5	1	0	7	1	0	1	0	2	0	6	0	0	6	0	0	0	0	0	15
Total	1	25	3	0	29	3	0	2	0	5	0	31	5	0	36	0	0	0	0	0	70
01:00 AM	0	3	0	0	3	0	0	0	0	0	1	5	2	0	8	0	0	0	0	0	11
01:15 AM	0	3	0	0	3	0	1	0	0	1	0	8	0	0	8	1	0	0	0	1	13
01:30 AM	1	3	0	0	4	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	5
01:45 AM	0	5	0	0	5	0	0	0	0	0	0	7	1	0	8	0	0	0	0	0	13
Total	1	14	0	0	15	0	1	0	0	1	1	21	3	0	25	1	0	0	0	1	42
02:00 AM	0	3	0	0	3	1	0	0	0	1	0	9	1	0	10	0	0	0	0	0	14
02:15 AM	0	4	0	0	4	0	0	1	0	1	0	12	0	0	12	0	0	0	0	0	17
02:30 AM	0	9	0	0	9	1	0	0	0	1	0	5	0	0	5	0	0	0	0	0	15
02:45 AM	0	4	0	0	4	1	0	0	0	1	0	11	0	0	11	0	0	0	0	0	16
Total	0	20	0	0	20	3	0	1	0	4	0	37	1	0	38	0	0	0	0	0	62
03:00 AM	0	8	0	0	8	0	0	0	0	0	0	10	1	0	11	0	0	0	0	0	19
03:15 AM	2	13	0	0	15	1	0	0	0	1	0	6	0	0	6	0	0	0	0	0	22
03:30 AM	0	9	0	0	9	1	0	0	0	1	0	9	2	0	11	0	0	1	0	1	22

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
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504-523-5511

File Name : Sampson St (LA 378) @ McKinley St
Site Code : 11-100
Start Date : 9/18/2012
Page No : 3

Groups Printed- Car - Medium - Heavy

	Sampson St (LA 378) Southbound					McKinley St Westbound					Sampson St (LA 378) Northbound					McKinley St Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
03:45 AM	0	18	0	0	18	3	0	0	0	3	0	8	2	0	10	0	1	0	0	1	32
Total	2	48	0	0	50	5	0	0	0	5	0	33	5	0	38	0	1	1	0	2	95
04:00 AM	0	31	1	0	32	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	35
04:15 AM	1	38	2	0	41	3	0	0	0	3	0	10	3	0	13	1	0	1	0	2	59
04:30 AM	0	48	3	0	51	3	1	0	0	4	1	15	2	0	18	0	0	0	0	0	73
04:45 AM	1	62	2	0	65	6	0	4	0	10	0	24	1	0	25	0	0	0	0	0	100
Total	2	179	8	0	189	12	1	4	0	17	1	52	6	0	59	1	0	1	0	2	267
05:00 AM	1	86	3	0	90	4	3	0	0	7	1	22	0	0	23	0	0	2	0	2	122
05:15 AM	1	117	0	0	118	6	2	4	0	12	0	35	1	0	36	0	1	1	0	2	168
05:30 AM	0	144	4	0	148	6	1	1	0	8	1	39	4	0	44	0	4	0	0	4	204
05:45 AM	0	184	5	0	189	13	2	2	0	17	1	30	4	0	35	0	2	1	0	3	244
Total	2	531	12	0	545	29	8	7	0	44	3	126	9	0	138	0	7	4	0	11	738
06:00 AM	3	182	2	0	187	17	4	2	0	23	0	48	2	0	50	0	1	3	0	4	264
06:15 AM	0	238	6	0	244	12	1	7	0	20	9	35	2	0	46	1	4	1	0	6	316
06:30 AM	3	233	10	0	246	32	5	5	0	42	11	57	6	0	74	1	5	2	0	8	370
06:45 AM	1	199	10	0	210	15	8	2	0	25	10	52	5	0	67	7	3	3	0	13	315
Total	7	852	28	0	887	76	18	16	0	110	30	192	15	0	237	9	13	9	0	31	1265
07:00 AM	5	209	6	0	220	26	4	14	0	44	2	53	6	0	61	2	4	2	0	8	333
07:15 AM	9	253	10	0	272	22	16	8	0	46	2	100	6	0	108	5	16	5	0	26	452
07:30 AM	9	259	7	0	275	23	8	18	0	49	1	76	3	0	80	3	6	2	0	11	415
07:45 AM	6	208	4	0	218	26	8	5	0	39	0	78	6	0	84	4	8	5	0	17	358
Total	29	929	27	0	985	97	36	45	0	178	5	307	21	0	333	14	34	14	0	62	1558
08:00 AM	1	167	4	0	172	22	4	5	0	31	2	57	8	0	67	1	4	1	0	6	276
08:15 AM	4	133	1	0	138	13	4	8	0	25	1	55	5	0	61	4	7	6	0	17	241
08:30 AM	9	122	3	0	134	15	2	11	0	28	0	50	7	0	57	0	3	7	0	10	229
08:45 AM	7	124	0	0	131	14	2	11	0	27	0	58	8	0	66	3	4	2	0	9	233
Total	21	546	8	0	575	64	12	35	0	111	3	220	28	0	251	8	18	16	0	42	979
Grand Total	345	8075	307	0	8727	880	286	585	0	1751	201	7895	753	1	8850	325	306	227	0	858	20186
Apprch %	4	92.5	3.5	0		50.3	16.3	33.4	0		2.3	89.2	8.5	0		37.9	35.7	26.5	0		
Total %	1.7	40	1.5	0	43.2	4.4	1.4	2.9	0	8.7	1	39.1	3.7	0	43.8	1.6	1.5	1.1	0	4.3	
Car	344	7942	297	0	8583	872	280	580	0	1732	199	7750	743	1	8693	320	298	218	0	836	19844
% Car	99.7	98.4	96.7	0	98.3	99.1	97.9	99.1	0	98.9	99	98.2	98.7	100	98.2	98.5	97.4	96	0	97.4	98.3
Medium	1	79	7	0	87	6	6	4	0	16	2	97	7	0	106	5	8	7	0	20	229
% Medium	0.3	1	2.3	0	1	0.7	2.1	0.7	0	0.9	1	1.2	0.9	0	1.2	1.5	2.6	3.1	0	2.3	1.1
Heavy	0	54	3	0	57	2	0	1	0	3	0	48	3	0	51	0	0	2	0	2	113
% Heavy	0	0.7	1	0	0.7	0.2	0	0.2	0	0.2	0	0.6	0.4	0	0.6	0	0	0.9	0	0.2	0.6

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400 N Peters Street, Suite 206
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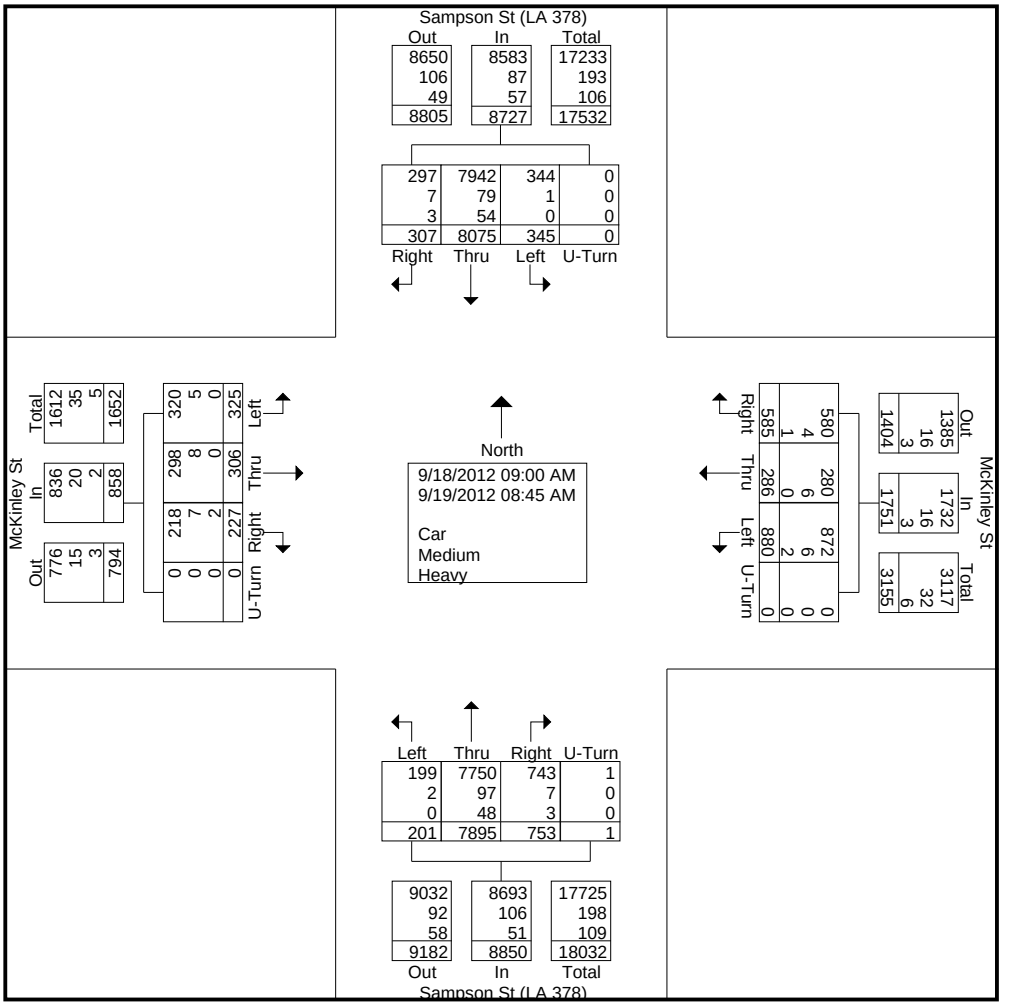
504-523-5511

File Name : Sampson St (LA 378) @ McKinley St
Site Code : 11-100
Start Date : 9/18/2012
Page No : 4



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400 N Peters Street, Suite 206
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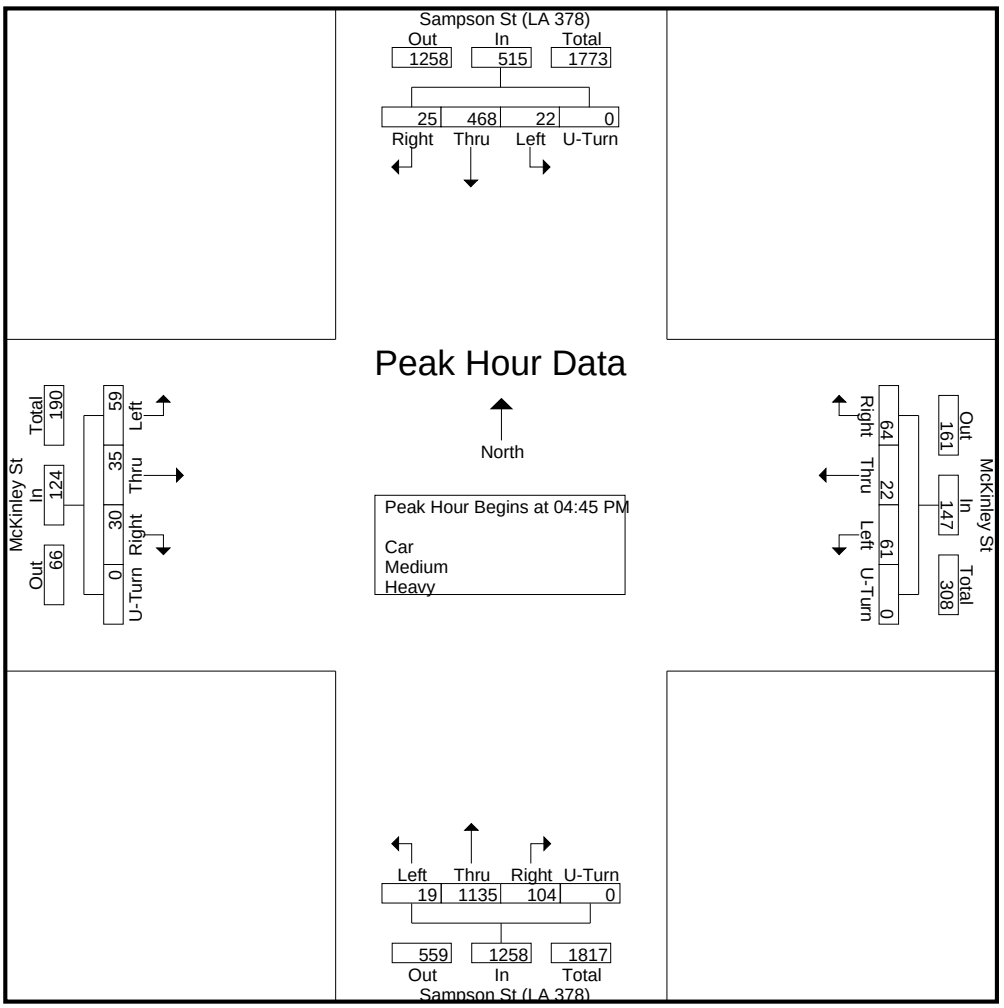
504-523-5511

File Name : Sampson St (LA 378) @ McKinley St
Site Code : 11-100
Start Date : 9/18/2012
Page No : 5

	Sampson St (LA 378) Southbound					McKinley St Westbound					Sampson St (LA 378) Northbound					McKinley St Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	6	102	5	0	113	13	**8**	18	0	39	4	232	**29**	0	265	15	10	1	0	26	443
05:00 PM	1	130	4	0	135	15	3	11	0	29	4	293	28	0	325	15	10	4	0	29	518
05:15 PM	5	105	**8**	0	118	14	6	14	0	34	**6**	**320**	23	0	**349**	11	4	6	0	21	522
05:30 PM	**10**	**131**	8	0	**149**	**19**	5	**21**	0	**45**	5	290	24	0	319	**18**	**11**	**19**	0	**48**	**561**
Total Volume	22	468	25	0	515	61	22	64	0	147	19	1135	104	0	1258	59	35	30	0	124	2044
% App. Total	4.3	90.9	4.9	0		41.5	15	43.5	0		1.5	90.2	8.3	0		47.6	28.2	24.2	0		
PHF	.550	.893	.781	.000	.864	.803	.688	.762	.000	.817	.792	.887	.897	.000	.901	.819	.795	.395	.000	.646	.911



Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
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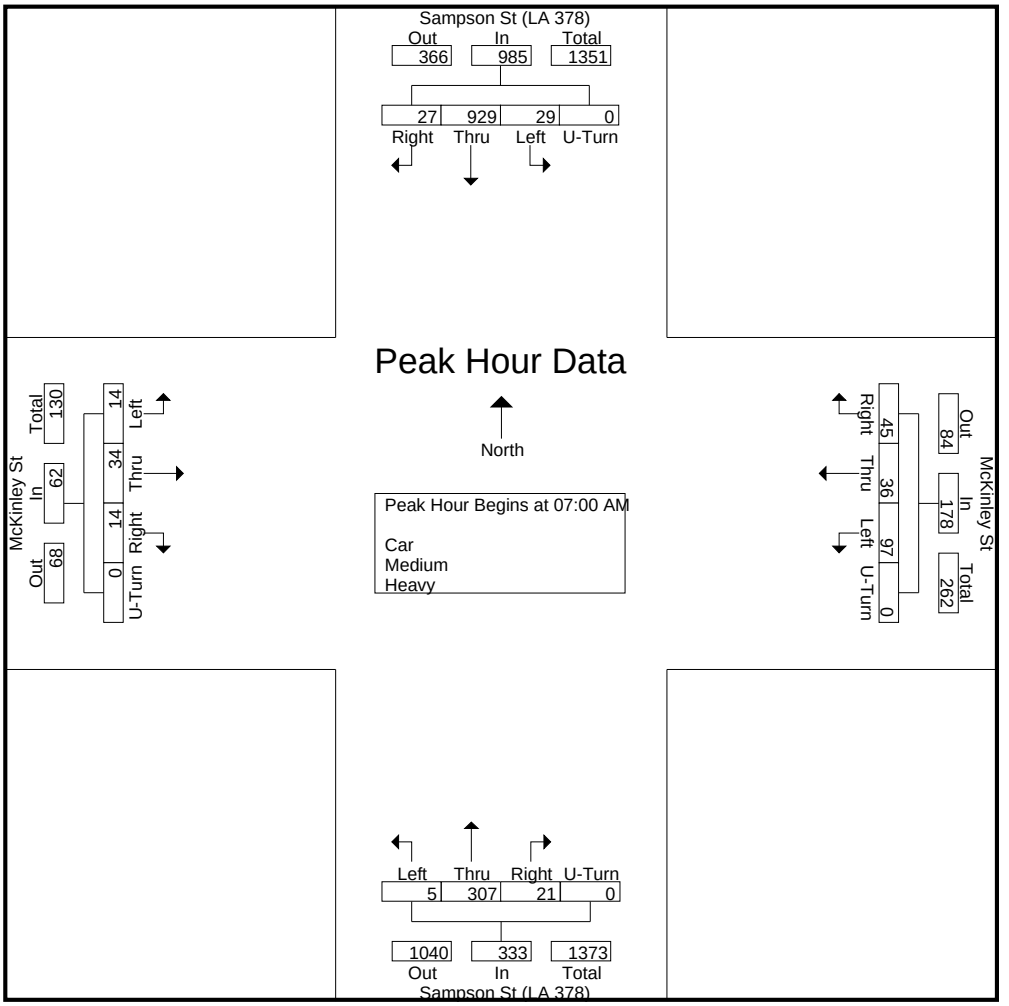
504-523-5511

File Name : Sampson St (LA 378) @ McKinley St
Site Code : 11-100
Start Date : 9/18/2012
Page No : 6

	Sampson St (LA 378) Southbound					McKinley St Westbound					Sampson St (LA 378) Northbound					McKinley St Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	5	209	6	0	220	**26**	4	14	0	44	**2**	53	**6**	0	61	2	4	2	0	8	333
07:15 AM	**9**	253	**10**	0	272	22	**16**	8	0	46	2	**100**	6	0	**108**	**5**	**16**	**5**	0	**26**	**452**
07:30 AM	9	**259**	7	0	**275**	23	8	**18**	0	**49**	1	76	3	0	80	3	6	2	0	11	415
07:45 AM	6	208	4	0	218	26	8	5	0	39	0	78	6	0	84	4	8	5	0	17	358
Total Volume	29	929	27	0	985	97	36	45	0	178	5	307	21	0	333	14	34	14	0	62	1558
% App. Total	2.9	94.3	2.7	0		54.5	20.2	25.3	0		1.5	92.2	6.3	0		22.6	54.8	22.6	0		
PHF	.806	.897	.675	.000	.895	.933	.563	.625	.000	.908	.625	.768	.875	.000	.771	.700	.531	.700	.000	.596	.862



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400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Miovision Scout
Turning Movement Count
Westlake, LA
Calcasieu Parish

File Name : Westwood_Sampson (LA 378) @ John Stine Rd
Site Code : 11-100
Start Date : 9/18/2012
Page No : 1

Groups Printed- Car - Medium - Heavy

	Westwood Rd (LA 378) Southbound					John Stine Rd Westbound					Sampson St (LA 378) Northbound					John Stine Rd Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
11:45 AM	1	71	12	0	84	16	3	2	0	21	10	79	19	0	108	17	7	4	0	28	241
Total	1	71	12	0	84	16	3	2	0	21	10	79	19	0	108	17	7	4	0	28	241
12:00 PM	0	76	5	0	81	16	3	0	0	19	9	80	11	0	100	12	6	8	0	26	226
12:15 PM	2	72	12	0	86	13	4	1	0	18	7	85	4	0	96	8	6	6	0	20	220
12:30 PM	2	85	12	0	99	13	5	3	0	21	9	90	19	0	118	16	4	8	0	28	266
12:45 PM	2	76	13	0	91	10	5	2	0	17	7	83	13	0	103	10	3	10	0	23	234
Total	6	309	42	0	357	52	17	6	0	75	32	338	47	0	417	46	19	32	0	97	946
01:00 PM	2	104	8	0	114	14	7	2	0	23	7	83	16	0	106	15	5	7	0	27	270
01:15 PM	1	79	10	0	90	14	5	3	0	22	7	72	22	0	101	15	5	11	0	31	244
01:30 PM	1	76	12	0	89	11	7	4	0	22	9	84	14	0	107	8	1	5	0	14	232
01:45 PM	2	71	8	0	81	23	5	1	0	29	12	79	18	0	109	8	6	9	0	23	242
Total	6	330	38	0	374	62	24	10	0	96	35	318	70	0	423	46	17	32	0	95	988
02:00 PM	2	73	8	0	83	20	7	0	0	27	8	86	18	0	112	16	5	7	0	28	250
02:15 PM	4	65	10	0	79	18	5	2	0	25	8	91	18	0	117	14	7	13	0	34	255
02:30 PM	2	88	16	0	106	29	7	1	0	37	6	100	21	0	127	24	6	6	0	36	306
02:45 PM	1	82	13	0	96	13	9	0	0	22	13	107	14	0	134	25	5	11	0	41	293
Total	9	308	47	0	364	80	28	3	0	111	35	384	71	0	490	79	23	37	0	139	1104
03:00 PM	2	60	11	0	73	24	10	2	0	36	22	128	30	0	180	28	19	7	0	54	343
03:15 PM	1	88	20	0	109	13	11	0	0	24	12	105	26	0	143	33	18	10	0	61	337
03:30 PM	3	82	22	0	107	13	7	2	0	22	13	189	30	0	232	38	22	9	0	69	430
03:45 PM	1	65	15	0	81	23	10	1	0	34	7	116	28	0	151	32	10	10	0	52	318
Total	7	295	68	0	370	73	38	5	0	116	54	538	114	0	706	131	69	36	0	236	1428
04:00 PM	1	85	15	0	101	21	15	3	0	39	12	197	23	0	232	29	12	9	0	50	422
04:15 PM	2	72	9	0	83	17	6	0	0	23	15	178	38	0	231	27	15	6	0	48	385
04:30 PM	2	98	14	0	114	22	10	3	0	35	17	176	34	0	227	34	14	5	0	53	429
04:45 PM	2	82	17	0	101	27	11	0	0	38	11	183	28	0	222	38	15	6	0	59	420
Total	7	337	55	0	399	87	42	6	0	135	55	734	123	0	912	128	56	26	0	210	1656
05:00 PM	0	72	14	0	86	16	10	4	0	30	19	220	49	0	288	46	14	14	0	74	478
05:15 PM	1	96	11	0	108	27	15	2	0	44	20	240	41	0	301	49	5	14	0	68	521
05:30 PM	2	102	15	0	119	23	11	2	0	36	14	235	48	0	297	41	12	19	0	72	524
05:45 PM	1	84	7	0	92	17	9	7	0	33	18	181	41	0	240	36	14	8	0	58	423
Total	4	354	47	0	405	83	45	15	0	143	71	876	179	0	1126	172	45	55	0	272	1946
06:00 PM	3	63	8	0	74	22	3	1	0	26	14	154	26	0	194	24	12	5	0	41	335
06:15 PM	1	78	10	0	89	17	6	0	0	23	7	95	18	0	120	20	13	8	0	41	273
06:30 PM	4	78	9	0	91	20	4	0	0	24	9	102	26	0	137	23	3	9	0	35	287
06:45 PM	1	52	9	0	62	17	4	2	0	23	7	98	25	0	130	15	15	8	0	38	253
Total	9	271	36	0	316	76	17	3	0	96	37	449	95	0	581	82	43	30	0	155	1148
07:00 PM	3	68	5	0	76	11	8	0	0	19	10	107	19	1	137	14	4	7	0	25	257
07:15 PM	2	89	13	0	104	15	7	1	0	23	4	97	24	0	125	17	7	8	0	32	284
07:30 PM	2	53	16	0	71	12	7	1	0	20	7	88	11	0	106	14	6	12	0	32	229
07:45 PM	0	44	8	0	52	13	9	3	0	25	10	77	13	0	100	12	5	17	0	34	211
Total	7	254	42	0	303	51	31	5	0	87	31	369	67	1	468	57	22	44	0	123	981
08:00 PM	0	38	11	0	49	12	6	0	0	18	9	93	18	0	120	9	10	3	0	22	209

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Westwood_Sampson (LA 378) @ John Stine Rd
Site Code : 11-100
Start Date : 9/18/2012
Page No : 2

Groups Printed- Car - Medium - Heavy

	Westwood Rd (LA 378) Southbound					John Stine Rd Westbound					Sampson St (LA 378) Northbound					John Stine Rd Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
08:15 PM	1	37	6	0	44	11	4	0	0	15	4	67	14	0	85	6	5	4	0	15	159
08:30 PM	1	42	9	0	52	4	8	0	0	12	10	53	12	0	75	4	1	3	0	8	147
08:45 PM	0	36	3	0	39	7	1	0	0	8	9	56	21	0	86	14	8	14	0	36	169
Total	2	153	29	0	184	34	19	0	0	53	32	269	65	0	366	33	24	24	0	81	684
09:00 PM	1	32	3	0	36	3	3	0	0	6	4	43	11	0	58	6	3	3	0	12	112
09:15 PM	0	25	6	0	31	4	1	0	0	5	4	34	8	0	46	4	5	2	0	11	93
09:30 PM	0	35	6	0	41	6	1	0	0	7	3	39	12	0	54	0	3	1	0	4	106
09:45 PM	2	24	1	0	27	5	0	0	0	5	0	18	11	0	29	2	2	2	0	6	67
Total	3	116	16	0	135	18	5	0	0	23	11	134	42	0	187	12	13	8	0	33	378
10:00 PM	0	19	0	0	19	4	0	0	0	4	1	32	5	0	38	1	2	0	0	3	64
10:15 PM	1	16	2	0	19	3	0	1	0	4	1	26	1	0	28	3	2	0	0	5	56
10:30 PM	0	14	1	0	15	2	2	0	0	4	1	16	3	0	20	5	0	3	0	8	47
10:45 PM	0	6	0	0	6	1	1	0	0	2	0	21	2	0	23	3	1	0	0	4	35
Total	1	55	3	0	59	10	3	1	0	14	3	95	11	0	109	12	5	3	0	20	202
11:00 PM	0	9	2	0	11	2	1	0	0	3	0	12	1	0	13	1	1	2	0	4	31
11:15 PM	0	7	1	0	8	0	1	1	0	2	1	15	3	0	19	0	0	1	0	1	30
11:30 PM	0	5	1	0	6	0	0	0	0	0	1	13	0	0	14	3	1	0	0	4	24
11:45 PM	0	4	2	0	6	0	0	0	0	0	1	9	1	0	11	2	0	0	0	2	19
Total	0	25	6	0	31	2	2	1	0	5	3	49	5	0	57	6	2	3	0	11	104
12:00 AM	0	2	0	0	2	0	1	0	0	1	0	2	0	0	2	1	1	0	0	2	7
12:15 AM	1	4	0	0	5	2	1	0	0	3	1	6	2	0	9	2	1	1	0	4	21
12:30 AM	0	5	0	0	5	2	0	0	0	2	0	3	2	0	5	0	0	0	0	0	12
12:45 AM	0	2	0	0	2	0	0	0	0	0	0	5	1	0	6	1	0	0	0	1	9
Total	1	13	0	0	14	4	2	0	0	6	1	16	5	0	22	4	2	1	0	7	49
01:00 AM	0	5	0	0	5	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	9
01:15 AM	0	2	1	0	3	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	6
01:30 AM	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	6
01:45 AM	0	2	0	0	2	0	1	0	0	1	0	4	1	0	5	0	0	0	0	0	8
Total	0	11	1	0	12	0	1	0	0	1	0	15	1	0	16	0	0	0	0	0	29
02:00 AM	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	1	0	0	0	1	7
02:15 AM	0	4	0	0	4	1	0	0	0	1	0	8	3	0	11	0	0	0	0	0	16
02:30 AM	0	9	0	0	9	1	0	0	0	1	0	3	1	0	4	0	0	0	0	0	14
02:45 AM	0	0	1	0	1	0	0	0	0	0	0	7	0	0	7	1	0	0	0	1	9
Total	0	15	1	0	16	2	0	0	0	2	0	22	4	0	26	2	0	0	0	2	46
03:00 AM	0	6	0	0	6	1	0	0	0	1	2	3	2	0	7	0	1	1	0	2	16
03:15 AM	0	11	0	0	11	2	0	0	0	2	1	2	1	0	4	0	0	0	0	0	17
03:30 AM	0	10	0	0	10	1	0	0	0	1	0	12	0	0	12	0	0	0	0	0	23
03:45 AM	0	17	0	0	17	4	0	0	0	4	1	4	1	0	6	1	1	0	0	2	29
Total	0	44	0	0	44	8	0	0	0	8	4	21	4	0	29	1	2	1	0	4	85
04:00 AM	0	36	3	0	39	1	0	0	0	1	0	4	2	0	6	3	1	0	0	4	50
04:15 AM	0	26	5	0	31	5	0	0	0	5	0	9	0	0	9	1	1	1	0	3	48
04:30 AM	0	47	2	0	49	1	1	0	0	2	1	9	0	0	10	5	1	1	0	7	68
04:45 AM	0	52	4	0	56	2	2	0	0	4	0	18	0	0	18	3	2	2	0	7	85
Total	0	161	14	0	175	9	3	0	0	12	1	40	2	0	43	12	5	4	0	21	251
05:00 AM	0	89	2	0	91	4	1	0	0	5	2	22	1	0	25	3	0	2	0	5	126
05:15 AM	0	112	6	0	118	7	0	1	0	8	0	26	2	0	28	3	2	2	0	7	161
05:30 AM	0	142	12	0	154	11	1	0	0	12	5	25	3	0	33	1	0	5	0	6	205
05:45 AM	0	173	13	0	186	10	1	0	0	11	0	19	0	0	19	5	0	4	0	9	225
Total	0	516	33	0	549	32	3	1	0	36	7	92	6	0	105	12	2	13	0	27	717

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Westwood_Sampson (LA 378) @ John Stine Rd
Site Code : 11-100
Start Date : 9/18/2012
Page No : 3

Groups Printed- Car - Medium - Heavy

	Westwood Rd (LA 378) Southbound					John Stine Rd Westbound					Sampson St (LA 378) Northbound					John Stine Rd Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
06:00 AM	0	170	14	0	184	14	11	1	0	26	3	22	4	0	29	5	3	5	0	13	252
06:15 AM	1	212	24	0	237	25	16	1	0	42	1	29	1	0	31	8	8	6	0	22	332
06:30 AM	0	190	24	0	214	31	4	2	0	37	4	41	3	0	48	13	2	3	0	18	317
06:45 AM	0	178	19	0	197	32	7	0	0	39	1	26	7	0	34	12	2	12	0	26	296
Total	1	750	81	0	832	102	38	4	0	144	9	118	15	0	142	38	15	26	0	79	1197
07:00 AM	0	201	23	0	224	30	17	2	0	49	1	33	8	0	42	17	2	15	0	34	349
07:15 AM	0	196	28	0	224	43	22	3	0	68	4	60	10	0	74	20	6	23	0	49	415
07:30 AM	1	197	36	0	234	37	13	1	0	51	7	65	12	0	84	20	11	19	0	50	419
07:45 AM	0	161	15	0	176	21	7	3	0	31	6	63	13	0	82	14	3	8	0	25	314
Total	1	755	102	0	858	131	59	9	0	199	18	221	43	0	282	71	22	65	0	158	1497
08:00 AM	0	134	10	0	144	21	3	0	0	24	9	28	5	0	42	12	4	9	0	25	235
08:15 AM	1	111	9	0	121	14	6	3	0	23	5	46	5	0	56	12	2	7	0	21	221
08:30 AM	0	110	5	0	115	18	3	1	0	22	6	41	11	0	58	6	3	6	0	15	210
08:45 AM	0	92	7	0	99	16	6	1	0	23	7	56	9	0	72	12	0	6	0	18	212
Total	1	447	31	0	479	69	18	5	0	92	27	171	30	0	228	42	9	28	0	79	878
09:00 AM	4	77	7	0	88	15	7	4	0	26	3	45	7	0	55	10	2	9	0	21	190
09:15 AM	0	97	10	0	107	15	6	1	0	22	6	42	10	0	58	11	1	9	0	21	208
09:30 AM	1	88	7	0	96	11	2	1	0	14	8	53	11	0	72	12	3	13	0	28	210
09:45 AM	2	86	11	0	99	19	4	4	0	27	7	53	10	0	70	11	4	8	0	23	219
Total	7	348	35	0	390	60	19	10	0	89	24	193	38	0	255	44	10	39	0	93	827
10:00 AM	4	70	7	0	81	12	3	1	0	16	5	53	10	0	68	15	5	9	0	29	194
10:15 AM	0	82	5	0	87	9	2	2	0	13	8	62	13	0	83	9	2	9	0	20	203
10:30 AM	1	76	7	0	84	15	2	1	0	18	5	45	8	0	58	11	2	10	0	23	183
10:45 AM	3	74	7	0	84	13	2	2	0	17	10	53	11	0	74	8	4	9	0	21	196
Total	8	302	26	0	336	49	9	6	0	64	28	213	42	0	283	43	13	37	0	93	776
11:00 AM	2	57	7	0	66	11	3	1	0	15	4	75	14	0	93	10	5	3	0	18	192
11:15 AM	0	70	8	0	78	14	5	1	0	20	3	86	10	0	99	13	7	7	0	27	224
11:30 AM	1	75	11	0	87	14	4	0	0	18	6	77	16	0	99	16	3	7	0	26	230
Grand Total	84	6442	791	0	7317	1149	438	94	0	1681	541	5992	1138	1	7672	1129	440	565	0	2134	18804
Apprch %	1.1	88	10.8	0		68.4	26.1	5.6	0		7.1	78.1	14.8	0		52.9	20.6	26.5	0		
Total %	0.4	34.3	4.2	0	38.9	6.1	2.3	0.5	0	8.9	2.9	31.9	6.1	0	40.8	6	2.3	3	0	11.3	
Car	83	6355	754	0	7192	1136	426	92	0	1654	524	5919	1123	0	7566	1093	432	555	0	2080	18492
% Car	98.8	98.6	95.3	0	98.3	98.9	97.3	97.9	0	98.4	96.9	98.8	98.7	0	98.6	96.8	98.2	98.2	0	97.5	98.3
Medium	1	61	27	0	89	6	8	2	0	16	8	53	9	0	70	26	3	7	0	36	211
% Medium	1.2	0.9	3.4	0	1.2	0.5	1.8	2.1	0	1	1.5	0.9	0.8	0	0.9	2.3	0.7	1.2	0	1.7	1.1
Heavy	0	26	10	0	36	7	4	0	0	11	9	20	6	1	36	10	5	3	0	18	101
% Heavy	0	0.4	1.3	0	0.5	0.6	0.9	0	0	0.7	1.7	0.3	0.5	100	0.5	0.9	1.1	0.5	0	0.8	0.5

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400 N Peters Street, Suite 206
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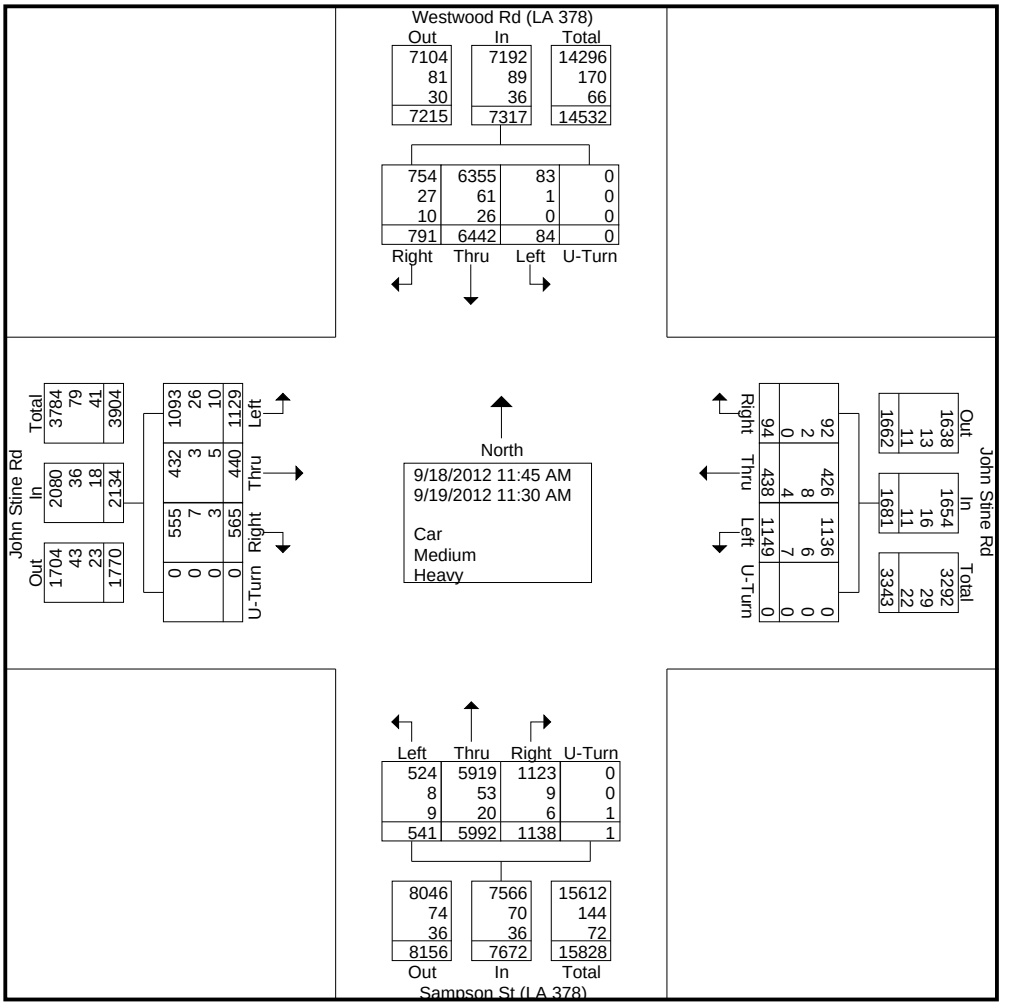
504-523-5511

File Name : Westwood_Sampson (LA 378) @ John Stine Rd
Site Code : 11-100
Start Date : 9/18/2012
Page No : 4



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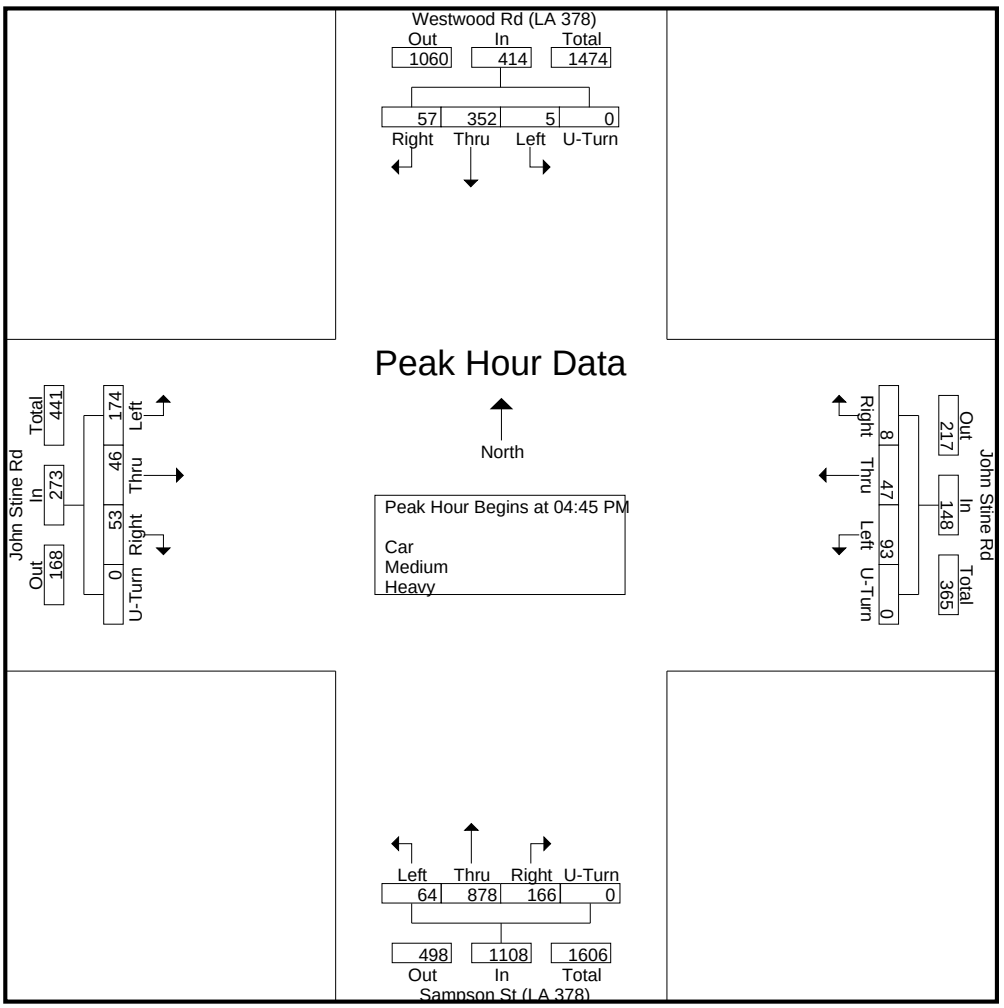
504-523-5511

File Name : Westwood_Sampson (LA 378) @ John Stine Rd
Site Code : 11-100
Start Date : 9/18/2012
Page No : 5

	Westwood Rd (LA 378) Southbound					John Stine Rd Westbound					Sampson St (LA 378) Northbound					John Stine Rd Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	**2**	82	**17**	0	101	**27**	11	0	0	38	11	183	28	0	222	38	**15**	6	0	59	420
05:00 PM	0	72	14	0	86	16	10	**4**	0	30	19	220	**49**	0	288	46	14	14	0	**74**	478
05:15 PM	1	96	11	0	108	27	**15**	2	0	**44**	**20**	**240**	41	0	**301**	**49**	5	14	0	68	521
05:30 PM	2	**102**	15	0	**119**	23	11	2	0	36	14	235	48	0	297	41	12	**19**	0	72	**524**
Total Volume	5	352	57	0	414	93	47	8	0	148	64	878	166	0	1108	174	46	53	0	273	1943
% App. Total	1.2	85	13.8	0		62.8	31.8	5.4	0		5.8	79.2	15	0		63.7	16.8	19.4	0		
PHF	.625	.863	.838	.000	.870	.861	.783	.500	.000	.841	.800	.915	.847	.000	.920	.888	.767	.697	.000	.922	.927



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400 N Peters Street, Suite 206
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504-523-5511

File Name : Westwood_Sampson (LA 378) @ John Stine Rd
Site Code : 11-100
Start Date : 9/18/2012
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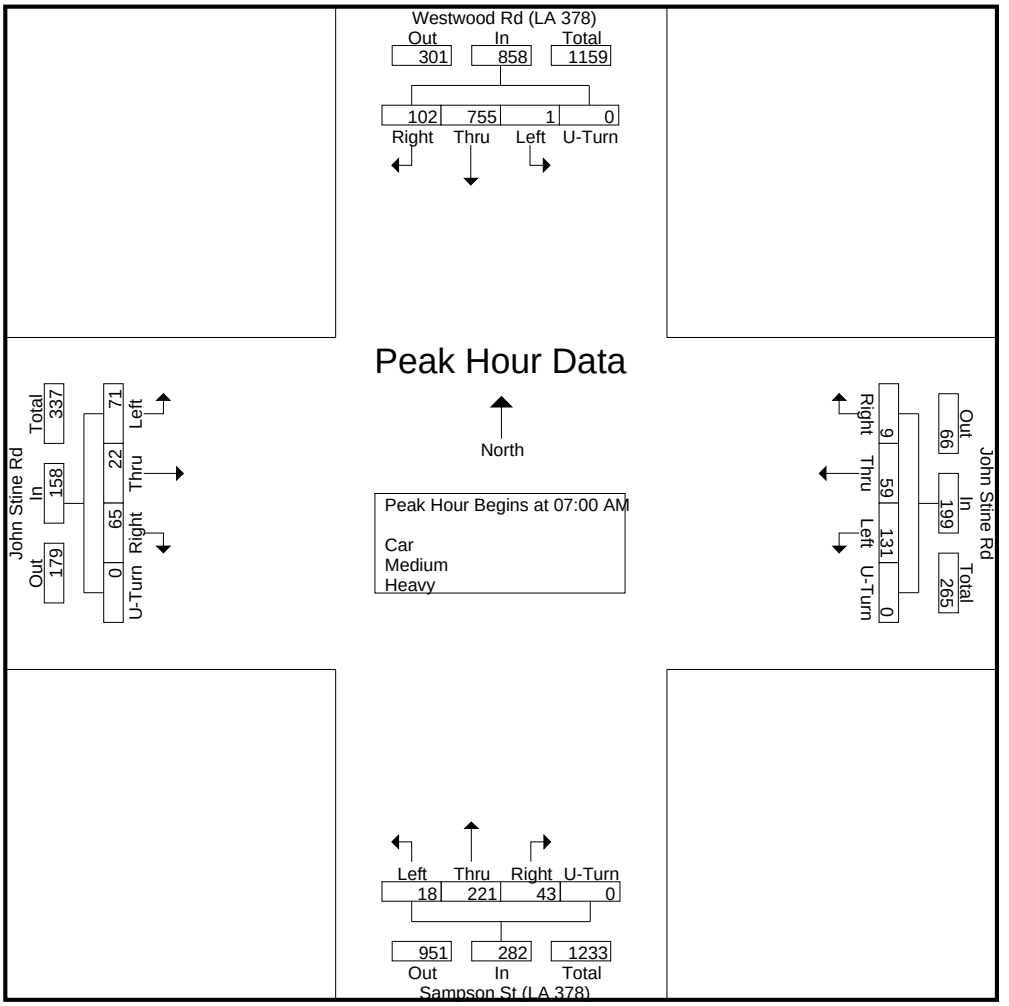
	Westwood Rd (LA 378) Southbound					John Stine Rd Westbound					Sampson St (LA 378) Northbound					John Stine Rd Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	**201**	23	0	224	30	17	2	0	49	1	33	8	0	42	17	2	15	0	34	349
07:15 AM	0	196	28	0	224	**43**	**22**	**3**	0	**68**	4	60	10	0	74	**20**	6	**23**	0	49	415
07:30 AM	**1**	197	**36**	0	**234**	37	13	1	0	51	**7**	**65**	12	0	**84**	20	**11**	19	0	**50**	**419**
07:45 AM	0	161	15	0	176	21	7	3	0	31	6	63	**13**	0	82	14	3	8	0	25	314
Total Volume	1	755	102	0	858	131	59	9	0	199	18	221	43	0	282	71	22	65	0	158	1497
% App. Total	0.1	88	11.9	0		65.8	29.6	4.5	0		6.4	78.4	15.2	0		44.9	13.9	41.1	0		
PHF	.250	.939	.708	.000	.917	.762	.670	.750	.000	.732	.643	.850	.827	.000	.839	.888	.500	.707	.000	.790	.893



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New Orleans, LA 70130
504-523-5511

Miovision Scout
Turning Movement Count
Westlake, LA
Calcasieu Parish

File Name : Westwood (LA 378) @ Hudson_National
Site Code : 11-100
Start Date : 9/18/2012
Page No : 1

Groups Printed- Car - Medium - Heavy

	Westwood Rd (LA 378) Southbound					Hudson Dr Westbound					Westwood Rd (LA 378) Northbound					National Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
11:15 AM	0	66	0	0	66	5	0	0	0	5	0	64	12	0	76	0	0	0	0	0	147
11:30 AM	0	70	0	0	70	10	0	0	0	10	1	70	15	0	86	0	1	2	0	3	169
11:45 AM	1	58	2	0	61	14	0	1	0	15	4	65	17	0	86	2	0	0	0	2	164
Total	1	194	2	0	197	29	0	1	0	30	5	199	44	0	248	2	1	2	0	5	480
12:00 PM	3	50	0	0	53	11	1	1	0	13	1	61	16	0	78	2	0	1	0	3	147
12:15 PM	1	57	0	0	58	15	1	1	0	17	2	54	22	0	78	2	0	2	0	4	157
12:30 PM	0	67	1	0	68	13	1	0	0	14	5	75	14	0	94	0	0	1	0	1	177
12:45 PM	0	59	1	0	60	19	1	0	0	20	0	66	16	0	82	0	0	0	0	0	162
Total	4	233	2	0	239	58	4	2	0	64	8	256	68	0	332	4	0	4	0	8	643
01:00 PM	0	78	1	0	79	19	0	0	0	19	1	74	16	0	91	0	1	4	0	5	194
01:15 PM	1	62	0	0	63	8	0	0	0	8	3	55	17	0	75	0	1	2	0	3	149
01:30 PM	1	56	0	0	57	14	0	0	0	14	1	62	13	0	76	1	0	0	0	1	148
01:45 PM	0	61	0	0	61	6	0	0	0	6	1	69	11	0	81	0	0	0	0	0	148
Total	2	257	1	0	260	47	0	0	0	47	6	260	57	0	323	1	2	6	0	9	639
02:00 PM	0	62	0	0	62	14	0	1	0	15	2	61	27	0	90	2	0	0	0	2	169
02:15 PM	0	56	2	0	58	8	0	0	0	8	1	69	26	0	96	0	0	0	0	0	162
02:30 PM	0	81	0	0	81	18	3	1	0	22	2	94	19	0	115	1	1	2	0	4	222
02:45 PM	0	61	0	0	61	14	0	0	0	14	2	86	27	0	115	1	2	1	0	4	194
Total	0	260	2	0	262	54	3	2	0	59	7	310	99	0	416	4	3	3	0	10	747
03:00 PM	1	60	1	0	62	11	1	4	0	16	1	93	36	0	130	1	0	0	0	1	209
03:15 PM	3	82	1	0	86	16	0	1	0	17	1	86	34	0	121	0	0	1	0	1	225
03:30 PM	1	77	2	0	80	8	1	2	0	11	1	159	37	0	197	1	1	0	0	2	290
03:45 PM	1	64	2	0	67	10	0	2	0	12	3	90	37	0	130	0	0	0	1	1	210
Total	6	283	6	0	295	45	2	9	0	56	6	428	144	0	578	2	1	1	1	5	934
04:00 PM	0	74	3	0	77	9	1	2	0	12	3	142	63	0	208	1	0	0	1	2	299
04:15 PM	1	73	0	0	74	10	1	0	0	11	1	150	46	0	197	1	0	0	1	2	284
04:30 PM	0	79	1	0	80	11	0	0	0	11	0	140	39	0	179	1	1	4	0	6	276
04:45 PM	1	83	2	0	86	8	2	0	0	10	0	161	48	0	209	0	1	5	0	6	311
Total	2	309	6	0	317	38	4	2	0	44	4	593	196	0	793	3	2	9	2	16	1170
05:00 PM	2	66	0	0	68	8	0	2	0	10	1	191	57	0	249	4	0	2	0	6	333
05:15 PM	3	91	2	0	96	14	1	6	0	21	1	210	70	0	281	1	0	2	0	3	401
05:30 PM	1	90	1	0	92	15	2	1	0	18	0	208	65	0	273	1	2	0	0	3	386
05:45 PM	0	71	0	0	71	11	1	5	0	17	0	169	39	0	208	2	0	1	0	3	299
Total	6	318	3	0	327	48	4	14	0	66	2	778	231	0	1011	8	2	5	0	15	1419
06:00 PM	1	62	0	0	63	9	0	2	0	11	0	122	48	0	170	1	0	1	0	2	246
06:15 PM	0	60	2	0	62	13	4	3	0	20	4	85	24	0	113	0	0	1	0	1	196
06:30 PM	2	66	1	0	69	13	1	4	0	18	0	92	22	0	114	1	1	1	0	3	204
06:45 PM	1	54	0	0	55	7	1	0	0	8	1	79	23	0	103	3	0	0	0	3	169
Total	4	242	3	0	249	42	6	9	0	57	5	378	117	0	500	5	1	3	0	9	815
07:00 PM	1	76	1	0	78	8	0	2	0	10	1	101	20	0	122	1	3	2	0	6	216
07:15 PM	5	79	3	0	87	11	0	2	0	13	1	76	18	0	95	2	1	3	0	6	201
07:30 PM	1	47	0	0	48	13	3	2	0	18	0	84	18	0	102	0	1	2	0	3	171
07:45 PM	1	39	0	0	40	9	0	0	0	9	1	71	25	0	97	2	0	0	0	2	148
Total	8	241	4	0	253	41	3	6	0	50	3	332	81	0	416	5	5	7	0	17	736

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Westwood (LA 378) @ Hudson_National
Site Code : 11-100
Start Date : 9/18/2012
Page No : 2

Groups Printed- Car - Medium - Heavy

	Westwood Rd (LA 378) Southbound					Hudson Dr Westbound					Westwood Rd (LA 378) Northbound					National Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
08:00 PM	2	40	0	0	42	13	1	1	0	15	1	61	20	0	82	1	0	0	0	1	140
08:15 PM	0	27	1	0	28	5	0	0	0	5	0	65	11	0	76	0	1	0	0	1	110
08:30 PM	1	40	1	0	42	6	0	1	0	7	1	43	10	0	54	0	0	0	0	0	103
08:45 PM	0	25	0	0	25	7	0	1	0	8	0	50	13	1	64	2	0	2	0	4	101
Total	3	132	2	0	137	31	1	3	0	35	2	219	54	1	276	3	1	2	0	6	454
09:00 PM	0	22	0	0	22	6	0	0	0	6	0	39	8	0	47	0	1	0	0	1	76
09:15 PM	1	23	0	0	24	6	0	1	0	7	1	22	10	0	33	0	0	0	0	0	64
09:30 PM	0	27	0	0	27	7	0	0	0	7	0	33	6	0	39	0	0	0	0	0	73
09:45 PM	0	19	0	0	19	7	1	0	0	8	0	15	1	0	16	0	0	1	0	1	44
Total	1	91	0	0	92	26	1	1	0	28	1	109	25	0	135	0	1	1	0	2	257
10:00 PM	1	12	0	0	13	5	0	0	0	5	1	21	8	0	30	0	0	0	0	0	48
10:15 PM	0	15	0	0	15	3	0	2	0	5	0	23	8	0	31	0	0	0	0	0	51
10:30 PM	0	8	0	0	8	4	0	0	0	4	0	14	3	0	17	0	1	0	0	1	30
10:45 PM	0	3	0	0	3	2	0	0	0	2	0	18	5	0	23	0	0	0	0	0	28
Total	1	38	0	0	39	14	0	2	0	16	1	76	24	0	101	0	1	0	0	1	157
11:00 PM	0	9	0	0	9	1	0	2	0	3	0	10	2	0	12	0	0	0	0	0	24
11:15 PM	0	5	0	0	5	3	0	0	0	3	1	13	3	0	17	0	1	0	0	1	26
11:30 PM	0	5	0	0	5	1	0	0	0	1	0	10	4	0	14	0	0	0	0	0	20
11:45 PM	0	2	0	0	2	2	0	0	0	2	0	11	0	0	11	0	0	0	0	0	15
Total	0	21	0	0	21	7	0	2	0	9	1	44	9	0	54	0	1	0	0	1	85
12:00 AM	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	3
12:15 AM	0	5	0	0	5	0	0	0	0	0	1	7	0	0	8	0	0	0	0	0	13
12:30 AM	0	3	0	0	3	1	0	0	0	1	0	3	1	0	4	0	0	0	0	0	8
12:45 AM	0	2	0	0	2	0	0	0	0	0	0	3	2	0	5	0	0	0	0	0	7
Total	0	11	0	0	11	1	0	0	0	1	1	14	4	0	19	0	0	0	0	0	31
01:00 AM	0	4	0	0	4	1	0	0	0	1	0	3	1	0	4	0	0	0	0	0	9
01:15 AM	0	1	0	0	1	2	0	0	0	2	0	1	2	0	3	0	0	0	0	0	6
01:30 AM	0	1	0	0	1	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	5
01:45 AM	0	1	0	0	1	1	0	0	0	1	0	4	1	0	5	0	0	0	0	0	7
Total	0	7	0	0	7	4	0	0	0	4	0	11	5	0	16	0	0	0	0	0	27
02:00 AM	0	1	0	0	1	1	0	0	0	1	0	3	1	0	4	0	0	0	0	0	6
02:15 AM	0	2	0	0	2	0	0	0	0	0	0	5	1	0	6	0	0	0	0	0	8
02:30 AM	0	6	0	0	6	2	0	0	0	2	0	2	0	0	2	0	0	0	0	0	10
02:45 AM	0	0	0	0	0	0	0	0	0	0	0	5	2	0	7	0	0	0	0	0	7
Total	0	9	0	0	9	3	0	0	0	3	0	15	4	0	19	0	0	0	0	0	31
03:00 AM	0	6	0	0	6	0	0	0	0	0	0	1	2	0	3	1	0	0	0	1	10
03:15 AM	0	11	0	0	11	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	13
03:30 AM	0	5	0	0	5	2	0	0	0	2	0	5	1	0	6	0	0	0	0	0	13
03:45 AM	0	17	0	0	17	2	0	0	0	2	0	2	2	0	4	0	0	0	0	0	23
Total	0	39	0	0	39	4	0	0	0	4	0	9	6	0	15	1	0	0	0	1	59
04:00 AM	0	35	0	0	35	4	0	0	0	4	0	6	1	0	7	0	0	0	0	0	46
04:15 AM	0	28	0	0	28	3	0	0	0	3	0	5	4	0	9	0	0	0	0	0	40
04:30 AM	0	39	0	0	39	3	0	0	0	3	0	11	3	0	14	0	0	0	0	0	56
04:45 AM	0	49	0	0	49	11	0	0	0	11	0	13	5	0	18	0	0	0	0	0	78
Total	0	151	0	0	151	21	0	0	0	21	0	35	13	0	48	0	0	0	0	0	220
05:00 AM	0	73	0	0	73	11	2	0	0	13	0	16	5	0	21	0	0	0	0	0	107
05:15 AM	0	98	2	0	100	12	0	0	0	12	0	14	9	0	23	0	0	1	0	1	136
05:30 AM	0	138	0	0	138	16	0	0	0	16	1	21	6	0	28	0	0	1	0	1	183

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
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File Name : Westwood (LA 378) @ Hudson_National
Site Code : 11-100
Start Date : 9/18/2012
Page No : 3

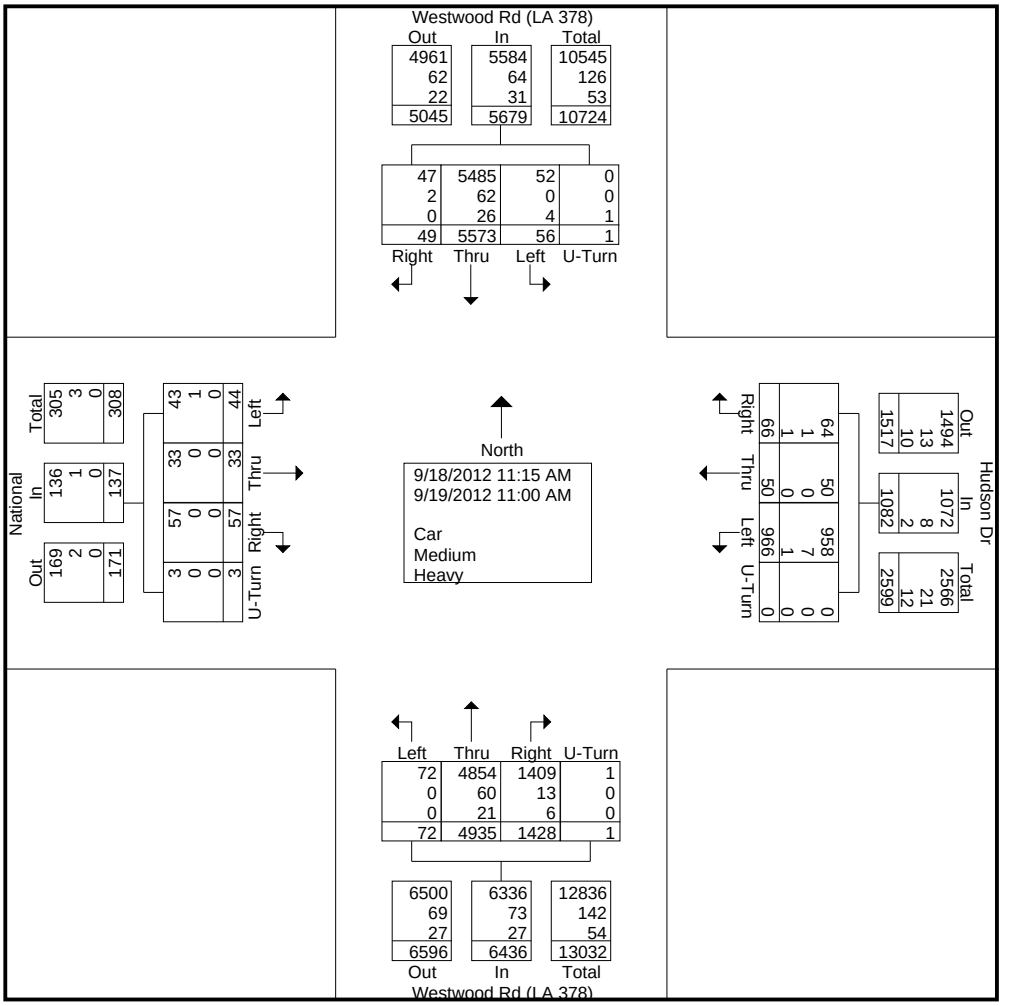
Groups Printed- Car - Medium - Heavy

	Westwood Rd (LA 378) Southbound					Hudson Dr Westbound					Westwood Rd (LA 378) Northbound					National Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
05:45 AM	0	150	0	0	150	20	1	0	0	21	0	17	5	0	22	0	0	1	0	1	194
Total	0	459	2	0	461	59	3	0	0	62	1	68	25	0	94	0	0	3	0	3	620
06:00 AM	1	164	0	0	165	24	1	0	0	25	1	16	7	0	24	0	1	0	0	1	215
06:15 AM	0	191	0	0	191	36	2	0	0	38	1	23	11	0	35	1	2	2	0	5	269
06:30 AM	1	154	1	1	157	38	0	0	0	38	1	33	10	0	44	0	0	1	0	1	240
06:45 AM	4	169	0	0	173	22	2	2	0	26	0	19	9	0	28	0	0	0	0	0	227
Total	6	678	1	1	686	120	5	2	0	127	3	91	37	0	131	1	3	3	0	7	951
07:00 AM	1	171	1	0	173	45	4	0	0	49	1	35	6	0	42	0	0	1	0	1	265
07:15 AM	3	175	0	0	178	24	0	2	0	26	0	53	14	0	67	0	1	0	0	1	272
07:30 AM	1	167	2	0	170	35	1	2	0	38	2	46	21	0	69	0	1	1	0	2	279
07:45 AM	0	135	1	0	136	20	0	0	0	20	3	52	10	0	65	1	0	1	0	2	223
Total	5	648	4	0	657	124	5	4	0	133	6	186	51	0	243	1	2	3	0	6	1039
08:00 AM	0	116	0	0	116	17	0	2	0	19	1	25	9	0	35	0	0	0	0	0	170
08:15 AM	0	94	1	0	95	11	0	0	0	11	1	39	7	0	47	0	0	0	0	0	153
08:30 AM	0	78	0	0	78	16	2	0	0	18	0	29	7	0	36	0	0	0	0	0	132
08:45 AM	1	69	0	0	70	10	0	1	0	11	2	48	11	0	61	2	1	0	0	3	145
Total	1	357	1	0	359	54	2	3	0	59	4	141	34	0	179	2	1	0	0	3	600
09:00 AM	1	69	1	0	71	16	0	0	0	16	0	39	6	0	45	0	0	2	0	2	134
09:15 AM	0	73	0	0	73	14	1	0	0	15	1	42	10	0	53	1	0	1	0	2	143
09:30 AM	0	73	0	0	73	12	2	1	0	15	2	43	13	0	58	0	0	0	0	0	146
09:45 AM	1	68	0	0	69	14	1	1	0	16	1	45	9	0	55	0	0	0	0	0	140
Total	2	283	1	0	286	56	4	2	0	62	4	169	38	0	211	1	0	3	0	4	563
10:00 AM	0	58	2	0	60	14	2	0	0	16	0	47	13	0	60	0	1	1	0	2	138
10:15 AM	0	63	1	0	64	5	0	1	0	6	1	44	10	0	55	0	2	0	0	2	127
10:30 AM	2	65	3	0	70	13	0	1	0	14	0	35	8	0	43	1	1	1	0	3	130
10:45 AM	1	69	1	0	71	1	0	0	0	1	0	46	12	0	58	0	1	0	0	1	131
Total	3	255	7	0	265	33	2	2	0	37	1	172	43	0	216	1	5	2	0	8	526
11:00 AM	1	57	2	0	60	7	1	0	0	8	1	42	19	0	62	0	1	0	0	1	131
Grand Total	56	5573	49	1	5679	966	50	66	0	1082	72	4935	1428	1	6436	44	33	57	3	137	13334
Apprch %	1	98.1	0.9	0		89.3	4.6	6.1	0		1.1	76.7	22.2	0		32.1	24.1	41.6	2.2		
Total %	0.4	41.8	0.4	0	42.6	7.2	0.4	0.5	0	8.1	0.5	37	10.7	0	48.3	0.3	0.2	0.4	0	1	
Car	52	5485	47	0	5584	958	50	64	0	1072	72	4854	1409	1	6336	43	33	57	3	136	13128
% Car	92.9	98.4	95.9	0	98.3	99.2	100	97	0	99.1	100	98.4	98.7	100	98.4	97.7	100	100	100	99.3	98.5
Medium	0	62	2	0	64	7	0	1	0	8	0	60	13	0	73	1	0	0	0	1	146
% Medium	0	1.1	4.1	0	1.1	0.7	0	1.5	0	0.7	0	1.2	0.9	0	1.1	2.3	0	0	0	0.7	1.1
Heavy	4	26	0	1	31	1	0	1	0	2	0	21	6	0	27	0	0	0	0	0	60
% Heavy	7.1	0.5	0	100	0.5	0.1	0	1.5	0	0.2	0	0.4	0.4	0	0.4	0	0	0	0	0	0.4

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Westwood (LA 378) @ Hudson_National
Site Code : 11-100
Start Date : 9/18/2012
Page No : 4



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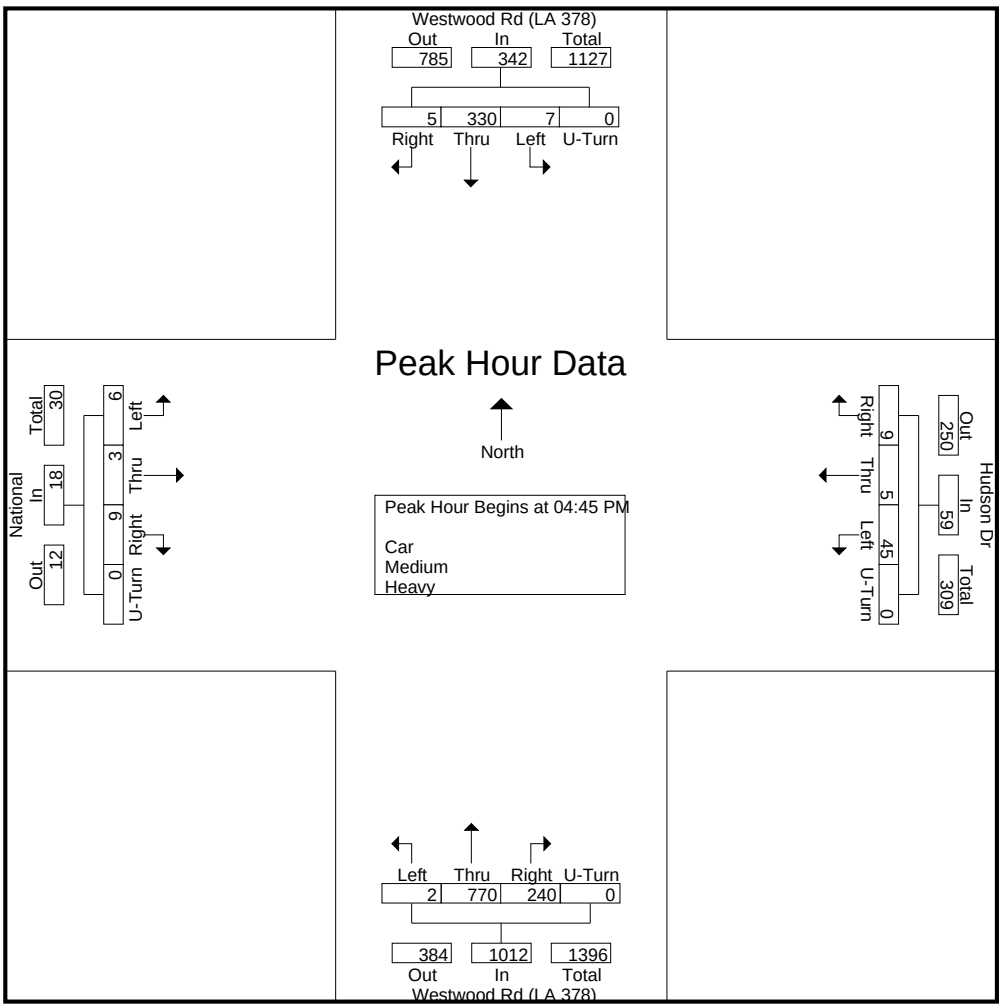
400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Westwood (LA 378) @ Hudson_National
Site Code : 11-100
Start Date : 9/18/2012
Page No : 5

	Westwood Rd (LA 378) Southbound					Hudson Dr Westbound					Westwood Rd (LA 378) Northbound					National Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	1	83	**2**	0	86	8	**2**	0	0	10	0	161	48	0	209	0	1	**5**	0	**6**	311
05:00 PM	2	66	0	0	68	8	0	2	0	10	**1**	191	57	0	249	**4**	0	2	0	6	333
05:15 PM	**3**	**91**	2	0	**96**	14	1	**6**	0	**21**	1	**210**	**70**	0	**281**	1	0	2	0	3	**401**
05:30 PM	1	90	1	0	92	**15**	2	1	0	18	0	208	65	0	273	1	**2**	0	0	3	386
Total Volume	7	330	5	0	342	45	5	9	0	59	2	770	240	0	1012	6	3	9	0	18	1431
% App. Total	2	96.5	1.5	0		76.3	8.5	15.3	0		0.2	76.1	23.7	0		33.3	16.7	50	0		
PHF	.583	.907	.625	.000	.891	.750	.625	.375	.000	.702	.500	.917	.857	.000	.900	.375	.375	.450	.000	.750	.892

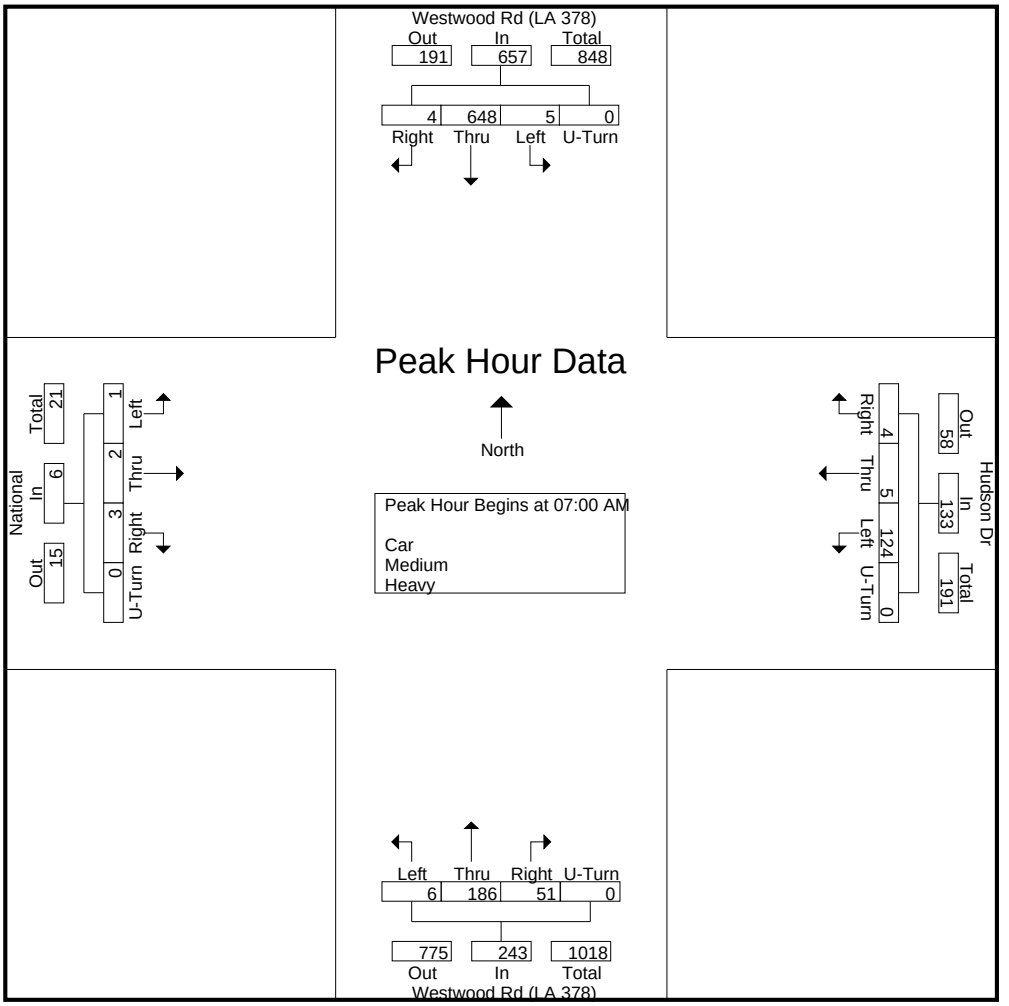


Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Westwood (LA 378) @ Hudson_National
Site Code : 11-100
Start Date : 9/18/2012
Page No : 6

	Westwood Rd (LA 378) Southbound					Hudson Dr Westbound					Westwood Rd (LA 378) Northbound					National Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	1	171	1	0	173	**45**	**4**	0	0	**49**	1	35	6	0	42	0	0	**1**	0	1	265
07:15 AM	**3**	**175**	0	0	**178**	24	0	**2**	0	26	0	**53**	14	0	67	0	**1**	0	0	1	272
07:30 AM	1	167	**2**	0	170	35	1	2	0	38	2	46	**21**	0	**69**	0	1	1	0	**2**	**279**
07:45 AM	0	135	1	0	136	20	0	0	0	20	**3**	52	10	0	65	**1**	0	1	0	2	223
Total Volume	5	648	4	0	657	124	5	4	0	133	6	186	51	0	243	1	2	3	0	6	1039
% App. Total	0.8	98.6	0.6	0		93.2	3.8	3	0		2.5	76.5	21	0		16.7	33.3	50	0		
PHF	.417	.926	.500	.000	.923	.689	.313	.500	.000	.679	.500	.877	.607	.000	.880	.250	.500	.750	.000	.750	.931



Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Miovision Scout
Turning Movement Count
Westlake, LA
Calcasieu Parish

File Name : Davis Rd (LA 378) @ Roberts_Phillips Rd
Site Code : 11-100
Start Date : 9/17/2012
Page No : 1

Groups Printed- Car - Medium - Heavy

	Davis Rd (LA 378) Southbound					Roberts Rd Westbound					Davis Rd Northbound					Phillips Rd (LA 378) Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
10:30 AM	0	21	40	0	61	0	0	0	0	0	0	20	0	0	20	38	2	0	0	40	121
10:45 AM	1	23	53	0	77	0	0	0	0	0	0	14	0	0	14	45	0	0	0	45	136
Total	1	44	93	0	138	0	0	0	0	0	0	34	0	0	34	83	2	0	0	85	257
11:00 AM	0	26	56	0	82	0	0	0	0	0	0	18	1	0	19	47	0	0	0	47	148
11:15 AM	0	22	60	0	82	1	3	0	0	4	1	29	1	0	31	43	1	1	0	45	162
11:30 AM	0	26	51	0	77	0	0	0	0	0	2	21	0	0	23	51	0	0	0	51	151
11:45 AM	0	12	51	0	63	1	1	0	0	2	0	23	2	0	25	34	0	2	0	36	126
Total	0	86	218	0	304	2	4	0	0	6	3	91	4	0	98	175	1	3	0	179	587
12:00 PM	0	19	51	0	70	0	1	0	0	1	2	21	0	0	23	53	0	0	0	53	147
12:15 PM	0	22	49	0	71	0	0	1	0	1	0	18	0	0	18	44	0	1	0	45	135
12:30 PM	1	24	48	0	73	0	0	0	0	0	1	20	0	0	21	48	0	1	0	49	143
12:45 PM	0	21	64	0	85	0	1	0	0	1	0	31	0	0	31	51	2	0	0	53	170
Total	1	86	212	0	299	0	2	1	0	3	3	90	0	0	93	196	2	2	0	200	595
01:00 PM	0	21	40	0	61	0	1	0	0	1	1	33	0	0	34	53	0	0	0	53	149
01:15 PM	0	15	37	0	52	0	1	1	0	2	0	33	0	0	33	60	0	1	0	61	148
01:30 PM	0	28	62	0	90	0	1	0	0	1	2	31	0	0	33	37	0	0	0	37	161
01:45 PM	1	26	49	0	76	0	1	0	0	1	2	33	0	0	35	40	1	1	0	42	154
Total	1	90	188	0	279	0	4	1	0	5	5	130	0	0	135	190	1	2	0	193	612
02:00 PM	0	28	38	0	66	0	0	1	0	1	1	35	2	0	38	55	0	0	0	55	160
02:15 PM	0	33	52	0	85	0	0	0	0	0	0	39	0	0	39	55	0	1	0	56	180
02:30 PM	1	16	44	0	61	0	1	0	0	1	1	44	0	0	45	64	0	2	0	66	173
02:45 PM	0	28	42	0	70	0	0	0	0	0	0	31	0	0	31	65	0	3	0	68	169
Total	1	105	176	0	282	0	1	1	0	2	2	149	2	0	153	239	0	6	0	245	682
03:00 PM	0	27	50	0	77	0	1	0	0	1	2	48	0	0	50	68	0	2	0	70	198
03:15 PM	0	27	74	0	101	0	0	0	0	0	0	47	0	0	47	97	1	4	0	102	250
03:30 PM	0	35	65	0	100	0	1	0	0	1	1	56	0	0	57	105	0	1	0	106	264
03:45 PM	0	31	69	0	100	1	0	0	0	1	1	89	0	0	90	120	1	0	0	121	312
Total	0	120	258	0	378	1	2	0	0	3	4	240	0	0	244	390	2	7	0	399	1024
04:00 PM	0	35	79	0	114	0	0	0	0	0	1	67	1	0	69	136	0	0	0	136	319
04:15 PM	0	31	59	0	90	0	0	0	0	0	1	78	0	0	79	139	0	0	0	139	308
04:30 PM	0	30	65	0	95	0	0	0	0	0	2	82	0	0	84	116	0	2	0	118	297
04:45 PM	0	28	57	0	85	0	0	0	0	0	1	79	0	0	80	110	3	2	0	115	280
Total	0	124	260	0	384	0	0	0	0	0	5	306	1	0	312	501	3	4	0	508	1204
05:00 PM	1	34	81	0	116	0	1	1	0	2	0	79	0	0	79	164	0	0	0	164	361
05:15 PM	0	34	65	0	99	0	0	0	0	0	1	111	0	0	112	161	2	1	0	164	375
05:30 PM	0	36	74	0	110	0	0	0	0	0	2	84	0	0	86	131	1	0	0	132	328
05:45 PM	1	25	64	0	90	0	1	0	0	1	2	53	0	0	55	86	1	1	0	88	234
Total	2	129	284	0	415	0	2	1	0	3	5	327	0	0	332	542	4	2	0	548	1298
06:00 PM	0	34	54	0	88	0	0	0	0	0	0	88	1	0	89	55	1	1	0	57	234
06:15 PM	0	23	53	0	76	1	0	0	0	1	0	82	0	0	82	102	0	3	0	105	264
06:30 PM	0	30	55	0	85	0	0	0	0	0	2	57	0	0	59	61	1	0	0	62	206
06:45 PM	0	27	48	0	75	0	0	0	0	0	2	31	0	0	33	69	0	2	0	71	179
Total	0	114	210	0	324	1	0	0	0	1	4	258	1	0	263	287	2	6	0	295	883

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Davis Rd (LA 378) @ Roberts_Phillips Rd
Site Code : 11-100
Start Date : 9/17/2012
Page No : 2

Groups Printed- Car - Medium - Heavy

	Davis Rd (LA 378) Southbound					Roberts Rd Westbound					Davis Rd Northbound					Phillips Rd (LA 378) Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 PM	0	25	44	0	69	0	1	0	0	1	1	33	0	0	34	66	0	0	0	66	170
07:15 PM	0	18	42	0	60	1	0	0	0	1	0	30	0	0	30	55	0	1	0	56	147
07:30 PM	0	23	27	0	50	0	1	0	0	1	0	29	0	0	29	57	0	1	0	58	138
07:45 PM	0	19	30	0	49	0	0	0	0	0	1	23	0	0	24	39	1	0	0	40	113
Total	0	85	143	0	228	1	2	0	0	3	2	115	0	0	117	217	1	2	0	220	568
08:00 PM	0	13	28	0	41	0	0	0	0	0	0	13	0	0	13	17	0	1	0	18	72
08:15 PM	0	22	19	0	41	0	1	0	0	1	0	42	0	0	42	50	0	0	0	50	134
08:30 PM	0	16	20	0	36	0	0	0	0	0	1	17	0	0	18	32	1	1	0	34	88
08:45 PM	0	17	17	0	34	0	0	0	0	0	1	7	1	0	9	44	0	0	0	44	87
Total	0	68	84	0	152	0	1	0	0	1	2	79	1	0	82	143	1	2	0	146	381
09:00 PM	0	13	18	0	31	0	0	0	0	0	1	18	0	0	19	38	0	0	0	38	88
09:15 PM	0	9	11	0	20	0	0	0	0	0	2	6	0	0	8	30	0	1	0	31	59
09:30 PM	0	19	8	0	27	1	0	0	0	1	0	13	1	0	14	26	0	0	0	26	68
09:45 PM	0	4	8	0	12	0	0	0	0	0	0	6	0	0	6	14	0	0	0	14	32
Total	0	45	45	0	90	1	0	0	0	1	3	43	1	0	47	108	0	1	0	109	247
10:00 PM	0	4	8	0	12	0	0	0	0	0	0	9	0	0	9	11	0	1	0	12	33
10:15 PM	0	5	6	0	11	0	0	0	0	0	0	6	0	0	6	15	0	0	0	15	32
10:30 PM	0	11	8	0	19	0	0	0	0	0	0	6	0	0	6	9	0	0	0	9	34
10:45 PM	0	5	1	0	6	0	0	0	0	0	0	6	0	0	6	7	0	0	0	7	19
Total	0	25	23	0	48	0	0	0	0	0	0	27	0	0	27	42	0	1	0	43	118
11:00 PM	0	1	9	0	10	0	0	0	0	0	0	6	0	0	6	10	0	0	0	10	26
11:15 PM	0	6	8	0	14	0	0	0	0	0	0	5	0	0	5	14	0	1	0	15	34
11:30 PM	0	2	1	0	3	0	0	0	0	0	0	3	0	0	3	10	0	0	0	10	16
11:45 PM	0	2	6	0	8	0	0	0	0	0	1	4	0	0	5	4	0	0	0	4	17
Total	0	11	24	0	35	0	0	0	0	0	1	18	0	0	19	38	0	1	0	39	93
12:00 AM	0	1	2	0	3	0	0	0	0	0	0	3	0	0	3	4	0	0	0	4	10
12:15 AM	0	1	3	0	4	0	0	0	0	0	0	3	0	0	3	12	0	0	0	12	19
12:30 AM	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	7	0	0	0	7	12
12:45 AM	0	1	1	0	2	0	0	0	0	0	0	3	0	0	3	5	0	0	0	5	10
Total	0	4	6	0	10	0	0	0	0	0	0	13	0	0	13	28	0	0	0	28	51
01:00 AM	0	8	2	0	10	0	0	0	0	0	1	3	0	0	4	3	0	0	0	3	17
01:15 AM	0	0	3	0	3	0	0	0	0	0	0	1	0	0	1	3	0	0	0	3	7
01:30 AM	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	7
01:45 AM	0	0	3	0	3	0	0	0	0	0	0	3	0	0	3	2	0	0	0	2	8
Total	0	14	8	0	22	0	0	0	0	0	1	7	0	0	8	9	0	0	0	9	39
02:00 AM	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	2	0	0	0	2	10
02:15 AM	0	0	3	0	3	0	0	0	0	0	1	2	0	0	3	2	0	0	0	2	8
02:30 AM	1	3	6	0	10	0	1	0	0	1	0	1	0	0	1	2	0	0	0	2	14
02:45 AM	1	1	3	0	5	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	8
Total	2	4	12	0	18	0	1	0	0	1	1	12	0	0	13	8	0	0	0	8	40
03:00 AM	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	5
03:15 AM	0	2	5	0	7	0	0	0	0	0	0	1	0	0	1	4	0	0	0	4	12
03:30 AM	1	0	5	0	6	0	0	1	0	1	0	3	0	0	3	0	0	0	0	0	10
03:45 AM	0	3	19	0	22	0	0	3	0	3	0	0	0	0	0	3	1	0	0	4	29
Total	1	5	32	0	38	0	0	4	0	4	0	4	0	0	4	9	1	0	0	10	56
04:00 AM	0	5	27	0	32	0	0	0	0	0	0	3	0	0	3	7	0	0	0	7	42
04:15 AM	0	2	29	0	31	0	0	0	0	0	0	9	0	0	9	8	0	0	0	8	48
04:30 AM	0	8	37	0	45	0	0	0	0	0	0	3	0	0	3	8	0	0	0	8	56

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Davis Rd (LA 378) @ Roberts_Phillips Rd
Site Code : 11-100
Start Date : 9/17/2012
Page No : 3

Groups Printed- Car - Medium - Heavy

	Davis Rd (LA 378) Southbound					Roberts Rd Westbound					Davis Rd Northbound					Phillips Rd (LA 378) Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:45 AM	0	12	48	0	60	0	0	1	0	1	0	8	1	0	9	13	0	0	0	13	83
Total	0	27	141	0	168	0	0	1	0	1	0	23	1	0	24	36	0	0	0	36	229
05:00 AM	0	13	63	0	76	0	0	0	0	0	1	5	0	0	6	15	0	1	0	16	98
05:15 AM	0	11	88	0	99	0	2	0	0	2	0	8	0	0	8	12	0	0	0	12	121
05:30 AM	0	27	122	0	149	0	0	0	0	0	0	10	0	0	10	17	0	2	0	19	178
05:45 AM	0	31	118	0	149	0	2	0	0	2	0	17	0	0	17	10	0	0	0	10	178
Total	0	82	391	0	473	0	4	0	0	4	1	40	0	0	41	54	0	3	0	57	575
06:00 AM	0	55	167	0	222	0	0	0	0	0	0	12	0	0	12	8	1	1	0	10	244
06:15 AM	0	77	174	0	251	0	0	0	0	0	0	8	0	0	8	13	0	1	0	14	273
06:30 AM	0	78	140	0	218	1	1	0	0	2	1	21	0	0	22	25	0	1	0	26	268
06:45 AM	0	50	129	0	179	1	0	0	0	1	0	30	1	0	31	35	0	2	0	37	248
Total	0	260	610	0	870	2	1	0	0	3	1	71	1	0	73	81	1	5	0	87	1033
07:00 AM	0	77	145	0	222	0	1	0	0	1	0	21	0	0	21	30	0	1	0	31	275
07:15 AM	0	85	135	0	220	0	0	0	0	0	0	32	0	0	32	50	0	0	0	50	302
07:30 AM	0	86	141	0	227	0	0	0	0	0	0	29	0	0	29	50	0	1	0	51	307
07:45 AM	0	52	143	0	195	0	0	0	0	0	1	23	0	0	24	46	0	0	0	46	265
Total	0	300	564	0	864	0	1	0	0	1	1	105	0	0	106	176	0	2	0	178	1149
08:00 AM	0	27	100	0	127	0	1	0	0	1	0	21	0	0	21	34	0	1	0	35	184
08:15 AM	0	27	78	0	105	0	0	0	0	0	1	21	0	0	22	30	0	0	0	30	157
08:30 AM	0	26	60	0	86	0	0	0	0	0	0	18	0	0	18	40	1	0	0	41	145
08:45 AM	0	24	56	0	80	0	0	0	0	0	0	23	0	0	23	40	0	0	0	40	143
Total	0	104	294	0	398	0	1	0	0	1	1	83	0	0	84	144	1	1	0	146	629
09:00 AM	0	19	63	0	82	0	0	0	0	0	0	24	1	0	25	36	0	0	0	36	143
09:15 AM	0	26	60	0	86	1	1	1	0	3	1	22	1	0	24	43	0	0	0	43	156
09:30 AM	0	26	53	0	79	0	0	0	0	0	0	28	0	0	28	30	1	3	0	34	141
09:45 AM	0	24	38	0	62	0	1	0	0	1	0	24	1	0	25	46	0	0	0	46	134
Total	0	95	214	0	309	1	2	1	0	4	1	98	3	0	102	155	1	3	0	159	574
10:00 AM	0	17	52	0	69	0	0	0	0	0	0	19	1	0	20	34	0	0	0	34	123
10:15 AM	0	15	61	0	76	0	0	0	0	0	1	21	0	0	22	43	0	3	0	46	144
Grand Total	9	2059	4603	0	6671	9	28	10	0	47	47	2403	16	0	2466	3928	23	56	0	4007	13191
Apprch %	0.1	30.9	69	0		19.1	59.6	21.3	0		1.9	97.4	0.6	0		98	0.6	1.4	0		
Total %	0.1	15.6	34.9	0	50.6	0.1	0.2	0.1	0	0.4	0.4	18.2	0.1	0	18.7	29.8	0.2	0.4	0	30.4	
Car	9	2026	4523	0	6558	9	28	10	0	47	47	2371	16	0	2434	3882	23	52	0	3957	12996
% Car	100	98.4	98.3	0	98.3	100	100	100	0	100	100	98.7	100	0	98.7	98.8	100	92.9	0	98.8	98.5
Medium	0	23	60	0	83	0	0	0	0	0	0	19	0	0	19	29	0	1	0	30	132
% Medium	0	1.1	1.3	0	1.2	0	0	0	0	0	0	0.8	0	0	0.8	0.7	0	1.8	0	0.7	1
Heavy	0	10	20	0	30	0	0	0	0	0	0	13	0	0	13	17	0	3	0	20	63
% Heavy	0	0.5	0.4	0	0.4	0	0	0	0	0	0	0.5	0	0	0.5	0.4	0	5.4	0	0.5	0.5

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400 N Peters Street, Suite 206
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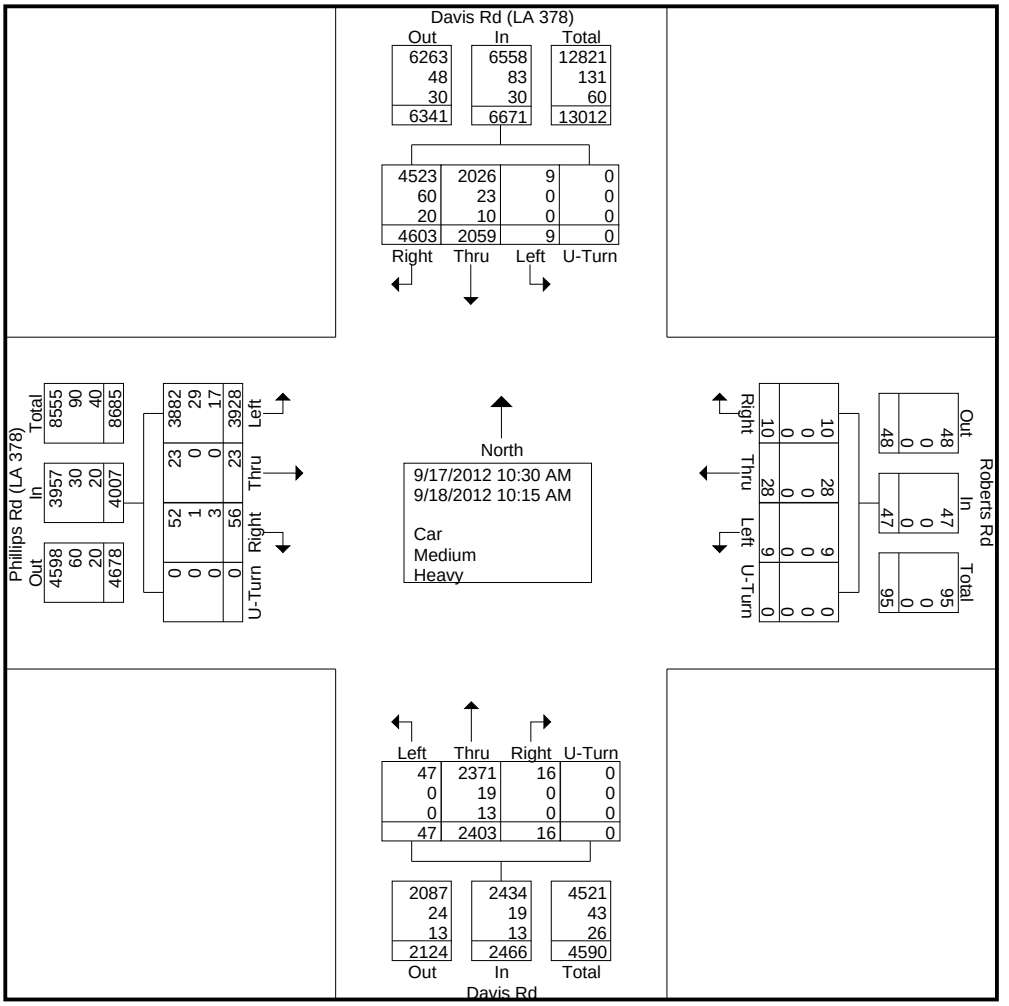
504-523-5511

File Name : Davis Rd (LA 378) @ Roberts_Phillips Rd
Site Code : 11-100
Start Date : 9/17/2012
Page No : 4



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400 N Peters Street, Suite 206
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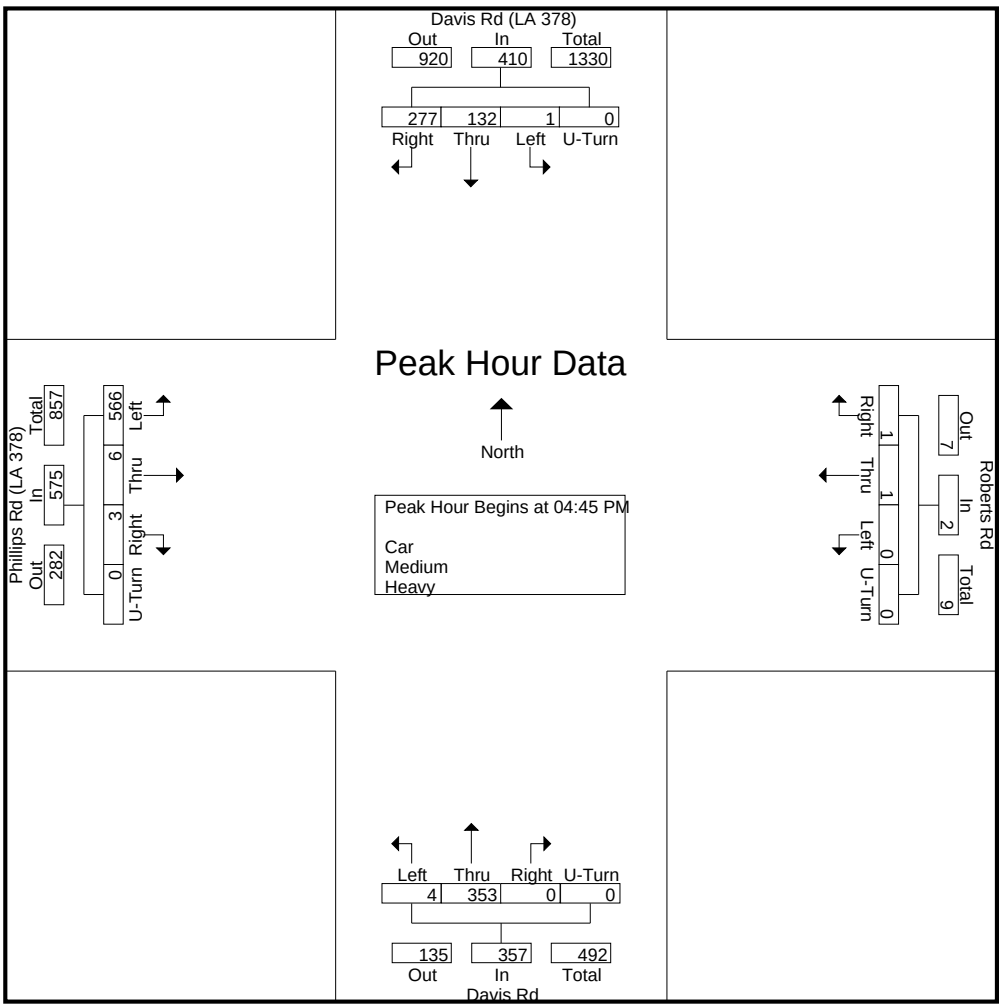
504-523-5511

File Name : Davis Rd (LA 378) @ Roberts_Phillips Rd
Site Code : 11-100
Start Date : 9/17/2012
Page No : 5

	Davis Rd (LA 378) Southbound					Roberts Rd Westbound					Davis Rd Northbound					Phillips Rd (LA 378) Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	28	57	0	85	0	0	0	0	0	1	79	0	0	80	110	**3**	**2**	0	115	280
05:00 PM	**1**	34	**81**	0	**116**	0	**1**	**1**	0	**2**	0	79	0	0	79	**164**	0	0	0	**164**	361
05:15 PM	0	34	65	0	99	0	0	0	0	0	1	**111**	0	0	**112**	161	2	1	0	164	**375**
05:30 PM	0	**36**	74	0	110	0	0	0	0	0	**2**	84	0	0	86	131	1	0	0	132	328
Total Volume	1	132	277	0	410	0	1	1	0	2	4	353	0	0	357	566	6	3	0	575	1344
% App. Total	0.2	32.2	67.6	0		0	50	50	0		1.1	98.9	0	0		98.4	1	0.5	0		
PHF	.250	.917	.855	.000	.884	.000	.250	.250	.000	.250	.500	.795	.000	.000	.797	.863	.500	.375	.000	.877	.896



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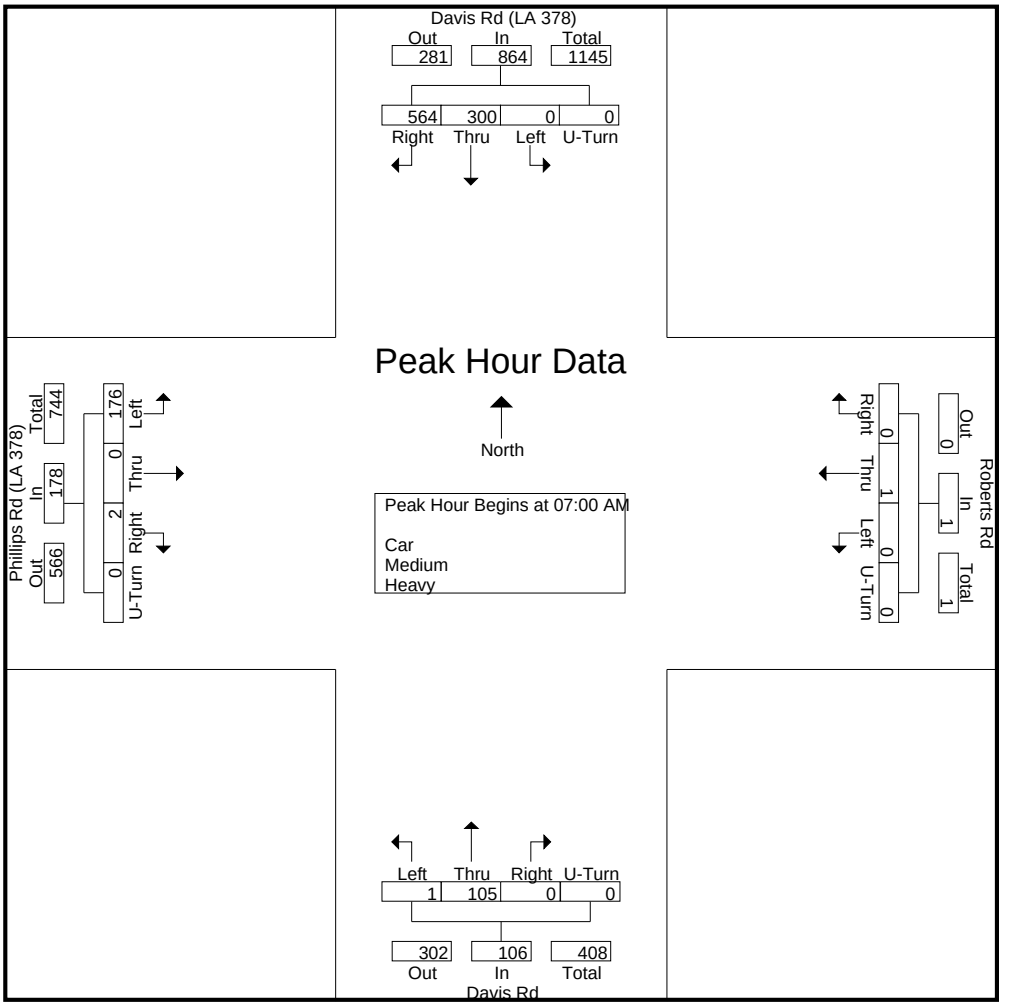
400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Davis Rd (LA 378) @ Roberts_Phillips Rd
Site Code : 11-100
Start Date : 9/17/2012
Page No : 6

	Davis Rd (LA 378) Southbound					Roberts Rd Westbound					Davis Rd Northbound					Phillips Rd (LA 378) Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	77	**145**	0	222	0	**1**	0	0	**1**	0	21	0	0	21	30	0	**1**	0	31	275
07:15 AM	0	85	135	0	220	0	0	0	0	0	0	**32**	0	0	**32**	**50**	0	0	0	50	302
07:30 AM	0	**86**	141	0	**227**	0	0	0	0	0	0	29	0	0	29	50	0	1	0	**51**	**307**
07:45 AM	0	52	143	0	195	0	0	0	0	0	**1**	23	0	0	24	46	0	0	0	46	265
Total Volume	0	300	564	0	864	0	1	0	0	1	1	105	0	0	106	176	0	2	0	178	1149
% App. Total	0	34.7	65.3	0		0	100	0	0		0.9	99.1	0	0		98.9	0	1.1	0		
PHF	.000	.872	.972	.000	.952	.000	.250	.000	.000	.250	.250	.820	.000	.000	.828	.880	.000	.500	.000	.873	.936



Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Miovision Scout
Turning Movement Count
Westlake, LA
Calcasieu Parish

File Name : Phillips Rd (LA 378) @ Westwood Rd (LA 378)
Site Code : 11-100
Start Date : 9/17/2012
Page No : 1

Groups Printed- Car - Medium - Heavy

	Westwood Rd Southbound				Phillips Rd (LA 378) Westbound				Westwood Rd (LA 378) Northbound				
Start Time	Left	Thru	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Int. Total
11:00 AM	1	6	0	7	45	0	0	45	5	49	0	54	106
11:15 AM	2	2	0	4	66	1	0	67	1	39	0	40	111
11:30 AM	1	2	0	3	53	3	0	56	4	53	0	57	116
11:45 AM	3	2	0	5	46	6	0	52	3	33	0	36	93
Total	7	12	0	19	210	10	0	220	13	174	0	187	426
12:00 PM	5	3	0	8	52	4	0	56	5	48	0	53	117
12:15 PM	2	6	0	8	43	2	0	45	2	43	0	45	98
12:30 PM	2	7	0	9	43	1	0	44	2	45	0	47	100
12:45 PM	1	5	0	6	68	2	0	70	2	55	0	57	133
Total	10	21	0	31	206	9	0	215	11	191	0	202	448
01:00 PM	2	7	0	9	42	2	0	44	4	49	0	53	106
01:15 PM	3	3	0	6	40	1	0	41	2	59	0	61	108
01:30 PM	1	4	0	5	63	2	0	65	5	43	0	48	118
01:45 PM	2	1	0	3	54	0	0	54	1	40	0	41	98
Total	8	15	0	23	199	5	0	204	12	191	0	203	430
02:00 PM	0	3	0	3	31	0	0	31	2	54	0	56	90
02:15 PM	3	3	0	6	46	3	0	49	5	57	0	62	117
02:30 PM	8	4	0	12	45	4	0	49	6	56	0	62	123
02:45 PM	3	2	0	5	48	0	0	48	2	61	0	63	116
Total	14	12	0	26	170	7	0	177	15	228	0	243	446
03:00 PM	2	2	0	4	37	4	0	41	6	76	0	82	127
03:15 PM	7	8	0	15	73	8	0	81	6	89	0	95	191
03:30 PM	4	3	0	7	56	5	0	61	7	103	0	110	178
03:45 PM	2	6	0	8	70	2	0	72	5	121	0	126	206
Total	15	19	0	34	236	19	0	255	24	389	0	413	702
04:00 PM	10	9	0	19	74	5	0	79	8	136	0	144	242
04:15 PM	7	3	0	10	65	2	0	67	7	127	0	134	211
04:30 PM	5	5	0	10	57	6	0	63	8	115	0	123	196
04:45 PM	1	2	0	3	57	1	0	58	6	114	0	120	181
Total	23	19	0	42	253	14	0	267	29	492	0	521	830
05:00 PM	6	5	0	11	75	4	0	79	11	157	0	168	258
05:15 PM	5	10	0	15	69	5	0	74	11	162	0	173	262
05:30 PM	10	2	0	12	61	5	0	66	10	127	0	137	215
05:45 PM	3	4	0	7	71	4	0	75	2	80	0	82	164
Total	24	21	0	45	276	18	0	294	34	526	0	560	899
06:00 PM	3	3	0	6	51	6	0	57	7	58	0	65	128
06:15 PM	5	5	0	10	50	5	0	55	8	96	0	104	169
06:30 PM	1	2	0	3	58	3	0	61	8	60	0	68	132
06:45 PM	3	4	0	7	42	4	0	46	7	70	0	77	130
Total	12	14	0	26	201	18	0	219	30	284	0	314	559
07:00 PM	4	1	0	5	45	4	0	49	3	68	0	71	125
07:15 PM	5	5	0	10	35	4	0	39	8	51	0	59	108
07:30 PM	4	3	0	7	28	3	0	31	7	55	0	62	100

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Phillips Rd (LA 378) @ Westwood Rd (LA 378)
Site Code : 11-100
Start Date : 9/17/2012
Page No : 2

Groups Printed- Car - Medium - Heavy

	Westwood Rd Southbound				Phillips Rd (LA 378) Westbound				Westwood Rd (LA 378) Northbound				
Start Time	Left	Thru	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Int. Total
07:45 PM	5	4	0	9	25	5	0	30	4	30	0	34	73
Total	18	13	0	31	133	16	0	149	22	204	0	226	406
08:00 PM	2	1	0	3	26	2	0	28	2	14	0	16	47
08:15 PM	4	2	0	6	19	1	0	20	3	49	0	52	78
08:30 PM	3	2	0	5	19	2	0	21	4	36	0	40	66
08:45 PM	2	4	0	6	16	0	0	16	7	46	0	53	75
Total	11	9	0	20	80	5	0	85	16	145	0	161	266
09:00 PM	2	1	0	3	19	1	0	20	0	33	0	33	56
09:15 PM	1	0	0	1	10	1	0	11	1	30	0	31	43
09:30 PM	3	1	0	4	9	0	0	9	3	24	0	27	40
09:45 PM	1	0	0	1	6	3	0	9	1	13	0	14	24
Total	7	2	0	9	44	5	0	49	5	100	0	105	163
10:00 PM	1	0	0	1	6	0	0	6	1	14	0	15	22
10:15 PM	0	0	0	0	6	2	0	8	0	13	0	13	21
10:30 PM	0	1	0	1	8	0	0	8	0	10	0	10	19
10:45 PM	0	0	0	0	2	1	0	3	1	7	0	8	11
Total	1	1	0	2	22	3	0	25	2	44	0	46	73
11:00 PM	0	1	0	1	9	0	0	9	1	11	0	12	22
11:15 PM	0	1	0	1	9	0	0	9	2	12	0	14	24
11:30 PM	0	0	0	0	1	0	0	1	0	12	0	12	13
11:45 PM	1	0	0	1	5	1	0	6	0	4	0	4	11
Total	1	2	0	3	24	1	0	25	3	39	0	42	70
12:00 AM	0	0	0	0	2	0	0	2	0	4	0	4	6
12:15 AM	0	0	0	0	3	1	0	4	0	12	0	12	16
12:30 AM	1	0	0	1	0	0	0	0	0	6	0	6	7
12:45 AM	0	0	0	0	1	0	0	1	1	5	0	6	7
Total	1	0	0	1	6	1	0	7	1	27	0	28	36
01:00 AM	1	0	0	1	2	1	0	3	0	3	0	3	7
01:15 AM	0	1	0	1	1	1	0	2	0	3	0	3	6
01:30 AM	0	0	0	0	1	0	0	1	0	1	0	1	2
01:45 AM	1	0	0	1	1	1	0	2	0	1	0	1	4
Total	2	1	0	3	5	3	0	8	0	8	0	8	19
02:00 AM	1	1	0	2	1	0	0	1	0	1	0	1	4
02:15 AM	0	0	0	0	3	0	0	3	0	2	0	2	5
02:30 AM	0	0	0	0	3	3	0	6	0	1	0	1	7
02:45 AM	0	0	0	0	4	0	0	4	0	2	0	2	6
Total	1	1	0	2	11	3	0	14	0	6	0	6	22
03:00 AM	0	2	0	2	3	0	0	3	1	1	0	2	7
03:15 AM	0	1	0	1	4	1	0	5	2	4	0	6	12
03:30 AM	0	2	0	2	4	1	0	5	1	1	0	2	9
03:45 AM	1	1	0	2	16	0	0	16	0	4	0	4	22
Total	1	6	0	7	27	2	0	29	4	10	0	14	50
04:00 AM	1	1	0	2	27	0	0	27	0	5	0	5	34
04:15 AM	0	0	0	0	27	1	0	28	1	8	0	9	37
04:30 AM	0	1	0	1	32	2	0	34	0	8	0	8	43
04:45 AM	1	3	0	4	50	1	0	51	1	12	0	13	68
Total	2	5	0	7	136	4	0	140	2	33	0	35	182

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Phillips Rd (LA 378) @ Westwood Rd (LA 378)
Site Code : 11-100
Start Date : 9/17/2012
Page No : 3

Groups Printed- Car - Medium - Heavy

	Westwood Rd Southbound				Phillips Rd (LA 378) Westbound				Westwood Rd (LA 378) Northbound				
Start Time	Left	Thru	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Int. Total
05:00 AM	0	1	0	1	57	1	0	58	2	14	0	16	75
05:15 AM	0	2	0	2	85	2	0	87	0	13	0	13	102
05:30 AM	0	1	0	1	121	0	0	121	0	16	0	16	138
05:45 AM	1	1	0	2	121	1	0	122	0	10	0	10	134
Total	1	5	0	6	384	4	0	388	2	53	0	55	449
06:00 AM	0	2	0	2	151	3	0	154	0	14	0	14	170
06:15 AM	0	8	0	8	166	4	0	170	1	16	0	17	195
06:30 AM	4	4	0	8	146	3	0	149	1	22	0	23	180
06:45 AM	2	6	0	8	134	2	0	136	4	33	0	37	181
Total	6	20	0	26	597	12	0	609	6	85	0	91	726
07:00 AM	3	6	0	9	146	1	0	147	0	29	0	29	185
07:15 AM	7	8	0	15	133	2	0	135	2	48	0	50	200
07:30 AM	3	6	0	9	145	0	0	145	3	43	0	46	200
07:45 AM	6	3	0	9	139	5	0	144	3	41	0	44	197
Total	19	23	0	42	563	8	0	571	8	161	0	169	782
08:00 AM	3	7	0	10	98	5	0	103	4	34	0	38	151
08:15 AM	2	4	0	6	84	1	0	85	1	28	0	29	120
08:30 AM	1	2	0	3	59	0	0	59	5	39	0	44	106
08:45 AM	5	5	0	10	64	0	0	64	6	34	0	40	114
Total	11	18	0	29	305	6	0	311	16	135	0	151	491
09:00 AM	1	6	0	7	61	1	0	62	4	37	0	41	110
09:15 AM	3	4	0	7	59	3	0	62	1	43	0	44	113
09:30 AM	5	1	0	6	59	0	0	59	4	28	0	32	97
09:45 AM	4	5	0	9	36	2	0	38	4	42	0	46	93
Total	13	16	0	29	215	6	0	221	13	150	0	163	413
10:00 AM	3	6	0	9	46	3	0	49	4	36	0	40	98
10:15 AM	4	1	0	5	61	2	0	63	2	40	0	42	110
10:30 AM	1	4	0	5	56	0	0	56	3	40	0	43	104
10:45 AM	5	0	0	5	45	1	0	46	4	33	0	37	88
Total	13	11	0	24	208	6	0	214	13	149	0	162	400
Grand Total	221	266	0	487	4511	185	0	4696	281	3824	0	4105	9288
Apprch %	45.4	54.6	0		96.1	3.9	0		6.8	93.2	0		
Total %	2.4	2.9	0	5.2	48.6	2	0	50.6	3	41.2	0	44.2	
Car	218	261	0	479	4433	183	0	4616	273	3776	0	4049	9144
% Car	98.6	98.1	0	98.4	98.3	98.9	0	98.3	97.2	98.7	0	98.6	98.4
Medium	2	3	0	5	57	1	0	58	4	30	0	34	97
% Medium	0.9	1.1	0	1	1.3	0.5	0	1.2	1.4	0.8	0	0.8	1
Heavy	1	2	0	3	21	1	0	22	4	18	0	22	47
% Heavy	0.5	0.8	0	0.6	0.5	0.5	0	0.5	1.4	0.5	0	0.5	0.5

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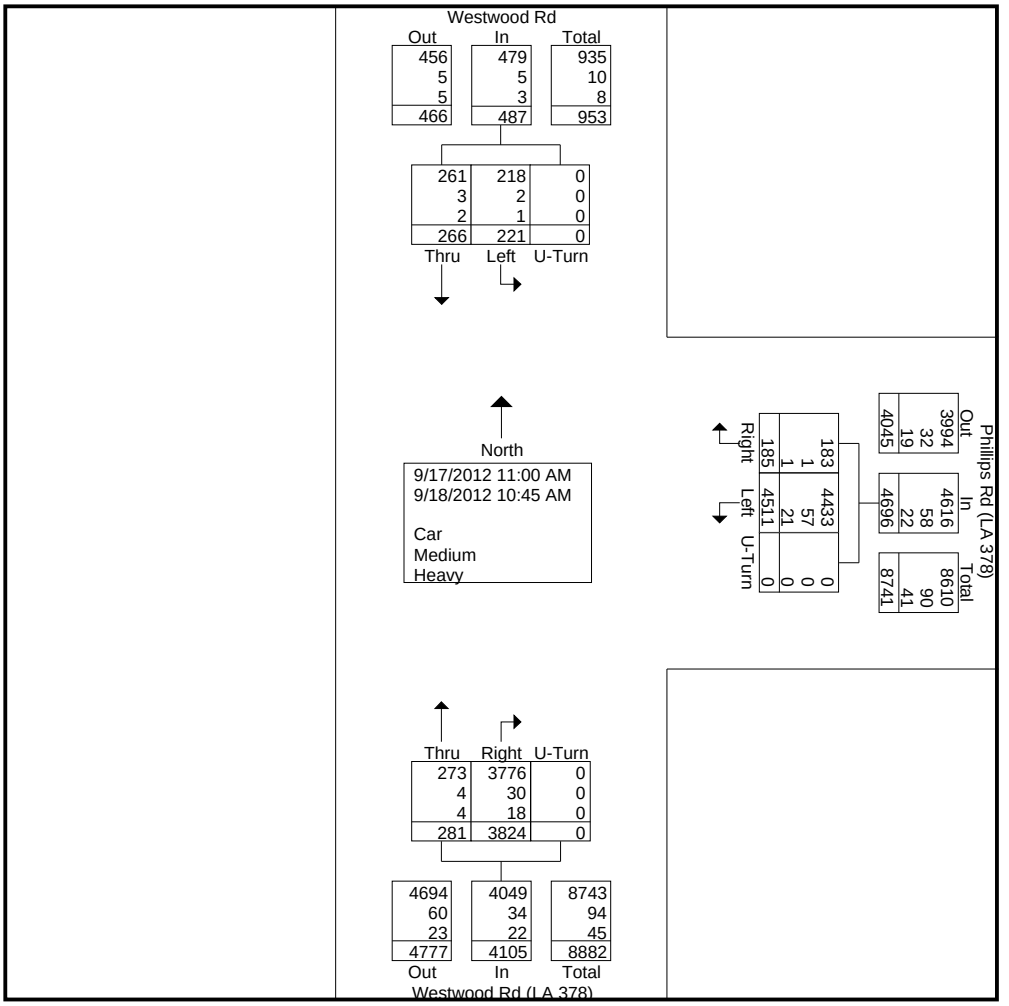
400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Phillips Rd (LA 378) @ Westwood Rd (LA 378)
Site Code : 11-100
Start Date : 9/17/2012
Page No : 4



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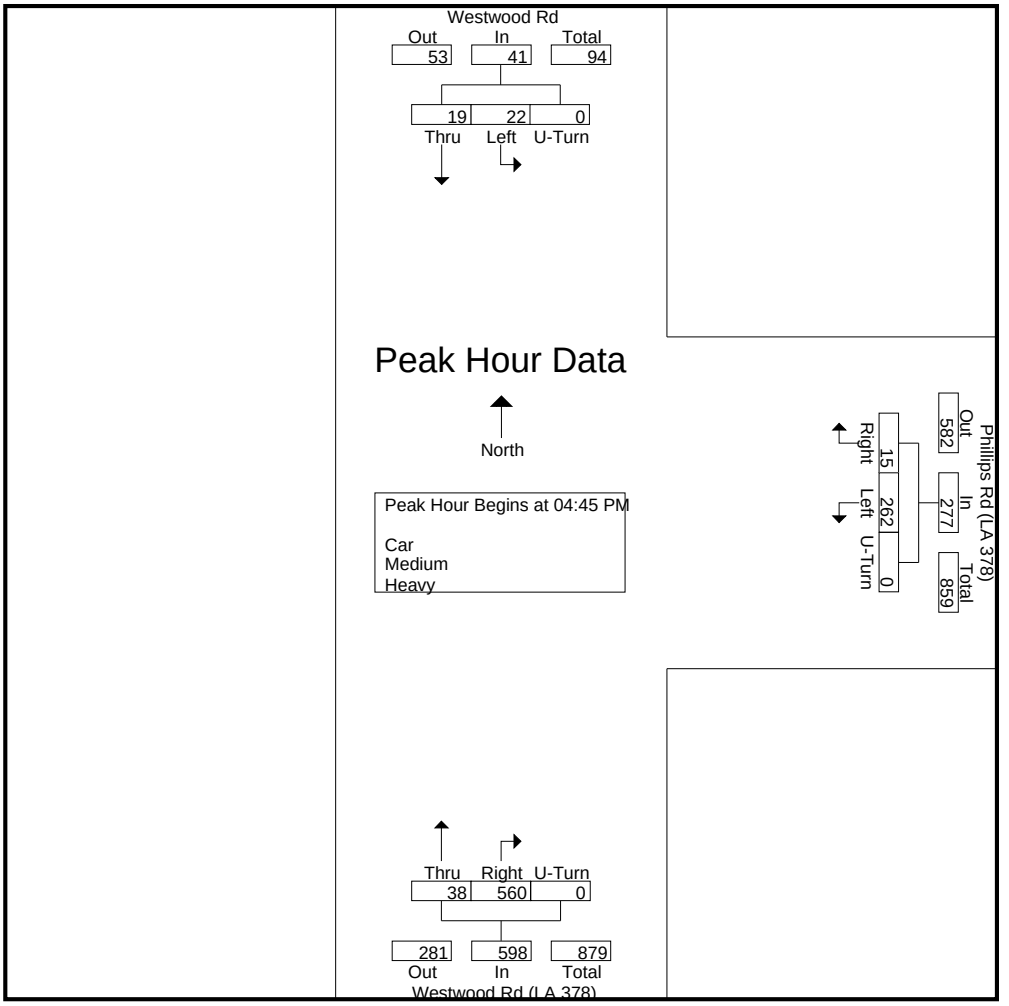
504-523-5511

File Name : Phillips Rd (LA 378) @ Westwood Rd (LA 378)
Site Code : 11-100
Start Date : 9/17/2012

	Westwood Rd Southbound				Phillips Rd (LA 378) Westbound				Westwood Rd (LA 378) Northbound				
Start Time	Left	Thru	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	1	2	0	3	57	1	0	58	6	114	0	120	181
05:00 PM	6	5	0	11	**75**	4	0	**79**	**11**	157	0	168	258
05:15 PM	5	**10**	0	**15**	69	**5**	0	74	11	**162**	0	**173**	**262**
05:30 PM	**10**	2	0	12	61	5	0	66	10	127	0	137	215
Total Volume	22	19	0	41	262	15	0	277	38	560	0	598	916
% App. Total	53.7	46.3	0		94.6	5.4	0		6.4	93.6	0		
PHF	.550	.475	.000	.683	.873	.750	.000	.877	.864	.864	.000	.864	.874



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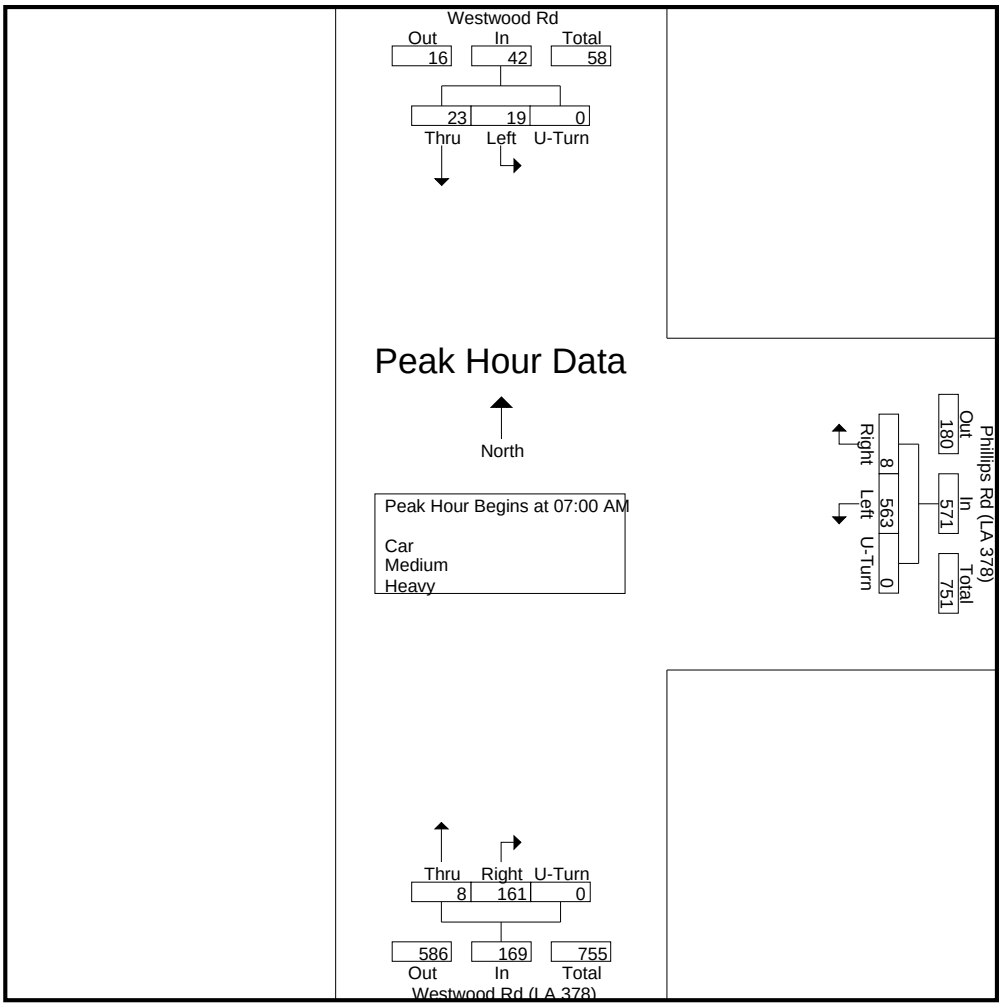
504-523-5511

File Name : Phillips Rd (LA 378) @ Westwood Rd (LA 378)
Site Code : 11-100
Start Date : 9/17/2012
Page No : 6

	Westwood Rd Southbound				Phillips Rd (LA 378) Westbound				Westwood Rd (LA 378) Northbound				
Start Time	Left	Thru	U-Turn	App. Total	Left	Right	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	3	6	0	9	**146**	1	0	**147**	0	29	0	29	185
07:15 AM	**7**	**8**	0	**15**	133	2	0	135	2	**48**	0	**50**	**200**
07:30 AM	3	6	0	9	145	0	0	145	**3**	43	0	46	200
07:45 AM	6	3	0	9	139	**5**	0	144	3	41	0	44	197
Total Volume	19	23	0	42	563	8	0	571	8	161	0	169	782
% App. Total	45.2	54.8	0		98.6	1.4	0		4.7	95.3	0		
PHF	.679	.719	.000	.700	.964	.400	.000	.971	.667	.839	.000	.845	.978



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New Orleans, LA 70130
504-523-5511

Miovision Scout
Turning Movement Count
Westlake, LA
Calcasieu Parish

File Name : Davis Rd (LA 378) @ Sam Houston Jones Pkwy
Site Code : 11-100
Start Date : 5/1/2013
Page No : 1

Groups Printed- Car - Medium - Heavy

	Sam Houston Jones Pkwy Southbound					Sam Houston Jones Pkwy (LA 378) Westbound					River Mist Northbound					Davis Rd (LA 378) Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
11:00 AM	21	0	12	0	33	1	53	16	0	70	0	0	1	0	1	7	56	0	0	63	167
11:15 AM	13	0	10	0	23	0	73	16	1	90	0	0	1	0	1	9	72	1	0	82	196
11:30 AM	12	0	9	0	21	0	63	21	0	84	1	0	1	0	2	18	64	0	0	82	189
11:45 AM	22	0	10	0	32	0	51	22	0	73	0	0	0	0	0	13	80	0	0	93	198
Total	68	0	41	0	109	1	240	75	1	317	1	0	3	0	4	47	272	1	0	320	750
12:00 PM	16	0	12	0	28	0	73	19	0	92	1	0	1	0	2	16	69	0	0	85	207
12:15 PM	16	0	6	0	22	1	66	21	0	88	0	0	0	0	0	8	58	0	0	66	176
12:30 PM	15	0	13	0	28	1	57	21	0	79	0	0	1	0	1	10	71	1	0	82	190
12:45 PM	10	0	11	0	21	1	69	22	0	92	0	0	1	0	1	14	59	0	0	73	187
Total	57	0	42	0	99	3	265	83	0	351	1	0	3	0	4	48	257	1	0	306	760
01:00 PM	19	0	11	0	30	0	76	19	0	95	0	0	1	0	1	17	66	0	0	83	209
01:15 PM	15	0	13	0	28	0	68	19	1	88	0	0	0	0	0	12	77	0	0	89	205
01:30 PM	15	0	12	0	27	1	76	12	0	89	1	0	2	0	3	12	74	1	0	87	206
01:45 PM	19	0	13	0	32	1	62	27	0	90	0	0	0	0	0	12	69	0	0	81	203
Total	68	0	49	0	117	2	282	77	1	362	1	0	3	0	4	53	286	1	0	340	823
02:00 PM	21	0	14	0	35	0	65	16	0	81	0	0	0	0	0	12	64	0	2	78	194
02:15 PM	24	0	18	0	42	0	67	20	0	87	0	0	0	0	0	9	88	0	0	97	226
02:30 PM	23	0	9	0	32	1	63	19	0	83	0	1	1	0	2	14	105	1	0	120	237
02:45 PM	23	0	15	0	38	0	69	18	0	87	0	0	1	0	1	10	101	0	0	111	237
Total	91	0	56	0	147	1	264	73	0	338	0	1	2	0	3	45	358	1	2	406	894
03:00 PM	22	0	15	0	37	2	68	16	0	86	0	1	0	0	1	19	109	0	0	128	252
03:15 PM	18	0	14	0	32	0	104	40	0	144	0	0	1	0	1	23	111	0	1	135	312
03:30 PM	18	0	15	0	33	0	79	42	0	121	0	0	0	0	0	33	141	0	0	174	328
03:45 PM	20	0	20	0	40	2	86	42	0	130	0	0	0	0	0	37	179	0	2	218	388
Total	78	0	64	0	142	4	337	140	0	481	0	1	1	0	2	112	540	0	3	655	1280
04:00 PM	12	0	12	0	24	0	88	44	0	132	1	0	0	0	1	33	176	0	0	209	366
04:15 PM	21	0	25	0	46	1	105	48	0	154	0	0	0	0	0	31	193	0	0	224	424
04:30 PM	21	0	17	0	38	0	111	28	0	139	0	0	1	0	1	23	171	2	0	196	374
04:45 PM	31	0	16	0	47	0	109	27	0	136	0	0	1	0	1	38	172	1	0	211	395
Total	85	0	70	0	155	1	413	147	0	561	1	0	2	0	3	125	712	3	0	840	1559
05:00 PM	19	0	13	0	32	1	125	31	0	157	0	0	1	0	1	33	203	0	0	236	426
05:15 PM	22	0	18	0	40	2	107	32	0	141	0	1	1	0	2	26	203	1	0	230	413
05:30 PM	18	0	11	0	29	1	94	49	0	144	0	0	2	0	2	39	235	2	0	276	451
05:45 PM	21	0	7	0	28	0	78	35	0	113	0	0	0	0	0	47	225	0	0	272	413
Total	80	0	49	0	129	4	404	147	0	555	0	1	4	0	5	145	866	3	0	1014	1703
06:00 PM	24	0	16	0	40	0	90	28	0	118	0	0	0	0	0	25	129	0	0	154	312
06:15 PM	26	0	4	0	30	0	76	31	2	109	0	0	2	0	2	27	148	0	0	175	316
06:30 PM	22	0	7	0	29	1	78	23	0	102	0	0	0	0	0	14	85	0	0	99	230
06:45 PM	18	0	16	0	34	1	53	28	0	82	0	0	0	0	0	16	113	0	0	129	245
Total	90	0	43	0	133	2	297	110	2	411	0	0	2	0	2	82	475	0	0	557	1103
07:00 PM	20	0	14	0	34	0	58	20	0	78	0	0	1	0	1	25	102	2	0	129	242
07:15 PM	8	0	9	0	17	0	51	18	0	69	0	0	0	0	0	17	87	0	1	105	191
07:30 PM	16	0	11	0	27	0	69	24	0	93	0	0	1	0	1	21	69	1	0	91	212

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Davis Rd (LA 378) @ Sam Houston Jones Pkwy
Site Code : 11-100
Start Date : 5/1/2013
Page No : 2

Groups Printed- Car - Medium - Heavy

	Sam Houston Jones Pkwy Southbound					Sam Houston Jones Pkwy (LA 378) Westbound					River Mist Northbound					Davis Rd (LA 378) Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:45 PM	11	0	4	0	15	0	53	31	0	84	1	0	0	0	1	24	70	0	0	94	194
Total	55	0	38	0	93	0	231	93	0	324	1	0	2	0	3	87	328	3	1	419	839
08:00 PM	17	0	12	0	29	0	50	20	1	71	0	0	0	0	0	20	71	0	1	92	192
08:15 PM	11	1	9	0	21	0	37	24	0	61	0	0	0	0	0	15	62	0	0	77	159
08:30 PM	21	0	10	0	31	0	39	15	0	54	0	0	0	0	0	13	66	0	0	79	164
08:45 PM	6	0	1	0	7	1	22	22	0	45	0	0	1	0	1	17	56	0	0	73	126
Total	55	1	32	0	88	1	148	81	1	231	0	0	1	0	1	65	255	0	1	321	641
09:00 PM	9	0	5	0	14	0	32	14	0	46	0	0	0	0	0	12	47	0	0	59	119
09:15 PM	4	0	5	0	9	0	28	14	0	42	0	0	0	0	0	14	47	0	0	61	112
09:30 PM	2	1	3	0	6	0	22	7	0	29	0	0	0	0	0	11	52	0	0	63	98
09:45 PM	5	0	4	0	9	0	14	5	0	19	0	0	0	0	0	9	30	0	0	39	67
Total	20	1	17	0	38	0	96	40	0	136	0	0	0	0	0	46	176	0	0	222	396
10:00 PM	5	0	1	0	6	0	14	2	0	16	0	0	0	0	0	13	21	0	0	34	56
10:15 PM	1	0	2	0	3	1	12	4	0	17	0	0	0	0	0	2	15	0	0	17	37
10:30 PM	1	0	1	0	2	0	11	3	0	14	0	0	0	0	0	3	25	0	0	28	44
10:45 PM	1	0	0	0	1	0	20	3	0	23	1	0	0	0	1	5	18	0	0	23	48
Total	8	0	4	0	12	1	57	12	0	70	1	0	0	0	1	23	79	0	0	102	185
11:00 PM	2	0	1	0	3	0	11	1	0	12	0	0	0	0	0	1	17	0	0	18	33
11:15 PM	1	0	1	0	2	0	7	1	0	8	0	0	0	0	0	1	21	0	0	22	32
11:30 PM	1	0	1	0	2	0	5	1	0	6	0	0	0	0	0	2	15	0	0	17	25
11:45 PM	0	0	1	0	1	0	7	0	0	7	0	0	0	0	0	0	17	0	0	17	25
Total	4	0	4	0	8	0	30	3	0	33	0	0	0	0	0	4	70	0	0	74	115
12:00 AM	0	0	1	0	1	0	10	1	0	11	0	0	0	0	0	2	13	0	1	16	28
12:15 AM	0	0	0	0	0	0	7	1	0	8	0	0	0	0	0	0	5	0	0	5	13
12:30 AM	0	0	4	0	4	0	2	2	0	4	0	0	0	0	0	2	11	0	0	13	21
12:45 AM	0	0	3	0	3	0	6	1	0	7	0	0	0	0	0	0	2	0	0	2	12
Total	0	0	8	0	8	0	25	5	0	30	0	0	0	0	0	4	31	0	1	36	74
01:00 AM	1	0	1	0	2	0	7	1	0	8	0	0	0	0	0	1	5	0	1	7	17
01:15 AM	0	0	0	0	0	0	7	1	0	8	0	0	0	0	0	1	7	0	0	8	16
01:30 AM	0	0	1	0	1	0	5	1	0	6	0	0	0	0	0	0	5	0	0	5	12
01:45 AM	2	0	0	0	2	0	5	1	0	6	0	0	0	0	0	2	7	0	0	9	17
Total	3	0	2	0	5	0	24	4	0	28	0	0	0	0	0	4	24	0	1	29	62
02:00 AM	1	0	0	0	1	0	7	0	0	7	0	0	0	0	0	0	6	0	0	6	14
02:15 AM	1	0	0	0	1	0	3	1	0	4	0	0	0	0	0	0	4	0	0	4	9
02:30 AM	3	0	0	0	3	0	5	1	0	6	0	0	0	0	0	4	4	0	0	8	17
02:45 AM	1	0	1	0	2	0	4	6	0	10	0	0	0	0	0	0	4	0	0	4	16
Total	6	0	1	0	7	0	19	8	0	27	0	0	0	0	0	4	18	0	0	22	56
03:00 AM	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	1	4	0	0	5	9
03:15 AM	3	0	0	0	3	0	5	1	0	6	0	0	0	0	0	1	2	0	0	3	12
03:30 AM	0	0	0	0	0	0	14	2	0	16	0	0	0	0	0	1	5	0	0	6	22
03:45 AM	1	0	0	0	1	0	18	2	0	20	0	0	0	0	0	0	2	0	0	2	23
Total	4	0	0	0	4	0	40	6	0	46	0	0	0	0	0	3	13	0	0	16	66
04:00 AM	4	0	4	0	8	0	33	1	0	34	0	0	0	0	0	0	9	0	0	9	51
04:15 AM	2	0	3	0	5	0	29	1	0	30	0	0	1	0	1	2	3	1	0	6	42
04:30 AM	5	0	7	0	12	0	36	2	0	38	1	0	0	0	1	3	10	0	0	13	64
04:45 AM	3	0	5	0	8	0	42	0	0	42	0	0	0	0	0	2	10	0	0	12	62
Total	14	0	19	0	33	0	140	4	0	144	1	0	1	0	2	7	32	1	0	40	219

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

File Name : Davis Rd (LA 378) @ Sam Houston Jones Pkwy
Site Code : 11-100
Start Date : 5/1/2013
Page No : 3

Groups Printed- Car - Medium - Heavy

	Sam Houston Jones Pkwy Southbound					Sam Houston Jones Pkwy (LA 378) Westbound					River Mist Northbound					Davis Rd (LA 378) Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
05:00 AM	3	0	14	0	17	0	71	0	0	71	0	0	0	0	0	1	28	0	0	29	117
05:15 AM	6	0	15	0	21	0	73	0	0	73	0	0	0	0	0	6	40	0	0	46	140
05:30 AM	15	0	23	0	38	0	103	2	0	105	0	0	0	0	0	1	41	0	0	42	185
05:45 AM	8	0	32	0	40	0	114	2	0	116	0	0	0	0	0	4	19	0	0	23	179
Total	32	0	84	0	116	0	361	4	0	365	0	0	0	0	0	12	128	0	0	140	621
06:00 AM	20	0	40	0	60	0	203	7	0	210	0	0	0	0	0	5	27	0	0	32	302
06:15 AM	16	0	31	0	47	0	236	6	0	242	0	0	0	0	0	2	26	0	0	28	317
06:30 AM	24	0	33	0	57	0	198	7	0	205	0	0	0	0	0	3	32	0	0	35	297
06:45 AM	35	0	27	0	62	0	147	3	0	150	0	0	0	0	0	8	40	0	0	48	260
Total	95	0	131	0	226	0	784	23	0	807	0	0	0	0	0	18	125	0	0	143	1176
07:00 AM	51	0	47	0	98	1	199	10	0	210	1	0	0	0	1	5	56	0	0	61	370
07:15 AM	66	0	31	0	97	0	187	15	0	202	1	0	0	0	1	8	62	0	1	71	371
07:30 AM	34	0	23	0	57	0	205	18	0	223	0	0	2	0	2	8	69	0	1	78	360
07:45 AM	16	0	23	0	39	0	141	25	0	166	0	0	1	0	1	4	62	1	0	67	273
Total	167	0	124	0	291	1	732	68	0	801	2	0	3	0	5	25	249	1	2	277	1374
08:00 AM	19	0	13	0	32	0	102	10	0	112	0	0	0	0	0	8	52	0	0	60	204
08:15 AM	30	0	17	0	47	1	94	14	0	109	0	0	0	0	0	7	55	0	0	62	218
08:30 AM	15	0	19	0	34	0	68	19	0	87	0	0	0	0	0	8	48	0	0	56	177
08:45 AM	17	0	21	0	38	2	73	16	0	91	0	0	2	0	2	8	53	0	0	61	192
Total	81	0	70	0	151	3	337	59	0	399	0	0	2	0	2	31	208	0	0	239	791
09:00 AM	19	0	18	0	37	0	62	11	0	73	0	0	0	0	0	9	50	0	2	61	171
09:15 AM	14	0	17	0	31	0	78	10	0	88	0	0	0	0	0	11	64	0	0	75	194
09:30 AM	22	0	15	0	37	1	71	8	0	80	0	0	1	0	1	6	49	0	1	56	174
09:45 AM	21	0	13	0	34	0	67	15	0	82	0	0	1	0	1	4	46	1	0	51	168
Total	76	0	63	0	139	1	278	44	0	323	0	0	2	0	2	30	209	1	3	243	707
10:00 AM	16	0	14	0	30	1	57	20	0	78	0	0	0	0	0	11	59	0	0	70	178
10:15 AM	14	0	14	0	28	0	60	10	0	70	0	0	1	0	1	9	61	0	1	71	170
10:30 AM	15	0	12	0	27	1	71	12	0	84	2	0	0	0	2	13	49	0	0	62	175
10:45 AM	12	0	11	0	23	0	54	17	0	71	0	0	1	0	1	12	63	0	0	75	170
Total	57	0	51	0	108	2	242	59	0	303	2	0	2	0	4	45	232	0	1	278	693
Grand Total	1294	2	1062	0	2358	27	6046	1365	5	7443	11	3	33	0	47	1065	5943	16	15	7039	16887
Apprch %	54.9	0.1	45	0		0.4	81.2	18.3	0.1		23.4	6.4	70.2	0		15.1	84.4	0.2	0.2		
Total %	7.7	0	6.3	0	14	0.2	35.8	8.1	0	44.1	0.1	0	0.2	0	0.3	6.3	35.2	0.1	0.1	41.7	
Car	1261	2	1044	0	2307	26	5908	1335	5	7274	11	3	32	0	46	1049	5827	16	14	6906	16533
% Car	97.4	100	98.3	0	97.8	96.3	97.7	97.8	100	97.7	100	100	97	0	97.9	98.5	98	100	93.3	98.1	97.9
Medium	16	0	15	0	31	1	94	16	0	111	0	0	1	0	1	14	70	0	0	84	227
% Medium	1.2	0	1.4	0	1.3	3.7	1.6	1.2	0	1.5	0	0	3	0	2.1	1.3	1.2	0	0	1.2	1.3
Heavy	17	0	3	0	20	0	44	14	0	58	0	0	0	0	0	2	46	0	1	49	127
% Heavy	1.3	0	0.3	0	0.8	0	0.7	1	0	0.8	0	0	0	0	0	0.2	0.8	0	6.7	0.7	0.8

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400 N Peters Street, Suite 206
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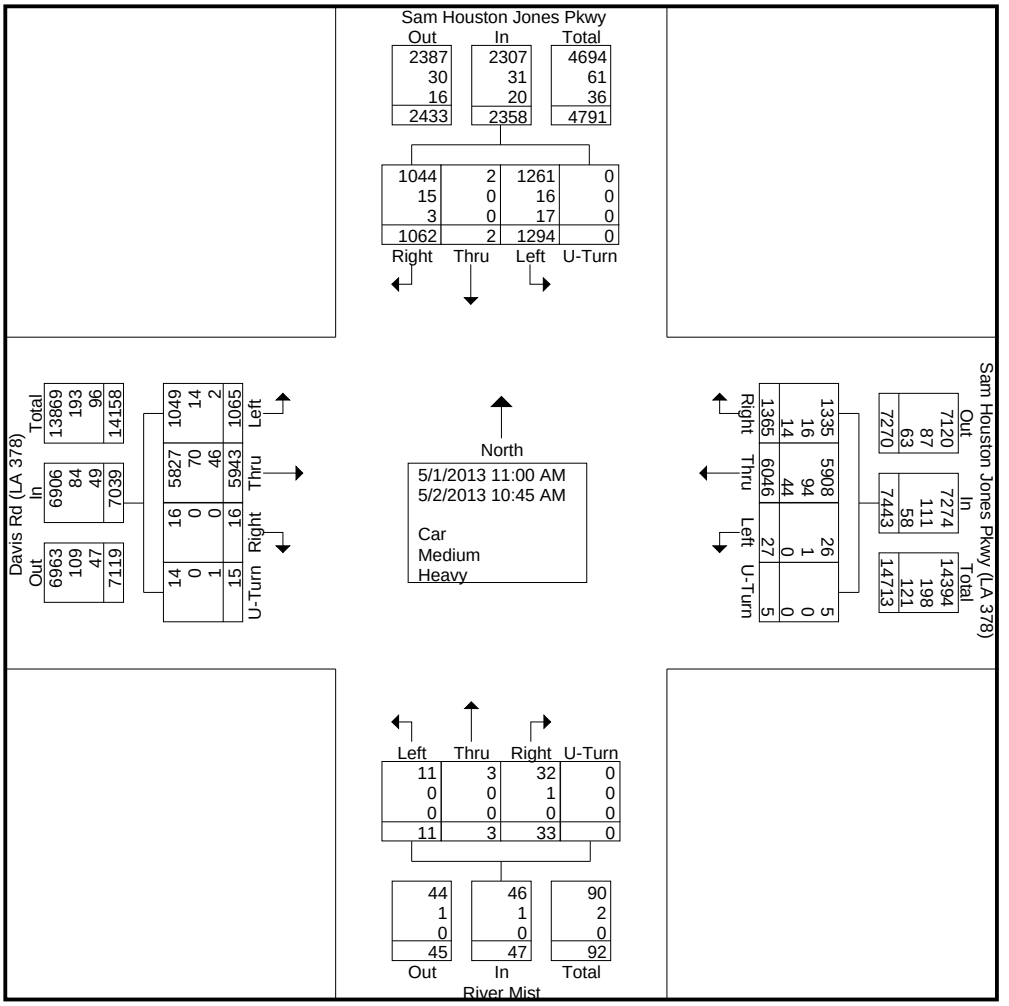
504-523-5511

File Name : Davis Rd (LA 378) @ Sam Houston Jones Pkwy
Site Code : 11-100
Start Date : 5/1/2013
Page No : 4



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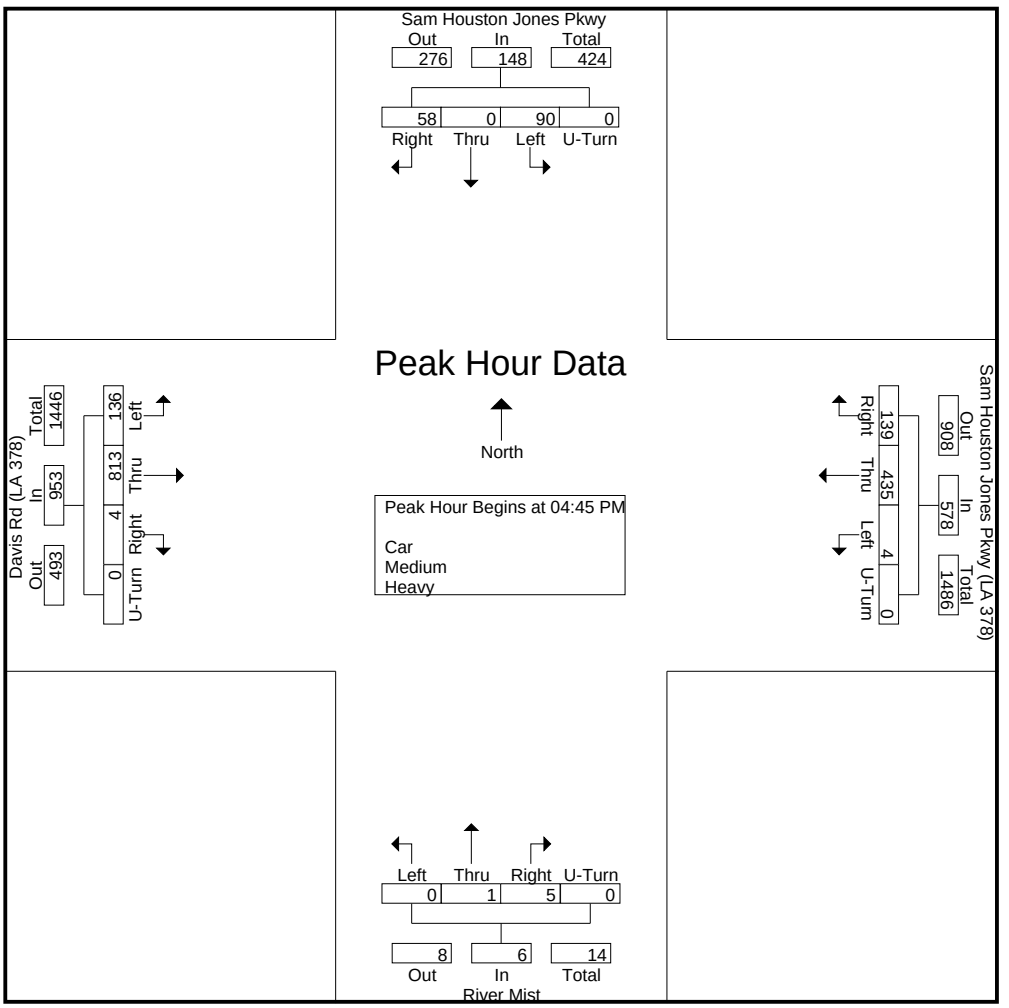
File Name : Davis Rd (LA 378) @ Sam Houston Jones Pkwy
Site Code : 11-100
Start Date : 5/1/2013
Page No : 5

	Sam Houston Jones Pkwy Southbound					Sam Houston Jones Pkwy (LA 378) Westbound					River Mist Northbound					Davis Rd (LA 378) Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	**31**	0	16	0	**47**	0	109	27	0	136	0	0	1	0	1	38	172	1	0	211	395
05:00 PM	19	0	13	0	32	1	**125**	31	0	**157**	0	0	1	0	1	33	203	0	0	236	426
05:15 PM	22	0	**18**	0	40	**2**	107	32	0	141	0	**1**	1	0	**2**	26	203	1	0	230	413
05:30 PM	18	0	11	0	29	1	94	**49**	0	144	0	0	**2**	0	2	**39**	**235**	**2**	0	**276**	**451**
Total Volume	90	0	58	0	148	4	435	139	0	578	0	1	5	0	6	136	813	4	0	953	1685
% App. Total	60.8	0	39.2	0		0.7	75.3	24	0		0	16.7	83.3	0		14.3	85.3	0.4	0		
PHF	.726	.000	.806	.000	.787	.500	.870	.709	.000	.920	.000	.250	.625	.000	.750	.872	.865	.500	.000	.863	.934



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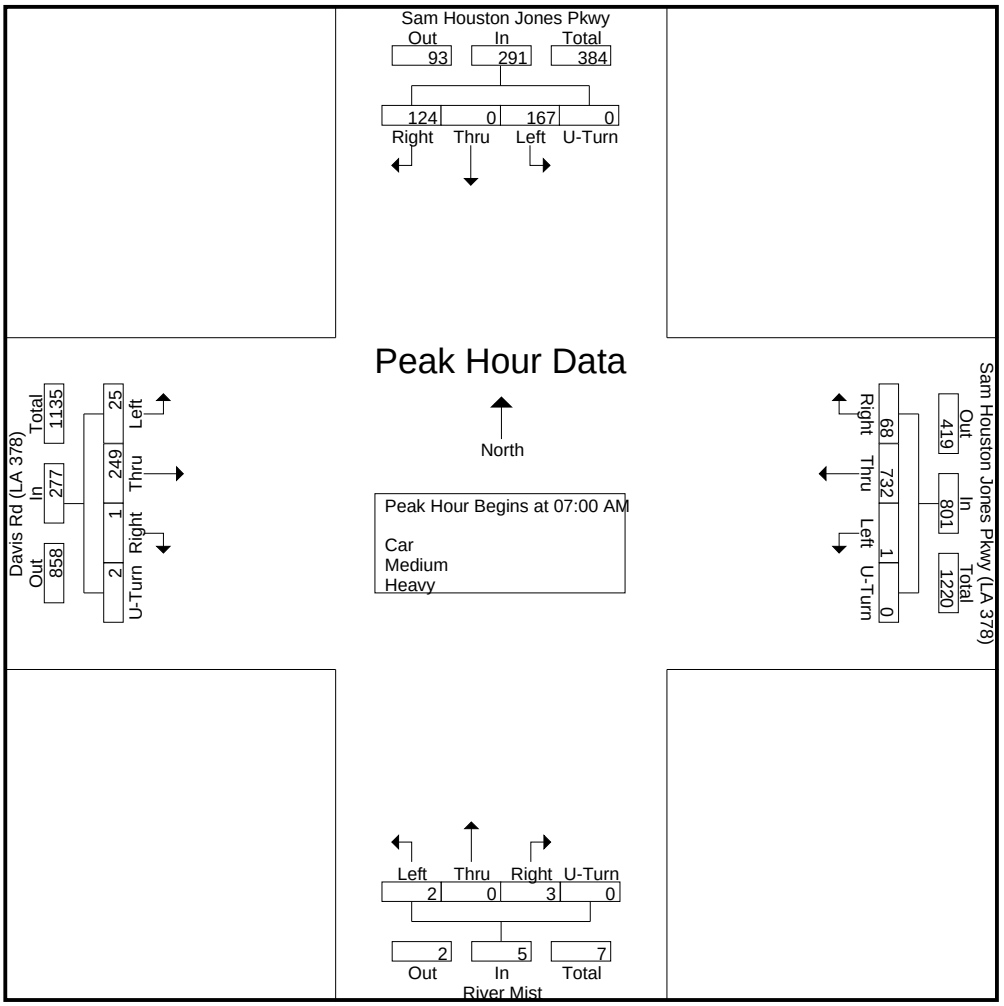
File Name : Davis Rd (LA 378) @ Sam Houston Jones Pkwy
Site Code : 11-100
Start Date : 5/1/2013
Page No : 6

	Sam Houston Jones Pkwy Southbound					Sam Houston Jones Pkwy (LA 378) Westbound					River Mist Northbound					Davis Rd (LA 378) Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	51	0	**47**	0	**98**	**1**	199	10	0	210	**1**	0	0	0	1	5	56	0	0	61	370
07:15 AM	**66**	0	31	0	97	0	187	15	0	202	1	0	0	0	1	**8**	62	0	**1**	71	**371**
07:30 AM	34	0	23	0	57	0	**205**	18	0	**223**	0	0	**2**	0	**2**	8	**69**	0	1	**78**	360
07:45 AM	16	0	23	0	39	0	141	**25**	0	166	0	0	1	0	1	4	62	**1**	0	67	273
Total Volume	167	0	124	0	291	1	732	68	0	801	2	0	3	0	5	25	249	1	2	277	1374
% App. Total	57.4	0	42.6	0		0.1	91.4	8.5	0		40	0	60	0		9	89.9	0.4	0.7		
PHF	.633	.000	.660	.000	.742	.250	.893	.680	.000	.898	.500	.000	.375	.000	.625	.781	.902	.250	.500	.888	.926



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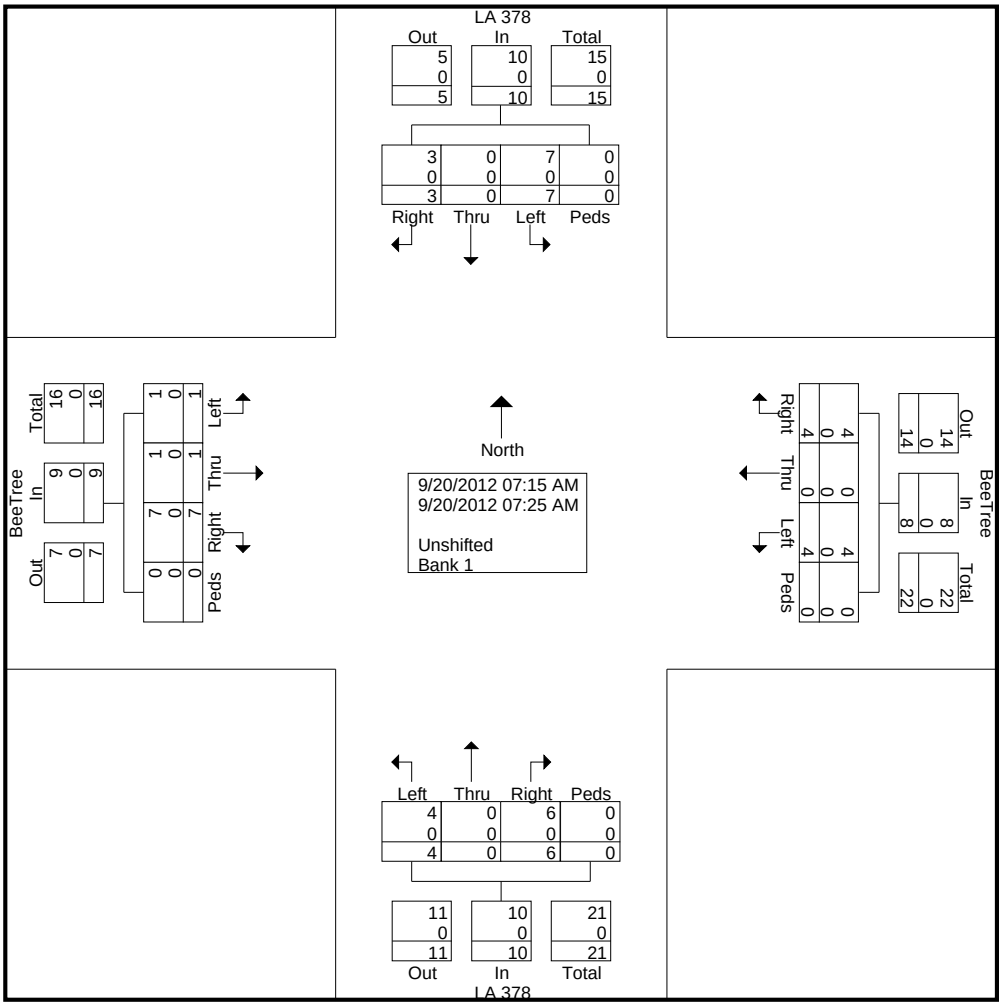
Calcasieu Parish
BeeTree @ LA 378
AM Peak

File Name : BeeTree @ LA 378 AM
Site Code : 11-100
Start Date : 9/20/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					BeeTree Westbound					LA 378 Northbound					BeeTree 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
07:15 AM	5	0	2	0	7	2	0	0	0	2	1	0	2	0	3	0	1	1	0	2	14
07:20 AM	0	0	0	0	0	0	0	2	0	2	2	0	2	0	4	0	0	3	0	3	9
07:25 AM	2	0	1	0	3	2	0	2	0	4	1	0	2	0	3	1	0	3	0	4	14
Grand Total	7	0	3	0	10	4	0	4	0	8	4	0	6	0	10	1	1	7	0	9	37
Apprch %	70	0	30	0		50	0	50	0		40	0	60	0		11.1	11.1	77.8	0		
Total %	18.9	0	8.1	0	27	10.8	0	10.8	0	21.6	10.8	0	16.2	0	27	2.7	2.7	18.9	0	24.3	
Unshifted	7	0	3	0	10	4	0	4	0	8	4	0	6	0	10	1	1	7	0	9	37
% Unshifted	100	0	100	0	100	100	0	100	0	100	100	0	100	0	100	100	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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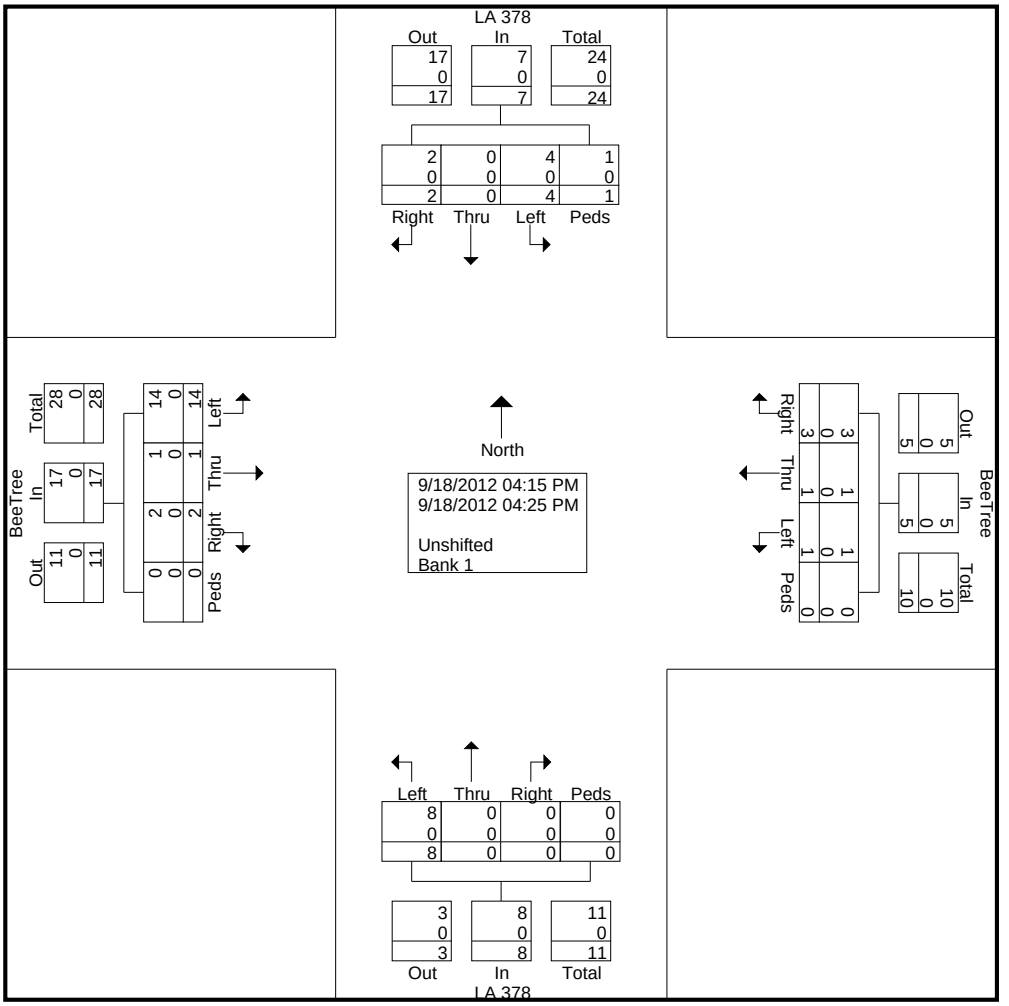
Calcasieu Parish
BeeTree @ LA 378
PM Peak

File Name : BeeTree @ LA 378 PM
Site Code : 11-100
Start Date : 9/18/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					BeeTree Westbound					LA 378 Northbound					BeeTree 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
04:15 PM	3	0	0	1	4	0	1	3	0	4	1	0	0	0	1	4	0	1	0	5	14
04:20 PM	1	0	1	0	2	1	0	0	0	1	4	0	0	0	4	9	1	0	0	10	17
04:25 PM	0	0	1	0	1	0	0	0	0	0	3	0	0	0	3	1	0	1	0	2	6
Grand Total	4	0	2	1	7	1	1	3	0	5	8	0	0	0	8	14	1	2	0	17	37
Apprch %	57.1	0	28.6	14.3		20	20	60	0		100	0	0	0		82.4	5.9	11.8	0		
Total %	10.8	0	5.4	2.7	18.9	2.7	2.7	8.1	0	13.5	21.6	0	0	0	21.6	37.8	2.7	5.4	0	45.9	
Unshifted	4	0	2	1	7	1	1	3	0	5	8	0	0	0	8	14	1	2	0	17	37
% Unshifted	100	0	100	100	100	100	100	100	0	100	100	0	0	0	100	100	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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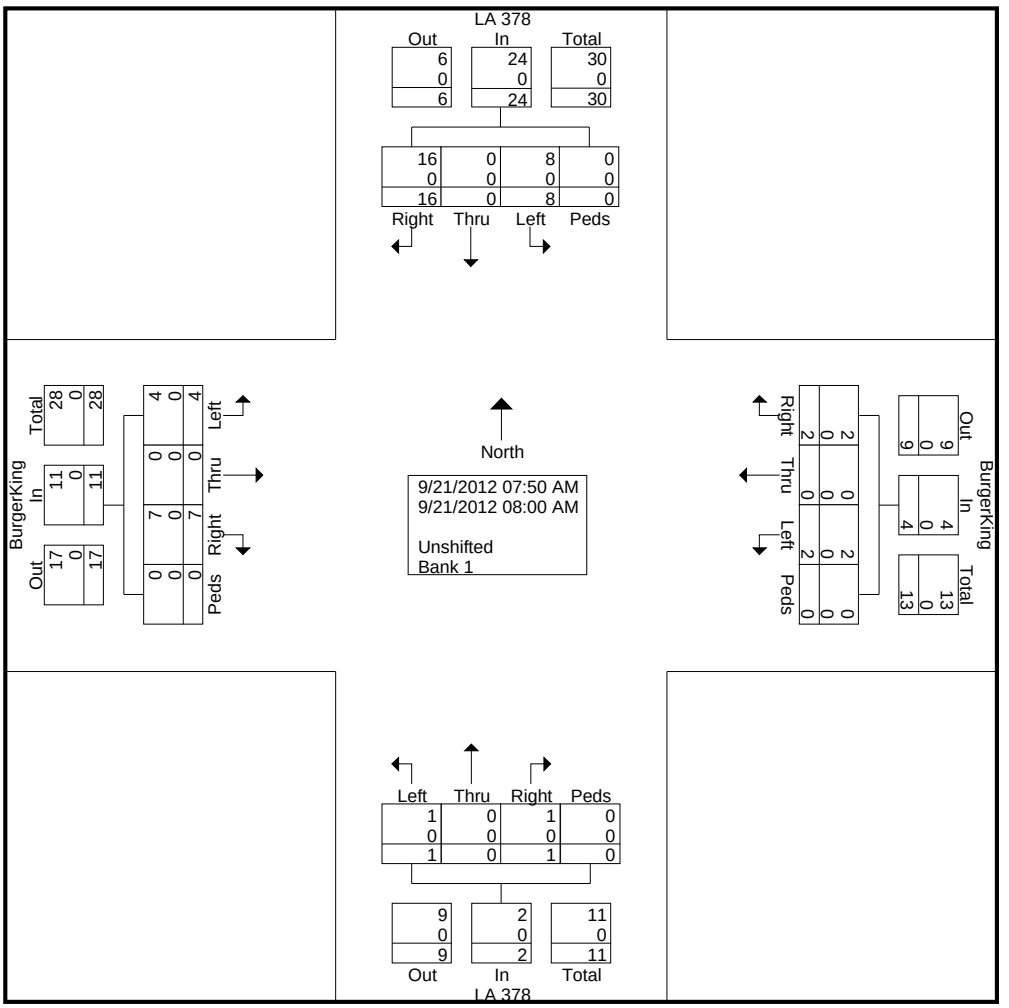
Calcasieu Parish
BurgerKing @ LA 378
AM Peak

File Name : BurgerKing @ LA 378 AM
Site Code : 11-100
Start Date : 9/21/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					BurgerKing Westbound					LA 378 Northbound					BurgerKing 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
07:50 AM	7	0	6	0	13	1	0	1	0	2	0	0	1	0	1	2	0	4	0	6	22
07:55 AM	0	0	5	0	5	1	0	1	0	2	1	0	0	0	1	0	0	2	0	2	10
Total	7	0	11	0	18	2	0	2	0	4	1	0	1	0	2	2	0	6	0	8	32
08:00 AM	1	0	5	0	6	0	0	0	0	0	0	0	0	0	0	2	0	1	0	3	9
Grand Total	8	0	16	0	24	2	0	2	0	4	1	0	1	0	2	4	0	7	0	11	41
Apprch %	33.3	0	66.7	0		50	0	50	0		50	0	50	0		36.4	0	63.6	0		
Total %	19.5	0	39	0	58.5	4.9	0	4.9	0	9.8	2.4	0	2.4	0	4.9	9.8	0	17.1	0	26.8	
Unshifted	8	0	16	0	24	2	0	2	0	4	1	0	1	0	2	4	0	7	0	11	41
% Unshifted	100	0	100	0	100	100	0	100	0	100	100	0	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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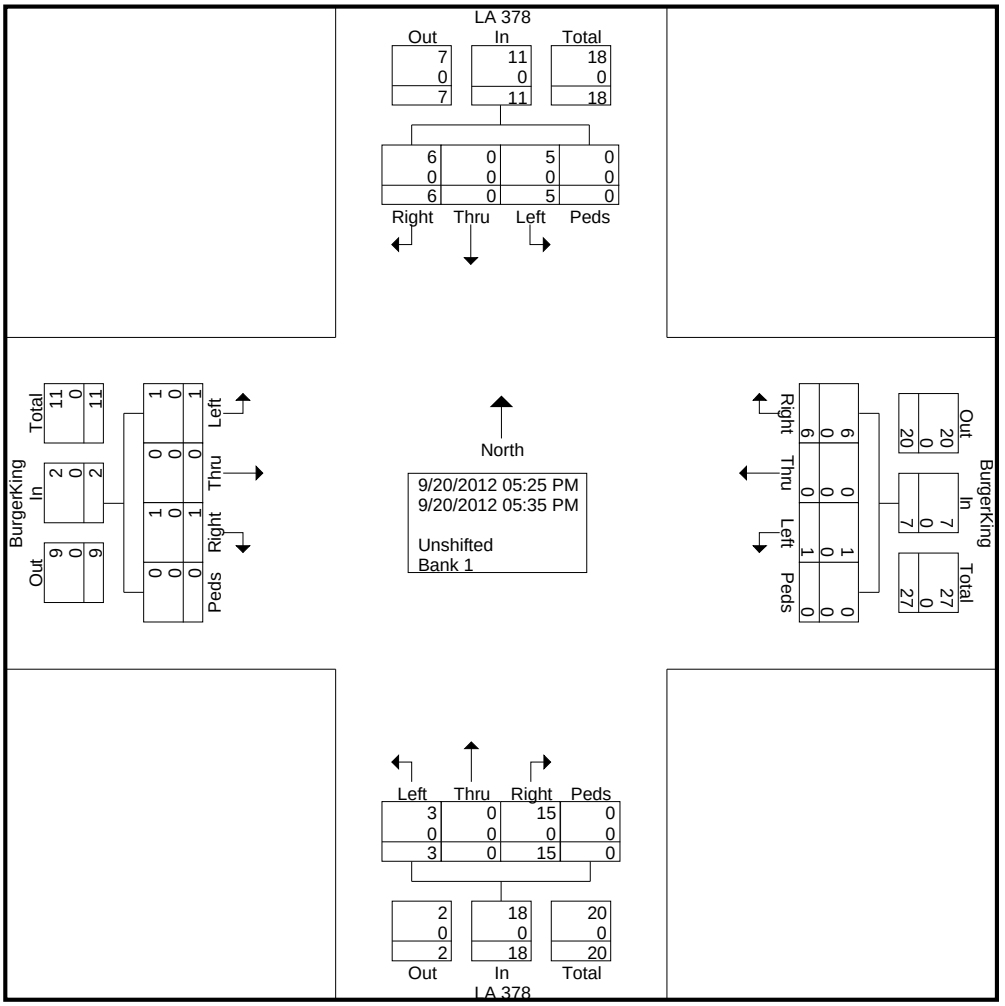
504-523-5511

Calcasieu Parish
BurgerKing @ LA 378
PM Peak

File Name : BurgerKing @ LA 378 PM
Site Code : 11-100
Start Date : 9/20/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					BurgerKing Westbound					LA 378 Northbound					BurgerKing 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
05:25 PM	1	0	3	0	4	0	0	4	0	4	0	0	3	0	3	0	0	0	0	0	11
05:30 PM	3	0	2	0	5	1	0	1	0	2	3	0	6	0	9	1	0	1	0	2	18
05:35 PM	1	0	1	0	2	0	0	1	0	1	0	0	6	0	6	0	0	0	0	0	9
Grand Total	5	0	6	0	11	1	0	6	0	7	3	0	15	0	18	1	0	1	0	2	38
Apprch %	45.5	0	54.5	0		14.3	0	85.7	0		16.7	0	83.3	0		50	0	50	0		
Total %	13.2	0	15.8	0	28.9	2.6	0	15.8	0	18.4	7.9	0	39.5	0	47.4	2.6	0	2.6	0	5.3	
Unshifted	5	0	6	0	11	1	0	6	0	7	3	0	15	0	18	1	0	1	0	2	38
% Unshifted	100	0	100	0	100	100	0	100	0	100	100	0	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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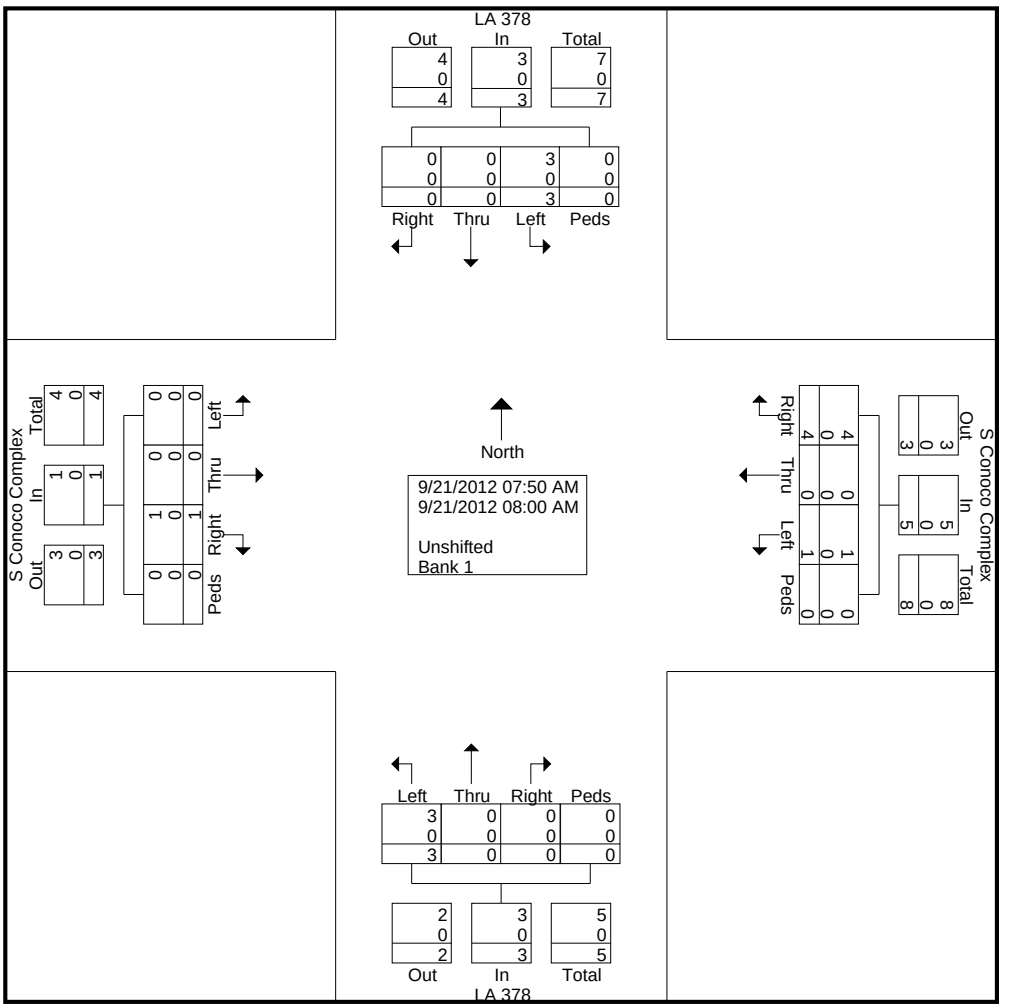
Calcasieu Parish
S Conoco Complex at LA 378
AM Peak

File Name : Conoco @ LA 378 AM
Site Code : 11-100
Start Date : 9/21/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					S Conoco Complex Westbound					LA 378 Northbound					S Conoco Complex 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
07:50 AM	1	0	0	0	1	1	0	2	0	3	0	0	0	0	0	0	0	1	0	1	5
07:55 AM	0	0	0	0	0	0	0	1	0	1	3	0	0	0	3	0	0	0	0	0	4
Total	1	0	0	0	1	1	0	3	0	4	3	0	0	0	3	0	0	1	0	1	9
08:00 AM	2	0	0	0	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	3
Grand Total	3	0	0	0	3	1	0	4	0	5	3	0	0	0	3	0	0	1	0	1	12
Apprch %	100	0	0	0		20	0	80	0		100	0	0	0		0	0	100	0		
Total %	25	0	0	0	25	8.3	0	33.3	0	41.7	25	0	0	0	25	0	0	8.3	0	8.3	
Unshifted	3	0	0	0	3	1	0	4	0	5	3	0	0	0	3	0	0	1	0	1	12
% Unshifted	100	0	0	0	100	100	0	100	0	100	100	0	0	0	100	0	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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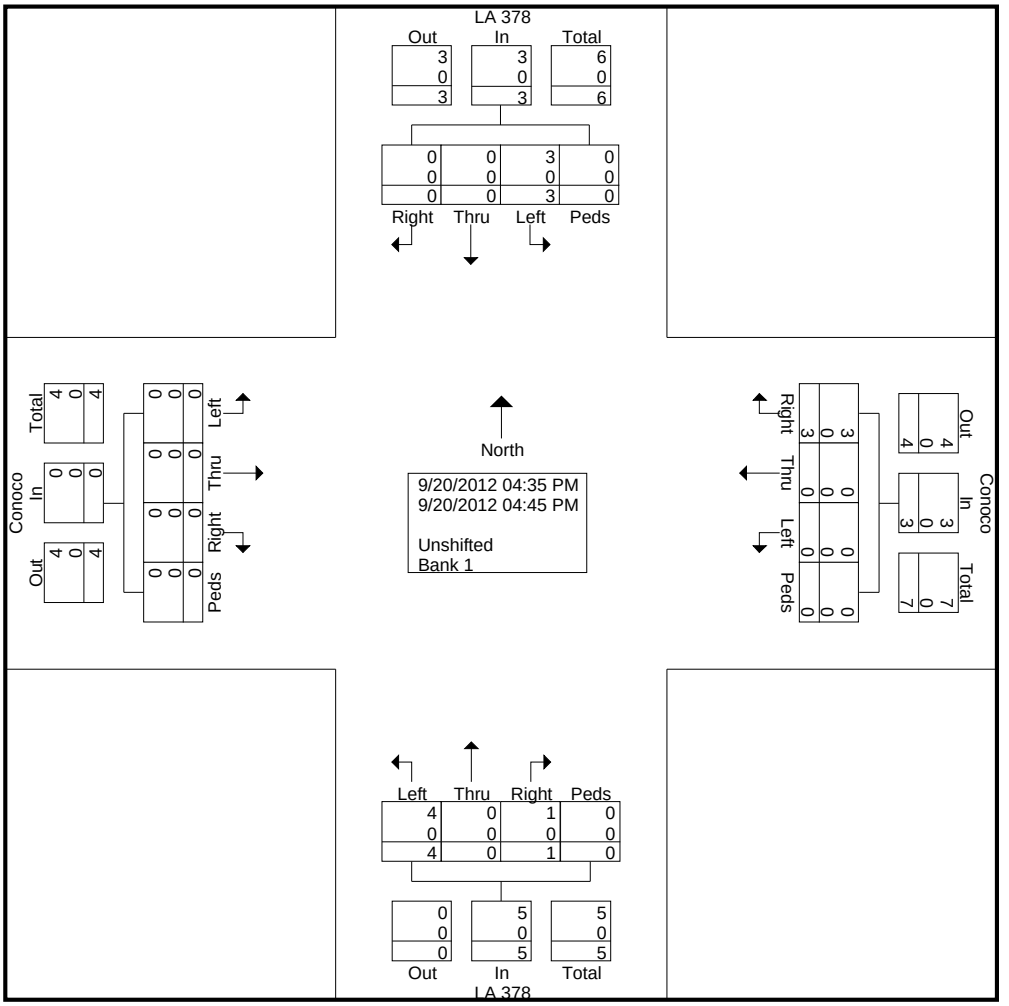
Calcasieu Parish
Conoco @ LA 378
PM Peak

File Name : Conoco @ LA 378 PM
Site Code : 11-100
Start Date : 9/20/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Conoco Westbound					LA 378 Northbound					Conoco 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
04:35 PM	1	0	0	0	1	0	0	1	0	1	2	0	1	0	3	0	0	0	0	0	5
04:40 PM	1	0	0	0	1	0	0	2	0	2	2	0	0	0	2	0	0	0	0	0	5
04:45 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	3	0	0	0	3	0	0	3	0	3	4	0	1	0	5	0	0	0	0	0	11
Apprch %	100	0	0	0		0	0	100	0		80	0	20	0		0	0	0	0		
Total %	27.3	0	0	0	27.3	0	0	27.3	0	27.3	36.4	0	9.1	0	45.5	0	0	0	0	0	
Unshifted	3	0	0	0	3	0	0	3	0	3	4	0	1	0	5	0	0	0	0	0	11
% Unshifted	100	0	0	0	100	0	0	100	0	100	100	0	100	0	100	0	0	0	0	0	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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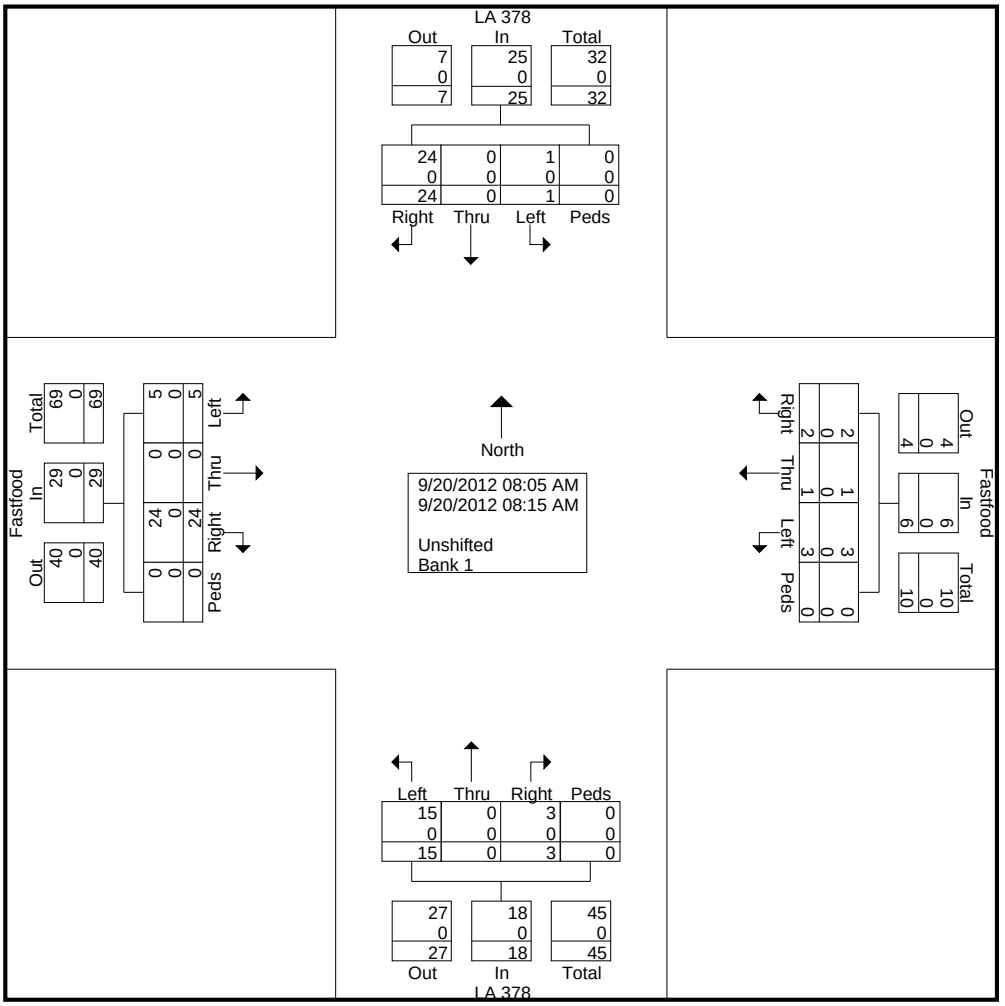
504-523-5511

Calcasieu Parish
Fastfood @ LA 378
AM Peak

File Name : Fastfood @ LA 378 AM
Site Code : 11-100
Start Date : 9/20/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Fastfood Westbound					LA 378 Northbound					Fastfood 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
08:05 AM	0	0	10	0	10	0	1	2	0	3	5	0	1	0	6	1	0	9	0	10	29
08:10 AM	1	0	6	0	7	2	0	0	0	2	6	0	0	0	6	2	0	6	0	8	23
08:15 AM	0	0	8	0	8	1	0	0	0	1	4	0	2	0	6	2	0	9	0	11	26
Grand Total	1	0	24	0	25	3	1	2	0	6	15	0	3	0	18	5	0	24	0	29	78
Apprch %	4	0	96	0		50	16.7	33.3	0		83.3	0	16.7	0		17.2	0	82.8	0		
Total %	1.3	0	30.8	0	32.1	3.8	1.3	2.6	0	7.7	19.2	0	3.8	0	23.1	6.4	0	30.8	0	37.2	
Unshifted	1	0	24	0	25	3	1	2	0	6	15	0	3	0	18	5	0	24	0	29	78
% Unshifted	100	0	100	0	100	100	100	100	0	100	100	0	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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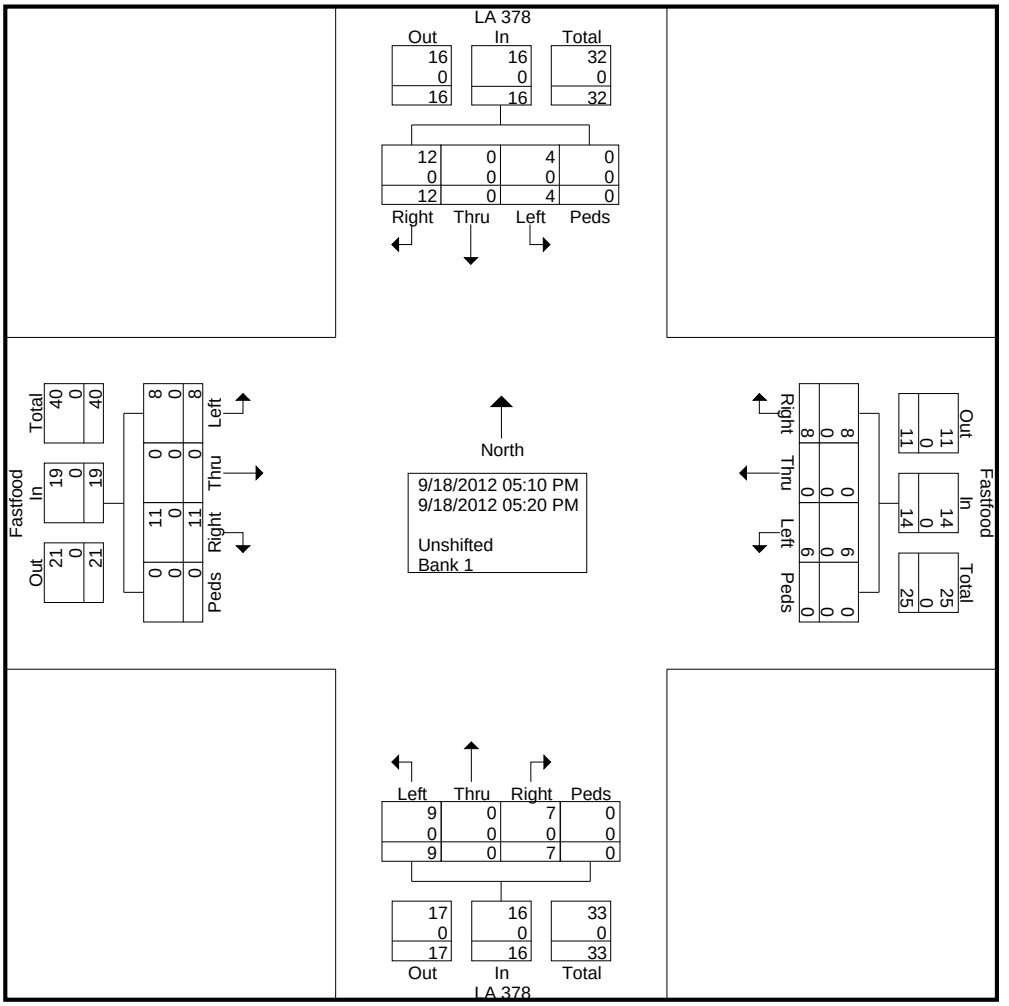
504-523-5511

Calcasieu Parish
Fastfood @ LA 378
PM Peak

File Name : Fastfood @ LA 378 PM
Site Code : 11-100
Start Date : 9/18/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Fastfood Westbound					LA 378 Northbound					Fastfood 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
05:10 PM	2	0	3	0	5	2	0	4	0	6	3	0	2	0	5	3	0	5	0	8	24
05:15 PM	0	0	6	0	6	1	0	1	0	2	5	0	2	0	7	2	0	4	0	6	21
05:20 PM	2	0	3	0	5	3	0	3	0	6	1	0	3	0	4	3	0	2	0	5	20
Grand Total	4	0	12	0	16	6	0	8	0	14	9	0	7	0	16	8	0	11	0	19	65
Apprch %	25	0	75	0		42.9	0	57.1	0		56.2	0	43.8	0		42.1	0	57.9	0		
Total %	6.2	0	18.5	0	24.6	9.2	0	12.3	0	21.5	13.8	0	10.8	0	24.6	12.3	0	16.9	0	29.2	
Unshifted	4	0	12	0	16	6	0	8	0	14	9	0	7	0	16	8	0	11	0	19	65
% Unshifted	100	0	100	0	100	100	0	100	0	100	100	0	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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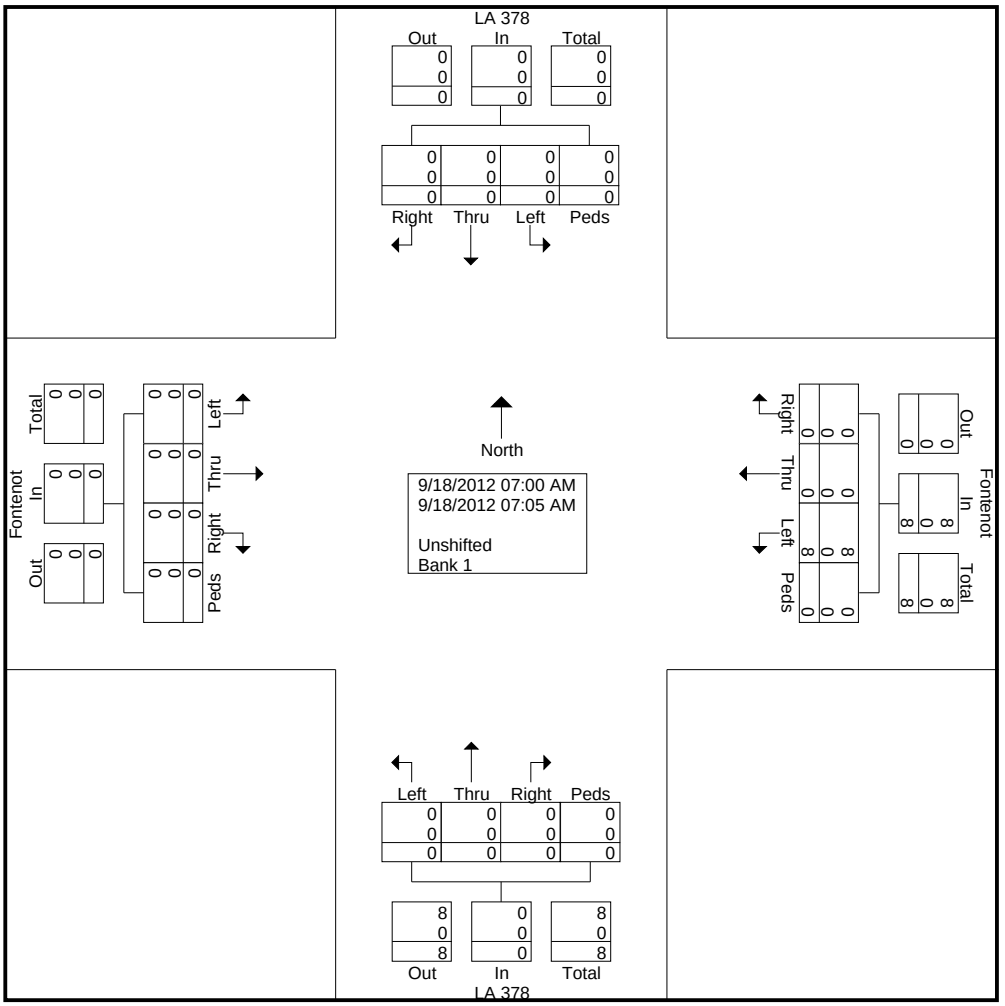
Calcasieu Parish
Fontenot @ LA 378
AM Peak

File Name : Fontenot @ LA 378 AM
Site Code : 11-100
Start Date : 9/18/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Fontenot Westbound					LA 378 Northbound					Fontenot 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
07:00 AM	0	0	0	0	0	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	7
07:05 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	8
Apprch %	0	0	0	0		100	0	0	0		0	0	0	0		0	0	0	0		
Total %	0	0	0	0	0	100	0	0	0	100	0	0	0	0	0	0	0	0	0	0	
Unshifted	0	0	0	0	0	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	8
% Unshifted	0	0	0	0	0	100	0	0	0	100	0	0	0	0	0	0	0	0	0	0	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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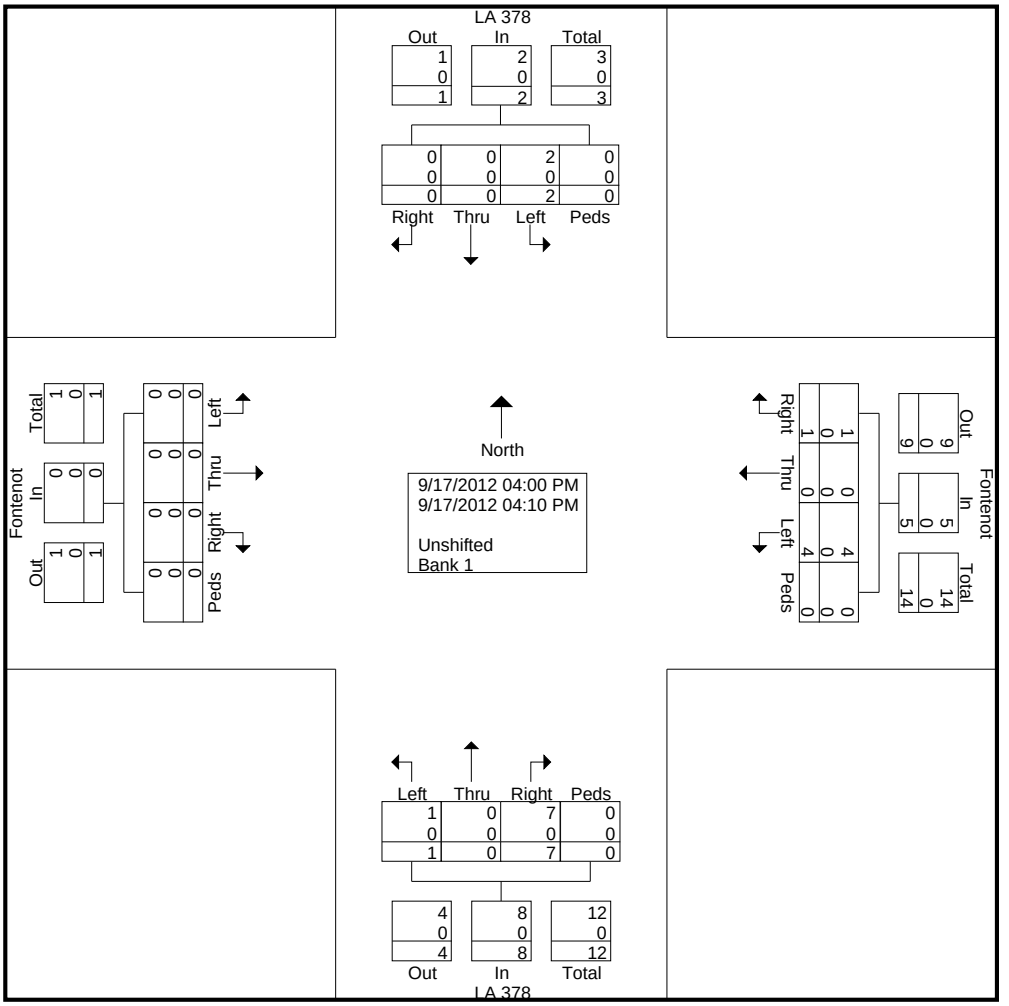
Calcasieu Parish
Fontenot @ LA 378
PM Peak

File Name : Fontenot @ LA 378 PM
Site Code : 11-100
Start Date : 9/17/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Fontenot Westbound					LA 378 Northbound					Fontenot 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
04:00 PM	2	0	0	0	2	3	0	1	0	4	0	0	2	0	2	0	0	0	0	0	8
04:05 PM	0	0	0	0	0	0	0	0	0	0	1	0	3	0	4	0	0	0	0	0	4
04:10 PM	0	0	0	0	0	1	0	0	0	1	0	0	2	0	2	0	0	0	0	0	3
Grand Total	2	0	0	0	2	4	0	1	0	5	1	0	7	0	8	0	0	0	0	0	15
Apprch %	100	0	0	0		80	0	20	0		12.5	0	87.5	0		0	0	0	0		
Total %	13.3	0	0	0	13.3	26.7	0	6.7	0	33.3	6.7	0	46.7	0	53.3	0	0	0	0	0	
Unshifted	2	0	0	0	2	4	0	1	0	5	1	0	7	0	8	0	0	0	0	0	15
% Unshifted	100	0	0	0	100	100	0	100	0	100	100	0	100	0	100	0	0	0	0	0	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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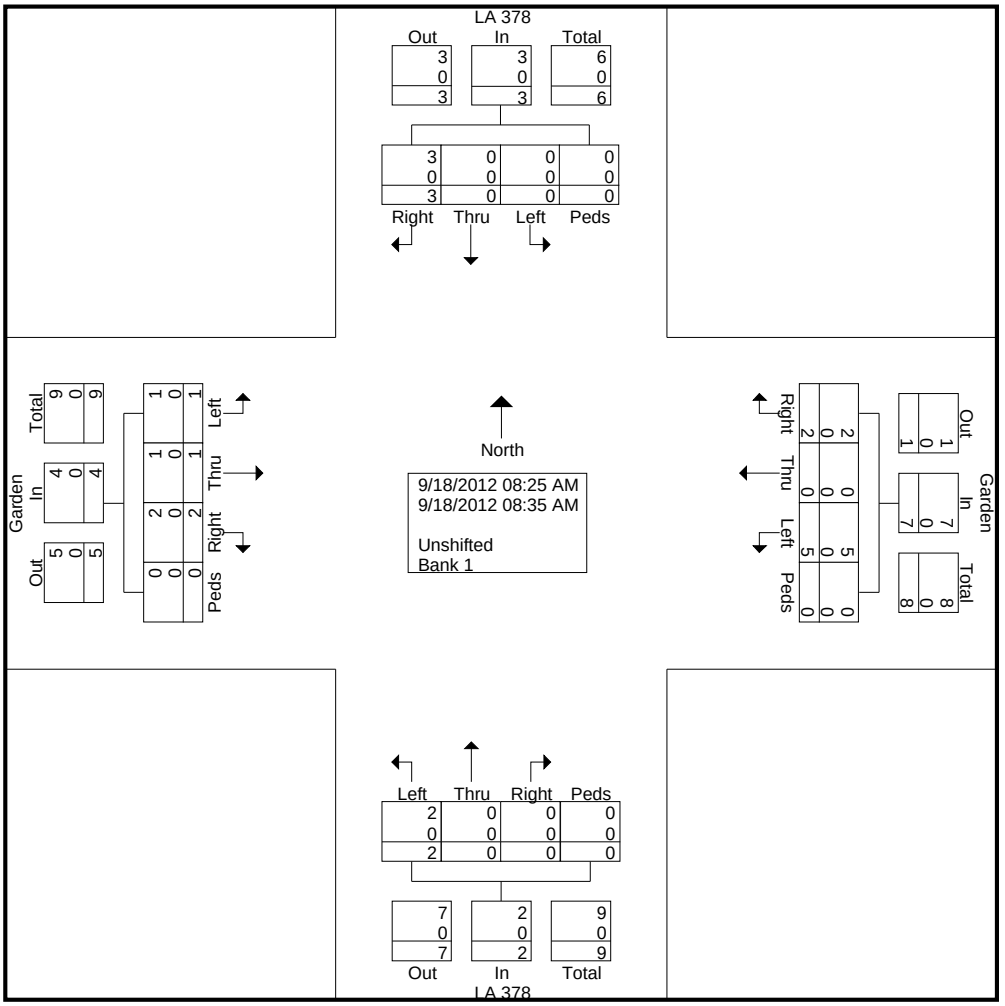
Calcasieu Parish
Garden @ LA 378 AM
AM Peak

File Name : Garden @ LA 378 AM
Site Code : 11-100
Start Date : 9/18/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Garden Westbound					LA 378 Northbound					Garden 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
08:25 AM	0	0	3	0	3	2	0	1	0	3	1	0	0	0	1	1	0	0	0	1	8
08:30 AM	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	1	0	1	4
08:35 AM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	1	1	0	2	4
Grand Total	0	0	3	0	3	5	0	2	0	7	2	0	0	0	2	1	1	2	0	4	16
Apprch %	0	0	100	0		71.4	0	28.6	0		100	0	0	0		25	25	50	0		
Total %	0	0	18.8	0	18.8	31.2	0	12.5	0	43.8	12.5	0	0	0	12.5	6.2	6.2	12.5	0	25	
Unshifted	0	0	3	0	3	5	0	2	0	7	2	0	0	0	2	1	1	2	0	4	16
% Unshifted	0	0	100	0	100	100	0	100	0	100	100	0	0	0	100	100	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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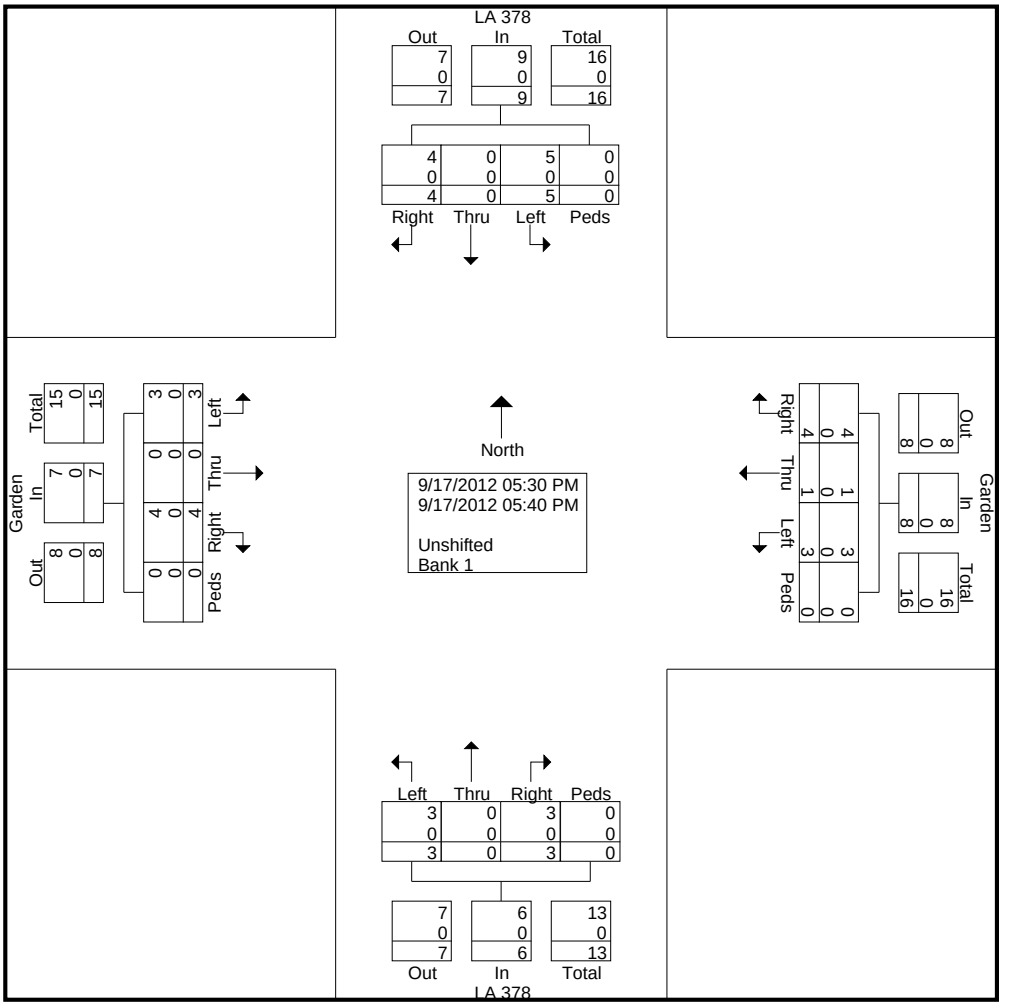
Calcasieu Parish
Garden @ LA 378
PM Peak

File Name : Garden @ LA 378 PM
Site Code : 11-100
Start Date : 9/17/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Garden Westbound					LA 378 Northbound					Garden 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
05:30 PM	3	0	2	0	5	2	0	1	0	3	2	0	2	0	4	0	0	2	0	2	14
05:35 PM	1	0	0	0	1	1	0	2	0	3	0	0	1	0	1	1	0	1	0	2	7
05:40 PM	1	0	2	0	3	0	1	1	0	2	1	0	0	0	1	2	0	1	0	3	9
Grand Total	5	0	4	0	9	3	1	4	0	8	3	0	3	0	6	3	0	4	0	7	30
Apprch %	55.6	0	44.4	0		37.5	12.5	50	0		50	0	50	0		42.9	0	57.1	0		
Total %	16.7	0	13.3	0	30	10	3.3	13.3	0	26.7	10	0	10	0	20	10	0	13.3	0	23.3	
Unshifted	5	0	4	0	9	3	1	4	0	8	3	0	3	0	6	3	0	4	0	7	30
% Unshifted	100	0	100	0	100	100	100	100	0	100	100	0	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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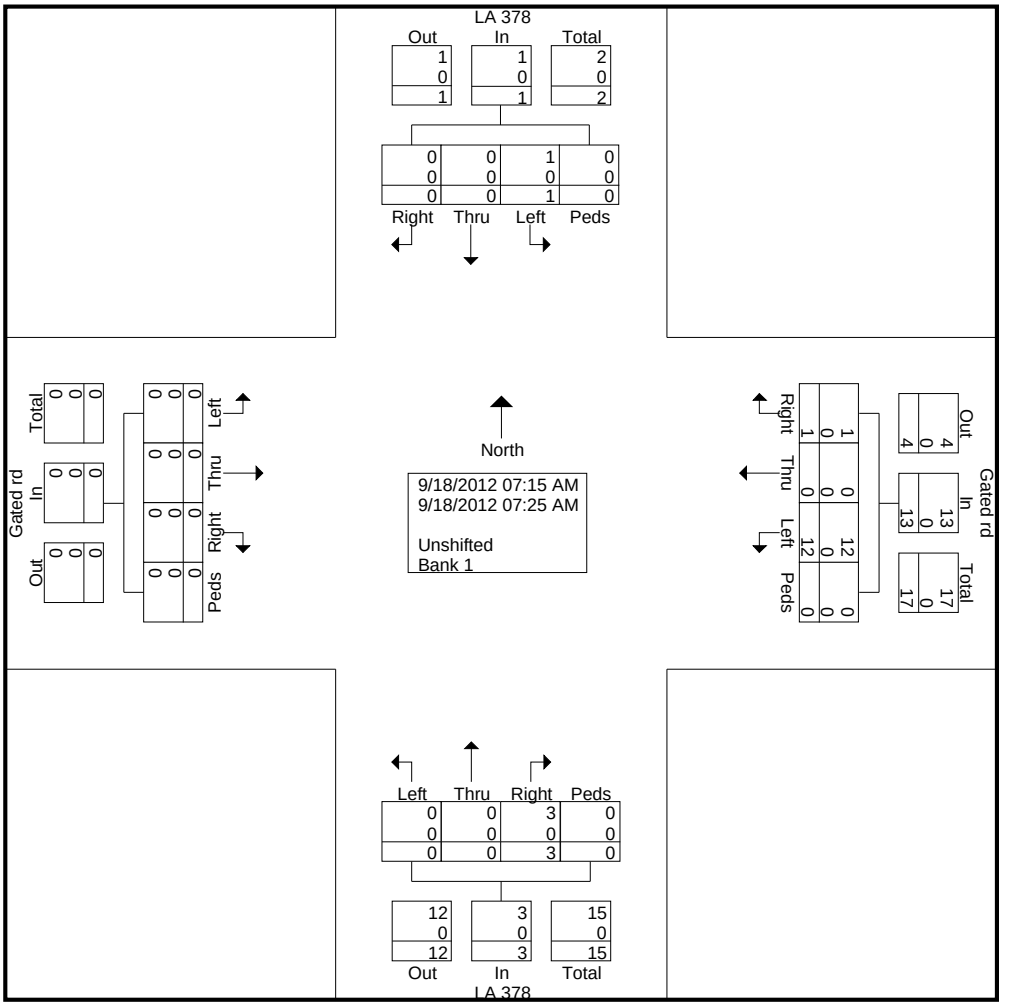
Calcasieu Parish
Gated rd @ LA 378
AM Peak

File Name : Gated rd @ LA 378 AM
Site Code : 11-100
Start Date : 9/18/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Gated rd Westbound					LA 378 Northbound					Gated rd 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
07:15 AM	0	0	0	0	0	5	0	0	0	5	0	0	2	0	2	0	0	0	0	0	7
07:20 AM	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	2
07:25 AM	1	0	0	0	1	6	0	0	0	6	0	0	1	0	1	0	0	0	0	0	8
Grand Total	1	0	0	0	1	12	0	1	0	13	0	0	3	0	3	0	0	0	0	0	17
Apprch %	100	0	0	0		92.3	0	7.7	0		0	0	100	0		0	0	0	0		
Total %	5.9	0	0	0	5.9	70.6	0	5.9	0	76.5	0	0	17.6	0	17.6	0	0	0	0	0	
Unshifted	1	0	0	0	1	12	0	1	0	13	0	0	3	0	3	0	0	0	0	0	17
% Unshifted	100	0	0	0	100	100	0	100	0	100	0	0	100	0	100	0	0	0	0	0	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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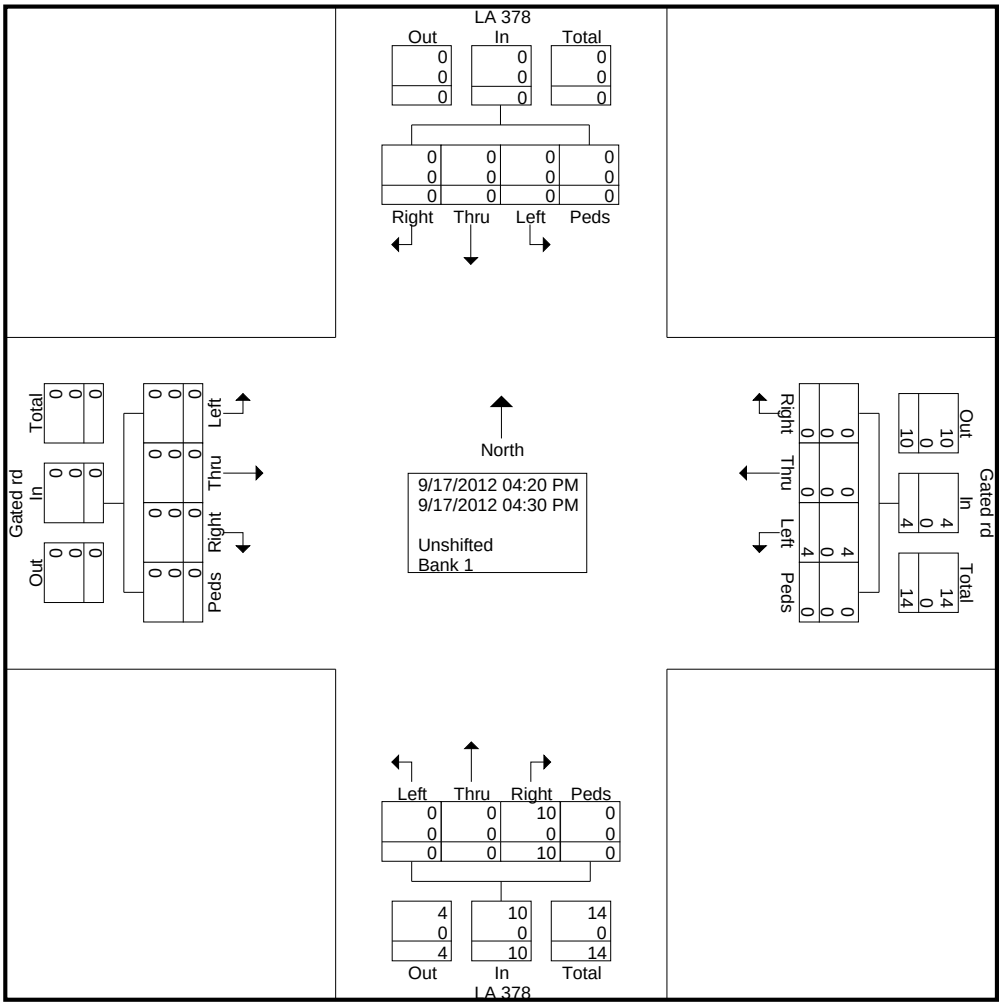
Calcasieu Parish
Gated rd @ LA 378
PM Peak

File Name : Gated rd @ LA 378 PM
Site Code : 11-100
Start Date : 9/17/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Gated rd Westbound					LA 378 Northbound					Gated rd 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
04:20 PM	0	0	0	0	0	3	0	0	0	3	0	0	4	0	4	0	0	0	0	0	7
04:25 PM	0	0	0	0	0	1	0	0	0	1	0	0	3	0	3	0	0	0	0	0	4
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	3
Grand Total	0	0	0	0	0	4	0	0	0	4	0	0	10	0	10	0	0	0	0	0	14
Apprch %	0	0	0	0		100	0	0	0		0	0	100	0		0	0	0	0		
Total %	0	0	0	0	0	28.6	0	0	0	28.6	0	0	71.4	0	71.4	0	0	0	0	0	
Unshifted	0	0	0	0	0	4	0	0	0	4	0	0	10	0	10	0	0	0	0	0	14
% Unshifted	0	0	0	0	0	100	0	0	0	100	0	0	100	0	100	0	0	0	0	0	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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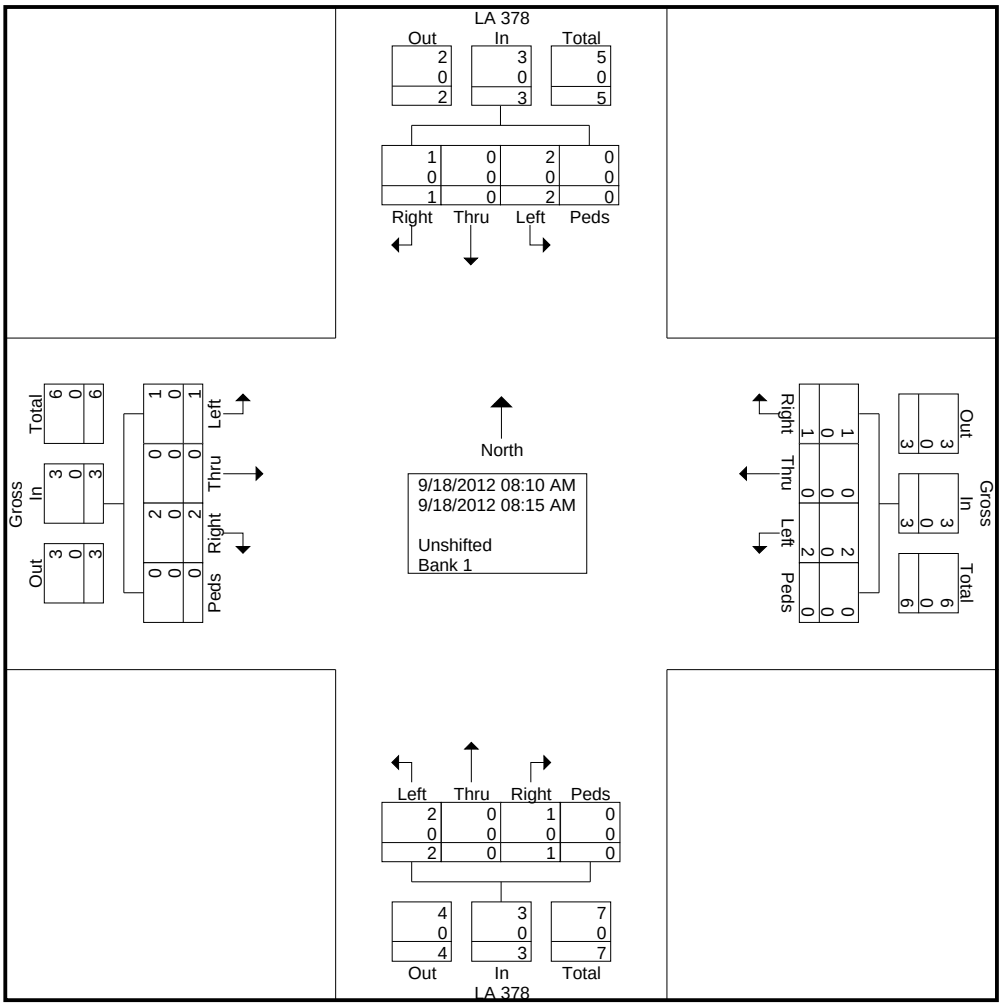
Calcasieu Parish
Gross @ LA 378
AM Peak

File Name : Goss @ LA 378 AM
Site Code : 11-100
Start Date : 9/18/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Gross Westbound					LA 378 Northbound					Gross 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
08:10 AM	0	0	0	0	0	2	0	1	0	3	2	0	0	0	2	1	0	1	0	2	7
08:15 AM	2	0	1	0	3	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	5
Grand Total	2	0	1	0	3	2	0	1	0	3	2	0	1	0	3	1	0	2	0	3	12
Apprch %	66.7	0	33.3	0		66.7	0	33.3	0		66.7	0	33.3	0		33.3	0	66.7	0		
Total %	16.7	0	8.3	0	25	16.7	0	8.3	0	25	16.7	0	8.3	0	25	8.3	0	16.7	0	25	
Unshifted	2	0	1	0	3	2	0	1	0	3	2	0	1	0	3	1	0	2	0	3	12
% Unshifted	100	0	100	0	100	100	0	100	0	100	100	0	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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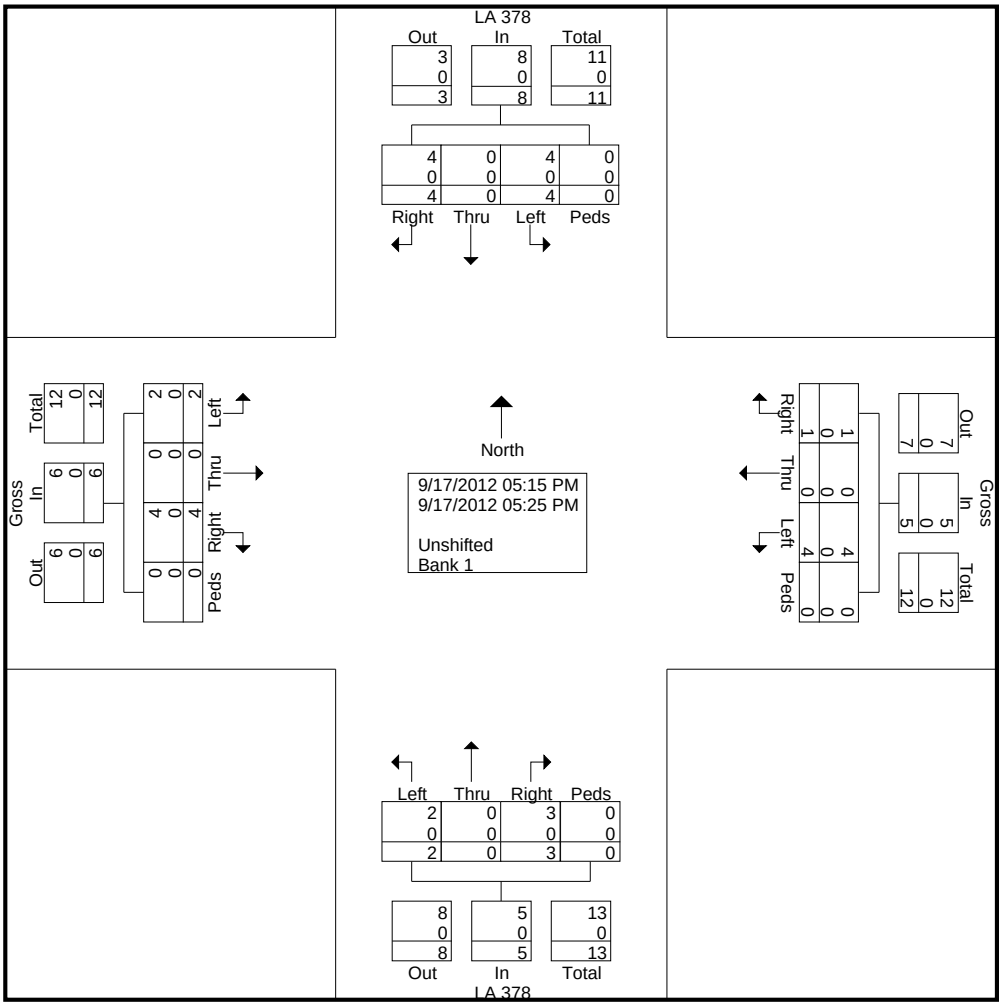
Calcasieu Parish
Gross @ LA 378
PM Peak

File Name : Goss @ LA 378 PM
Site Code : 11-100
Start Date : 9/17/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Gross Westbound					LA 378 Northbound					Gross 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
05:15 PM	0	0	1	0	1	2	0	0	0	2	2	0	1	0	3	0	0	1	0	1	7
05:20 PM	2	0	1	0	3	1	0	0	0	1	0	0	1	0	1	1	0	1	0	2	7
05:25 PM	2	0	2	0	4	1	0	1	0	2	0	0	1	0	1	1	0	2	0	3	10
Grand Total	4	0	4	0	8	4	0	1	0	5	2	0	3	0	5	2	0	4	0	6	24
Apprch %	50	0	50	0		80	0	20	0		40	0	60	0		33.3	0	66.7	0		
Total %	16.7	0	16.7	0	33.3	16.7	0	4.2	0	20.8	8.3	0	12.5	0	20.8	8.3	0	16.7	0	25	
Unshifted	4	0	4	0	8	4	0	1	0	5	2	0	3	0	5	2	0	4	0	6	24
% Unshifted	100	0	100	0	100	100	0	100	0	100	100	0	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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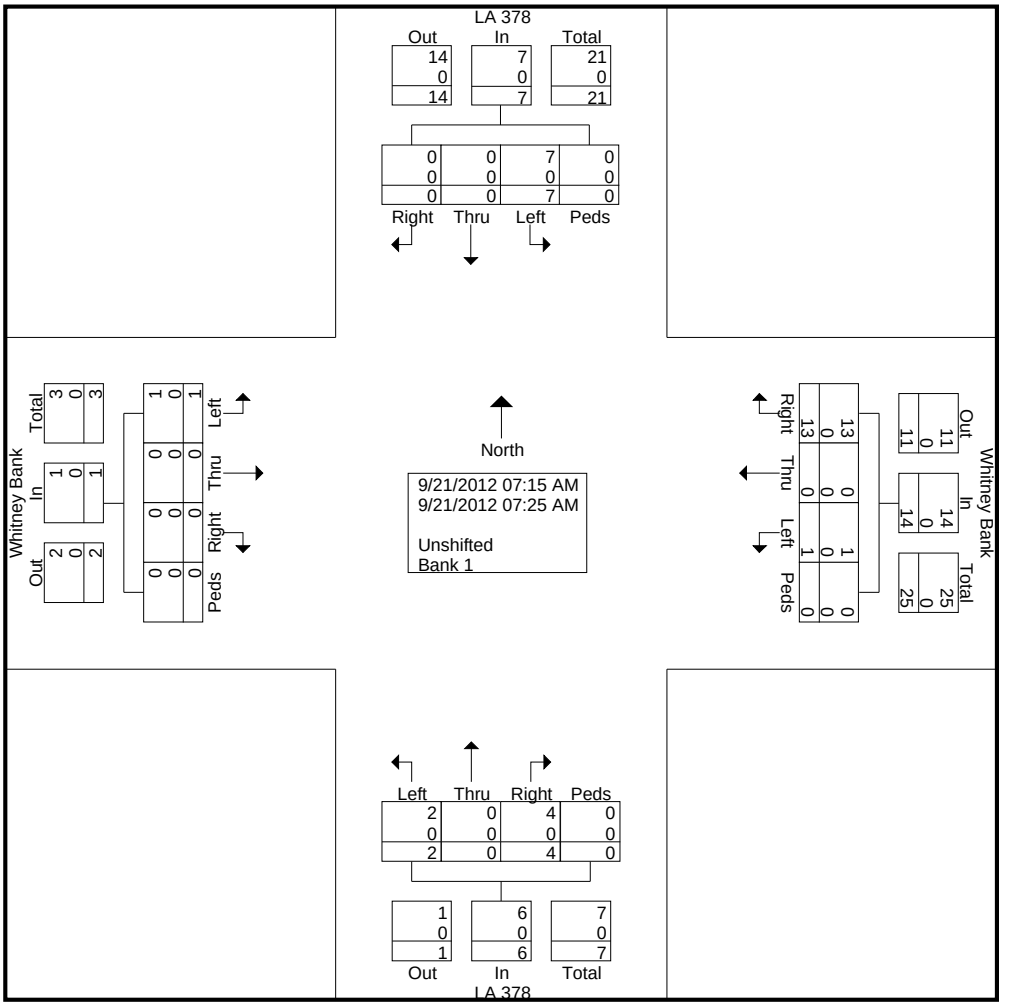
504-523-5511

Calcasieu Parish
Whitney bank at LA 378
AM Peak

File Name : Krause @ LA 378 AM
Site Code : 11-100
Start Date : 9/21/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Whitney Bank Westbound					LA 378 Northbound					Whitney Bank 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
07:15 AM	4	0	0	0	4	0	0	4	0	4	1	0	0	0	1	0	0	0	0	0	9
07:20 AM	1	0	0	0	1	0	0	3	0	3	0	0	1	0	1	1	0	0	0	1	6
07:25 AM	2	0	0	0	2	1	0	6	0	7	1	0	3	0	4	0	0	0	0	0	13
Grand Total	7	0	0	0	7	1	0	13	0	14	2	0	4	0	6	1	0	0	0	1	28
Apprch %	100	0	0	0		7.1	0	92.9	0		33.3	0	66.7	0		100	0	0	0		
Total %	25	0	0	0	25	3.6	0	46.4	0	50	7.1	0	14.3	0	21.4	3.6	0	0	0	3.6	
Unshifted	7	0	0	0	7	1	0	13	0	14	2	0	4	0	6	1	0	0	0	1	28
% Unshifted	100	0	0	0	100	100	0	100	0	100	100	0	100	0	100	100	0	0	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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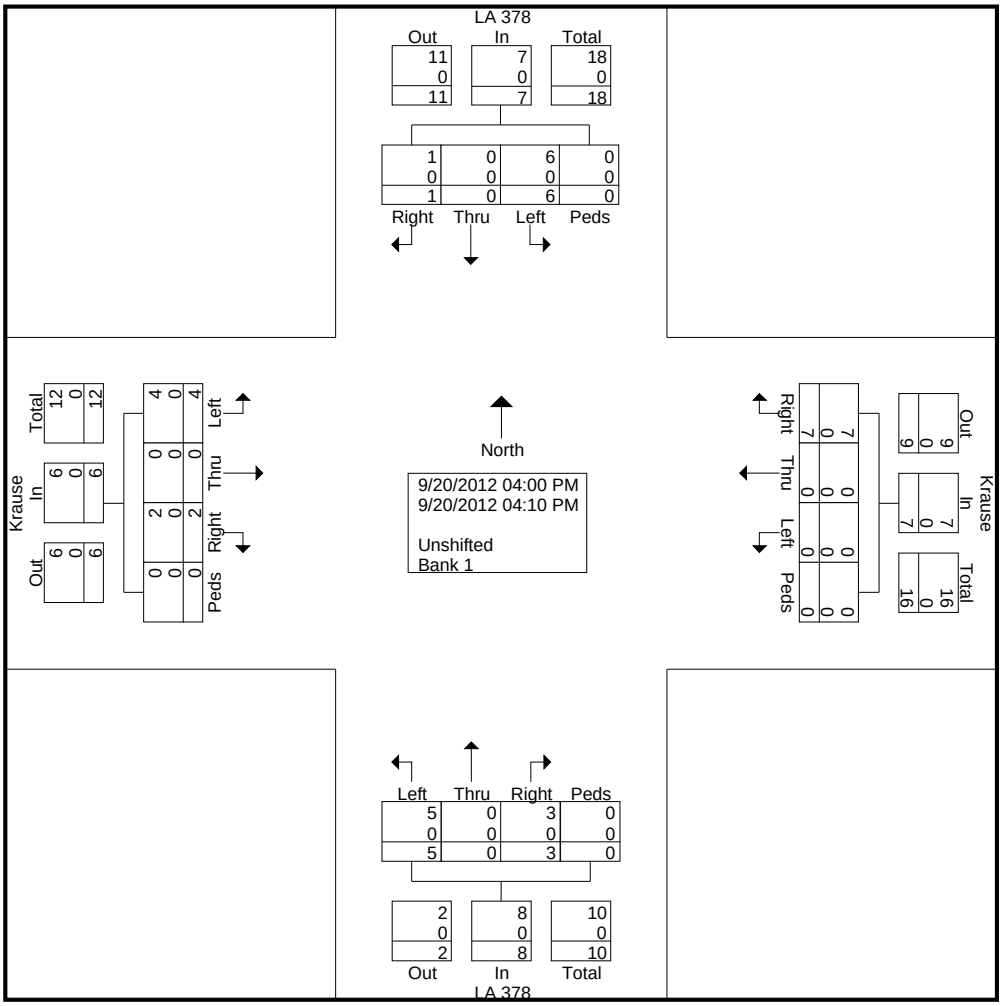
504-523-5511

Calcasieu Parish
Krause at LA 378
PM Peak

File Name : Krause @ LA 378 PM
Site Code : 11-100
Start Date : 9/20/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Krause Westbound					LA 378 Northbound					Krause 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
04:00 PM	2	0	1	0	3	0	0	2	0	2	4	0	1	0	5	2	0	2	0	4	14
04:05 PM	0	0	0	0	0	0	0	2	0	2	0	0	2	0	2	1	0	0	0	1	5
04:10 PM	4	0	0	0	4	0	0	3	0	3	1	0	0	0	1	1	0	0	0	1	9
Grand Total	6	0	1	0	7	0	0	7	0	7	5	0	3	0	8	4	0	2	0	6	28
Apprch %	85.7	0	14.3	0		0	0	100	0		62.5	0	37.5	0		66.7	0	33.3	0		
Total %	21.4	0	3.6	0	25	0	0	25	0	25	17.9	0	10.7	0	28.6	14.3	0	7.1	0	21.4	
Unshifted	6	0	1	0	7	0	0	7	0	7	5	0	3	0	8	4	0	2	0	6	28
% Unshifted	100	0	100	0	100	0	0	100	0	100	100	0	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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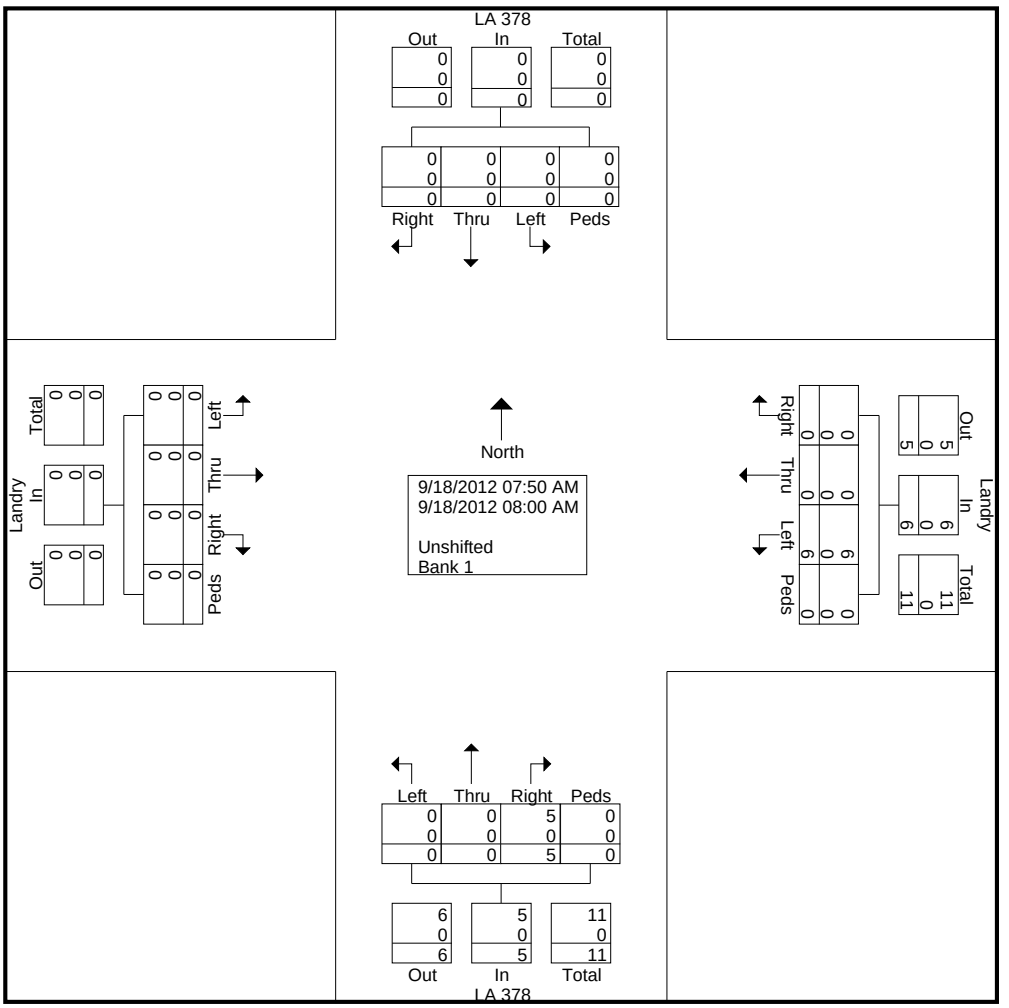
Calcasieu Parish
Landry @ LA 378
AM Peak

File Name : Landry @ LA 378 AM
Site Code : 11-100
Start Date : 9/18/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Landry Westbound					LA 378 Northbound					Landry 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
07:50 AM	0	0	0	0	0	4	0	0	0	4	0	0	3	0	3	0	0	0	0	0	7
07:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	4	0	0	0	4	0	0	4	0	4	0	0	0	0	0	8
08:00 AM	0	0	0	0	0	2	0	0	0	2	0	0	1	0	1	0	0	0	0	0	3
Grand Total	0	0	0	0	0	6	0	0	0	6	0	0	5	0	5	0	0	0	0	0	11
Apprch %	0	0	0	0		100	0	0	0		0	0	100	0		0	0	0	0		
Total %	0	0	0	0	0	54.5	0	0	0	54.5	0	0	45.5	0	45.5	0	0	0	0	0	
Unshifted	0	0	0	0	0	6	0	0	0	6	0	0	5	0	5	0	0	0	0	0	11
% Unshifted	0	0	0	0	0	100	0	0	0	100	0	0	100	0	100	0	0	0	0	0	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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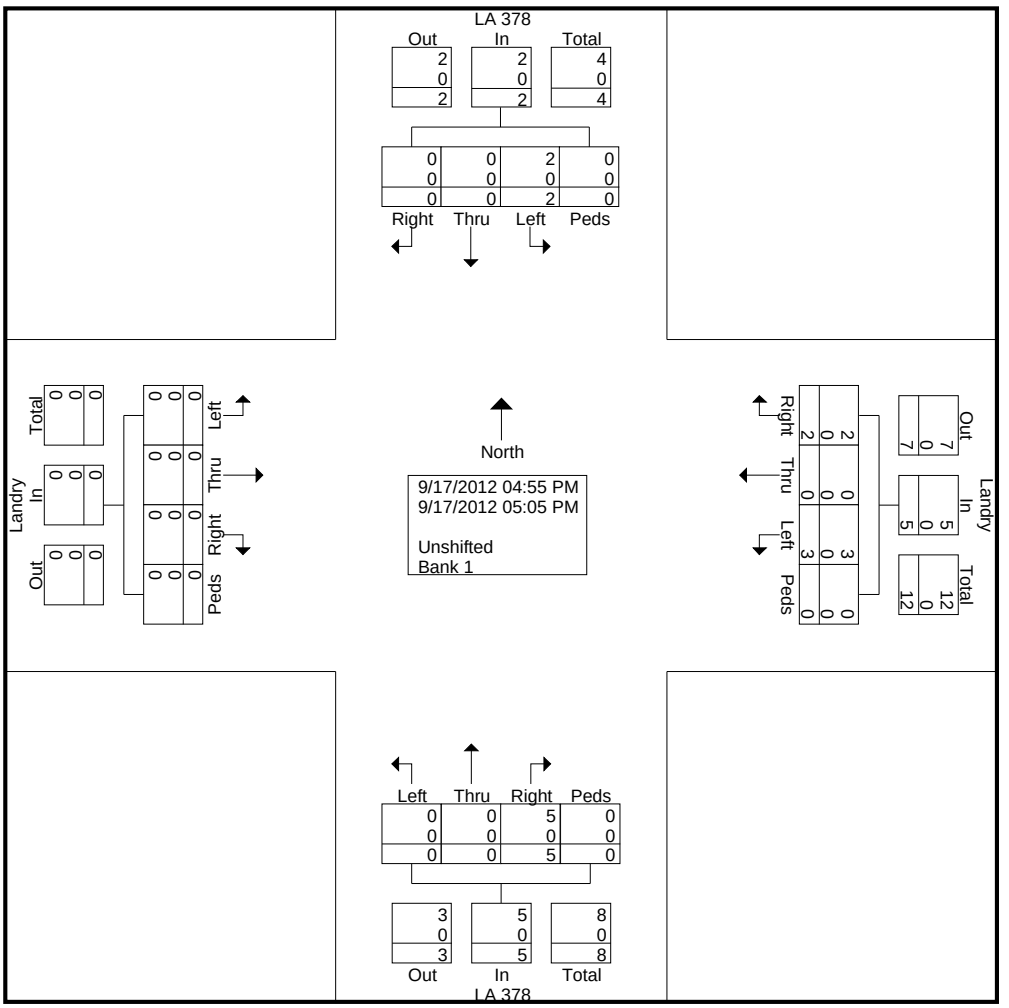
Calcasieu Parish
Landry at LA 378
PM Peak

File Name : Landry @ LA 378 PM
Site Code : 11-100
Start Date : 9/17/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Landry Westbound					LA 378 Northbound					Landry 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
04:55 PM	0	0	0	0	0	2	0	1	0	3	0	0	1	0	1	0	0	0	0	0	4
Total	0	0	0	0	0	2	0	1	0	3	0	0	1	0	1	0	0	0	0	0	4
05:00 PM	1	0	0	0	1	1	0	0	0	1	0	0	2	0	2	0	0	0	0	0	4
05:05 PM	1	0	0	0	1	0	0	1	0	1	0	0	2	0	2	0	0	0	0	0	4
Grand Total	2	0	0	0	2	3	0	2	0	5	0	0	5	0	5	0	0	0	0	0	12
Apprch %	100	0	0	0		60	0	40	0		0	0	100	0		0	0	0	0		
Total %	16.7	0	0	0	16.7	25	0	16.7	0	41.7	0	0	41.7	0	41.7	0	0	0	0	0	
Unshifted	2	0	0	0	2	3	0	2	0	5	0	0	5	0	5	0	0	0	0	0	12
% Unshifted	100	0	0	0	100	100	0	100	0	100	0	0	100	0	100	0	0	0	0	0	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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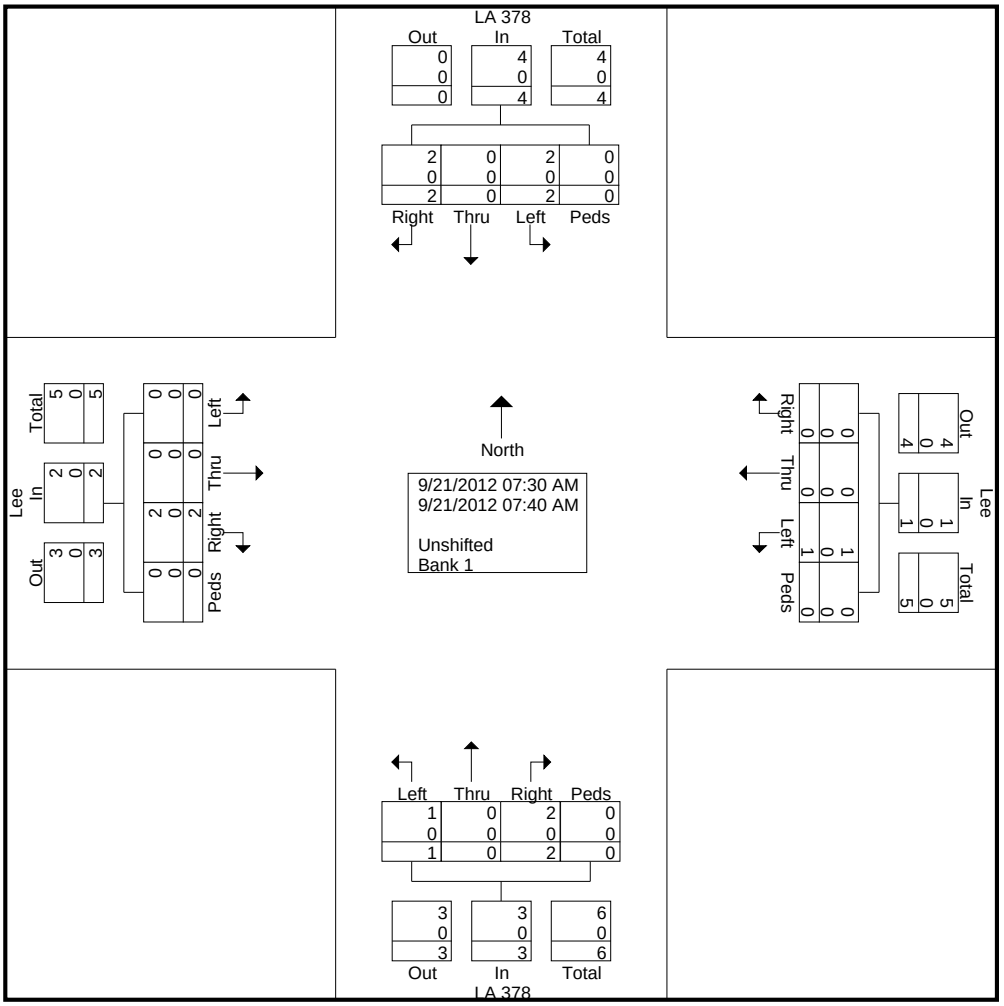
Calcasieu Parish
Lee @ LA 378
AM Peak

File Name : Lee @ LA 378 AM
Site Code : 11-100
Start Date : 9/21/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Lee Westbound					LA 378 Northbound					Lee 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
07:30 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
07:35 AM	1	0	1	0	2	1	0	0	0	1	1	0	0	0	1	0	0	1	0	1	5
07:40 AM	1	0	0	0	1	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	3
Grand Total	2	0	2	0	4	1	0	0	0	1	1	0	2	0	3	0	0	2	0	2	10
Apprch %	50	0	50	0		100	0	0	0		33.3	0	66.7	0		0	0	100	0		
Total %	20	0	20	0	40	10	0	0	0	10	10	0	20	0	30	0	0	20	0	20	
Unshifted	2	0	2	0	4	1	0	0	0	1	1	0	2	0	3	0	0	2	0	2	10
% Unshifted	100	0	100	0	100	100	0	0	0	100	100	0	100	0	100	0	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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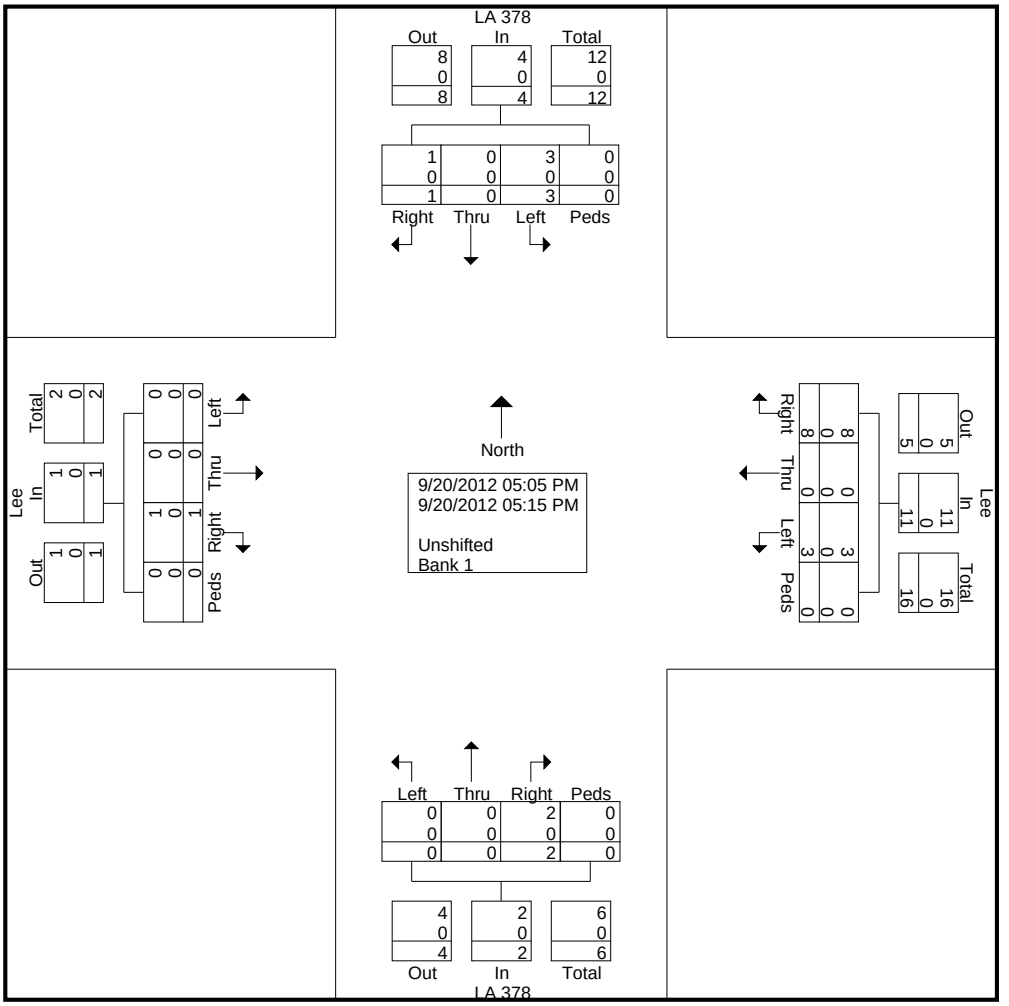
Calcasieu Parish
Lee @ LA 378
PM Peak

File Name : Lee @ LA 378 PM
Site Code : 11-100
Start Date : 9/20/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Lee Westbound					LA 378 Northbound					Lee 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
05:05 PM	2	0	0	0	2	1	0	2	0	3	0	0	0	0	0	0	0	1	0	1	6
05:10 PM	1	0	0	0	1	1	0	3	0	4	0	0	2	0	2	0	0	0	0	0	7
05:15 PM	0	0	1	0	1	1	0	3	0	4	0	0	0	0	0	0	0	0	0	0	5
Grand Total	3	0	1	0	4	3	0	8	0	11	0	0	2	0	2	0	0	1	0	1	18
Apprch %	75	0	25	0		27.3	0	72.7	0		0	0	100	0		0	0	100	0		
Total %	16.7	0	5.6	0	22.2	16.7	0	44.4	0	61.1	0	0	11.1	0	11.1	0	0	5.6	0	5.6	
Unshifted	3	0	1	0	4	3	0	8	0	11	0	0	2	0	2	0	0	1	0	1	18
% Unshifted	100	0	100	0	100	100	0	100	0	100	0	0	100	0	100	0	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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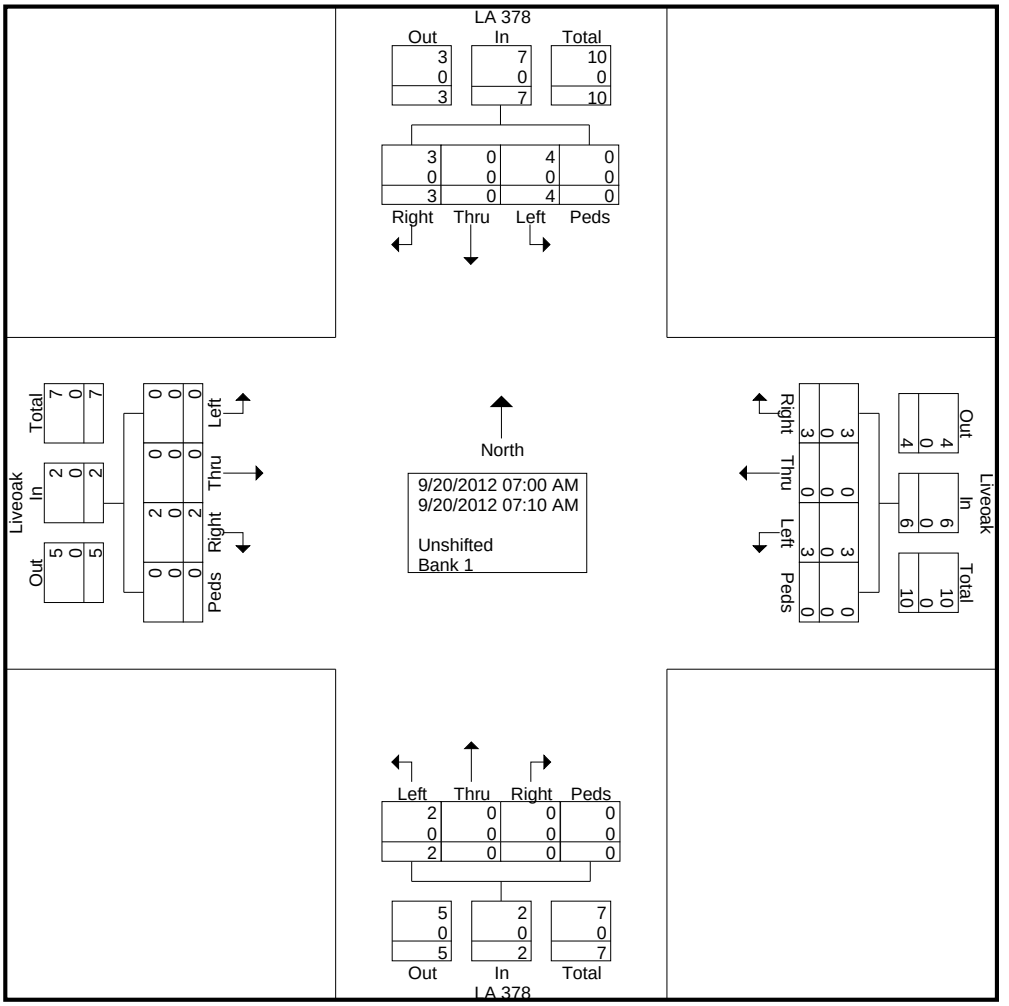
Calcasieu Parish
Liveoak at LA 378
AM Peak

File Name : Liveoak @ LA 378 AM
Site Code : 11-100
Start Date : 9/20/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Liveoak Westbound					LA 378 Northbound					Liveoak 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
07:00 AM	1	0	2	0	3	1	0	0	0	1	2	0	0	0	2	0	0	0	0	0	6
07:05 AM	2	0	0	0	2	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	4
07:10 AM	1	0	1	0	2	1	0	2	0	3	0	0	0	0	0	0	0	2	0	2	7
Grand Total	4	0	3	0	7	3	0	3	0	6	2	0	0	0	2	0	0	2	0	2	17
Apprch %	57.1	0	42.9	0		50	0	50	0		100	0	0	0		0	0	100	0		
Total %	23.5	0	17.6	0	41.2	17.6	0	17.6	0	35.3	11.8	0	0	0	11.8	0	0	11.8	0	11.8	
Unshifted	4	0	3	0	7	3	0	3	0	6	2	0	0	0	2	0	0	2	0	2	17
% Unshifted	100	0	100	0	100	100	0	100	0	100	100	0	0	0	100	0	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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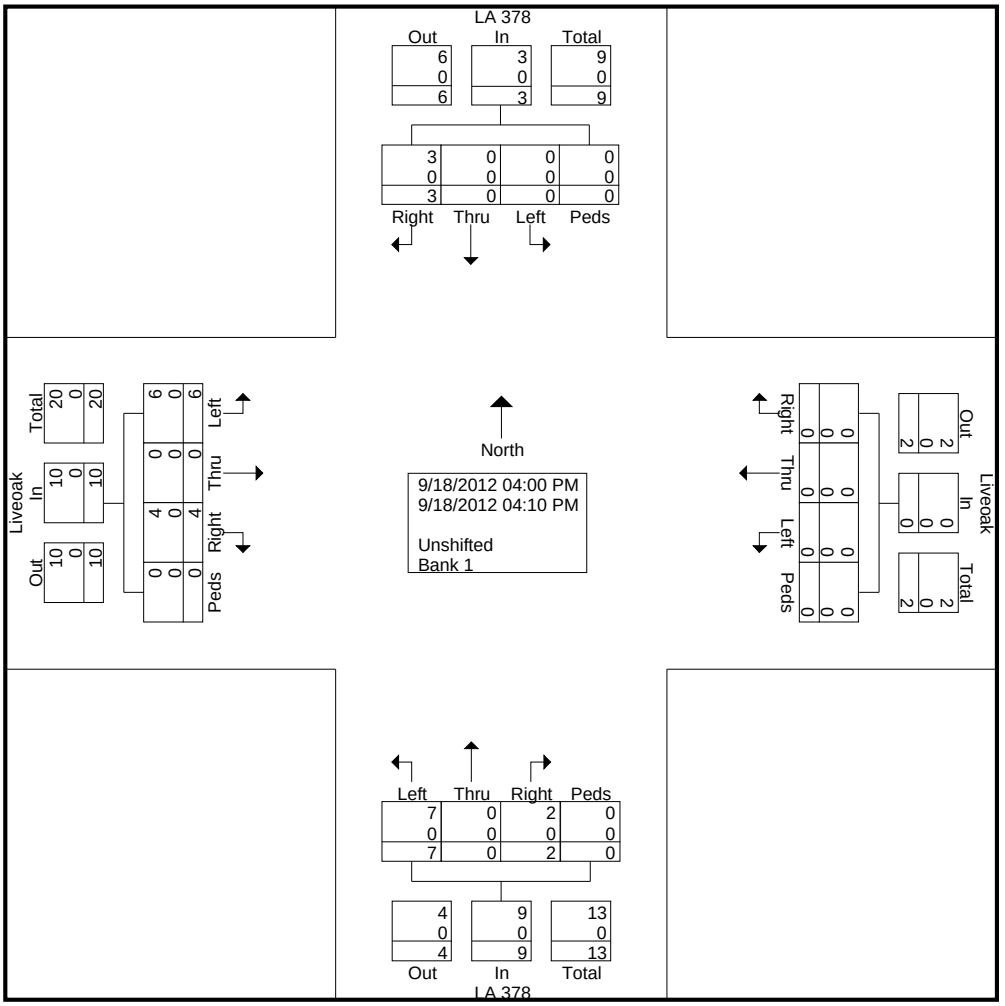
Calcasieu Parish
Liveoak @ LA 378 PM
PM Peak

File Name : Liveoak @ LA 378 PM
Site Code : 11-100
Start Date : 9/18/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Liveoak Westbound					LA 378 Northbound					Liveoak 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
04:00 PM	0	0	1	0	1	0	0	0	0	0	2	0	2	0	4	1	0	1	0	2	7
04:05 PM	0	0	1	0	1	0	0	0	0	0	2	0	0	0	2	2	0	2	0	4	7
04:10 PM	0	0	1	0	1	0	0	0	0	0	3	0	0	0	3	3	0	1	0	4	8
Grand Total	0	0	3	0	3	0	0	0	0	0	7	0	2	0	9	6	0	4	0	10	22
Apprch %	0	0	100	0		0	0	0	0		77.8	0	22.2	0		60	0	40	0		
Total %	0	0	13.6	0	13.6	0	0	0	0	0	31.8	0	9.1	0	40.9	27.3	0	18.2	0	45.5	
Unshifted	0	0	3	0	3	0	0	0	0	0	7	0	2	0	9	6	0	4	0	10	22
% Unshifted	0	0	100	0	100	0	0	0	0	0	100	0	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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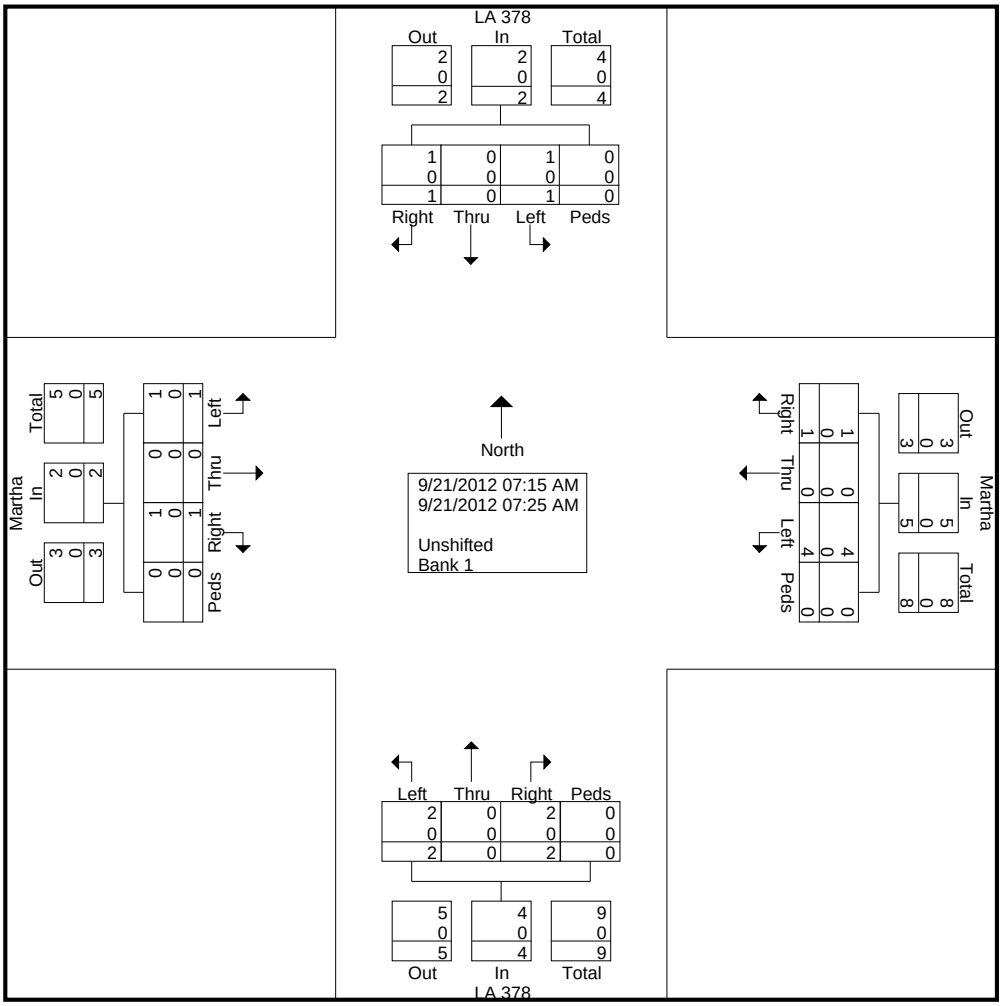
504-523-5511

Calcasieu Parish
Martha at LA 378
AM Peak

File Name : Martha @ LA 378 AM
Site Code : 11-100
Start Date : 9/21/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Martha Westbound					LA 378 Northbound					Martha 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
07:15 AM	0	0	0	0	0	1	0	0	0	1	1	0	1	0	2	1	0	1	0	2	5
07:20 AM	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
07:25 AM	1	0	0	0	1	3	0	1	0	4	1	0	0	0	1	0	0	0	0	0	6
Grand Total	1	0	1	0	2	4	0	1	0	5	2	0	2	0	4	1	0	1	0	2	13
Apprch %	50	0	50	0		80	0	20	0		50	0	50	0		50	0	50	0		
Total %	7.7	0	7.7	0	15.4	30.8	0	7.7	0	38.5	15.4	0	15.4	0	30.8	7.7	0	7.7	0	15.4	
Unshifted	1	0	1	0	2	4	0	1	0	5	2	0	2	0	4	1	0	1	0	2	13
% Unshifted	100	0	100	0	100	100	0	100	0	100	100	0	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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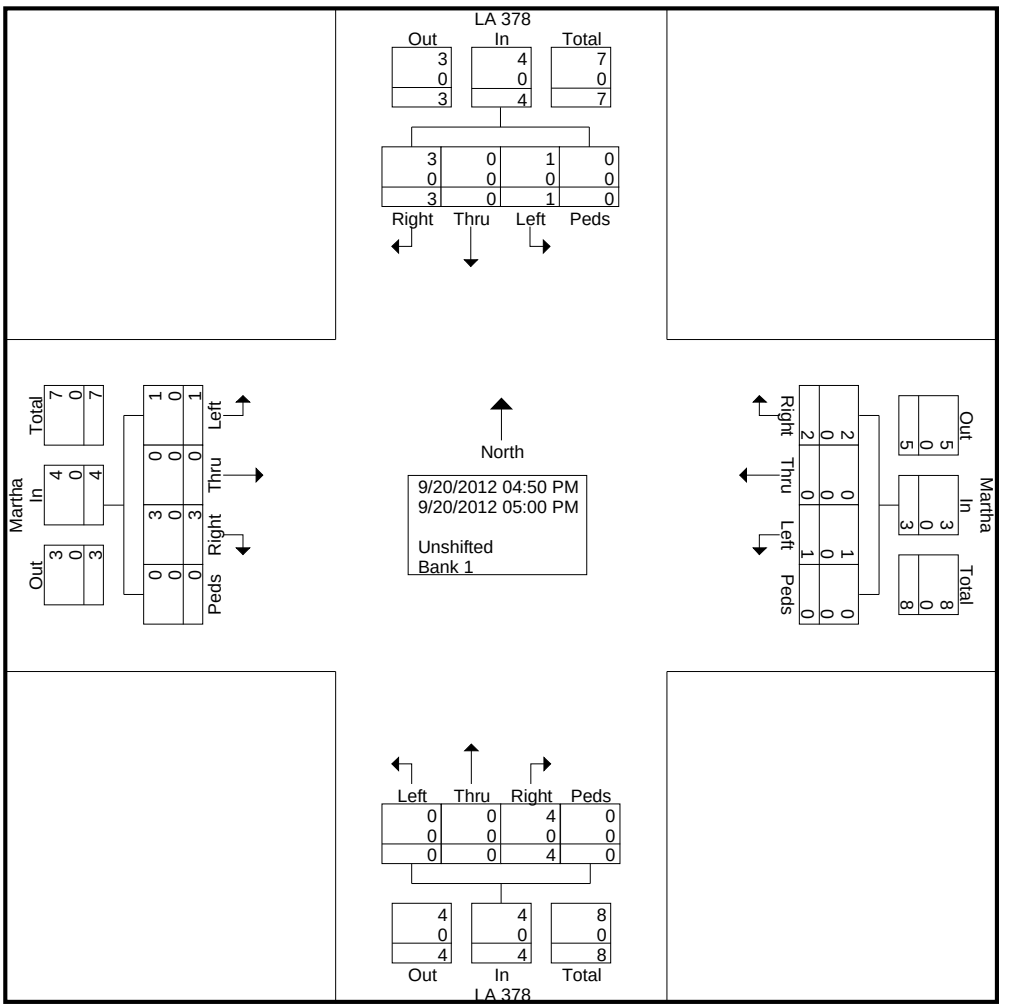
Calcasieu Parish
Martha @ LA 378 PM
PM Peak

File Name : Martha @ LA 378 PM
Site Code : 11-100
Start Date : 9/20/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Martha Westbound					LA 378 Northbound					Martha 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
04:50 PM	0	0	1	0	1	1	0	1	0	2	0	0	1	0	1	0	0	1	0	1	5
04:55 PM	0	0	2	0	2	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	4
Total	0	0	3	0	3	1	0	1	0	2	0	0	3	0	3	0	0	1	0	1	9
05:00 PM	1	0	0	0	1	0	0	1	0	1	0	0	1	0	1	1	0	2	0	3	6
Grand Total	1	0	3	0	4	1	0	2	0	3	0	0	4	0	4	1	0	3	0	4	15
Apprch %	25	0	75	0		33.3	0	66.7	0		0	0	100	0		25	0	75	0		
Total %	6.7	0	20	0	26.7	6.7	0	13.3	0	20	0	0	26.7	0	26.7	6.7	0	20	0	26.7	
Unshifted	1	0	3	0	4	1	0	2	0	3	0	0	4	0	4	1	0	3	0	4	15
% Unshifted	100	0	100	0	100	100	0	100	0	100	0	0	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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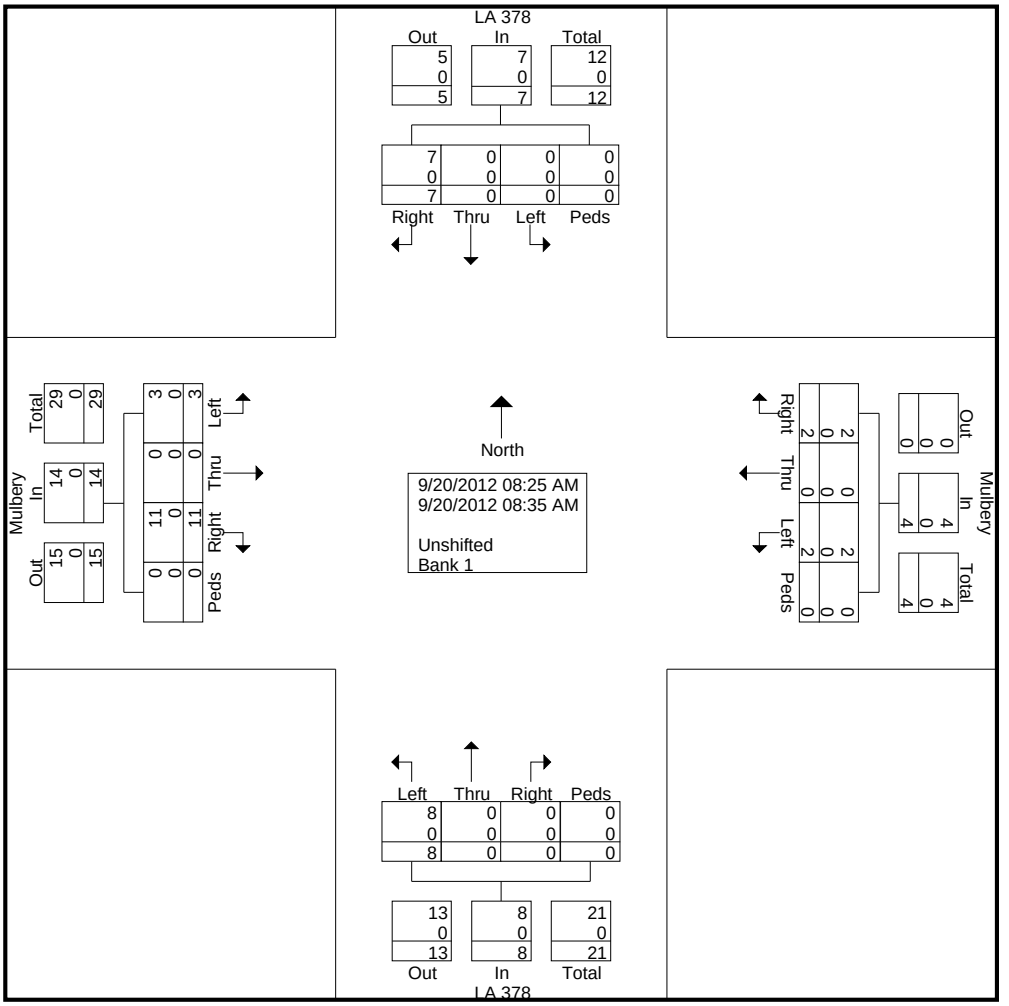
Calcasieu Parish
Mulbery @ LA 378 AM
AM Peak

File Name : Mulbery @ LA 378 AM
Site Code : 11-100
Start Date : 9/20/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Mulbery Westbound					LA 378 Northbound					Mulbery 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
08:25 AM	0	0	2	0	2	1	0	1	0	2	3	0	0	0	3	3	0	5	0	8	15
08:30 AM	0	0	4	0	4	0	0	0	0	0	2	0	0	0	2	0	0	4	0	4	10
08:35 AM	0	0	1	0	1	1	0	1	0	2	3	0	0	0	3	0	0	2	0	2	8
Grand Total	0	0	7	0	7	2	0	2	0	4	8	0	0	0	8	3	0	11	0	14	33
Apprch %	0	0	100	0		50	0	50	0		100	0	0	0		21.4	0	78.6	0		
Total %	0	0	21.2	0	21.2	6.1	0	6.1	0	12.1	24.2	0	0	0	24.2	9.1	0	33.3	0	42.4	
Unshifted	0	0	7	0	7	2	0	2	0	4	8	0	0	0	8	3	0	11	0	14	33
% Unshifted	0	0	100	0	100	100	0	100	0	100	100	0	0	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Urban Systems Associates, Inc.

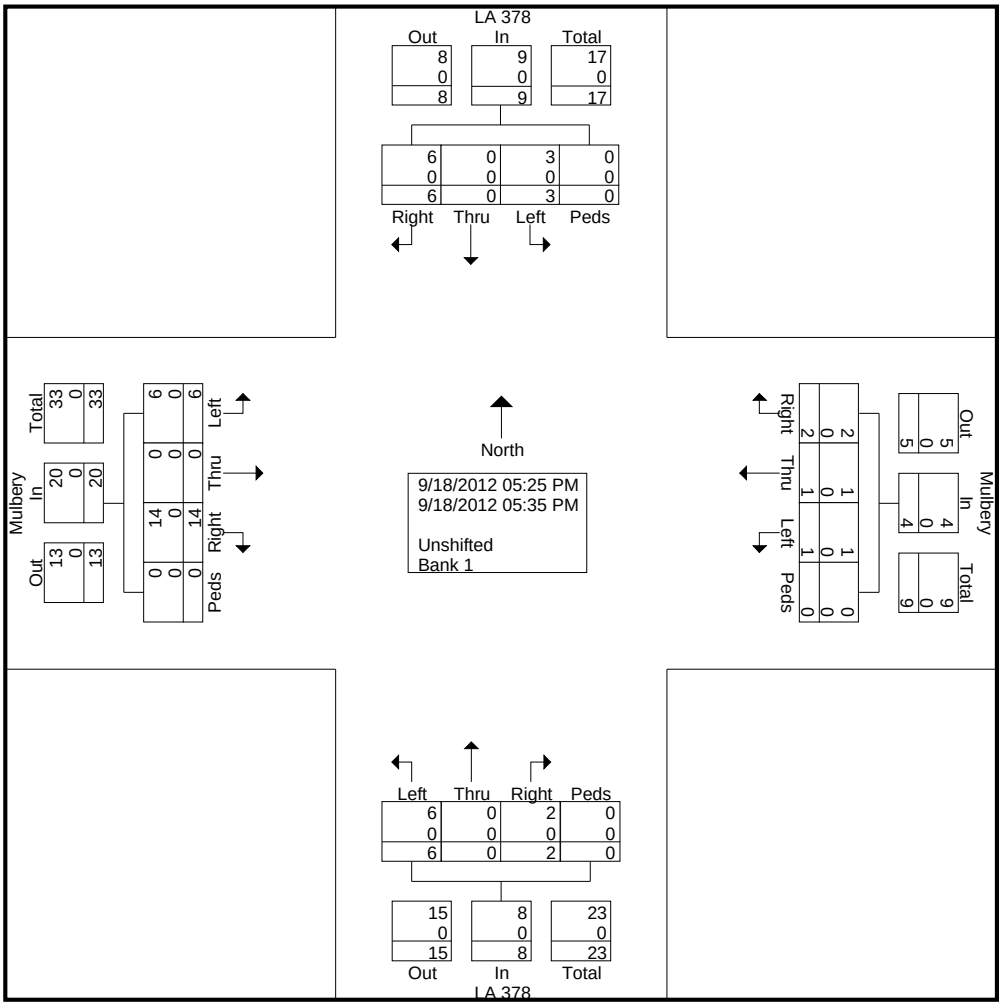
400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Calcasieu Parish
Mulbery @ LA 378 PM
PM Peak

File Name : Mulbery @ LA 378 PM
Site Code : 11-100
Start Date : 9/18/2012

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Mulbery Westbound					LA 378 Northbound					Mulbery 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
05:25 PM	3	0	4	0	7	0	0	1	0	1	1	0	2	0	3	1	0	5	0	6	17
05:30 PM	0	0	2	0	2	1	1	1	0	3	4	0	0	0	4	3	0	4	0	7	16
05:35 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	0	5	0	7	8
Grand Total	3	0	6	0	9	1	1	2	0	4	6	0	2	0	8	6	0	14	0	20	41
Apprch %	33.3	0	66.7	0		25	25	50	0		75	0	25	0		30	0	70	0		
Total %	7.3	0	14.6	0	22	2.4	2.4	4.9	0	9.8	14.6	0	4.9	0	19.5	14.6	0	34.1	0	48.8	
Unshifted	3	0	6	0	9	1	1	2	0	4	6	0	2	0	8	6	0	14	0	20	41
% Unshifted	100	0	100	0	100	100	100	100	0	100	100	0	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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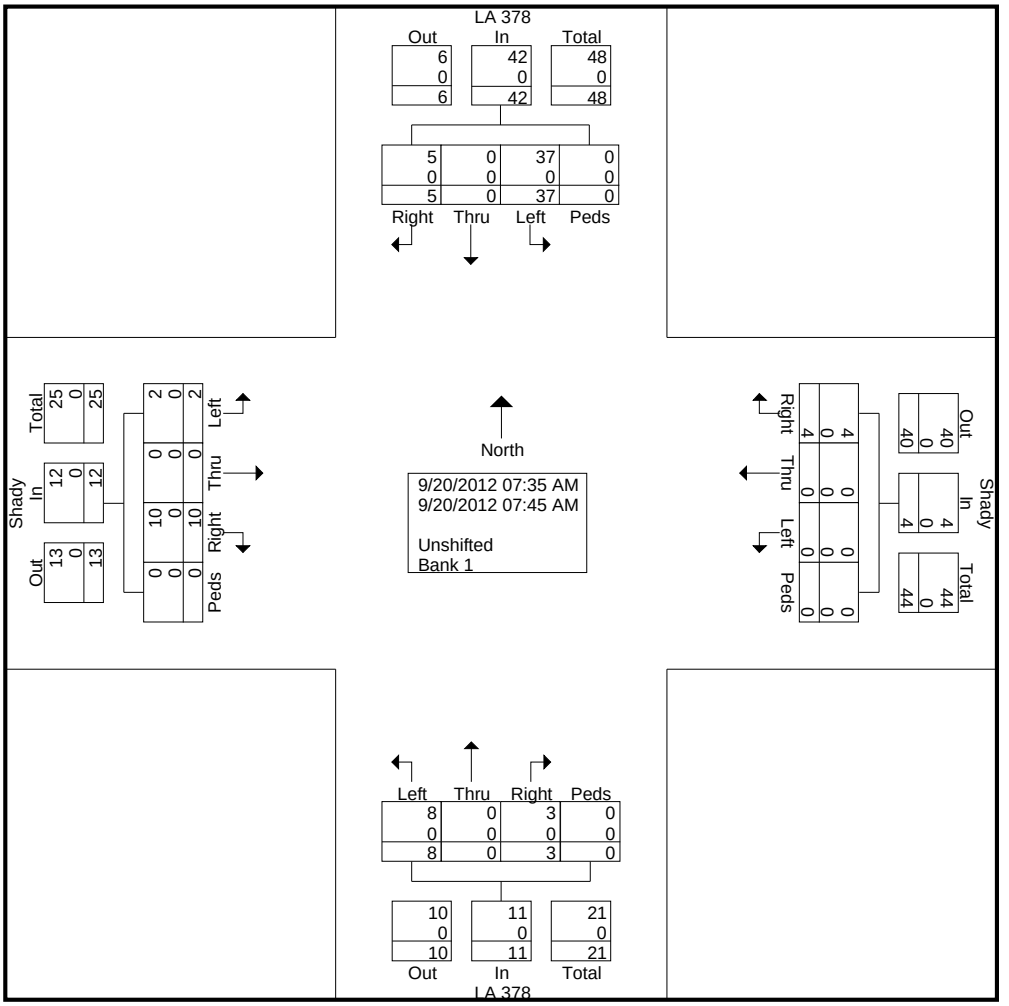
504-523-5511

Calcasieu Parish
Shady at LA 378
AM Peak

File Name : Shady @ LA 378 AM
Site Code : 11-100
Start Date : 9/20/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Shady Westbound					LA 378 Northbound					Shady 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
07:35 AM	21	0	0	0	21	0	0	1	0	1	5	0	1	0	6	1	0	3	0	4	32
07:40 AM	14	0	1	0	15	0	0	2	0	2	2	0	2	0	4	1	0	3	0	4	25
07:45 AM	2	0	4	0	6	0	0	1	0	1	1	0	0	0	1	0	0	4	0	4	12
Grand Total	37	0	5	0	42	0	0	4	0	4	8	0	3	0	11	2	0	10	0	12	69
Apprch %	88.1	0	11.9	0		0	0	100	0		72.7	0	27.3	0		16.7	0	83.3	0		
Total %	53.6	0	7.2	0	60.9	0	0	5.8	0	5.8	11.6	0	4.3	0	15.9	2.9	0	14.5	0	17.4	
Unshifted	37	0	5	0	42	0	0	4	0	4	8	0	3	0	11	2	0	10	0	12	69
% Unshifted	100	0	100	0	100	0	0	100	0	100	100	0	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Urban Systems Associates, Inc.

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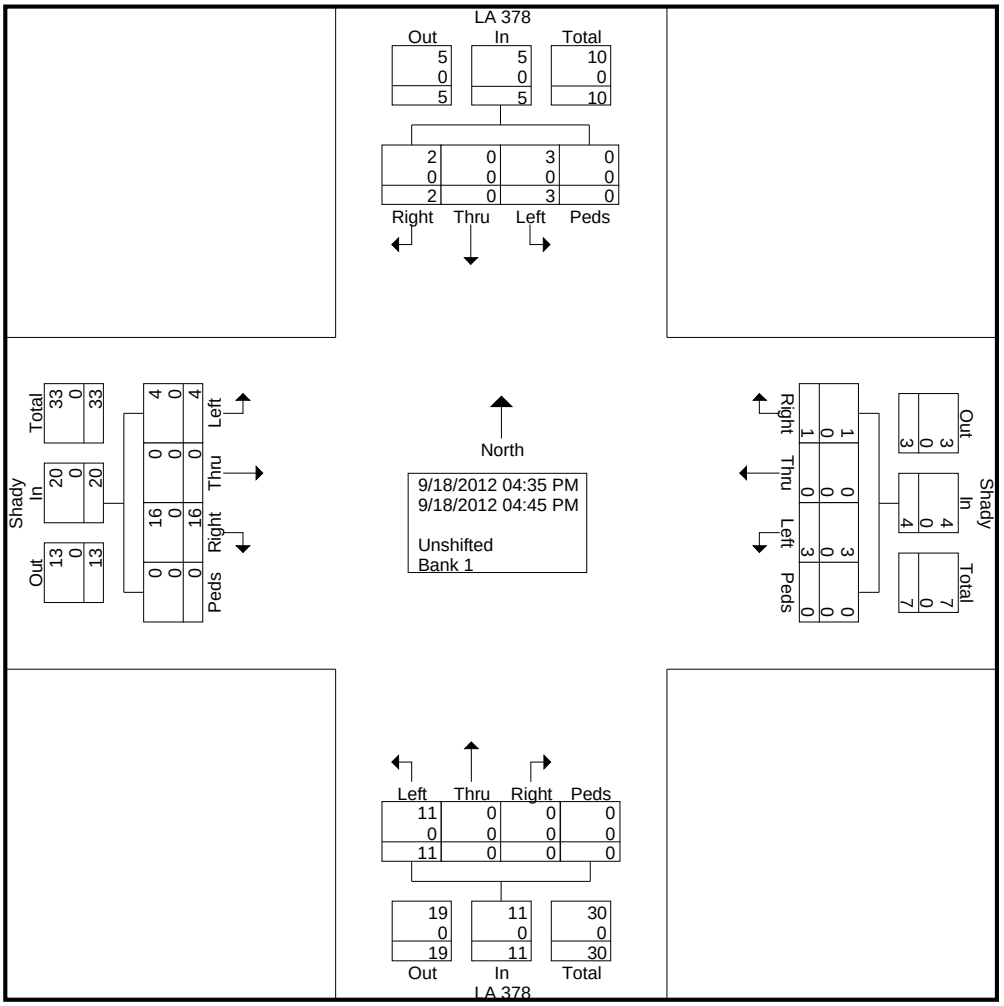
New Orleans, LA 70130
504-523-5511

Calcasieu Parish
Shady at LA 378
PM Peak

File Name : Shady @ LA 378 PM
Site Code : 11-100
Start Date : 9/18/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Shady Westbound					LA 378 Northbound					Shady 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
04:35 PM	2	0	0	0	2	2	0	0	0	2	2	0	0	0	2	2	0	6	0	8	14
04:40 PM	1	0	0	0	1	1	0	1	0	2	5	0	0	0	5	2	0	2	0	4	12
04:45 PM	0	0	2	0	2	0	0	0	0	0	4	0	0	0	4	0	0	8	0	8	14
Grand Total	3	0	2	0	5	3	0	1	0	4	11	0	0	0	11	4	0	16	0	20	40
Apprch %	60	0	40	0		75	0	25	0		100	0	0	0		20	0	80	0		
Total %	7.5	0	5	0	12.5	7.5	0	2.5	0	10	27.5	0	0	0	27.5	10	0	40	0	50	
Unshifted	3	0	2	0	5	3	0	1	0	4	11	0	0	0	11	4	0	16	0	20	40
% Unshifted	100	0	100	0	100	100	0	100	0	100	100	0	0	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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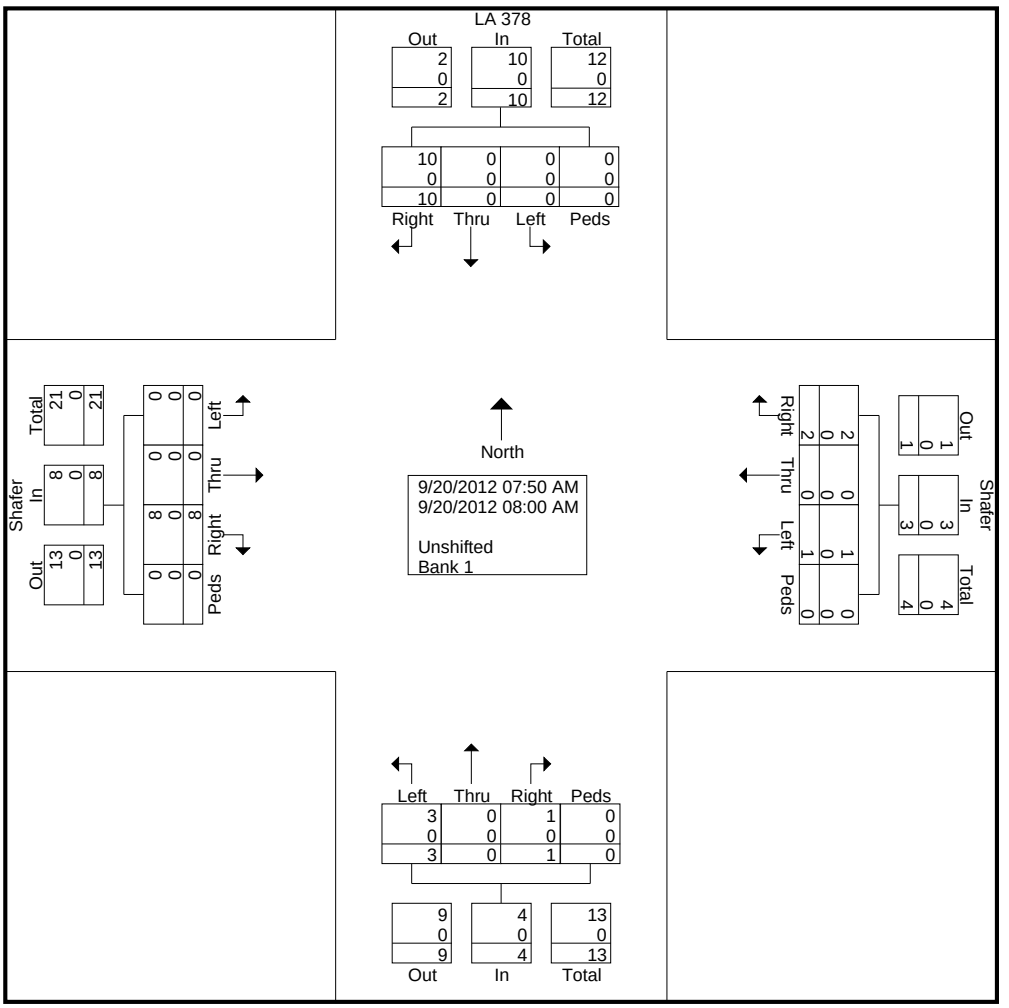
Calcasieu Parish
Shafer at LA 378
AM Peak

File Name : Shafer @ LA 378 AM
Site Code : 11-100
Start Date : 9/20/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Shafer Westbound					Northbound					Shafer 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
07:50 AM	0	0	3	0	3	1	0	1	0	2	0	0	0	0	0	0	0	5	0	5	10
07:55 AM	0	0	0	0	0	0	0	1	0	1	1	0	1	0	2	0	0	2	0	2	5
Total	0	0	3	0	3	1	0	2	0	3	1	0	1	0	2	0	0	7	0	7	15
08:00 AM	0	0	7	0	7	0	0	0	0	0	2	0	0	0	2	0	0	1	0	1	10
Grand Total	0	0	10	0	10	1	0	2	0	3	3	0	1	0	4	0	0	8	0	8	25
Apprch %	0	0	100	0		33.3	0	66.7	0		75	0	25	0		0	0	100	0		
Total %	0	0	40	0	40	4	0	8	0	12	12	0	4	0	16	0	0	32	0	32	
Unshifted	0	0	10	0	10	1	0	2	0	3	3	0	1	0	4	0	0	8	0	8	25
% Unshifted	0	0	100	0	100	100	0	100	0	100	100	0	100	0	100	0	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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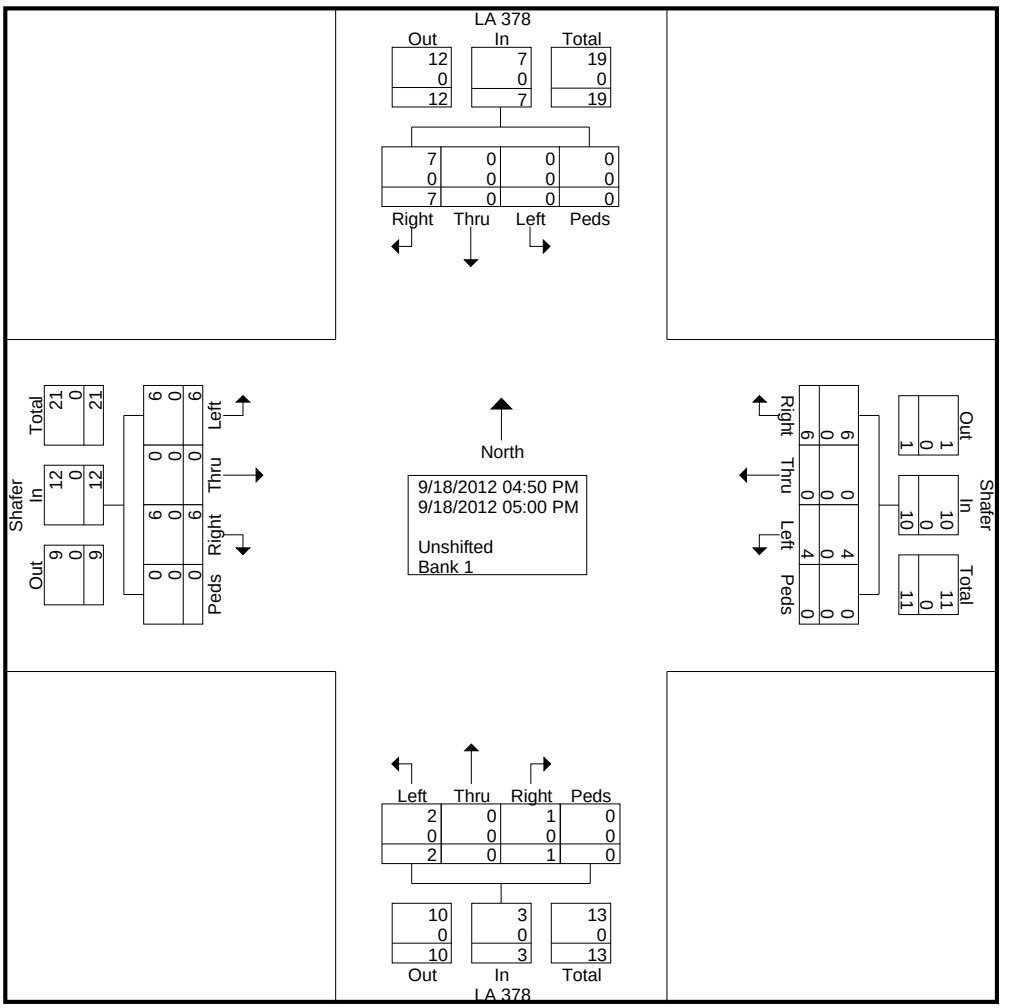
Calcasieu Parish
Shafer at LA 378
PM Peak

File Name : Shafer @ LA 378 PM
Site Code : 11-100
Start Date : 9/18/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Shafer Westbound					LA 378 Northbound					Shafer 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
04:50 PM	0	0	2	0	2	1	0	2	0	3	1	0	1	0	2	1	0	2	0	3	10
04:55 PM	0	0	3	0	3	1	0	1	0	2	0	0	0	0	0	3	0	1	0	4	9
Total	0	0	5	0	5	2	0	3	0	5	1	0	1	0	2	4	0	3	0	7	19
05:00 PM	0	0	2	0	2	2	0	3	0	5	1	0	0	0	1	2	0	3	0	5	13
Grand Total	0	0	7	0	7	4	0	6	0	10	2	0	1	0	3	6	0	6	0	12	32
Apprch %	0	0	100	0		40	0	60	0		66.7	0	33.3	0		50	0	50	0		
Total %	0	0	21.9	0	21.9	12.5	0	18.8	0	31.2	6.2	0	3.1	0	9.4	18.8	0	18.8	0	37.5	
Unshifted	0	0	7	0	7	4	0	6	0	10	2	0	1	0	3	6	0	6	0	12	32
% Unshifted	0	0	100	0	100	100	0	100	0	100	100	0	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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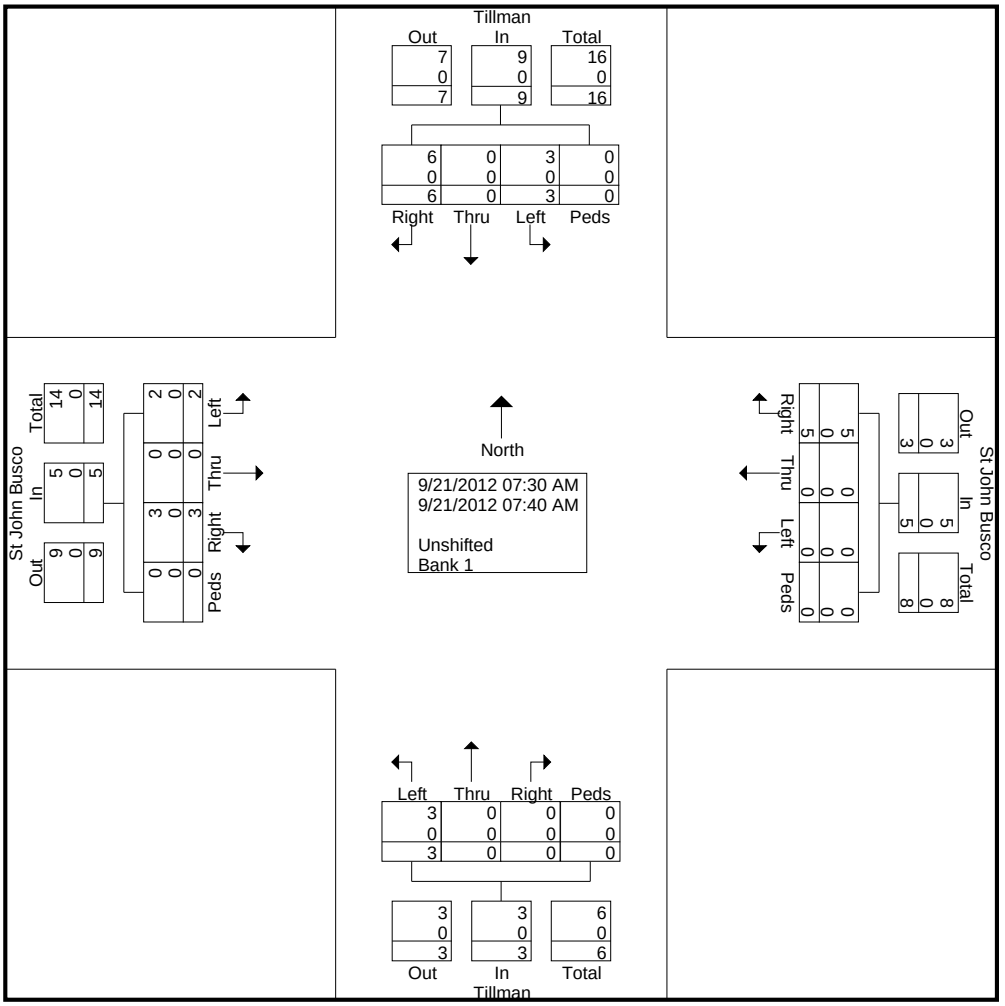
400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Calcasieu Parish
Tillman and LA 378
AM Peak

File Name : Tillman @ LA 378
Site Code : 11-100
Start Date : 9/21/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	Tillman Southbound					St John Busco Westbound					Tillman Northbound					St John Busco 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
07:30 AM	1	0	2	0	3	0	0	2	0	2	1	0	0	0	1	1	0	1	0	2	8
07:35 AM	1	0	1	0	2	0	0	2	0	2	0	0	0	0	0	0	0	2	0	2	6
07:40 AM	1	0	3	0	4	0	0	1	0	1	2	0	0	0	2	1	0	0	0	1	8
Grand Total	3	0	6	0	9	0	0	5	0	5	3	0	0	0	3	2	0	3	0	5	22
Apprch %	33.3	0	66.7	0		0	0	100	0		100	0	0	0		40	0	60	0		
Total %	13.6	0	27.3	0	40.9	0	0	22.7	0	22.7	13.6	0	0	0	13.6	9.1	0	13.6	0	22.7	
Unshifted	3	0	6	0	9	0	0	5	0	5	3	0	0	0	3	2	0	3	0	5	22
% Unshifted	100	0	100	0	100	0	0	100	0	100	100	0	0	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Urban Systems Associates, Inc.

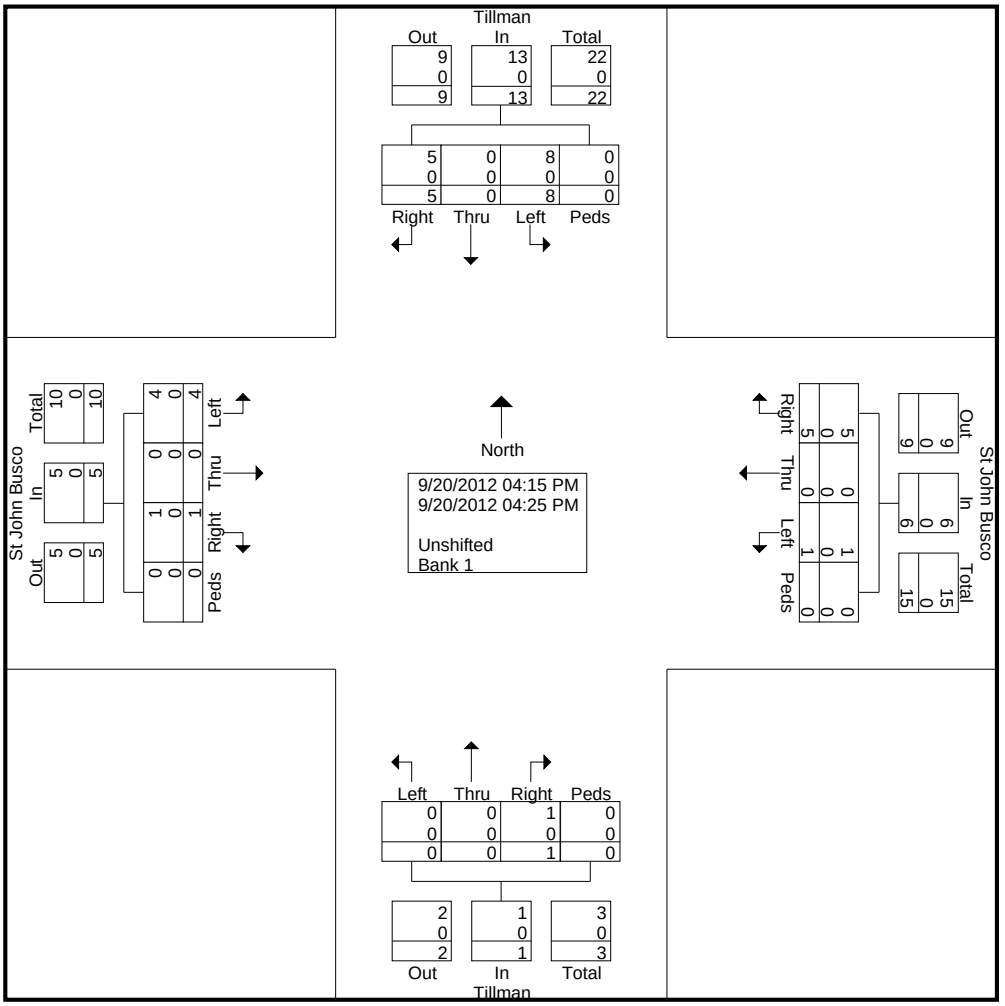
400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Calcasieu Parish
St John Busco at LA 378
PM Peak

File Name : Tillman @ LA 378 PM
Site Code : 11-100
Start Date : 9/20/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	Tillman Southbound					St John Busco Westbound					Tillman Northbound					St John Busco 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
04:15 PM	1	0	0	0	1	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	4
04:20 PM	2	0	2	0	4	0	0	1	0	1	0	0	0	0	0	3	0	0	0	3	8
04:25 PM	5	0	3	0	8	0	0	2	0	2	0	0	1	0	1	1	0	1	0	2	13
Grand Total	8	0	5	0	13	1	0	5	0	6	0	0	1	0	1	4	0	1	0	5	25
Apprch %	61.5	0	38.5	0		16.7	0	83.3	0		0	0	100	0		80	0	20	0		
Total %	32	0	20	0	52	4	0	20	0	24	0	0	4	0	4	16	0	4	0	20	
Unshifted	8	0	5	0	13	1	0	5	0	6	0	0	1	0	1	4	0	1	0	5	25
% Unshifted	100	0	100	0	100	100	0	100	0	100	0	0	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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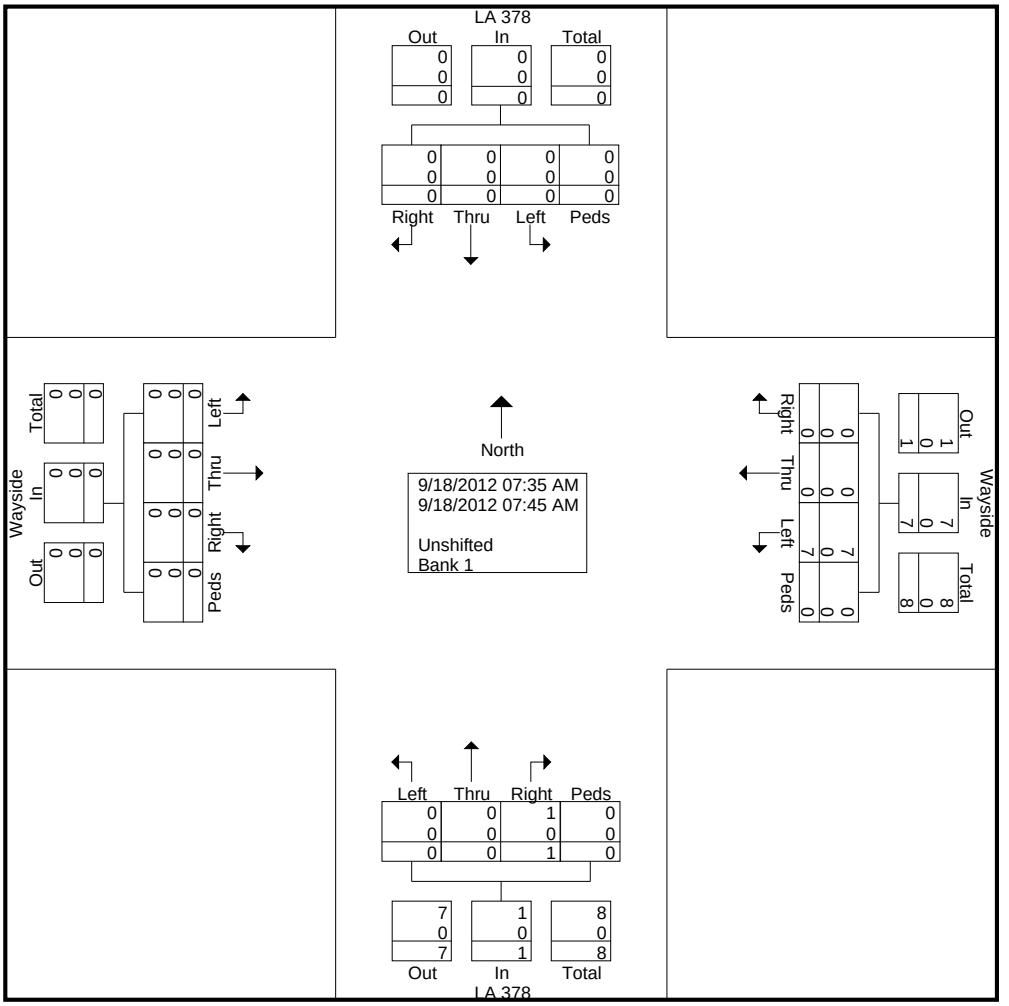
400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Calcasieu Parish
Wayside @ LA 378
AM Peak

File Name : Wayside @ LA 378 AM
Site Code : 11-100
Start Date : 9/18/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Wayside Westbound					LA 378 Northbound					Wayside 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
07:35 AM	0	0	0	0	0	2	0	0	0	2	0	0	1	0	1	0	0	0	0	0	3
07:40 AM	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
07:45 AM	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Grand Total	0	0	0	0	0	7	0	0	0	7	0	0	1	0	1	0	0	0	0	0	8
Apprch %	0	0	0	0		100	0	0	0		0	0	100	0		0	0	0	0		
Total %	0	0	0	0	0	87.5	0	0	0	87.5	0	0	12.5	0	12.5	0	0	0	0	0	
Unshifted	0	0	0	0	0	7	0	0	0	7	0	0	1	0	1	0	0	0	0	0	8
% Unshifted	0	0	0	0	0	100	0	0	0	100	0	0	100	0	100	0	0	0	0	0	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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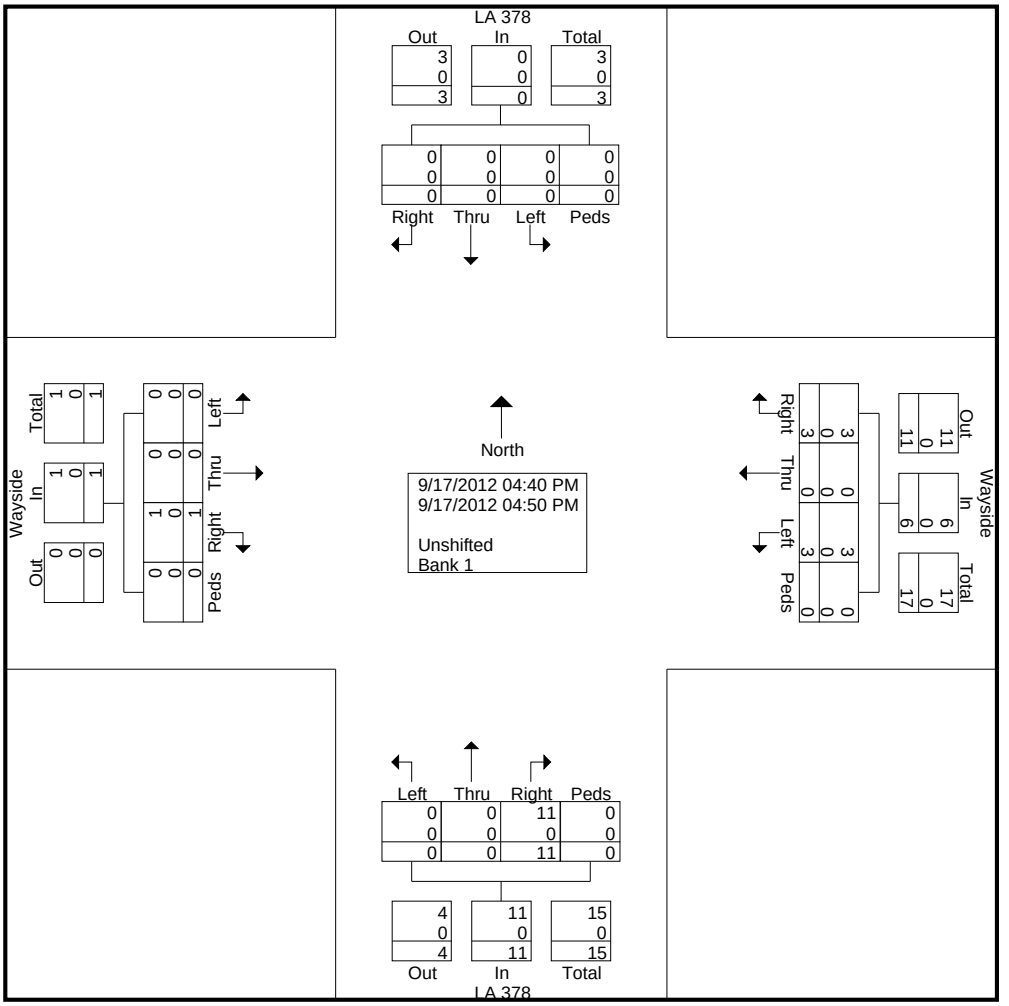
504-523-5511

Calcasieu Parish
Wayside at LA 378
PM Peak

File Name : Wayside @ LA 378 PM
Site Code : 11-100
Start Date : 9/17/2012
Page No : 1

Groups Printed- Unshifted - Bank 1

	LA 378 Southbound					Wayside Westbound					LA 378 Northbound					Wayside 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
04:40 PM	0	0	0	0	0	2	0	2	0	4	0	0	5	0	5	0	0	1	0	1	10
04:45 PM	0	0	0	0	0	1	0	0	0	1	0	0	3	0	3	0	0	0	0	0	4
04:50 PM	0	0	0	0	0	0	0	1	0	1	0	0	3	0	3	0	0	0	0	0	4
Grand Total	0	0	0	0	0	3	0	3	0	6	0	0	11	0	11	0	0	1	0	1	18
Apprch %	0	0	0	0		50	0	50	0		0	0	100	0		0	0	100	0		
Total %	0	0	0	0	0	16.7	0	16.7	0	33.3	0	0	61.1	0	61.1	0	0	5.6	0	5.6	
Unshifted	0	0	0	0	0	3	0	3	0	6	0	0	11	0	11	0	0	1	0	1	18
% Unshifted	0	0	0	0	0	100	0	100	0	100	0	0	100	0	100	0	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Jamar Appolyon
Speed Classification
Westlake, Louisiana
Calcasieu Parish

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Site Code:
LA 378 btw I-10 ramps & Sulphur Ave

NB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	96 999	Total
11/08/12	65	33	6	2	0	0	0	0	0	0	0	0	0	0	106
01:00	43	18	4	2	1	0	0	0	0	0	0	0	0	0	68
02:00	25	10	2	0	1	0	0	0	0	0	0	0	0	0	38
03:00	28	6	2	0	0	0	0	0	0	0	0	0	0	0	36
04:00	47	11	6	0	0	0	0	0	0	0	0	0	0	0	64
05:00	51	32	13	2	0	0	0	0	0	0	0	0	0	0	98
06:00	130	61	24	2	0	0	0	0	0	0	0	0	0	0	217
07:00	404	125	40	8	0	0	0	0	0	0	0	0	0	0	577
08:00	301	113	32	9	0	0	0	0	0	0	0	0	0	0	455
09:00	232	96	28	2	2	0	0	0	0	0	0	0	0	0	360
10:00	205	105	36	2	0	0	0	0	0	0	0	0	0	0	348
11:00	275	112	44	5	0	0	0	0	0	0	0	0	0	0	436
12 PM	294	154	56	7	1	0	0	0	0	0	0	0	0	0	512
13:00	322	171	53	15	1	0	0	0	0	0	0	0	0	0	562
14:00	355	150	68	9	0	0	0	0	0	0	0	0	0	0	582
15:00	364	179	53	14	1	0	0	0	0	0	0	0	0	0	611
16:00	436	251	102	15	0	0	0	0	0	0	0	0	0	0	804
17:00	614	270	108	10	0	0	0	0	0	0	0	0	0	0	1002
18:00	715	215	55	4	0	0	0	0	0	0	0	0	0	0	989
19:00	413	169	61	5	0	0	0	0	0	0	0	0	0	0	648
20:00	268	128	33	5	0	0	0	0	0	0	0	0	0	0	434
21:00	190	88	30	3	0	0	0	0	0	0	0	0	0	0	311
22:00	153	79	22	4	0	0	0	0	0	0	0	0	0	0	258
23:00	117	36	14	7	0	0	0	0	0	0	0	0	0	0	174
Total	6047	2612	892	132	7	0	0	0	0	0	0	0	0	0	9690
Grand Total	6047	2612	892	132	7	0	0	0	0	0	0	0	0	0	9690

	15th Percentile :	11 MPH
	50th Percentile :	21 MPH
	85th Percentile :	33 MPH
	95th Percentile :	39 MPH
Stats	Mean Speed(Average) :	23 MPH
	10 MPH Pace Speed :	15-24 MPH
	Number in Pace :	3481
	Percent in Pace :	35.9%
	Number of Vehicles > 35 MPH :	1189
	Percent of Vehicles > 35 MPH :	12.3%

Urban Systems Associates, Inc.
400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Jamar Appolyon
Speed Classification
Westlake, Louisiana
Calcasieu Parish

Site Code:
LA 378 btw I-10 ramps & Sulphur Ave

SB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	96 999	Total
11/08/12	54	10	2	0	0	0	0	0	0	0	0	0	0	0	66
01:00	33	7	0	0	0	0	0	0	0	0	0	0	0	0	40
02:00	14	2	2	0	0	0	0	0	0	0	0	0	0	0	18
03:00	16	6	0	0	1	0	0	0	0	0	0	0	0	0	23
04:00	55	12	0	0	0	0	0	0	0	0	0	0	0	0	67
05:00	140	52	9	0	0	0	0	0	0	0	0	0	0	0	201
06:00	453	112	23	1	1	0	0	0	0	0	0	0	0	0	590
07:00	815	105	12	0	1	0	0	0	0	0	0	0	0	0	933
08:00	1015	151	15	3	0	0	0	0	0	0	0	0	0	0	1184
09:00	558	112	19	0	0	0	0	0	0	0	0	0	0	0	689
10:00	459	100	17	1	0	0	0	0	0	0	0	0	0	0	577
11:00	398	113	21	2	0	0	0	0	0	0	0	0	0	0	534
12 PM	435	109	18	1	0	0	0	0	0	0	0	0	0	0	563
13:00	381	114	22	2	0	0	0	0	0	0	0	0	0	0	519
14:00	423	87	20	0	1	0	0	0	0	0	0	0	0	0	531
15:00	353	102	3	2	1	0	0	0	0	0	0	0	0	0	461
16:00	483	156	18	3	0	0	0	0	0	0	0	0	0	0	660
17:00	534	168	34	0	0	0	0	0	0	0	0	0	0	0	736
18:00	681	124	15	3	0	0	0	0	0	0	0	0	0	0	823
19:00	368	74	7	0	0	0	0	0	0	0	0	0	0	0	449
20:00	175	40	5	0	0	0	0	0	0	0	0	0	0	0	220
21:00	164	32	5	0	0	0	0	0	0	0	0	0	0	0	201
22:00	112	18	3	0	0	0	0	0	0	0	0	0	0	0	133
23:00	76	19	1	0	0	0	0	0	0	0	0	0	0	0	96
Total	8195	1825	271	18	5	0	0	0	0	0	0	0	0	0	10314
Grand Total	8195	1825	271	18	5	0	0	0	0	0	0	0	0	0	10314

15th Percentile :	10 MPH
50th Percentile :	19 MPH
85th Percentile :	30 MPH
95th Percentile :	36 MPH

Stats

Mean Speed(Average) :	21 MPH
10 MPH Pace Speed :	14-23 MPH
Number in Pace :	4161
Percent in Pace :	40.3%
Number of Vehicles > 35 MPH :	662
Percent of Vehicles > 35 MPH :	6.4%

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400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Jamar Appolyon
Speed Classification
Westlake, Louisiana
Calcasieu Parish

Site Code:
LA 378 btw Sulphur Ave & McKinley Rd

NB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	96 999	Total
11/08/12	8	30	24	18	4	1	0	0	0	0	0	0	0	0	85
01:00	3	20	19	7	1	0	0	1	0	0	0	0	0	0	51
02:00	4	12	1	5	3	2	0	0	1	0	0	0	0	0	28
03:00	2	9	6	2	1	0	0	0	0	0	0	0	0	0	20
04:00	7	13	17	6	2	0	0	0	0	0	0	0	0	0	45
05:00	3	12	19	9	5	1	0	0	0	0	0	0	1	0	50
06:00	8	28	48	9	2	3	0	0	0	0	0	0	0	0	98
07:00	22	70	94	43	17	5	1	0	0	0	0	0	0	0	252
08:00	46	105	99	41	11	1	0	0	0	0	0	0	0	0	303
09:00	44	89	83	38	9	1	0	0	0	1	0	0	0	0	265
10:00	70	87	97	30	8	0	0	0	0	0	0	0	0	0	292
11:00	90	120	127	48	9	2	1	0	0	0	0	0	0	0	397
12 PM	114	175	137	51	12	2	0	0	0	0	0	0	0	0	491
13:00	114	197	150	55	11	2	0	0	0	0	0	0	0	0	529
14:00	86	191	145	56	16	3	0	0	0	0	0	0	0	0	497
15:00	112	181	158	64	13	1	1	0	0	0	0	0	0	0	530
16:00	161	239	215	66	12	0	1	0	0	0	0	0	0	0	694
17:00	141	292	325	100	16	6	0	1	0	0	0	0	0	0	881
18:00	204	333	280	88	8	2	0	0	0	0	0	0	0	0	915
19:00	112	222	194	60	12	2	0	0	0	0	0	0	0	0	602
20:00	42	138	155	46	13	2	1	0	0	0	0	0	0	0	397
21:00	37	92	102	40	10	2	0	0	0	0	0	0	0	0	283
22:00	21	74	76	32	8	1	0	0	0	0	0	0	0	0	212
23:00	16	36	42	27	6	1	0	0	0	0	1	0	0	0	129
Total	1467	2765	2613	941	209	40	5	2	1	1	1	0	1	0	8046
Grand Total	1467	2765	2613	941	209	40	5	2	1	1	1	0	1	0	8046

15th Percentile :	16 MPH
50th Percentile :	31 MPH
85th Percentile :	42 MPH
95th Percentile :	47 MPH

Stats

Mean Speed(Average) :	31 MPH
10 MPH Pace Speed :	34-43 MPH
Number in Pace :	2621
Percent in Pace :	32.6%
Number of Vehicles > 35 MPH :	3228
Percent of Vehicles > 35 MPH :	40.1%

MetroCount Traffic Executive
Speed Statistics by Hour

Site: **11-100**
Direction: LA 378 btw Sulphur Ave & Mckinley - SB
Survey Duration: 15:27 Tuesday, November 06, 2012 => 8:47 Monday, November 19, 2012
File: 19Nov2012box 1.EC0 (Plus)
Filter time: **0:00 Thursday, November 08, 2012 => 0:00 Friday, November 09, 2012**
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13

Vehicles = 8509
Posted speed limit = 35 mph, Exceeding = 4169 (49.00%), Mean Exceeding = 38.19 mph
Maximum = 72.0 mph, **Minimum** = 9.2 mph, **Mean** = 34.9 mph
85% Speed = 38.9 mph, **95% Speed** = 41.6 mph, **Median** = 34.9 mph
10 mph Pace = 30 - 40, **Number in Pace** = 6788 (79.77%)
Variance = 19.69, **Standard Deviation** = 4.44 mph

Hour Bins

Time	Bin		Min	Max	Mean	Median	85%	95%	>PSL 35 mph	
0000	32	0.4%	25.9	48.4	35.6	34.0	38.5	42.3	16	50.0%
0100	12	0.1%	27.6	63.7	38.2	33.6	44.5	44.7	6	50.0%
0200	15	0.2%	31.0	61.8	37.6	36.0	38.7	41.8	9	60.0%
0300	47	0.6%	31.2	46.1	35.0	34.9	36.7	38.3	24	51.1%
0400	177	2.1%	26.4	50.3	37.0	36.5	40.7	43.4	122	68.9%
0500	494	5.8%	22.7	50.1	36.1	35.8	39.4	42.3	309	62.6%
0600	907	10.7%	14.9	50.9	34.1	34.0	38.5	41.4	392	43.2%
0700	998	11.7%	9.7	48.9	34.3	34.2	38.3	40.9	434	43.5%
0800	591	6.9%	9.2	47.2	35.0	34.7	38.9	42.1	279	47.2%
0900	472	5.5%	18.7	47.6	34.9	34.9	39.1	41.8	239	50.6%
1000	434	5.1%	10.5	50.3	34.8	34.9	39.1	41.6	217	50.0%
1100	516	6.1%	21.9	49.3	34.5	34.4	38.7	40.9	233	45.2%
1200	483	5.7%	13.7	48.8	34.9	34.9	39.1	41.8	242	50.1%
1300	433	5.1%	9.6	64.0	34.1	34.2	38.3	40.7	192	44.3%
1400	386	4.5%	11.8	48.2	34.7	34.9	38.5	41.4	197	51.0%
1500	463	5.4%	11.1	47.3	34.8	35.1	38.9	41.4	237	51.2%
1600	506	5.9%	15.6	49.0	35.7	35.6	39.6	42.3	301	59.5%
1700	572	6.7%	14.1	47.2	34.6	34.2	38.3	41.6	237	41.4%
1800	357	4.2%	12.0	45.1	35.0	34.9	38.5	40.9	170	47.6%
1900	200	2.4%	17.1	46.4	34.9	34.7	38.5	40.7	97	48.5%
2000	188	2.2%	28.5	45.6	35.5	35.1	38.3	40.5	101	53.7%
2100	108	1.3%	20.3	49.8	34.8	34.2	38.0	40.5	48	44.4%
2200	70	0.8%	21.7	46.0	35.9	35.3	39.4	42.5	39	55.7%
2300	48	0.6%	22.4	72.0	37.3	36.0	40.7	47.4	28	58.3%
----	**8509**	**100.0%**	**9.2**	**72.0**	**34.9**	**34.9**	**38.9**	**41.6**	**4169**	**49.0%**

MetroCount Traffic Executive
Speed Statistics by Hour

Site: **11-100**
Direction: LA 378 btw McKinley Rd & John Stine Rd - NB
Survey Duration: 15:30 Tuesday, November 06, 2012 => 9:22 Friday, November 16, 2012
File: 16Nov2012box 2.EC0 (Plus)
Filter time: **0:00 Thursday, November 08, 2012 => 0:00 Friday, November 09, 2012**
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13

Vehicles = 7504
Posted speed limit = 35 mph, Exceeding = 5163 (68.80%), Mean Exceeding = 39.12 mph
Maximum = 65.5 mph, **Minimum** = 6.7 mph, **Mean** = 36.8 mph
85% Speed = 41.2 mph, **95% Speed** = 43.6 mph, **Median** = 36.9 mph
10 mph Pace = 32 - 42, **Number in Pace** = 5899 (78.61%)
Variance = 24.42, **Standard Deviation** = 4.94 mph

Hour Bins

Time	Bin		Min	Max	Mean	Median	85%	95%	>PSL 35 mph	
0000	33	0.4%	32.8	56.0	39.6	38.7	42.7	45.4	30	90.9%
0100	17	0.2%	30.5	50.3	38.8	36.7	43.6	45.9	14	82.4%
0200	17	0.2%	30.4	42.6	36.0	35.8	36.7	41.4	12	70.6%
0300	33	0.4%	32.5	48.7	38.7	38.0	41.8	45.9	28	84.8%
0400	46	0.6%	30.6	47.9	38.3	37.8	42.7	45.6	33	71.7%
0500	81	1.1%	27.7	53.1	37.9	37.6	41.4	43.4	65	80.2%
0600	155	2.1%	27.1	50.9	37.9	38.0	41.8	44.5	117	75.5%
0700	270	3.6%	24.5	48.7	36.7	36.5	41.2	44.1	174	64.4%
0800	247	3.3%	25.9	65.5	37.0	36.9	41.6	44.3	159	64.4%
0900	232	3.1%	18.7	48.1	37.0	36.9	40.9	42.9	168	72.4%
1000	326	4.3%	27.8	53.0	37.8	37.1	41.8	44.5	246	75.5%
1100	371	4.9%	23.6	56.1	38.0	37.6	42.3	45.6	278	74.9%
1200	410	5.5%	24.8	56.1	38.3	38.3	42.3	44.3	321	78.3%
1300	437	5.8%	18.6	56.6	36.4	36.2	40.5	42.9	269	61.6%
1400	499	6.6%	26.1	51.1	36.8	36.5	41.2	44.1	320	64.1%
1500	732	9.8%	12.5	58.7	36.7	36.5	40.3	42.9	490	66.9%
1600	910	12.1%	6.7	58.9	36.1	36.7	40.5	43.2	606	66.6%
1700	981	13.1%	6.7	55.4	34.2	35.6	39.6	42.5	542	55.2%
1800	625	8.3%	25.0	50.8	37.4	37.1	40.9	43.4	467	74.7%
1900	412	5.5%	23.9	49.0	37.2	37.4	40.7	43.2	302	73.3%
2000	297	4.0%	28.2	50.8	37.4	37.6	40.5	42.1	221	74.4%
2100	207	2.8%	28.3	49.7	38.0	37.8	41.8	43.4	163	78.7%
2200	109	1.5%	27.8	49.9	38.3	37.6	42.7	44.5	89	81.7%
2300	57	0.8%	29.0	52.5	38.8	38.5	42.9	47.0	49	86.0%
----	**7504**	**100.0%**	**6.7**	**65.5**	**36.8**	**36.9**	**41.2**	**43.6**	**5163**	**68.8%**

Jamar Appolyon
Speed Classification
Westlake, Louisiana
Calcasieu Parish

Urban Systems Associates, Inc.
400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Site Code: 000000015932
LA 378 btw McKinley Rd & John Stine Rd

SB

Start Time	1 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	96 999	Total
11/08/12	8	16	6	2	0	0	0	1	0	0	0	0	0	0	33
01:00	4	5	7	4	1	0	0	0	0	0	0	0	0	0	21
02:00	5	5	0	0	2	0	0	0	0	0	0	0	0	0	12
03:00	4	5	1	0	0	0	0	0	0	0	0	0	0	0	10
04:00	15	18	9	1	0	0	0	0	0	0	0	0	0	0	43
05:00	17	75	35	9	5	0	1	0	0	0	0	0	0	0	142
06:00	59	206	148	34	4	0	0	0	0	0	0	0	0	0	451
07:00	156	357	221	34	3	0	0	0	0	0	0	0	0	0	771
08:00	237	402	180	23	0	0	0	0	0	0	0	0	0	0	842
09:00	87	228	146	33	3	0	0	0	0	0	0	0	0	0	497
10:00	94	177	99	24	4	0	0	0	0	0	0	0	0	0	398
11:00	92	161	100	17	3	0	0	0	0	0	0	0	0	0	373
12 PM	109	150	98	20	0	1	0	0	0	0	0	0	0	0	378
13:00	69	176	102	28	3	0	0	0	0	0	0	0	0	0	378
14:00	112	172	93	21	1	0	0	0	0	0	0	0	0	0	399
15:00	93	157	99	11	4	0	0	0	0	0	0	0	0	0	364
16:00	88	183	92	27	3	2	0	0	0	0	0	0	0	0	395
17:00	111	204	117	29	3	0	0	0	0	0	0	0	0	0	464
18:00	109	220	111	19	2	0	0	0	0	0	0	0	0	0	461
19:00	90	174	69	24	2	0	0	0	0	0	0	0	0	0	359
20:00	63	105	66	5	1	0	0	0	0	0	0	0	0	0	240
21:00	37	78	46	6	1	0	0	0	0	0	0	0	0	0	168
22:00	34	46	22	7	1	0	0	0	0	0	0	0	0	0	110
23:00	15	30	14	2	1	0	0	0	0	0	0	0	0	0	62
Total	1708	3350	1881	380	47	3	1	1	0	0	0	0	0	0	7371
Grand Total	1708	3350	1881	380	47	3	1	1	0	0	0	0	0	0	7371

15th Percentile :	15 MPH
50th Percentile :	29 MPH
85th Percentile :	39 MPH
95th Percentile :	44 MPH

Stats

Mean Speed(Average) :	29 MPH
10 MPH Pace Speed :	31-40 MPH
Number in Pace :	2602
Percent in Pace :	35.3%
Number of Vehicles > 35 MPH :	2409
Percent of Vehicles > 35 MPH :	32.7%

MetroCount Traffic Executive
Speed Statistics by Hour

Site: **11-100**
Direction: LA 378 btw Philips & Hudson Dr - NB
Survey Duration: 15:39 Tuesday, November 06, 2012 => 8:40 Monday, November 19, 2012
File: 19Nov2012box 3.EC0 (Plus)
Filter time: **0:00 Thursday, November 08, 2012 => 0:00 Friday, November 09, 2012**
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range: 6 - 99 mph.
Direction: AB

Vehicles = 4962
Posted speed limit = 45 mph, Exceeding = 1177 (23.72%), Mean Exceeding = 47.73 mph
Maximum = 62.1 mph, **Minimum** = 13.7 mph, **Mean** = 40.7 mph
85% Speed = 46.3 mph, **95% Speed** = 49.0 mph, **Median** = 41.8 mph
10 mph Pace = 38 - 48, **Number in Pace** = 3488 (70.29%)
Variance = 47.91, **Standard Deviation** = 6.92 mph

Hour Bins

Time	Bin		Min	Max	Mean	Median	85%	95%	>PSL 45 mph	
0000	25	0.5%	37.5	60.5	43.9	43.2	45.9	51.2	7	28.0%
0100	13	0.3%	23.3	49.9	40.0	41.2	46.8	47.4	5	38.5%
0200	10	0.2%	22.7	47.5	41.0	42.1	46.8	47.4	4	40.0%
0300	18	0.4%	22.4	53.7	43.2	43.6	50.1	52.8	8	44.4%
0400	27	0.5%	25.3	53.5	42.1	42.7	46.1	48.8	6	22.2%
0500	63	1.3%	25.4	54.3	43.8	42.7	49.0	50.8	23	36.5%
0600	102	2.1%	18.1	56.8	41.0	42.1	46.3	49.9	25	24.5%
0700	181	3.6%	18.9	53.6	41.1	42.1	46.3	49.2	39	21.5%
0800	160	3.2%	23.3	54.0	41.8	42.3	46.5	49.2	43	26.9%
0900	155	3.1%	23.0	55.5	41.8	41.8	46.5	48.8	43	27.7%
1000	209	4.2%	21.5	54.8	41.6	42.3	46.8	49.4	58	27.8%
1100	211	4.3%	21.5	57.3	42.9	43.2	47.4	49.9	70	33.2%
1200	255	5.1%	20.4	60.5	42.5	42.7	47.6	49.7	83	32.5%
1300	275	5.5%	22.7	60.6	42.2	43.2	47.2	49.9	84	30.5%
1400	344	6.9%	15.0	56.7	40.8	42.7	47.2	49.9	114	33.1%
1500	489	9.9%	13.7	56.0	42.0	42.9	46.8	49.0	145	29.7%
1600	596	12.0%	17.6	62.1	40.4	41.8	45.4	48.3	113	19.0%
1700	668	13.5%	15.6	54.4	38.3	40.0	44.1	46.8	76	11.4%
1800	453	9.1%	13.7	56.0	37.8	39.6	44.7	46.8	59	13.0%
1900	266	5.4%	17.1	56.9	40.1	41.4	46.1	48.8	62	23.3%
2000	193	3.9%	15.0	57.4	40.4	41.2	45.6	48.1	35	18.1%
2100	143	2.9%	19.0	57.1	40.8	42.3	46.8	48.8	39	27.3%
2200	69	1.4%	20.4	56.6	41.5	43.8	48.5	51.0	25	36.2%
2300	37	0.7%	20.0	51.5	40.9	42.7	46.5	47.9	11	29.7%
----	**4962**	**100.0%**	**13.7**	**62.1**	**40.7**	**41.8**	**46.3**	**49.0**	**1177**	**23.7%**

MetroCount Traffic Executive
Speed Statistics by Hour

Site: **11-100**
Direction: LA 378 btw Phillips & Hudson Dr - SB
Survey Duration: 15:39 Tuesday, November 06, 2012 => 8:40 Monday, November 19, 2012
File: 19Nov2012box 3.EC0 (Plus)
Filter time: **0:00 Thursday, November 08, 2012 => 0:00 Friday, November 09, 2012**
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range: 6 - 99 mph.
Direction: BA

Vehicles = 5504
Posted speed limit = 45 mph, Exceeding = 3605 (65.50%), Mean Exceeding = 49.37 mph
Maximum = 87.2 mph, **Minimum** = 16.4 mph, **Mean** = 46.0 mph
85% Speed = 51.2 mph, **95% Speed** = 54.1 mph, **Median** = 46.8 mph
10 mph Pace = 43 - 53, **Number in Pace** = 3952 (71.80%)
Variance = 42.71, **Standard Deviation** = 6.54 mph

Hour Bins

Time	Bin		Min	Max	Mean	Median	85%	95%	>PSL 45 mph	
0000	12	0.2%	22.4	53.7	42.4	44.1	48.8	48.8	5	41.7%
0100	8	0.1%	38.2	60.7	45.9	42.5	48.3	60.6	3	37.5%
0200	8	0.1%	29.7	87.2	48.1	42.1	58.8	87.0	4	50.0%
0300	30	0.5%	22.2	52.7	45.2	46.3	50.8	52.3	17	56.7%
0400	123	2.2%	25.5	60.6	48.1	48.3	51.9	53.9	99	80.5%
0500	431	7.8%	21.4	57.9	46.5	47.2	50.8	52.8	314	72.9%
0600	710	12.9%	20.7	62.8	46.0	46.5	50.6	53.0	478	67.3%
0700	683	12.4%	19.7	58.5	46.3	47.0	51.7	54.6	468	68.5%
0800	387	7.0%	17.1	60.8	47.0	47.4	51.7	54.6	278	71.8%
0900	294	5.3%	22.8	62.3	46.4	46.8	51.7	54.1	192	65.3%
1000	252	4.6%	21.6	62.9	46.6	47.2	51.9	55.3	172	68.3%
1100	272	4.9%	21.1	57.1	45.5	46.3	50.8	53.0	169	62.1%
1200	211	3.8%	16.4	70.4	47.2	47.9	52.8	54.8	156	73.9%
1300	243	4.4%	18.0	62.7	46.4	47.6	51.7	53.9	174	71.6%
1400	247	4.5%	21.1	65.0	45.7	46.8	52.1	54.4	164	66.4%
1500	302	5.5%	19.5	62.1	46.2	47.6	52.1	54.8	205	67.9%
1600	316	5.7%	23.2	62.5	46.8	47.2	52.1	55.0	213	67.4%
1700	358	6.5%	20.0	55.3	43.3	44.7	49.4	51.7	176	49.2%
1800	226	4.1%	21.9	57.5	45.1	45.2	49.7	52.8	121	53.5%
1900	169	3.1%	19.8	61.4	43.1	44.1	48.8	51.9	74	43.8%
2000	100	1.8%	19.7	58.4	44.9	45.2	51.2	55.9	53	53.0%
2100	68	1.2%	26.9	62.3	46.0	46.3	51.0	53.7	40	58.8%
2200	27	0.5%	22.7	58.9	44.6	45.6	51.2	52.8	14	51.9%
2300	27	0.5%	20.6	52.0	42.7	46.1	49.0	51.7	16	59.3%
----	**5504**	**100.0%**	**16.4**	**87.2**	**46.0**	**46.8**	**51.2**	**54.1**	**3605**	**65.5%**

MetroCount Traffic Executive
Speed Statistics by Hour

Site: **11-100**
Direction: LA 378 btw Westwood Rd & Davis Rd - EB
Survey Duration: 14:00 Thursday, September 06, 2012 => 8:53 Tuesday, September 25, 2012
File: box3.ec0 (Plus)
Filter time: **0:00 Wednesday, September 19, 2012 => 0:00 Thursday, September 20, 2012**
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range: 6 - 99 mph.
Direction: AB

Vehicles = 4535
Posted speed limit = 45 mph, Exceeding = 297 (6.55%), Mean Exceeding = 47.09 mph
Maximum = 59.9 mph, **Minimum** = 9.3 mph, **Mean** = 39.0 mph
85% Speed = 42.9 mph, **95% Speed** = 45.4 mph, **Median** = 39.1 mph
10 mph Pace = 34 - 44, **Number in Pace** = 3629 (80.02%)
Variance = 19.52, **Standard Deviation** = 4.42 mph

Hour Bins

Time	Bin		Min	Max	Mean	Median	85%	95%	>PSL 45 mph	
0000	15	0.3%	31.5	49.8	40.7	40.5	45.6	46.3	3	20.0%
0100	9	0.2%	32.9	59.9	40.7	39.6	43.4	59.7	1	11.1%
0200	13	0.3%	29.1	51.2	39.9	41.2	42.9	47.2	2	15.4%
0300	10	0.2%	30.2	41.7	38.2	39.4	41.4	41.6	0	0.0%
0400	25	0.6%	28.8	45.8	39.9	40.9	43.8	45.2	2	8.0%
0500	60	1.3%	9.3	50.0	38.0	39.4	43.8	45.6	5	8.3%
0600	84	1.9%	26.9	48.8	37.6	37.4	42.3	44.7	3	3.6%
0700	176	3.9%	17.7	53.2	39.1	38.9	42.7	45.9	16	9.1%
0800	136	3.0%	23.0	55.4	38.2	38.0	42.7	45.2	10	7.4%
0900	149	3.3%	14.5	51.1	39.1	38.7	44.1	45.9	16	10.7%
1000	156	3.4%	28.5	48.4	38.1	38.3	42.3	44.1	6	3.8%
1100	197	4.3%	23.5	51.1	38.7	38.9	42.5	44.7	9	4.6%
1200	229	5.0%	23.8	56.1	39.2	38.9	43.2	45.6	20	8.7%
1300	262	5.8%	24.0	52.3	38.8	38.7	42.9	45.2	16	6.1%
1400	280	6.2%	17.6	49.8	38.9	38.7	43.2	45.6	24	8.6%
1500	404	8.9%	10.4	59.4	38.2	38.7	42.5	45.4	29	7.2%
1600	529	11.7%	14.0	57.5	39.6	39.6	42.9	45.6	40	7.6%
1700	654	14.4%	21.0	51.9	39.0	39.1	42.5	44.7	33	5.0%
1800	425	9.4%	15.9	56.4	39.5	39.6	42.9	44.7	17	4.0%
1900	252	5.6%	28.1	50.6	39.4	39.1	42.9	45.2	16	6.3%
2000	188	4.1%	20.0	48.5	38.6	38.7	41.8	45.2	11	5.9%
2100	154	3.4%	29.8	48.2	39.4	39.4	42.5	43.8	7	4.5%
2200	87	1.9%	25.8	50.5	39.6	39.6	42.7	45.9	6	6.9%
2300	41	0.9%	30.0	55.8	40.4	40.0	43.8	46.5	5	12.2%
----	**4535**	**100.0%**	**9.3**	**59.9**	**39.0**	**39.1**	**42.9**	**45.4**	**297**	**6.5%**

MetroCount Traffic Executive
Speed Statistics by Hour

Site: **11-100**
Direction: LA 378 btw Westwood Rd & Davis Rd - WB
Survey Duration: 14:00 Thursday, September 06, 2012 => 8:53 Tuesday, September 25, 2012
File: box3.ec0 (Plus)
Filter time: **0:00 Wednesday, September 19, 2012 => 0:00 Thursday, September 20, 2012**
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range: 6 - 99 mph.
Direction: BA

Vehicles = 5159
Posted speed limit = 45 mph, Exceeding = 679 (13.16%), Mean Exceeding = 47.79 mph
Maximum = 72.7 mph, **Minimum** = 6.2 mph, **Mean** = 38.5 mph
85% Speed = 44.5 mph, **95% Speed** = 47.6 mph, **Median** = 39.4 mph
10 mph Pace = 35 - 45, **Number in Pace** = 3439 (66.66%)
Variance = 55.08, **Standard Deviation** = 7.42 mph

Hour Bins

Time	Bin		Min	Max	Mean	Median	85%	95%	>PSL 45 mph	
0000	10	0.2%	34.7	58.0	42.3	39.6	48.1	57.9	3	30.0%
0100	8	0.2%	32.6	47.5	43.5	45.0	46.3	47.4	5	62.5%
0200	10	0.2%	25.9	56.7	40.4	38.7	46.5	56.6	2	20.0%
0300	38	0.7%	37.5	61.6	44.8	44.1	48.1	51.7	18	47.4%
0400	137	2.7%	21.1	72.7	42.7	42.3	46.8	50.8	38	27.7%
0500	424	8.2%	11.8	51.9	38.0	38.5	43.2	46.1	35	8.3%
0600	582	11.3%	6.2	47.5	28.9	32.4	38.5	41.2	4	0.7%
0700	538	10.4%	6.2	53.4	35.9	37.1	41.6	45.2	32	5.9%
0800	325	6.3%	11.9	52.8	39.6	39.8	44.3	47.2	44	13.5%
0900	241	4.7%	24.8	55.9	39.9	40.0	44.7	47.0	32	13.3%
1000	238	4.6%	16.9	52.1	40.8	40.5	45.9	49.7	47	19.7%
1100	199	3.9%	27.8	62.5	40.7	40.3	44.7	48.8	28	14.1%
1200	281	5.4%	15.8	59.2	39.4	40.5	44.7	46.8	37	13.2%
1300	328	6.4%	20.7	57.4	40.6	40.5	45.4	47.9	62	18.9%
1400	261	5.1%	11.1	56.8	39.6	39.8	44.3	47.9	32	12.3%
1500	253	4.9%	6.7	55.0	40.6	40.5	45.4	49.0	46	18.2%
1600	291	5.6%	27.2	57.0	42.5	42.3	47.0	49.4	84	28.9%
1700	311	6.0%	26.1	53.4	41.1	40.9	45.0	48.1	48	15.4%
1800	254	4.9%	15.6	54.3	40.1	40.5	44.1	46.3	25	9.8%
1900	175	3.4%	28.0	50.2	39.7	39.6	44.3	46.8	22	12.6%
2000	120	2.3%	23.8	51.2	40.0	40.0	43.6	46.8	13	10.8%
2100	68	1.3%	30.7	51.3	40.3	40.3	44.5	47.4	8	11.8%
2200	43	0.8%	20.1	50.0	41.4	42.1	45.2	48.8	7	16.3%
2300	24	0.5%	30.6	71.2	43.1	42.3	46.1	69.6	7	29.2%
----	**5159**	**100.0%**	**6.2**	**72.7**	**38.5**	**39.4**	**44.5**	**47.6**	**679**	**13.2%**

MetroCount Traffic Executive
Speed Statistics by Hour

Site: **11-100**
Direction: LA 378 btw Phillips Rd & West Fork Bridge - NB
Survey Duration: 15:00 Thursday, September 06, 2012 => 11:09 Monday, September 24, 2012
File: box2.ec0 (Plus)
Filter time: **0:00 Wednesday, September 19, 2012 => 0:00 Thursday, September 20, 2012**
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range: 6 - 99 mph.
Direction: AB

Vehicles = 7033
Posted speed limit = 50 mph, Exceeding = 4121 (58.60%), Mean Exceeding = 53.77 mph
Maximum = 85.2 mph, **Minimum** = 23.9 mph, **Mean** = 50.9 mph
85% Speed = 55.0 mph, **95% Speed** = 57.9 mph, **Median** = 50.8 mph
10 mph Pace = 46 - 56, **Number in Pace** = 5407 (76.88%)
Variance = 20.92, **Standard Deviation** = 4.57 mph

Hour Bins

Time	Bin		Min	Max	Mean	Median	85%	95%	>PSL 50 mph	
0000	29	0.4%	37.4	65.5	51.9	52.8	55.5	60.2	19	65.5%
0100	20	0.3%	45.3	65.6	52.0	50.8	56.6	61.5	12	60.0%
0200	24	0.3%	39.5	65.8	52.9	53.7	55.5	64.6	18	75.0%
0300	14	0.2%	41.9	56.9	50.2	49.4	54.6	54.8	7	50.0%
0400	47	0.7%	42.1	62.1	51.2	51.4	55.3	59.3	29	61.7%
0500	100	1.4%	30.9	66.8	49.9	49.4	54.4	57.5	46	46.0%
0600	157	2.2%	38.0	63.5	50.1	50.6	53.9	58.2	86	54.8%
0700	291	4.1%	36.5	67.0	50.8	50.8	55.3	58.2	170	58.4%
0800	210	3.0%	37.9	73.5	51.4	50.8	56.8	59.7	128	61.0%
0900	207	2.9%	40.0	65.3	50.9	50.3	54.8	58.6	113	54.6%
1000	239	3.4%	32.1	66.7	50.7	50.1	55.5	59.1	125	52.3%
1100	308	4.4%	34.8	66.9	51.0	51.2	55.5	58.6	195	63.3%
1200	348	4.9%	29.3	69.0	51.5	51.4	55.3	57.9	227	65.2%
1300	370	5.3%	35.9	64.1	51.3	51.0	55.3	58.4	240	64.9%
1400	439	6.2%	30.4	64.3	50.7	51.0	54.8	57.3	260	59.2%
1500	610	8.7%	34.3	65.9	50.7	50.3	54.8	58.4	338	55.4%
1600	832	11.8%	34.4	67.6	51.3	51.2	55.3	58.2	509	61.2%
1700	1083	15.4%	35.9	63.8	50.8	50.8	54.6	57.7	643	59.4%
1800	631	9.0%	23.9	85.2	51.5	51.4	55.9	58.4	396	62.8%
1900	398	5.7%	33.7	61.5	50.0	50.1	54.4	57.0	208	52.3%
2000	273	3.9%	38.3	62.6	50.0	50.1	53.9	56.1	146	53.5%
2100	217	3.1%	36.1	71.5	50.1	49.9	53.9	56.8	107	49.3%
2200	125	1.8%	40.6	60.5	50.6	50.3	55.0	57.5	69	55.2%
2300	61	0.9%	41.4	66.7	50.6	49.4	57.0	58.8	30	49.2%
----	7033	100.0%	23.9	85.2	50.9	50.8	55.0	57.9	4121	58.6%

MetroCount Traffic Executive
Speed Statistics by Hour

Site: **11-100**
Direction: LA 378 btw Phillips Rd West Fork Bridge - SB
Survey Duration: 15:00 Thursday, September 06, 2012 => 11:09 Monday, September 24, 2012
File: box2.ec0 (Plus)
Filter time: **0:00 Wednesday, September 19, 2012 => 0:00 Thursday, September 20, 2012**
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range: 6 - 99 mph.
Direction: BA

Vehicles = 7355
Posted speed limit = 50 mph, Exceeding = 3019 (41.05%), Mean Exceeding = 53.24 mph
Maximum = 87.2 mph, **Minimum** = 16.7 mph, **Mean** = 49.1 mph
85% Speed = 53.2 mph, **95% Speed** = 56.4 mph, **Median** = 49.0 mph
10 mph Pace = 44 - 54, **Number in Pace** = 5673 (77.13%)
Variance = 21.96, **Standard Deviation** = 4.69 mph

Hour Bins

Time	Bin		Min	Max	Mean	Median	85%	95%	>PSL 50 mph	
0000	21	0.3%	39.5	62.6	49.1	48.1	56.4	57.5	8	38.1%
0100	15	0.2%	42.1	54.2	49.5	49.7	52.1	53.5	7	46.7%
0200	13	0.2%	39.6	62.2	51.1	49.9	59.9	61.5	6	46.2%
0300	45	0.6%	29.0	71.9	51.6	50.3	56.1	61.7	26	57.8%
0400	169	2.3%	16.7	81.2	50.4	51.0	54.6	58.2	95	56.2%
0500	496	6.7%	37.5	72.1	49.9	49.7	53.2	57.5	231	46.6%
0600	865	11.8%	31.5	60.5	46.4	46.5	50.6	53.2	172	19.9%
0700	822	11.2%	31.4	63.7	48.2	48.1	51.4	53.5	248	30.2%
0800	443	6.0%	31.0	64.6	48.7	48.8	53.0	55.7	169	38.1%
0900	332	4.5%	27.9	67.1	49.7	49.7	54.1	56.6	151	45.5%
1000	327	4.4%	37.5	69.1	49.5	49.2	53.7	55.9	145	44.3%
1100	292	4.0%	24.0	64.3	49.6	49.7	53.9	56.4	136	46.6%
1200	376	5.1%	32.0	63.6	49.4	49.4	53.7	56.6	181	48.1%
1300	443	6.0%	34.6	65.4	49.9	49.7	54.4	56.4	212	47.9%
1400	348	4.7%	30.7	70.5	49.6	49.4	53.5	56.4	154	44.3%
1500	377	5.1%	30.8	69.6	50.5	50.1	54.4	57.7	212	56.2%
1600	421	5.7%	39.9	64.0	50.9	50.6	55.0	57.5	246	58.4%
1700	473	6.4%	34.7	81.4	49.5	48.8	53.7	56.4	188	39.7%
1800	368	5.0%	18.9	86.6	49.7	49.4	53.2	57.0	172	46.7%
1900	299	4.1%	35.0	59.6	48.6	48.1	53.2	55.7	102	34.1%
2000	195	2.7%	21.2	71.4	48.2	47.9	53.0	56.4	65	33.3%
2100	107	1.5%	38.4	59.8	48.8	48.5	52.8	55.0	42	39.3%
2200	74	1.0%	38.7	66.3	49.3	49.0	53.2	56.6	33	44.6%
2300	34	0.5%	33.0	87.2	51.8	49.9	54.8	62.9	18	52.9%
----	**7355**	**100.0%**	**16.7**	**87.2**	**49.1**	**49.0**	**53.2**	**56.4**	**3019**	**41.0%**

MetroCount Traffic Executive
Speed Statistics by Hour

Site: **11-100**
Direction: LA 378 btw West Fork Bridge & Sam Houston Jones Pkwy - NB
Survey Duration: 15:00 Thursday, September 06, 2012 => 9:56 Monday, September 24, 2012
File: box1.ec0 (Plus)
Filter time: **0:00 Wednesday, September 19, 2012 => 0:00 Thursday, September 20, 2012**
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range: 6 - 99 mph.
Direction: AB

Vehicles = 7082
Posted speed limit = 50 mph, Exceeding = 5942 (83.90%), Mean Exceeding = 55.66 mph
Maximum = 71.5 mph, **Minimum** = 9.7 mph, **Mean** = 54.1 mph
85% Speed = 58.6 mph, **95% Speed** = 61.5 mph, **Median** = 54.4 mph
10 mph Pace = 50 - 60, **Number in Pace** = 5313 (75.02%)
Variance = 26.35, **Standard Deviation** = 5.13 mph

Hour Bins

Time	Bin		Min	Max	Mean	Median	85%	95%	>PSL 50 mph	
0000	31	0.4%	37.9	69.3	56.0	56.4	59.3	61.5	29	93.5%
0100	19	0.3%	48.4	71.4	56.5	54.6	60.2	70.7	18	94.7%
0200	24	0.3%	45.0	65.2	56.8	56.8	59.5	64.9	22	91.7%
0300	13	0.2%	46.4	63.3	54.7	54.4	55.3	62.4	12	92.3%
0400	45	0.6%	46.1	67.5	55.8	55.9	60.2	64.6	37	82.2%
0500	98	1.4%	46.1	66.8	54.5	54.1	59.3	62.2	81	82.7%
0600	161	2.3%	41.8	68.2	54.1	53.9	59.1	62.4	129	80.1%
0700	295	4.2%	36.0	69.5	54.0	54.4	57.9	61.1	250	84.7%
0800	214	3.0%	43.6	69.2	54.4	54.1	59.3	63.1	174	81.3%
0900	210	3.0%	26.6	67.0	54.2	54.1	58.8	62.0	183	87.1%
1000	255	3.6%	20.7	67.2	53.5	53.7	57.7	60.6	208	81.6%
1100	313	4.4%	15.0	68.4	53.4	53.9	58.8	62.6	238	76.0%
1200	359	5.1%	15.5	70.7	53.7	54.1	58.8	61.7	292	81.3%
1300	358	5.1%	22.4	67.4	54.1	54.4	59.1	62.0	287	80.2%
1400	439	6.2%	11.6	64.3	53.4	53.9	58.2	60.6	355	80.9%
1500	629	8.9%	11.5	66.3	53.8	53.9	58.4	60.8	534	84.9%
1600	828	11.7%	9.7	70.5	54.3	54.6	58.8	61.7	717	86.6%
1700	1070	15.1%	34.2	68.4	53.9	54.1	58.2	60.4	882	82.4%
1800	644	9.1%	43.0	68.2	54.7	54.6	58.8	61.5	558	86.6%
1900	397	5.6%	40.1	68.6	53.8	53.9	58.2	61.1	330	83.1%
2000	275	3.9%	40.8	66.3	55.0	54.8	58.8	61.3	253	92.0%
2100	219	3.1%	38.1	66.8	55.0	55.5	59.3	61.5	194	88.6%
2200	123	1.7%	42.3	71.5	55.5	55.5	59.5	63.3	109	88.6%
2300	63	0.9%	46.3	66.9	55.8	55.9	61.1	64.9	50	79.4%
----	**7082**	**100.0%**	**9.7**	**71.5**	**54.1**	**54.4**	**58.6**	**61.5**	**5942**	**83.9%**

MetroCount Traffic Executive
Speed Statistics by Hour

Site: **11-100**
Direction: LA 378 btw West Fork Bridge & Sam Houston Jones Pkwy - SB
Survey Duration: 15:00 Thursday, September 06, 2012 => 9:56 Monday, September 24, 2012
File: box1.ec0 (Plus)
Filter time: **0:00 Wednesday, September 19, 2012 => 0:00 Thursday, September 20, 2012**
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range: 6 - 99 mph.
Direction: BA

Vehicles = 7362
Posted speed limit = 50 mph, Exceeding = 5163 (70.13%), Mean Exceeding = 54.68 mph
Maximum = 85.6 mph, **Minimum** = 7.8 mph, **Mean** = 52.3 mph
85% Speed = 57.0 mph, **95% Speed** = 60.4 mph, **Median** = 52.1 mph
10 mph Pace = 47 - 57, **Number in Pace** = 5425 (73.69%)
Variance = 27.00, **Standard Deviation** = 5.20 mph

Hour Bins

Time	Bin		Min	Max	Mean	Median	85%	95%	>PSL 50 mph	
0000	23	0.3%	23.1	74.4	52.5	51.4	59.1	68.5	16	69.6%
0100	16	0.2%	44.5	64.4	52.2	51.7	55.5	55.5	11	68.8%
0200	13	0.2%	41.3	68.7	54.0	53.7	62.2	63.1	9	69.2%
0300	46	0.6%	40.3	80.7	55.6	54.6	60.6	67.1	41	89.1%
0400	168	2.3%	45.2	81.1	55.0	55.0	59.5	62.4	140	83.3%
0500	509	6.9%	36.8	71.2	54.3	53.9	59.1	61.7	430	84.5%
0600	861	11.7%	10.3	67.2	51.9	51.7	55.9	58.6	594	69.0%
0700	810	11.0%	36.2	65.9	52.5	52.3	56.6	59.5	586	72.3%
0800	436	5.9%	10.7	68.1	52.7	52.3	57.5	60.8	314	72.0%
0900	331	4.5%	18.9	71.9	52.1	52.1	57.7	60.4	225	68.0%
1000	322	4.4%	15.7	69.0	52.0	51.9	56.6	60.6	225	69.9%
1100	291	4.0%	15.6	68.0	51.2	51.7	56.8	59.7	183	62.9%
1200	381	5.2%	8.8	67.5	52.1	51.9	56.6	59.5	273	71.7%
1300	459	6.2%	8.4	66.5	51.5	51.4	56.1	58.8	304	66.2%
1400	357	4.8%	16.7	72.8	51.2	51.4	56.1	59.1	213	59.7%
1500	366	5.0%	38.5	67.6	52.9	52.6	57.5	60.4	265	72.4%
1600	415	5.6%	38.3	69.1	52.8	52.6	57.3	61.1	300	72.3%
1700	482	6.5%	30.0	73.1	51.5	51.2	55.9	59.5	309	64.1%
1800	362	4.9%	17.8	71.9	52.3	51.9	57.3	60.2	250	69.1%
1900	306	4.2%	7.8	68.4	51.1	51.2	55.9	60.4	179	58.5%
2000	194	2.6%	8.8	83.0	52.3	52.1	56.8	60.2	144	74.2%
2100	108	1.5%	41.0	64.1	52.4	52.1	56.8	61.3	70	64.8%
2200	73	1.0%	42.5	83.9	53.5	53.0	58.2	59.5	55	75.3%
2300	33	0.4%	40.2	85.6	54.4	53.5	58.2	59.5	27	81.8%
----	7362	100.0%	7.8	85.6	52.3	52.1	57.0	60.4	5163	70.1%

Urban Systems Associates, Inc.
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504-523-5511

Signal Warrants - Summary

Major Street Approaches

Eastbound: **I-10 Service Rd**
Number of Lanes: **2**
85% Speed > 40 MPH.
Total Approach Volume: **8,597**

Westbound: **I-10 Service Rd**
Number of Lanes: **2**
85% Speed > 40 MPH.
Total Approach Volume: **3,550**

Minor Street Approaches

Southbound: **Sampson St**
Number of Lanes: **2**

Total Approach Volume: **5,479**

Warrant Summary (Rural values apply.)

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

Warrant 1A - Minimum Vehicular Volume ..... **Satisfied**
Required volumes reached for 13 hours, 8 are needed

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

Warrant 1 A&B - Combination of Warrants ..... **Satisfied**
Required volumes reached for 13 hours, 8 are needed

Warrant 2 - Four Hour Volumes ..... **Satisfied**
Number of hours (13) volumes exceed minimum >= minimum required (4).

Warrant 3 - Peak Hour ..... **Satisfied**

Warrant 3A - Peak Hour Delay ..... **Satisfied**
Number of hours (50) volumes exceed minimum >= required (1). Delay data not evaluated.

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

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

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

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

Warrant 7 - Crash Experience ..... **Not Satisfied**
Number of accidents (3) is less than minimum (5). Volume minimums are met.

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

Warrant 9 - Intersection Near a Grade Crossing ..... **Not Evaluated**

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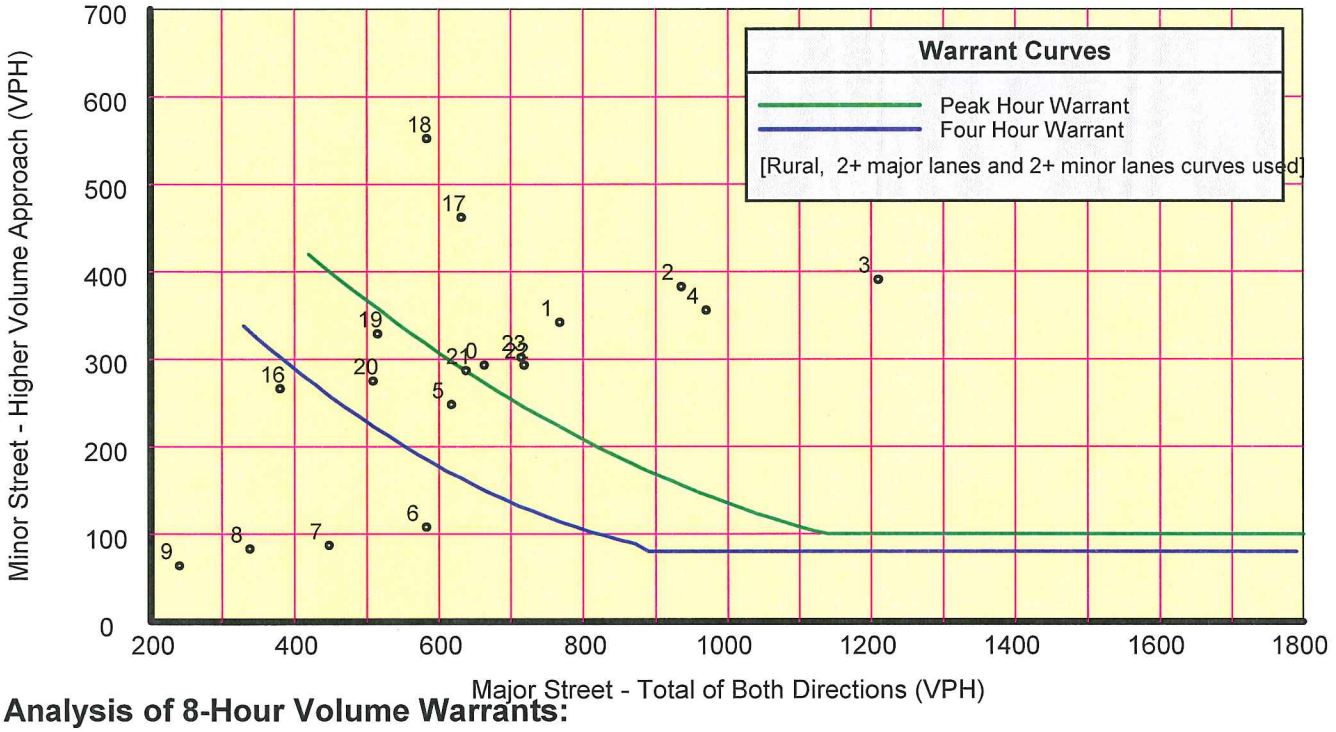
Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

War 1A-Minimum Volume

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 420	Min 140
03:00	1,210	391	SB	Yes	Yes
04:00	970	356	SB	Yes	Yes
02:00	936	383	SB	Yes	Yes
01:00	768	342	SB	Yes	Yes
22:15	738	296	SB	Yes	Yes
00:00	664	293	SB	Yes	Yes
21:15	650	299	SB	Yes	Yes
17:15	631	518	SB	Yes	Yes
05:00	618	248	SB	Yes	Yes
18:15	547	491	SB	Yes	Yes
20:15	529	282	SB	Yes	Yes
19:15	521	291	SB	Yes	Yes
16:15	475	305	SB	Yes	Yes
06:00	583	108	SB	Yes	No
06:15	548	94	SB	Yes	No
06:30	509	96	SB	Yes	No
06:45	474	92	SB	Yes	No
07:00	449	87	SB	Yes	No
07:15	421	82	SB	Yes	No
07:30	410	77	SB	No	No
16:00	381	266	SB	No	Yes
07:45	373	82	SB	No	No
08:00	339	83	SB	No	No
15:45	330	219	SB	No	Yes

War 1B-Interruption of Traffic

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 630	Min 70
03:00	1,210	391	SB	Yes	Yes
04:00	970	356	SB	Yes	Yes
02:00	936	383	SB	Yes	Yes
01:00	768	342	SB	Yes	Yes
22:00	719	293	SB	Yes	Yes
00:00	664	293	SB	Yes	Yes
21:00	638	287	SB	Yes	Yes
17:00	632	462	SB	Yes	Yes
05:00	618	248	SB	No	Yes
16:45	591	401	SB	No	Yes
05:30	588	170	SB	No	Yes
18:00	584	552	SB	No	Yes
06:00	583	108	SB	No	Yes
05:15	580	203	SB	No	Yes
20:45	575	270	SB	No	Yes
05:45	566	143	SB	No	Yes
20:30	558	254	SB	No	Yes
16:30	556	346	SB	No	Yes
06:15	548	94	SB	No	Yes
18:15	547	491	SB	No	Yes
18:30	544	400	SB	No	Yes
18:45	530	361	SB	No	Yes
20:15	529	282	SB	No	Yes
19:45	528	286	SB	No	Yes

War 1C-Combination of Warrants

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 504	Min 112
03:00	1,210	391	SB	Yes	Yes
04:00	970	356	SB	Yes	Yes
02:00	936	383	SB	Yes	Yes
01:00	768	342	SB	Yes	Yes
21:45	716	307	SB	Yes	Yes
00:00	664	293	SB	Yes	Yes
17:30	620	594	SB	Yes	Yes
05:00	618	248	SB	Yes	Yes
20:45	575	270	SB	Yes	Yes
16:30	556	346	SB	Yes	Yes
18:30	544	400	SB	Yes	Yes
19:45	528	286	SB	Yes	Yes
06:00	583	108	SB	Yes	No
06:15	548	94	SB	Yes	No
06:30	509	96	SB	Yes	No
19:30	489	298	SB	No	Yes
16:15	475	305	SB	No	Yes
06:45	474	92	SB	No	No
07:00	449	87	SB	No	No
07:15	421	82	SB	No	No
07:30	410	77	SB	No	No
16:00	381	266	SB	No	Yes
07:45	373	82	SB	No	No
08:00	339	83	SB	No	No

Urban Systems Associates, Inc.
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504-523-5511

Signal Warrants - Summary

Major Street Approaches

Northbound: **Sampson St**
Number of Lanes: **2**
85% Speed < 40 MPH.
Total Approach Volume: **7,913**

Southbound: **Sampson St**
Number of Lanes: **2**
85% Speed < 40 MPH.
Total Approach Volume: **11,078**

Minor Street Approaches

Eastbound: **I-10 WB Ramp**
Number of Lanes: **2**

Total Approach Volume: **4,932**

Warrant Summary (Urban values apply.)

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

Warrant 1A - Minimum Vehicular Volume ..... **Satisfied**
Required volumes reached for 13 hours, 8 are needed

Warrant 1B - Interruption of Continuous Traffic ..... **Satisfied**
Required volumes reached for 13 hours, 8 are needed

Warrant 1 A&B - Combination of Warrants ..... **Satisfied**
Required volumes reached for 14 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 Delay ..... **Satisfied**
Number of hours (53) volumes exceed minimum >= required (1). Delay data not evaluated.

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

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

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

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

Warrant 7 - Crash Experience ..... **Satisfied**
Number of accidents (5) is more than minimum (5) and volume requirements are met.

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

Warrant 9 - Intersection Near a Grade Crossing ..... **Not Evaluated**

Urban Systems Associates, Inc.

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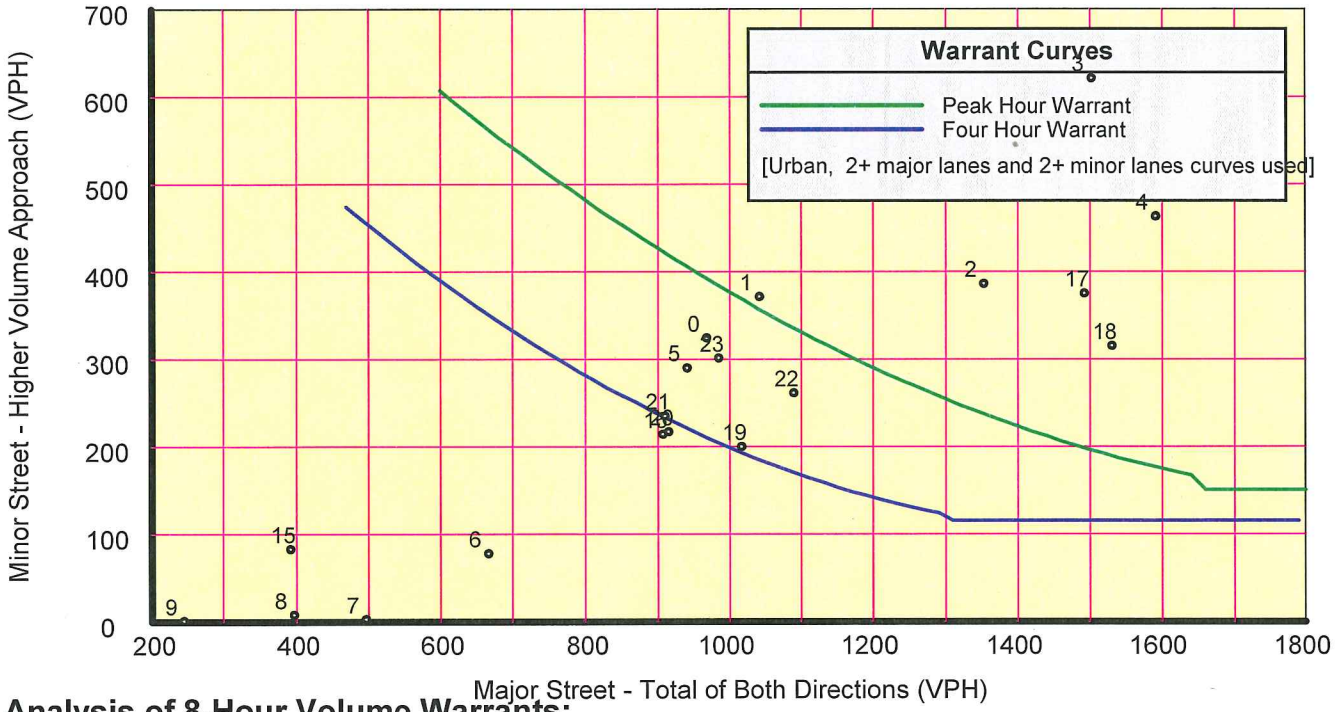
Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

War 1A-Minimum Volume

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 600	Min 200
04:00	1,592	463	EB	Yes	Yes
18:00	1,532	315	EB	Yes	Yes
03:00	1,503	621	EB	Yes	Yes
17:00	1,493	375	EB	Yes	Yes
02:00	1,353	386	EB	Yes	Yes
22:00	1,090	261	EB	Yes	Yes
01:00	1,042	371	EB	Yes	Yes
19:00	1,017	200	EB	Yes	Yes
00:00	968	324	EB	Yes	Yes
05:00	941	290	EB	Yes	Yes
20:00	915	217	EB	Yes	Yes
21:00	910	235	EB	Yes	Yes
16:00	907	214	EB	Yes	Yes
15:45	774	175	EB	Yes	No
06:00	667	78	EB	Yes	No
15:30	666	151	EB	Yes	No
06:15	607	6	EB	Yes	No
06:30	569	4	EB	No	No
06:45	536	2	EB	No	No
15:15	518	111	EB	No	No
07:00	497	3	EB	No	No
07:15	490	3	EB	No	No
07:30	460	6	EB	No	No
07:45	416	6	EB	No	No

War 1B-Interruption of Traffic

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 900	Min 100
04:00	1,592	463	EB	Yes	Yes
18:00	1,532	315	EB	Yes	Yes
03:00	1,503	621	EB	Yes	Yes
17:00	1,493	375	EB	Yes	Yes
02:00	1,353	386	EB	Yes	Yes
22:00	1,090	261	EB	Yes	Yes
01:00	1,042	371	EB	Yes	Yes
19:00	1,017	200	EB	Yes	Yes
00:00	968	324	EB	Yes	Yes
05:00	941	290	EB	Yes	Yes
20:00	915	217	EB	Yes	Yes
21:00	910	235	EB	Yes	Yes
16:00	907	214	EB	Yes	Yes
15:45	774	175	EB	No	Yes
06:00	667	78	EB	No	No
15:30	666	151	EB	No	Yes
06:15	607	6	EB	No	No
06:30	569	4	EB	No	No
06:45	536	2	EB	No	No
15:15	518	111	EB	No	Yes
07:00	497	3	EB	No	No
07:15	490	3	EB	No	No
07:30	460	6	EB	No	No
07:45	416	6	EB	No	No

War 1C-Combination of Warrants

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 720	Min 160
04:00	1,592	463	EB	Yes	Yes
17:45	1,583	325	EB	Yes	Yes
03:00	1,503	621	EB	Yes	Yes
16:45	1,418	370	EB	Yes	Yes
02:00	1,353	386	EB	Yes	Yes
18:45	1,105	221	EB	Yes	Yes
21:45	1,062	248	EB	Yes	Yes
01:00	1,042	371	EB	Yes	Yes
00:00	968	324	EB	Yes	Yes
05:00	941	290	EB	Yes	Yes
20:45	901	235	EB	Yes	Yes
19:45	891	210	EB	Yes	Yes
15:45	774	175	EB	Yes	Yes
06:00	667	78	EB	No	No
15:30	666	151	EB	No	No
06:15	607	6	EB	No	No
06:30	569	4	EB	No	No
06:45	536	2	EB	No	No
15:15	518	111	EB	No	No
07:00	497	3	EB	No	No
07:15	490	3	EB	No	No
07:30	460	6	EB	No	No
07:45	416	6	EB	No	No
08:00	397	8	EB	No	No

Urban Systems Associates, Inc.
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504-523-5511

Signal Warrants - Summary

Major Street Approaches

Northbound: **Sampson St**
Number of Lanes: **2**
85% Speed < 40 MPH.
Total Approach Volume: **9,465**

Southbound: **Sampson St**
Number of Lanes: **2**
85% Speed < 40 MPH.
Total Approach Volume: **7,635**

Minor Street Approaches

Eastbound: **Sulphur Ave**
Number of Lanes: **2**
Total Approach Volume: **3,395**

Westbound: **Sulphur Ave**
Number of Lanes: **2**
Total Approach Volume: **2,000**

Warrant Summary (Urban values apply.)

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

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

Warrant 1B - Interruption of Continuous Traffic ..... **Not Satisfied**
Required volumes reached for 7 hours, 8 are needed

Warrant 1 A&B - Combination of Warrants ..... **Satisfied**
Required volumes reached for 10 hours, 8 are needed

Warrant 2 - Four Hour Volumes ..... **Satisfied**
Number of hours (6) volumes exceed minimum >= minimum required (4).

Warrant 3 - Peak Hour ..... **Satisfied**

Warrant 3A - Peak Hour Delay ..... **Satisfied**
Number of hours (39) volumes exceed minimum >= required (1). Delay data not evaluated.

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

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

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

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

Warrant 7 - Crash Experience ..... **Not Satisfied**
Number of accidents (0) is less than minimum (5). Volume minimums are met.

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

Warrant 9 - Intersection Near a Grade Crossing ..... **Not Evaluated**

Urban Systems Associates, Inc.

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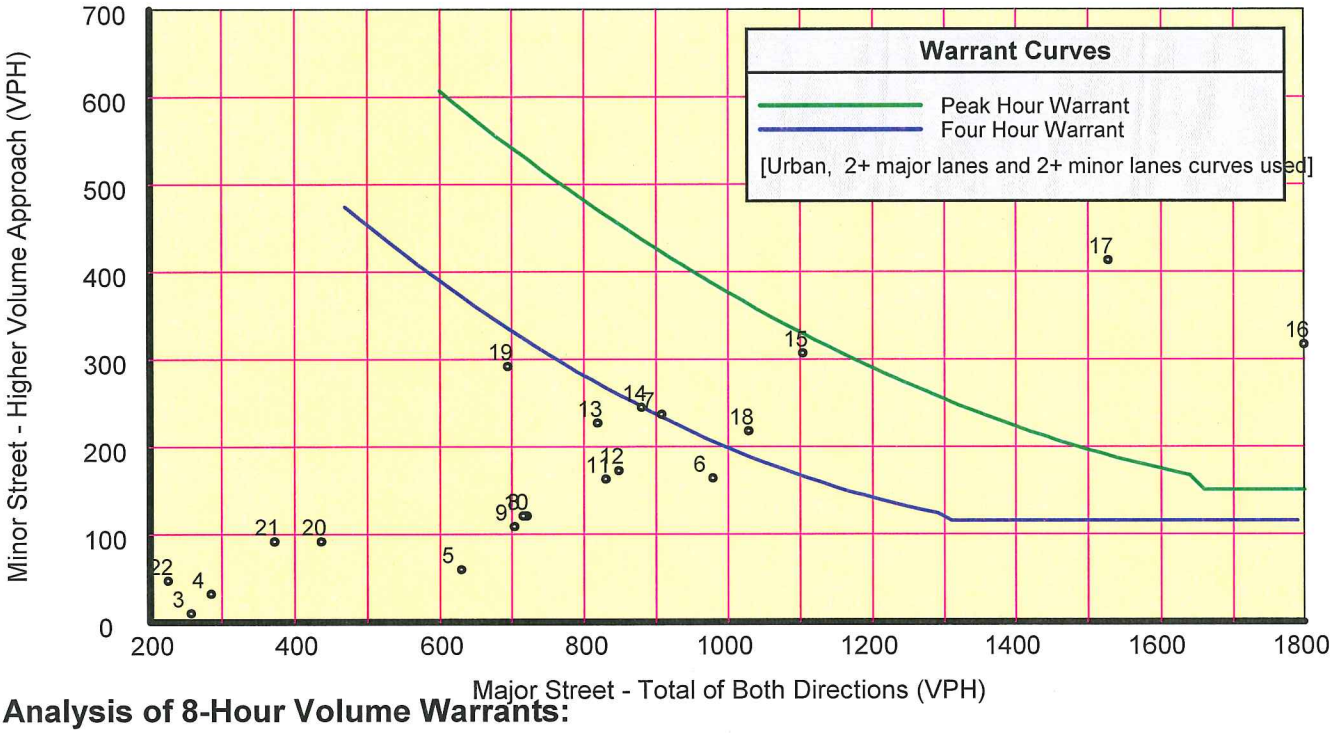
Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

War 1A-Minimum Volume

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 600	Min 200
16:00	2,703	317	EB	Yes	Yes
17:00	1,529	413	EB	Yes	Yes
15:00	1,104	307	EB	Yes	Yes
18:00	1,029	218	EB	Yes	Yes
06:30	1,011	223	W	Yes	Yes
14:00	880	245	EB	Yes	Yes
13:00	819	227	EB	Yes	Yes
19:00	695	292	EB	Yes	Yes
06:15	1,016	192	W	Yes	No
06:00	979	164	W	Yes	No
05:45	899	144	W	Yes	No
11:15	870	146	EB	Yes	No
11:45	861	150	EB	Yes	No
11:30	856	150	EB	Yes	No
12:00	848	173	EB	Yes	No
11:00	830	163	EB	Yes	No
12:30	814	175	EB	Yes	No
07:30	814	180	EB	Yes	No
12:15	803	180	EB	Yes	No
10:45	800	141	EB	Yes	No
05:30	799	105	W	Yes	No
12:45	793	181	EB	Yes	No
07:45	760	166	EB	Yes	No
10:30	747	136	EB	Yes	No

War 1B-Interruption of Traffic

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 900	Min 100
16:15	2,796	322	EB	Yes	Yes
17:15	1,422	388	EB	Yes	Yes
15:15	1,191	309	EB	Yes	Yes
06:00	979	164	W	Yes	Yes
14:15	919	261	EB	Yes	Yes
18:15	909	244	EB	Yes	Yes
07:00	908	237	W	Yes	Yes
05:45	899	144	W	No	Yes
14:00	880	245	EB	No	Yes
11:15	870	146	EB	No	Yes
13:45	868	225	EB	No	Yes
11:45	861	150	EB	No	Yes
11:30	856	150	EB	No	Yes
12:00	848	173	EB	No	Yes
13:30	844	234	EB	No	Yes
13:15	836	227	EB	No	Yes
11:00	830	163	EB	No	Yes
13:00	819	227	EB	No	Yes
12:30	814	175	EB	No	Yes
12:15	803	180	EB	No	Yes
10:45	800	141	EB	No	Yes
05:30	799	105	W	No	Yes
12:45	793	181	EB	No	Yes
10:30	747	136	EB	No	Yes

War 1C-Combination of Warrants

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 720	Min 160
16:00	2,703	317	EB	Yes	Yes
17:00	1,529	413	EB	Yes	Yes
15:00	1,104	307	EB	Yes	Yes
18:00	1,029	218	EB	Yes	Yes
06:00	979	164	W	Yes	Yes
07:00	908	237	W	Yes	Yes
14:00	880	245	EB	Yes	Yes
12:00	848	173	EB	Yes	Yes
11:00	830	163	EB	Yes	Yes
13:00	819	227	EB	Yes	Yes
05:45	899	144	W	Yes	No
10:45	800	141	EB	Yes	No
05:30	799	105	W	Yes	No
10:30	747	136	EB	Yes	No
09:45	731	115	EB	Yes	No
09:30	731	114	EB	Yes	No
10:15	722	130	EB	Yes	No
08:00	721	121	EB	Yes	No
05:15	717	79	W	No	No
10:00	716	121	EB	No	No
09:15	714	110	EB	No	No
08:15	713	129	EB	No	No
09:00	704	109	EB	No	No
19:00	695	292	EB	No	Yes

Urban Systems Associates, Inc.
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Signal Warrants - Summary

Major Street Approaches

Northbound: **Sampson St**
Number of Lanes: **2**
85% Speed > 40 MPH.
Total Approach Volume: **8,850**

Southbound: **Sampson St**
Number of Lanes: **2**
85% Speed > 40 MPH.
Total Approach Volume: **8,727**

Minor Street Approaches

Eastbound: **McKinley St**
Number of Lanes: **1**
Total Approach Volume: **858**

Westbound: **McKinley St**
Number of Lanes: **1**
Total Approach Volume: **1,751**

Warrant Summary (Rural values apply.)

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

Warrant 1A - Minimum Vehicular Volume ..... **Satisfied**
Required volumes reached for 9 hours, 8 are needed

Warrant 1B - Interruption of Continuous Traffic ..... **Satisfied**
Required volumes reached for 14 hours, 8 are needed

Warrant 1 A&B - Combination of Warrants ..... **Satisfied**
Required volumes reached for 13 hours, 8 are needed

Warrant 2 - Four Hour Volumes ..... **Satisfied**
Number of hours (13) volumes exceed minimum >= minimum required (4).

Warrant 3 - Peak Hour ..... **Satisfied**

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

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

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

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

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

Warrant 7 - Crash Experience ..... **Not Satisfied**
Number of accidents (0) is less than minimum (5). Volume minimums are met.

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

Warrant 9 - Intersection Near a Grade Crossing ..... **Not Evaluated**

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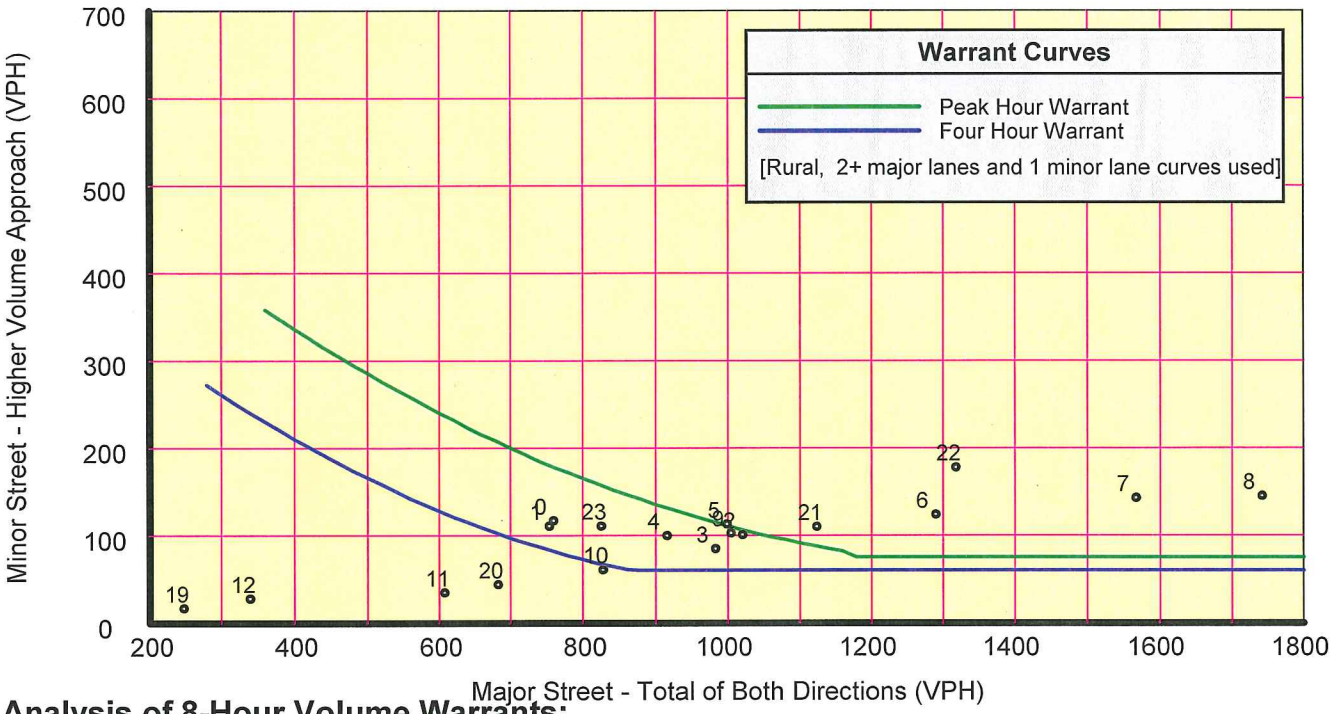
Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

War 1A-Minimum Volume

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 420	Min 105
07:15	1,618	141	W	Yes	Yes
08:15	1,531	152	W	Yes	Yes
06:15	1,398	112	W	Yes	Yes
22:00	1,318	178	W	Yes	Yes
21:00	1,124	110	W	Yes	Yes
05:15	1,073	130	W	Yes	Yes
04:15	897	106	W	Yes	Yes
00:00	760	117	W	Yes	Yes
01:00	754	111	W	Yes	Yes
20:45	1,071	102	W	Yes	No
02:15	1,055	101	W	Yes	No
02:30	1,038	96	W	Yes	No
02:00	1,021	101	W	Yes	No
02:45	999	91	W	Yes	No
09:15	997	90	W	Yes	No
03:00	983	85	W	Yes	No
03:15	977	81	W	Yes	No
03:30	951	89	W	Yes	No
20:30	943	68	W	Yes	No
09:30	929	79	W	Yes	No
04:00	916	100	W	Yes	No
03:45	905	93	W	Yes	No
09:45	874	67	W	Yes	No
10:00	828	61	W	Yes	No

War 1B-Interruption of Traffic

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 630	Min 53
08:00	1,743	145	W	Yes	Yes
07:00	1,568	143	W	Yes	Yes
06:00	1,290	124	W	Yes	Yes
22:15	1,276	165	W	Yes	Yes
21:15	1,168	131	W	Yes	Yes
02:00	1,021	101	W	Yes	Yes
09:00	1,005	103	W	Yes	Yes
05:00	999	113	W	Yes	Yes
03:00	983	85	W	Yes	Yes
04:00	916	100	W	Yes	Yes
10:00	828	61	W	Yes	Yes
20:15	807	60	W	Yes	Yes
00:00	760	117	W	Yes	Yes
01:00	754	111	W	Yes	Yes
20:00	683	44	W	Yes	No
11:00	608	35	W	No	No
19:45	549	37	W	No	No
11:15	540	30	W	No	No
11:30	464	33	W	No	No
19:30	426	33	W	No	No
11:45	422	32	W	No	No
12:00	340	28	W	No	No
19:15	326	24	W	No	No
12:15	299	20	W	No	No

War 1C-Combination of Warrants

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 504	Min 84
08:00	1,743	145	W	Yes	Yes
07:00	1,568	143	W	Yes	Yes
21:45	1,293	164	W	Yes	Yes
06:00	1,290	124	W	Yes	Yes
20:45	1,071	102	W	Yes	Yes
02:00	1,021	101	W	Yes	Yes
09:00	1,005	103	W	Yes	Yes
05:00	999	113	W	Yes	Yes
03:00	983	85	W	Yes	Yes
04:00	916	100	W	Yes	Yes
00:00	760	117	W	Yes	Yes
01:00	754	111	W	Yes	Yes
20:30	943	68	W	Yes	No
10:00	828	61	W	Yes	No
20:15	807	60	W	Yes	No
10:15	763	52	W	Yes	No
10:30	710	47	W	Yes	No
20:00	683	44	W	Yes	No
10:45	656	40	W	Yes	No
11:00	608	35	W	Yes	No
19:45	549	37	W	Yes	No
11:15	540	30	W	Yes	No
11:30	464	33	W	No	No
19:30	426	33	W	No	No

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Signal Warrants - Summary

Major Street Approaches

Northbound: **Sampson St**
Number of Lanes: **2**
85% Speed > 40 MPH.
Total Approach Volume: **7,671**

Southbound: **Westwood Rd**
Number of Lanes: **2**
85% Speed > 40 MPH.
Total Approach Volume: **7,317**

Minor Street Approaches

Eastbound: **John Stine Rd**
Number of Lanes: **1**
Total Approach Volume: **2,134**

Westbound: **John Stine Rd**
Number of Lanes: **1**
Total Approach Volume: **1,681**

Warrant Summary (Rural values apply.)

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

Warrant 1A - Minimum Vehicular Volume ..... **Satisfied**
Required volumes reached for 9 hours, 8 are needed

Warrant 1B - Interruption of Continuous Traffic ..... **Satisfied**
Required volumes reached for 14 hours, 8 are needed

Warrant 1 A&B - Combination of Warrants ..... **Satisfied**
Required volumes reached for 14 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 Delay ..... **Satisfied**
Number of hours (34) volumes exceed minimum >= required (1). Delay data not evaluated.

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

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

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

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

Warrant 7 - Crash Experience ..... **Not Satisfied**
Number of accidents (3) is less than minimum (5). Volume minimums are met.

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

Warrant 9 - Intersection Near a Grade Crossing ..... **Not Evaluated**

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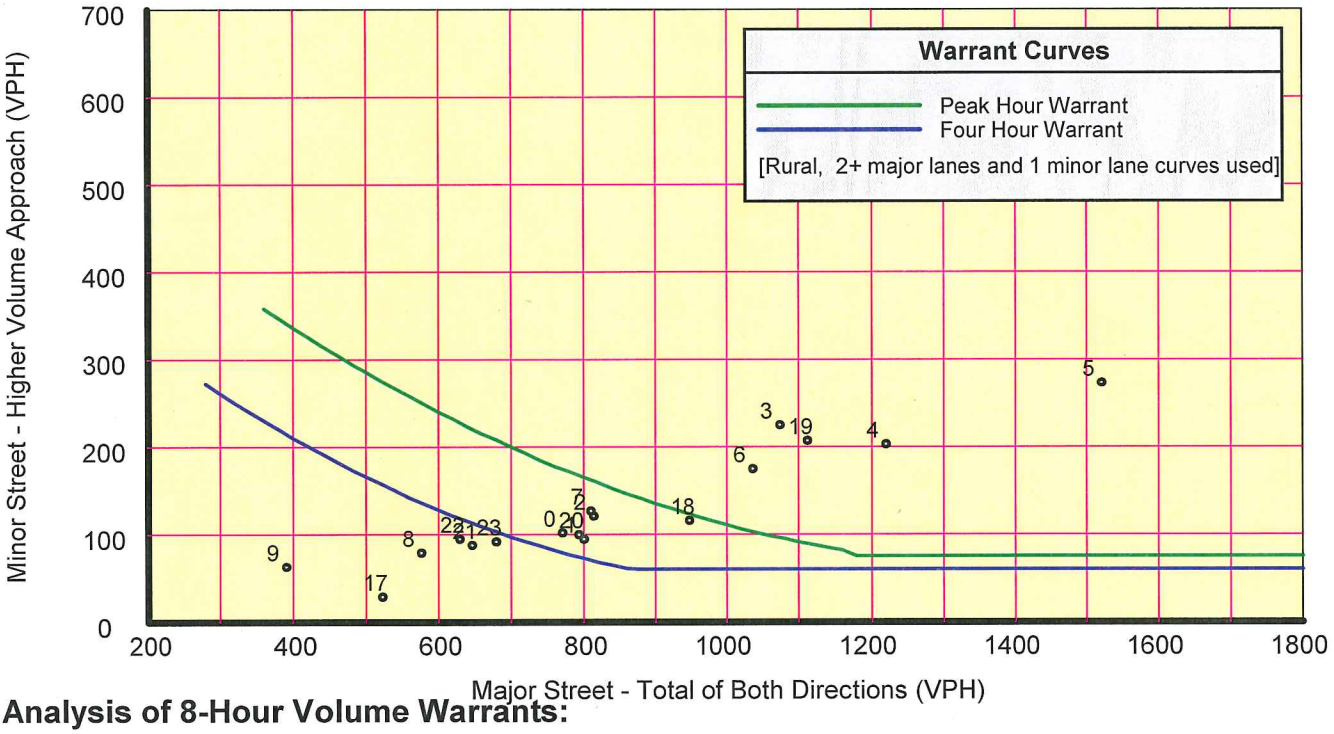
Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

War 1A-Minimum Volume

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 420	Min 105
05:00	1,522	273	EB	Yes	Yes
04:00	1,220	203	EB	Yes	Yes
19:00	1,113	207	W	Yes	Yes
03:00	1,074	225	EB	Yes	Yes
06:00	1,037	175	EB	Yes	Yes
18:00	948	116	W	Yes	Yes
00:45	822	109	EB	Yes	Yes
02:00	814	121	EB	Yes	Yes
07:00	810	127	EB	Yes	Yes
17:45	873	91	W	Yes	No
00:30	813	98	EB	Yes	No
20:00	794	100	W	Yes	No
01:45	777	103	W	Yes	No
00:15	774	97	EB	Yes	No
00:00	772	102	EB	Yes	No
17:30	751	57	W	Yes	No
20:15	707	92	W	Yes	No
20:30	664	94	W	Yes	No
21:45	656	100	EB	Yes	No
17:15	654	36	W	Yes	No
20:45	652	93	W	Yes	No
21:30	651	101	EB	Yes	No
21:00	647	88	EB	Yes	No
21:15	645	93	EB	Yes	No

War 1B-Interruption of Traffic

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 630	Min 53
05:00	1,522	273	EB	Yes	Yes
04:00	1,220	203	EB	Yes	Yes
03:00	1,074	225	EB	Yes	Yes
19:30	1,060	174	W	Yes	Yes
06:00	1,037	175	EB	Yes	Yes
18:30	1,027	167	W	Yes	Yes
02:00	814	121	EB	Yes	Yes
07:00	810	127	EB	Yes	Yes
01:00	801	95	EB	Yes	Yes
00:00	772	102	EB	Yes	Yes
17:30	751	57	W	Yes	Yes
20:30	664	94	W	Yes	Yes
21:30	651	101	EB	Yes	Yes
17:15	654	36	W	Yes	No
22:30	629	82	EB	No	Yes
08:00	577	79	EB	No	Yes
08:15	550	81	EB	No	Yes
17:00	523	29	W	No	No
08:30	475	71	EB	No	Yes
08:45	423	67	EB	No	Yes
16:45	395	26	EB	No	No
09:00	391	63	EB	No	Yes
09:15	322	33	EB	No	No
16:30	289	22	EB	No	No

War 1C-Combination of Warrants

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 504	Min 84
05:00	1,522	273	EB	Yes	Yes
04:00	1,220	203	EB	Yes	Yes
03:00	1,074	225	EB	Yes	Yes
18:45	1,057	193	W	Yes	Yes
06:00	1,037	175	EB	Yes	Yes
19:45	939	129	W	Yes	Yes
17:45	873	91	W	Yes	Yes
02:00	814	121	EB	Yes	Yes
07:00	810	127	EB	Yes	Yes
01:00	801	95	EB	Yes	Yes
00:00	772	102	EB	Yes	Yes
21:45	656	100	EB	Yes	Yes
20:45	652	93	W	Yes	Yes
17:30	751	57	W	Yes	No
17:15	654	36	W	Yes	No
08:00	577	79	EB	Yes	No
08:15	550	81	EB	Yes	No
17:00	523	29	W	Yes	No
08:30	475	71	EB	No	No
08:45	423	67	EB	No	No
16:45	395	26	EB	No	No
09:00	391	63	EB	No	No
09:15	322	33	EB	No	No
16:30	289	22	EB	No	No

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Signal Warrants - Summary

Major Street Approaches

Northbound: **LA 378 NB**
Number of Lanes: **1**
85% Speed > 40 MPH.
Total Approach Volume: **6,436**

Southbound: **LA 378 SB**
Number of Lanes: **1**
85% Speed > 40 MPH.
Total Approach Volume: **5,678**

Minor Street Approaches

Eastbound: **National Dr**
Number of Lanes: **2**
Total Approach Volume: **137**

Westbound: **Hudson Dr**
Number of Lanes: **1**
Total Approach Volume: **1,082**

Warrant Summary (Rural values apply.)

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

Warrant 1A - Minimum Vehicular Volume ..... **Not Satisfied**
Required volumes reached for 2 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 ..... **Not Satisfied**
Required volumes reached for 3 hours, 8 are needed

Warrant 2 - Four Hour Volumes ..... **Satisfied**
Number of hours (5) volumes exceed minimum >= minimum required (4).

Warrant 3 - Peak Hour ..... **Satisfied**

Warrant 3A - Peak Hour Delay ..... **Satisfied**
Number of hours (8) volumes exceed minimum >= required (1). Delay data not evaluated.

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

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

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

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

Warrant 7 - Crash Experience ..... **Not Satisfied**
Number of accidents (0) is less than minimum (5). Volume minimums are met.

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

Warrant 9 - Intersection Near a Grade Crossing ..... **Not Evaluated**

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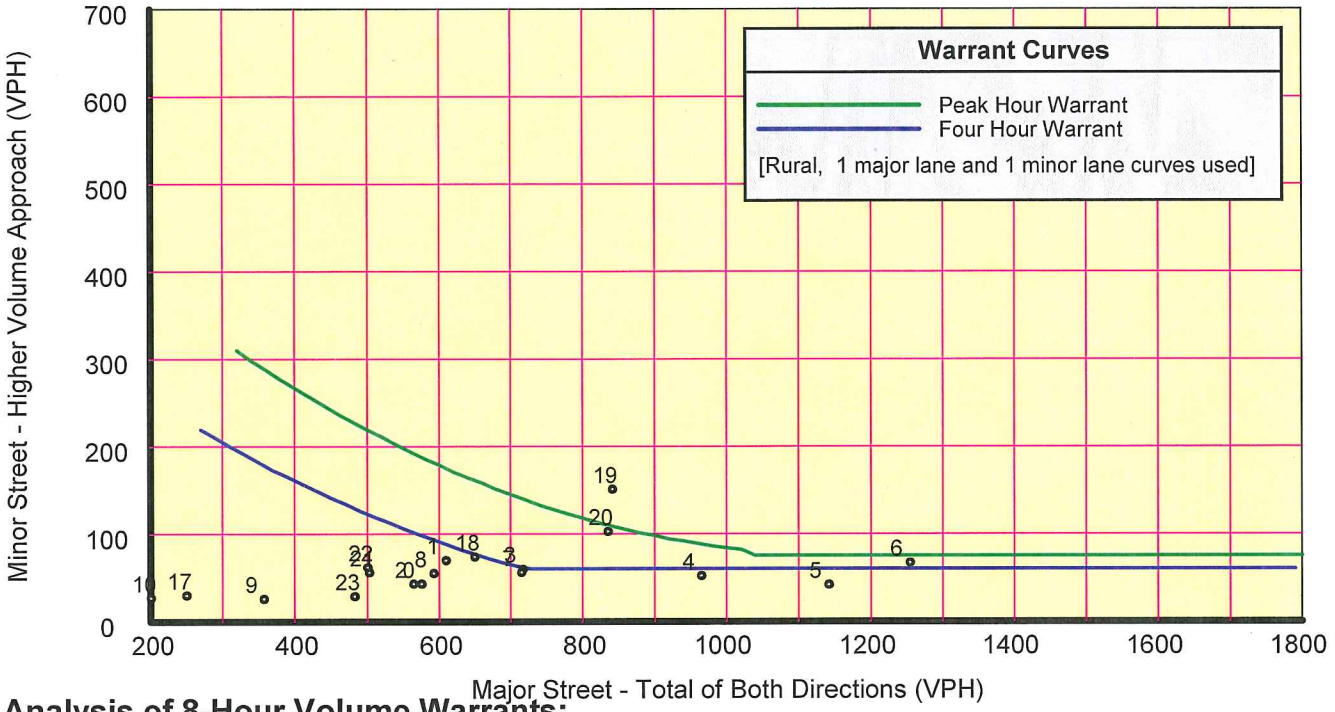
Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

War 1A-Minimum Volume

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 350	Min 105
19:30	900	139	W	Yes	Yes
18:30	787	122	W	Yes	Yes
05:30	1,354	59	W	Yes	No
05:45	1,338	66	W	Yes	No
06:00	1,254	67	W	Yes	No
05:15	1,248	52	W	Yes	No
05:00	1,142	42	W	Yes	No
04:45	1,110	44	W	Yes	No
06:15	1,052	66	W	Yes	No
04:15	1,030	46	W	Yes	No
04:30	1,012	46	W	Yes	No
04:00	966	52	W	Yes	No
03:45	873	56	W	Yes	No
06:30	870	66	W	Yes	No
03:30	852	58	W	Yes	No
03:15	771	69	W	Yes	No
18:15	753	100	W	Yes	No
06:45	749	57	W	Yes	No
07:15	723	49	W	Yes	No
03:00	718	60	W	Yes	No
07:00	716	56	W	Yes	No
07:30	690	49	W	Yes	No
02:45	678	59	W	Yes	No
07:45	669	50	W	Yes	No

War 1B-Interruption of Traffic

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 525	Min 52
05:15	1,248	52	W	Yes	Yes
06:15	1,052	66	W	Yes	Yes
19:45	900	133	W	Yes	Yes
03:45	873	56	W	Yes	Yes
18:45	816	127	W	Yes	Yes
02:45	678	59	W	Yes	Yes
01:15	612	61	W	Yes	Yes
08:00	593	55	W	Yes	Yes
00:15	570	55	W	Yes	Yes
17:45	555	62	W	Yes	Yes
20:45	538	59	W	Yes	Yes
05:00	1,142	42	W	Yes	No
04:45	1,110	44	W	Yes	No
07:15	723	49	W	Yes	No
07:30	690	49	W	Yes	No
07:45	669	50	W	Yes	No
02:30	644	51	W	Yes	No
02:15	581	43	W	Yes	No
00:00	576	43	W	Yes	No
22:00	501	62	W	No	Yes
21:45	497	62	W	No	Yes
22:15	494	53	W	No	Yes
22:45	481	37	W	No	No
22:30	476	52	W	No	Yes

War 1C-Combination of Warrants

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 420	Min 84
19:15	861	139	W	Yes	Yes
18:15	753	100	W	Yes	Yes
20:15	733	88	W	Yes	Yes
05:30	1,354	59	W	Yes	No
05:45	1,338	66	W	Yes	No
06:00	1,254	67	W	Yes	No
05:15	1,248	52	W	Yes	No
05:00	1,142	42	W	Yes	No
04:45	1,110	44	W	Yes	No
06:15	1,052	66	W	Yes	No
04:15	1,030	46	W	Yes	No
04:30	1,012	46	W	Yes	No
04:00	966	52	W	Yes	No
03:45	873	56	W	Yes	No
06:30	870	66	W	Yes	No
03:30	852	58	W	Yes	No
03:15	771	69	W	Yes	No
06:45	749	57	W	Yes	No
07:15	723	49	W	Yes	No
03:00	718	60	W	Yes	No
07:00	716	56	W	Yes	No
07:30	690	49	W	Yes	No
02:45	678	59	W	Yes	No
07:45	669	50	W	Yes	No

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Signal Warrants - Summary

Major Street Approaches

Westbound: **Phillips Rd**
Number of Lanes: **1**
85% Speed > 40 MPH.
Total Approach Volume: **4,696**

Minor Street Approaches

Northbound: **Westwood Rd**
Number of Lanes: **1**

Total Approach Volume: **4,105**

Southbound: **Westwood Rd**
Number of Lanes: **1**

Total Approach Volume: **487**

Warrant Summary (Rural values apply.)

Warrant 1 - Eight Hour Vehicular Volumes ..... **Not Satisfied**

Warrant 1A - Minimum Vehicular Volume ..... **Not Satisfied**
Required volumes reached for 2 hours, 8 are needed

Warrant 1B - Interruption of Continuous Traffic ..... **Not Satisfied**
Required volumes reached for 2 hours, 8 are needed

Warrant 1 A&B - Combination of Warrants ..... **Not Satisfied**
Required volumes reached for 2 hours, 8 are needed

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

Warrant 3 - Peak Hour ..... **Satisfied**

Warrant 3A - Peak Hour Delay ..... **Satisfied**
Number of hours (17) volumes exceed minimum >= required (1). Delay data not evaluated.

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

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

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

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

Warrant 7 - Crash Experience ..... **Not Satisfied**
Number of accidents (1) is less than minimum (5). Volume minimums are not met.

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

Warrant 9 - Intersection Near a Grade Crossing ..... **Not Evaluated**

Urban Systems Associates, Inc.

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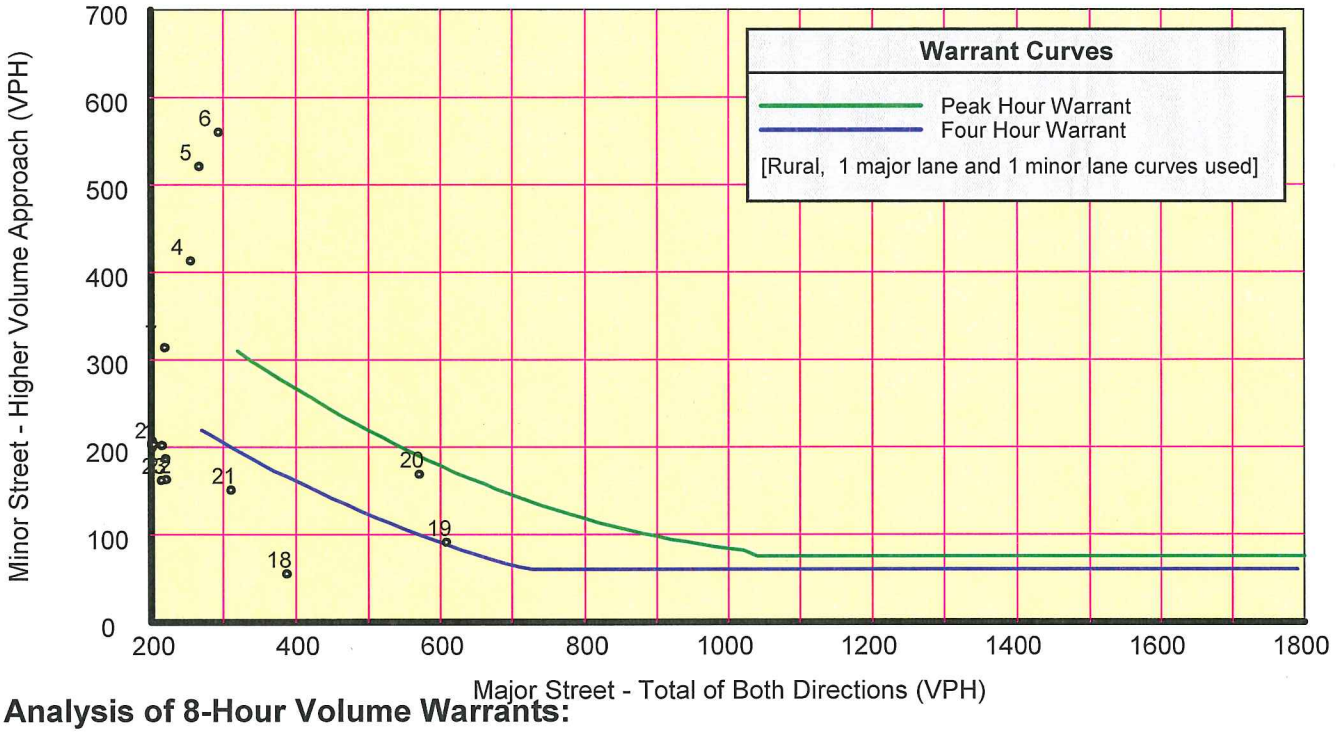
Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

War 1A-Minimum Volume

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 350	Min 105
19:15	602	106	NB	Yes	Yes
20:15	527	178	NB	Yes	Yes
19:00	609	91	NB	Yes	No
18:45	595	64	NB	Yes	No
18:30	567	57	NB	Yes	No
18:15	484	53	NB	Yes	No
18:00	388	55	NB	Yes	No
17:45	317	58	NB	No	No
06:00	294	560	NB	No	Yes
04:15	293	475	NB	No	Yes
04:45	281	527	NB	No	Yes
04:30	279	514	NB	No	Yes
05:45	277	598	NB	No	Yes
05:30	274	584	NB	No	Yes
06:15	272	457	NB	No	Yes
21:15	270	154	NB	No	Yes
05:15	267	545	NB	No	Yes
05:00	267	521	NB	No	Yes
04:00	255	413	NB	No	Yes
06:30	253	388	NB	No	Yes
06:45	248	319	NB	No	Yes
21:45	247	157	NB	No	Yes
21:30	247	169	NB	No	Yes
03:45	231	350	NB	No	Yes

War 1B-Interruption of Traffic

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 525	Min 53
19:30	567	139	NB	Yes	Yes
18:30	567	57	NB	Yes	Yes
18:15	484	53	NB	No	Yes
20:30	477	157	NB	No	Yes
20:45	391	155	NB	No	Yes
18:00	388	55	NB	No	Yes
17:45	317	58	NB	No	Yes
21:00	311	151	NB	No	Yes
06:00	294	560	NB	No	Yes
04:15	293	475	NB	No	Yes
04:45	281	527	NB	No	Yes
04:30	279	514	NB	No	Yes
05:45	277	598	NB	No	Yes
05:30	274	584	NB	No	Yes
06:15	272	457	NB	No	Yes
21:15	270	154	NB	No	Yes
05:15	267	545	NB	No	Yes
05:00	267	521	NB	No	Yes
04:00	255	413	NB	No	Yes
06:30	253	388	NB	No	Yes
06:45	248	319	NB	No	Yes
21:45	247	157	NB	No	Yes
21:30	247	169	NB	No	Yes
03:45	231	350	NB	No	Yes

War 1C-Combination of Warrants

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 420	Min 84
19:00	609	91	NB	Yes	Yes
20:00	571	169	NB	Yes	Yes
18:45	595	64	NB	Yes	No
18:30	567	57	NB	Yes	No
18:15	484	53	NB	Yes	No
18:00	388	55	NB	No	No
17:45	317	58	NB	No	No
21:00	311	151	NB	No	Yes
06:00	294	560	NB	No	Yes
04:15	293	475	NB	No	Yes
04:45	281	527	NB	No	Yes
04:30	279	514	NB	No	Yes
05:45	277	598	NB	No	Yes
05:30	274	584	NB	No	Yes
06:15	272	457	NB	No	Yes
21:15	270	154	NB	No	Yes
05:15	267	545	NB	No	Yes
05:00	267	521	NB	No	Yes
04:00	255	413	NB	No	Yes
06:30	253	388	NB	No	Yes
06:45	248	319	NB	No	Yes
21:45	247	157	NB	No	Yes
21:30	247	169	NB	No	Yes
03:45	231	350	NB	No	Yes

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Signal Warrants - Summary

Major Street Approaches

Northbound: **Davis Rd**
Number of Lanes: **1**
85% Speed > 40 MPH.
Total Approach Volume: **2,466**

Southbound: **Davis Rd**
Number of Lanes: **1**
85% Speed > 40 MPH.
Total Approach Volume: **6,671**

Minor Street Approaches

Eastbound: **Phillips Rd**
Number of Lanes: **1**
Total Approach Volume: **4,007**

Westbound: **Roberts Rd**
Number of Lanes: **1**
Total Approach Volume: **47**

Warrant Summary (Rural values apply.)

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

Warrant 1A - Minimum Vehicular Volume ..... **Satisfied**
Required volumes reached for 13 hours, 8 are needed

Warrant 1B - Interruption of Continuous Traffic ..... **Not Satisfied**
Required volumes reached for 7 hours, 8 are needed

Warrant 1 A&B - Combination of Warrants ..... **Satisfied**
Required volumes reached for 9 hours, 8 are needed

Warrant 2 - Four Hour Volumes ..... **Satisfied**
Number of hours (13) volumes exceed minimum >= minimum required (4).

Warrant 3 - Peak Hour ..... **Satisfied**

Warrant 3A - Peak Hour Delay ..... **Satisfied**
Number of hours (21) volumes exceed minimum >= required (1). Delay data not evaluated.

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

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

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

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

Warrant 7 - Crash Experience ..... **Not Satisfied**
Number of accidents (0) is less than minimum (5). Volume minimums are met.

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

Warrant 9 - Intersection Near a Grade Crossing ..... **Not Evaluated**

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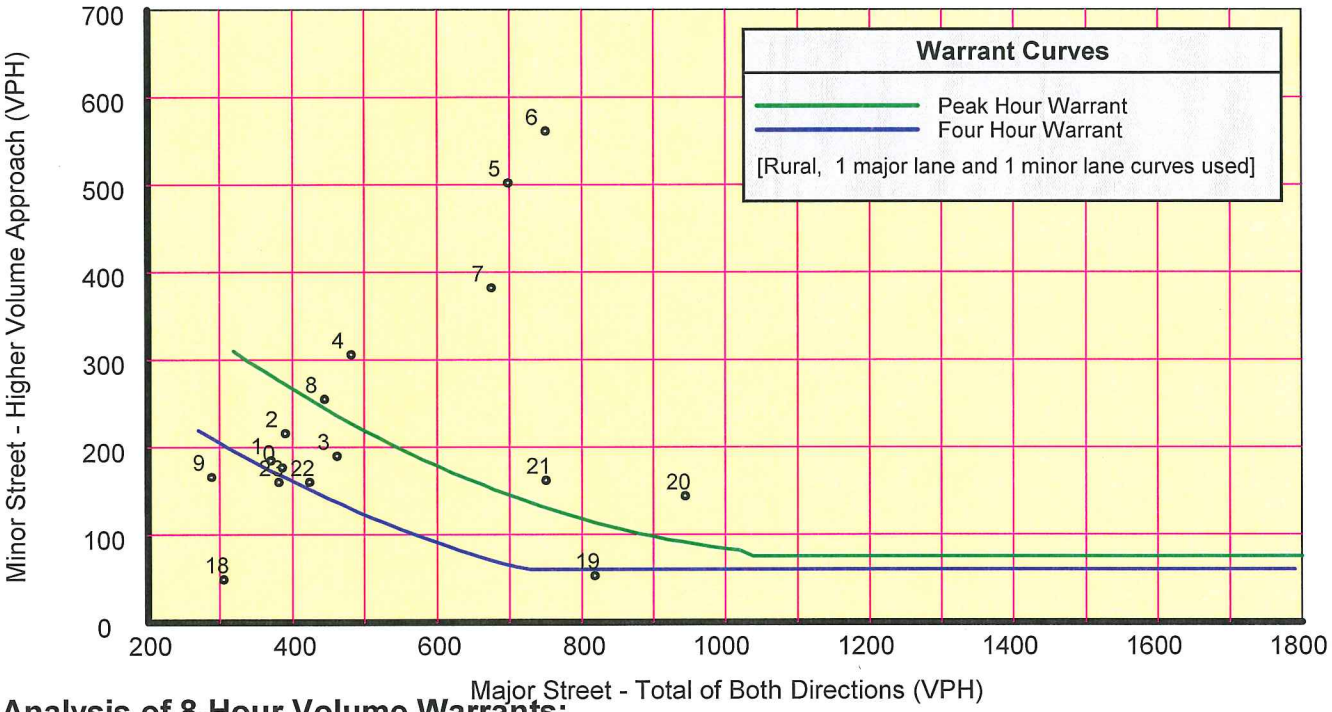
504-523-5511

Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

War 1A-Minimum Volume

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 350	Min 105
19:45	952	108	EB	Yes	Yes
20:45	875	182	EB	Yes	Yes
06:00	750	561	EB	Yes	Yes
05:00	699	502	EB	Yes	Yes
07:00	676	382	EB	Yes	Yes
04:00	482	306	EB	Yes	Yes
03:00	462	190	EB	Yes	Yes
08:00	445	255	EB	Yes	Yes
21:45	441	147	EB	Yes	Yes
02:00	390	216	EB	Yes	Yes
00:00	386	177	EB	Yes	Yes
01:00	370	185	EB	Yes	Yes
19:30	943	87	EB	Yes	No
19:15	899	60	EB	Yes	No
19:00	818	53	EB	Yes	No
18:45	666	51	EB	Yes	No
18:30	514	57	EB	Yes	No
18:15	417	60	EB	Yes	No
18:00	306	49	EB	No	No
09:00	289	166	EB	No	Yes
09:15	264	142	EB	No	Yes
17:45	239	45	EB	No	No
09:30	234	146	EB	No	Yes
09:45	230	166	EB	No	Yes

War 1B-Interruption of Traffic

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 525	Min 53
20:00	945	144	EB	Yes	Yes
19:00	818	53	EB	Yes	Yes
06:15	767	575	EB	Yes	Yes
21:00	750	162	EB	Yes	Yes
05:15	721	514	EB	Yes	Yes
07:15	624	312	EB	Yes	Yes
04:15	533	346	EB	Yes	Yes
18:45	666	51	EB	Yes	No
18:30	514	57	EB	No	Yes
04:00	482	306	EB	No	Yes
03:00	462	190	EB	No	Yes
03:45	458	260	EB	No	Yes
03:15	445	219	EB	No	Yes
03:30	435	245	EB	No	Yes
22:15	427	153	EB	No	Yes
22:00	424	160	EB	No	Yes
02:45	423	195	EB	No	Yes
02:15	419	204	EB	No	Yes
18:15	417	60	EB	No	Yes
02:30	414	193	EB	No	Yes
22:30	411	159	EB	No	Yes
00:15	405	188	EB	No	Yes
00:30	402	179	EB	No	Yes
01:45	394	200	EB	No	Yes
22:45	393	157	EB	No	Yes
01:30	392	200	EB	No	Yes
02:00	390	216	EB	No	Yes

War 1C-Combination of Warrants

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 420	Min 84
20:30	970	178	EB	Yes	Yes
19:30	943	87	EB	Yes	Yes
06:45	729	441	EB	Yes	Yes
05:45	708	536	EB	Yes	Yes
04:45	678	465	EB	Yes	Yes
07:45	513	304	EB	Yes	Yes
21:30	482	146	EB	Yes	Yes
03:45	458	260	EB	Yes	Yes
02:45	423	195	EB	Yes	Yes
19:15	899	60	EB	Yes	No
19:00	818	53	EB	Yes	No
18:45	666	51	EB	Yes	No
18:30	514	57	EB	Yes	No
02:15	419	204	EB	No	Yes
18:15	417	60	EB	No	No
02:30	414	193	EB	No	Yes
22:30	411	159	EB	No	Yes
00:15	405	188	EB	No	Yes
00:30	402	179	EB	No	Yes
01:45	394	200	EB	No	Yes
00:45	394	185	EB	No	Yes
22:45	393	157	EB	No	Yes
01:30	392	200	EB	No	Yes
02:00	390	216	EB	No	Yes

Urban Systems Associates, Inc.
400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Signal Warrants - Summary

Major Street Approaches

Eastbound: **Davis Rd (LA 378)**
Number of Lanes: **2**
85% Speed > 40 MPH.
Total Approach Volume: **7,038**

Westbound: **Sam Houston Jones Pkwy (LA 378)**
Number of Lanes: **2**
85% Speed > 40 MPH.
Total Approach Volume: **7,443**

Minor Street Approaches

Northbound: **River Mist**
Number of Lanes: **1**
Total Approach Volume: **47**

Southbound: **Sam Houston Jones Pkwy**
Number of Lanes: **2**
Total Approach Volume: **2,358**

Warrant Summary (Rural values apply.)

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

Warrant 1A - Minimum Vehicular Volume ..... **Satisfied**
Required volumes reached for 13 hours, 8 are needed

Warrant 1B - Interruption of Continuous Traffic ..... **Satisfied**
Required volumes reached for 12 hours, 8 are needed

Warrant 1 A&B - Combination of Warrants ..... **Satisfied**
Required volumes reached for 15 hours, 8 are needed

Warrant 2 - Four Hour Volumes ..... **Satisfied**
Number of hours (9) volumes exceed minimum >= minimum required (4).

Warrant 3 - Peak Hour ..... **Satisfied**

Warrant 3A - Peak Hour Delay ..... **Satisfied**
Number of hours (14) volumes exceed minimum >= required (1). Delay data not evaluated.

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

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

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

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

Warrant 7 - Crash Experience ..... **Not Satisfied**
Number of accidents (3) is less than minimum (5). Volume minimums are met.

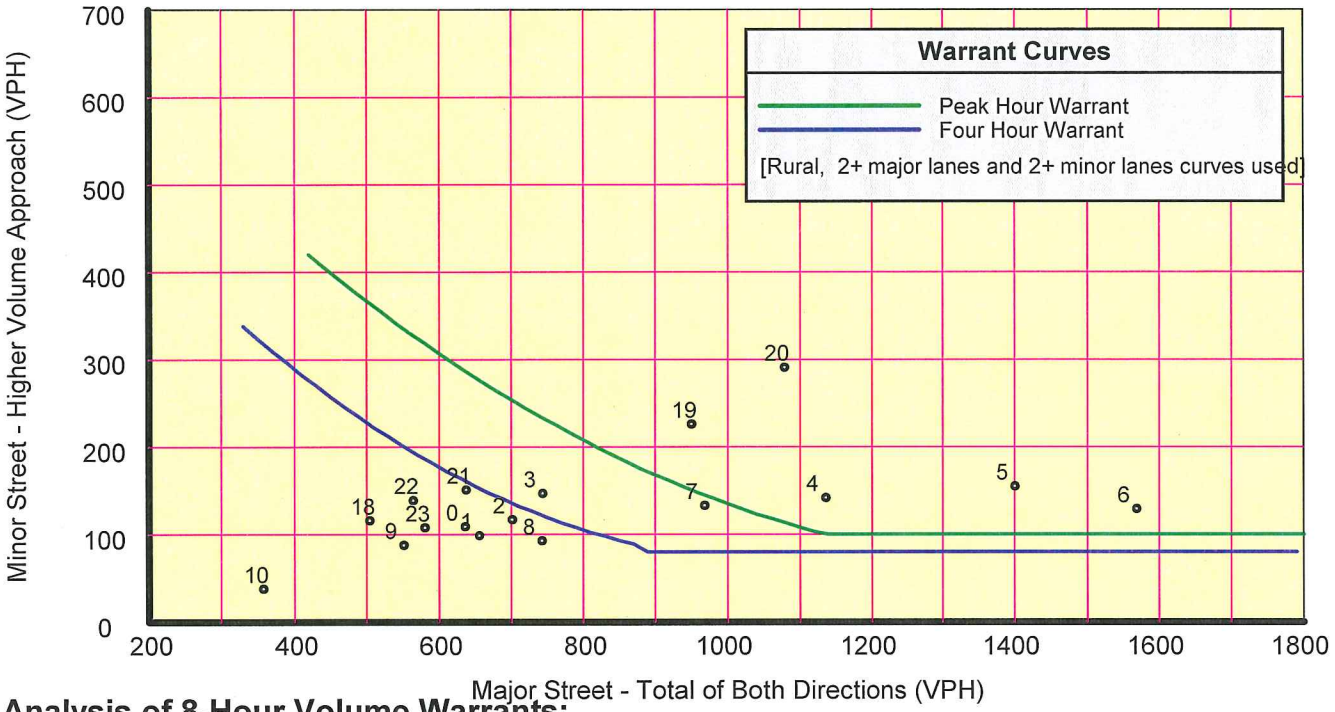
Warrant 8 - Roadway Network ..... **Not Evaluated**

Warrant 9 - Intersection Near a Grade Crossing ..... **Not Evaluated**

Urban Systems Associates, Inc.

400 N Peters Street, Suite 206
New Orleans, LA 70130
504-523-5511

Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

War 1A-Minimum Volume

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 420	Min 105
05:30	1,446	157	SB	Yes	Yes
04:30	1,362	143	SB	Yes	Yes
06:30	1,361	127	SB	Yes	Yes
20:00	1,078	291	SB	Yes	Yes
19:00	950	226	SB	Yes	Yes
03:30	894	139	SB	Yes	Yes
07:30	793	114	SB	Yes	Yes
02:30	690	136	SB	Yes	Yes
01:30	681	107	SB	Yes	Yes
21:00	638	151	SB	Yes	Yes
00:00	637	109	SB	Yes	Yes
22:00	565	139	SB	Yes	Yes
18:00	505	116	SB	Yes	Yes
08:30	663	92	SB	Yes	No
01:15	658	101	SB	Yes	No
01:00	657	99	SB	Yes	No
08:45	612	96	SB	Yes	No
09:00	552	88	SB	Yes	No
09:15	494	73	SB	Yes	No
09:30	459	61	SB	Yes	No
17:45	420	84	SB	Yes	No
09:45	418	36	SB	No	No
10:00	358	38	SB	No	No
17:30	324	58	SB	No	No

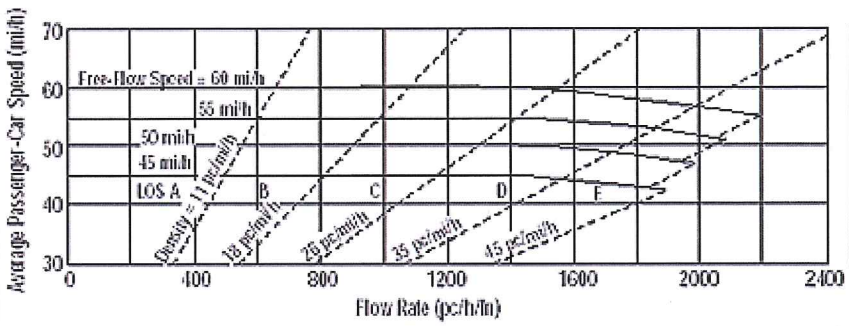
War 1B-Interruption of Traffic

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 630	Min 52
06:00	1,569	129	SB	Yes	Yes
05:00	1,401	155	SB	Yes	Yes
04:00	1,136	142	SB	Yes	Yes
20:15	979	225	SB	Yes	Yes
19:15	979	264	SB	Yes	Yes
07:00	968	133	SB	Yes	Yes
03:00	744	147	SB	Yes	Yes
08:00	743	93	SB	Yes	Yes
02:00	702	117	SB	Yes	Yes
01:00	657	99	SB	Yes	Yes
18:15	647	159	SB	Yes	Yes
00:00	637	109	SB	Yes	Yes
21:15	599	156	SB	No	Yes
21:30	591	140	SB	No	Yes
21:45	584	143	SB	No	Yes
22:15	580	132	SB	No	Yes
22:45	568	119	SB	No	Yes
22:00	565	139	SB	No	Yes
22:30	558	129	SB	No	Yes
09:00	552	88	SB	No	Yes
18:00	505	116	SB	No	Yes
09:15	494	73	SB	No	Yes
09:30	459	61	SB	No	Yes
17:45	420	84	SB	No	Yes

War 1C-Combination of Warrants

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 504	Min 84
06:00	1,569	129	SB	Yes	Yes
05:00	1,401	155	SB	Yes	Yes
04:00	1,136	142	SB	Yes	Yes
20:00	1,078	291	SB	Yes	Yes
07:00	968	133	SB	Yes	Yes
19:00	950	226	SB	Yes	Yes
03:00	744	147	SB	Yes	Yes
08:00	743	93	SB	Yes	Yes
02:00	702	117	SB	Yes	Yes
01:00	657	99	SB	Yes	Yes
21:00	638	151	SB	Yes	Yes
00:00	637	109	SB	Yes	Yes
22:00	565	139	SB	Yes	Yes
09:00	552	88	SB	Yes	Yes
18:00	505	116	SB	Yes	Yes
17:45	420	84	SB	No	Yes
10:00	358	38	SB	No	No
17:30	324	58	SB	No	No
10:15	303	30	SB	No	No
17:15	241	42	SB	No	No
10:30	234	24	SB	No	No
17:00	184	33	SB	No	No
10:45	184	20	SB	No	No
11:00	172	12	SB	No	No

MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

ATL 7/23/13

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/12/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2013 Existing

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	493	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	280
Speed, S (mi/h)	45.0
D (pc/mi/ln)	6.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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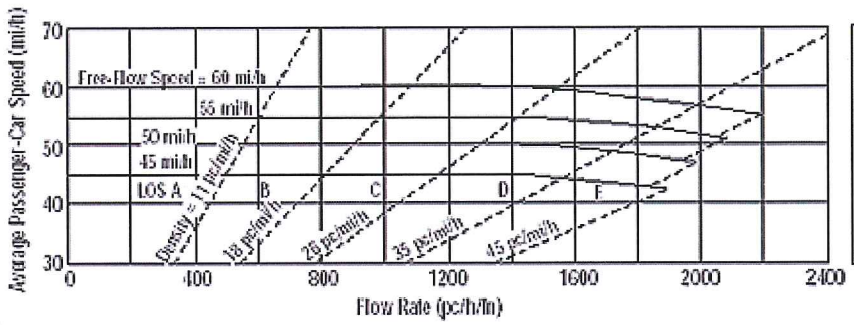
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/12/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2013 Existing

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1239	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	705
Speed, S (mi/h)	45.0
D (pc/mi/ln)	15.7
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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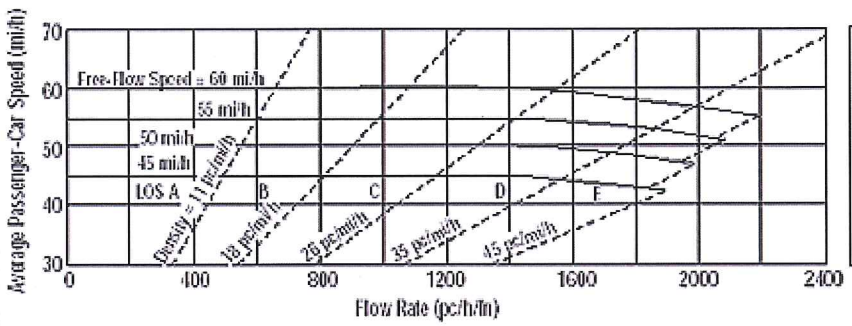
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/12/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2013 Existing

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	333	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	186
Speed, S (mi/h)	45.0
D (pc/mi/ln)	4.1
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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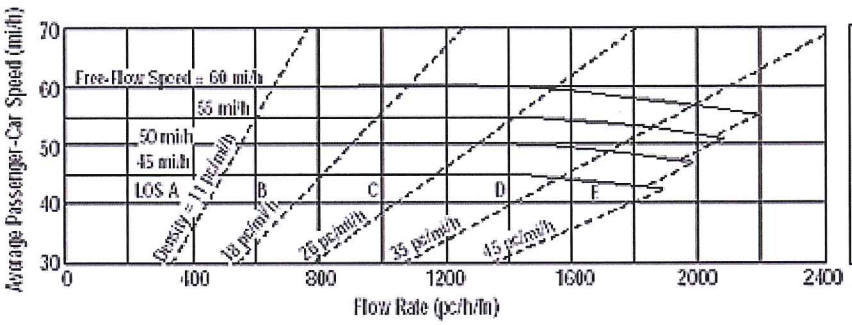
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/12/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2013 Existing

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1040	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	583
Speed, S (mi/h)	45.0
D (pc/mi/ln)	13.0
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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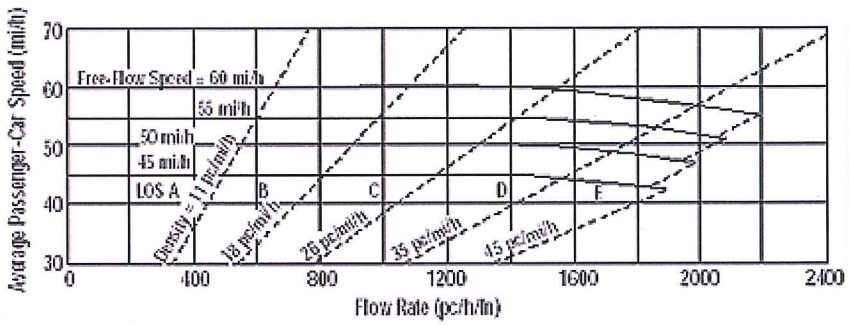
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/12/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Existing

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	366	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	205
Speed, S (mi/h)	46.0
D (pc/mi/ln)	4.5
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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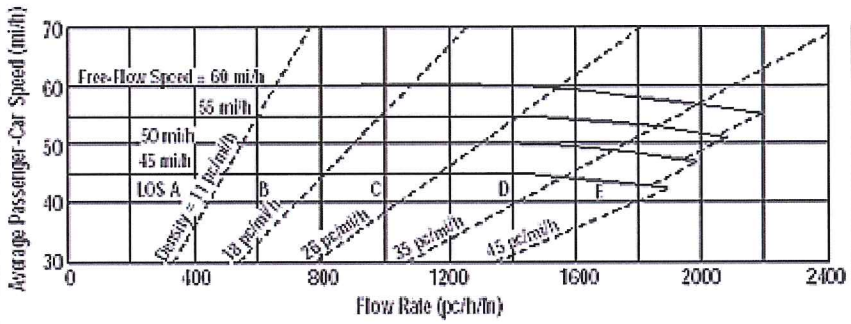
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/12/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Existing

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	985	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	552
Speed, S (mi/h)	46.0
D (pc/mi/ln)	12.0
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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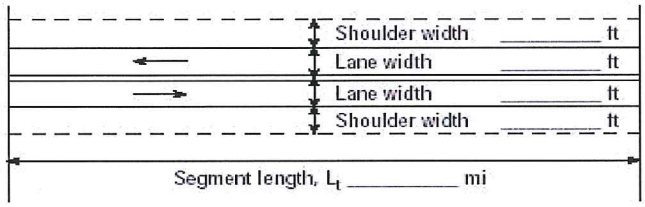
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	ATL	Highway	LA 378
Agency or Company	USI	From/To	John Stine Rd/Hudson Dr
Date Performed	7/12/2013	Jurisdiction	Westlake, LA
Analysis Time Period	AM Peak	Analysis Year	2013 Existing

Project Description: 11-100 LA 378

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1159 veh/h
Directional split	74 / 26
Peak-hour factor, PHF	0.90
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	0%
Access points/ mi	26

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1290
v_p * highest directional split proportion[2] (pc/h)	955

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	46 mi/h	Base free-flow speed, $BFFS_{FM}$	mi/h
Observed volume, V_f	1159 veh/h	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	mi/h
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	mi/h	Adj. for access points, f_A (Exhibit 20-6)	mi/h
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	55.0 mi/h

Adj. for no-passing zones, f_{np} (mi/h) (Exhibit 20-11)	1.9
Average travel speed, ATS (mi/h) $ATS=FFS-0.00776v_p-f_{np}$	43.1

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1288
v_p * highest directional split proportion[2] (pc/h)	953
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	67.8
Adj. for directional distribution and no-passing zone, $f_{d/hp}$(%)(Exh. 20-12)	10.0
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	77.8

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	D
Volume to capacity ratio, v/c=V_p/ 3,200	0.40
Peak 15-min veh-miles of travel, VMT_{15} (veh- mi)= $0.25L_t(V/PHF)$	258
Peak-hour vehicle-miles of travel, VMT_{60}(veh- mi)=$V*L_t$	927
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	6.0

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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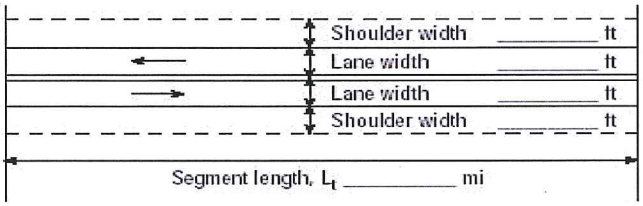
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	ATL	Highway	LA 378
Agency or Company	USI	From/To	Hudson Dr/Hollis Rd
Date Performed	7/12/2013	Jurisdiction	Westlake, LA
Analysis Time Period	AM Peak	Analysis Year	2013 Existing

Project Description: 11-100 LA 378

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	848 veh/h
Directional split	77 / 23
Peak-hour factor, PHF	0.90
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	0%
Access points/ *mi*	14

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.2
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	946
v_p * highest directional split proportion[2] (pc/h)	728

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	46 *mi/h*	Base free-flow speed, $BFFS_{FM}$	*mi/h*
Observed volume, V_f	848 *veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	52.6 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	2.7
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	42.6

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	944
v_p * highest directional split proportion[2] (pc/h)	727
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	56.4
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	14.6
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	71.0

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	D
Volume to capacity ratio, v/c=V_p/ 3,200	0.30
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	165
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=$V*L_t$	594
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	3.9

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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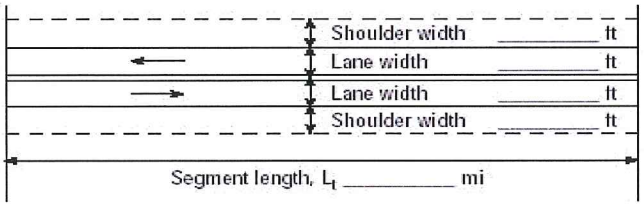
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	ATL	Highway	LA 378
Agency or Company	USI	From/To	Hollis Rd/Davis Rd
Date Performed	7/12/2013	Jurisdiction	Westlake, LA
Analysis Time Period	AM Peak	Analysis Year	2013 Existing

Project Description: 11-100 LA 378

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	751 veh/h
Directional split	76 / 24
Peak-hour factor, PHF	0.90
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	0%
Access points/ *mi*	40

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.2
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	838
v_p * highest directional split proportion[2] (pc/h)	637

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	46 *mi/h*	Base free-flow speed, $BFFS_{FM}$	*mi/h*
Observed volume, V_f	751 *veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*mi/h*
		Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$	51.9 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	2.9
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	42.4

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	836
v_p * highest directional split proportion[2] (pc/h)	635
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	52.0
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	15.6
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	67.7

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	D
Volume to capacity ratio, $v/c=V_p/3{,}200$	0.26
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	104
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=$V*L_t$	376
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	2.5

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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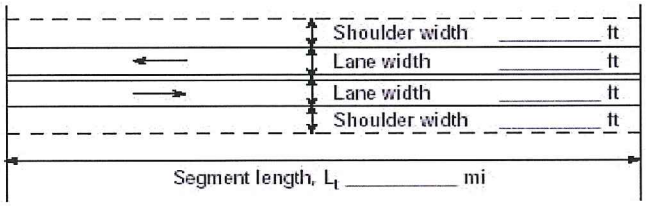
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	ATL	Highway	LA 378
Agency or Company	USI	From/To	Phillips Rd/West Fork Bridge
Date Performed	7/12/2013	Jurisdiction	Westlake, LA
Analysis Time Period	AM Peak	Analysis Year	2013 Existing

Project Description: 11-100 LA 378

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1145 veh/h
Directional split	75 / 25
Peak-hour factor, PHF	0.90
No-passing zone	72
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	0%
Access points/ *mi*	33

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1275
v_p * highest directional split proportion[2] (pc/h)	956

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	56 *mi/h*	Base free-flow speed, $BFFS_{FM}$	*mi/h*
Observed volume, V_f	1145 *veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	64.9 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	1.6
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	53.4

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1272
v_p * highest directional split proportion[2] (pc/h)	954
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	67.3
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	9.7
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	77.1

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	D
Volume to capacity ratio, $v/c=V_p/3{,}200$	0.40
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	254
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V^*L_t	916
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	4.8

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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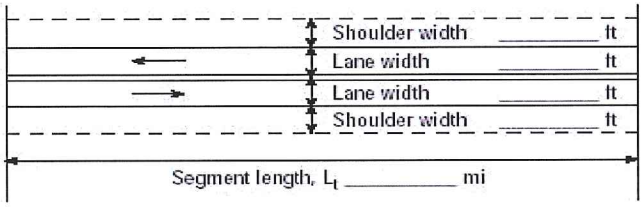
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	ATL	Highway	LA 378
Agency or Company	USI	From/To	West Fork Bridge/Sam Houston
Date Performed	7/12/2013	Jurisdiction	Westlake, LA
Analysis Time Period	AM Peak	Analysis Year	2013 Existing

Project Description: 11-100 LA 378

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1135 veh/h
Directional split	76 / 24
Peak-hour factor, PHF	0.90
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	0%
Access points/ mi	19

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1264
v_p * highest directional split proportion[2] (pc/h)	961

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	56 mi/h	Base free-flow speed, $BFFS_{FM}$	mi/h
Observed volume, V_f	1135 veh/h	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	mi/h
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	mi/h	Adj. for access points, f_A (Exhibit 20-6)	mi/h
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	64.8 mi/h

Adj. for no-passing zones, f_{np} (mi/h) (Exhibit 20-11)	2.0
Average travel speed, ATS (mi/h) $ATS=FFS-0.00776v_p-f_{np}$	53.0

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1261
v_p * highest directional split proportion[2] (pc/h)	958
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	67.0
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	10.6
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	77.6

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	D
Volume to capacity ratio, $v/c=V_p/3{,}200$	0.40
Peak 15-min veh-miles of travel, VMT_{15} (veh- mi)= $0.25L_t(V/PHF)$	126
Peak-hour vehicle-miles of travel, VMT_{60}(veh- mi)=$V*L_t$	454
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	2.4

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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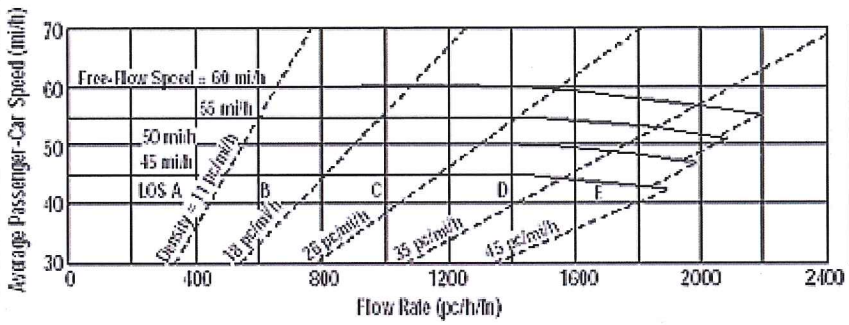
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

7/23/13

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/17/13
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2013 Existing

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1276	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

ok.

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	715
Speed, S (mi/h)	45.0
D (pc/mi/ln)	15.9
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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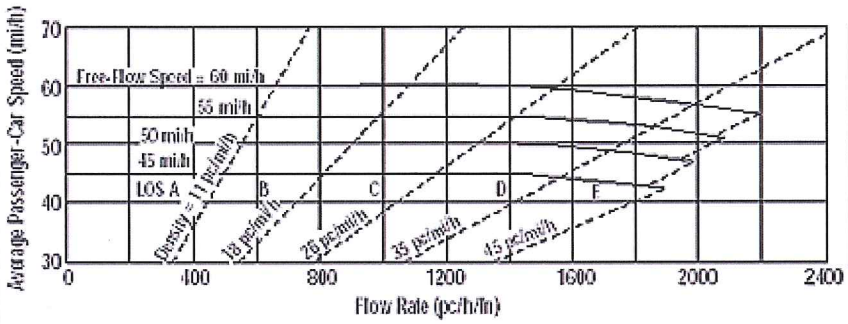
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/17/13
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2013 Existing

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	900	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	505
Speed, S (mi/h)	45.0
D (pc/mi/ln)	11.2
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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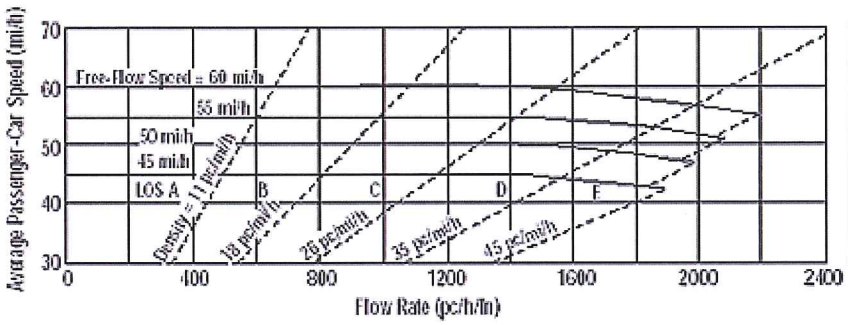
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/17/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2013 Existing

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1258	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	705
Speed, S (mi/h)	45.0
D (pc/mi/ln)	15.7
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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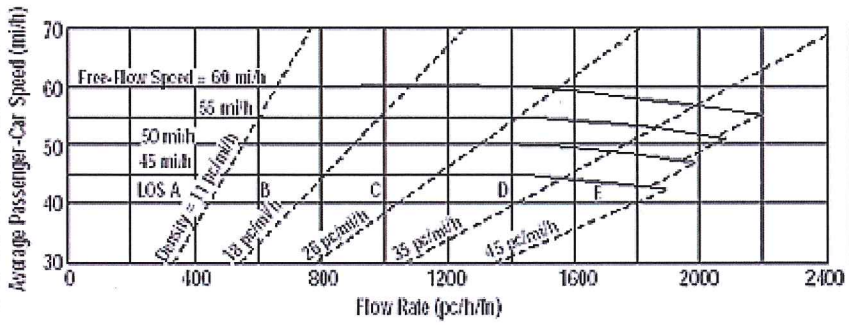
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/17/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2013 Existing

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	559	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	313
Speed, S (mi/h)	45.0
D (pc/mi/ln)	7.0
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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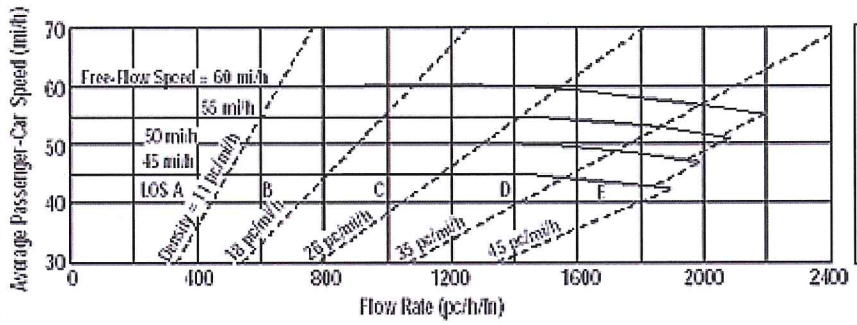
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/17/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Existing

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1258	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	705
Speed, S (mi/h)	46.0
D (pc/mi/ln)	15.3
LOS	B

Design

Design (N)	
Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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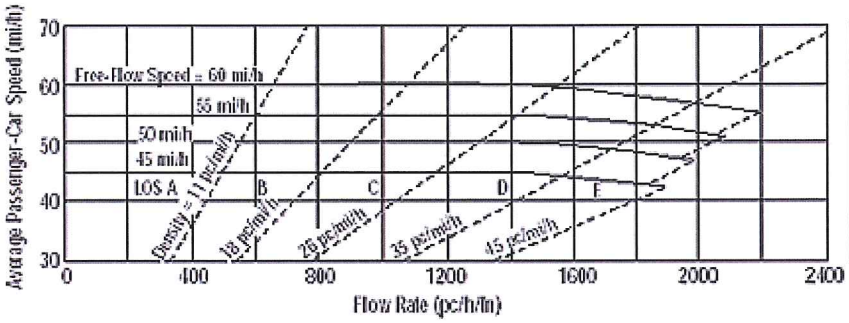
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/17/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Existing

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	515	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	288
Speed, S (mi/h)	46.0
D (pc/mi/ln)	6.3
LOS	A

Design

Design (N)	
Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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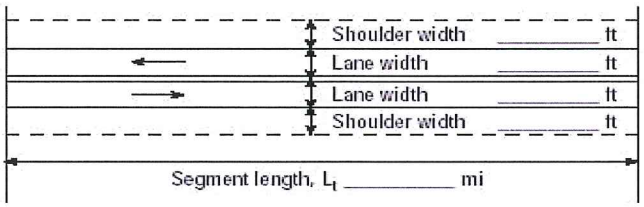
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	ATL	Highway	LA 378
Agency or Company	USI	From/To	John Stine Rd/Hudson Dr
Date Performed	7/17/2013	Jurisdiction	Westlake, LA
Analysis Time Period	PM Peak	Analysis Year	2013 Existing

Project Description: 11-100 LA 378

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1464 veh/h
Directional split	72 / 28
Peak-hour factor, PHF	0.90
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	0%
Access points/ *mi*	26

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1630
v_p * highest directional split proportion[2] (pc/h)	1174

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	46 *mi/h*	Base free-flow speed, $BFFS_{FM}$	*mi/h*
Observed volume, V_f	1400 *veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	56.9 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	1.5
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	42.8

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1627
v_p * highest directional split proportion[2] (pc/h)	1171
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	76.1
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	7.0
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	83.0

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, $v/c=V_p/3{,}200$	0.51
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	325
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=$V*L_t$	1171
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	7.6

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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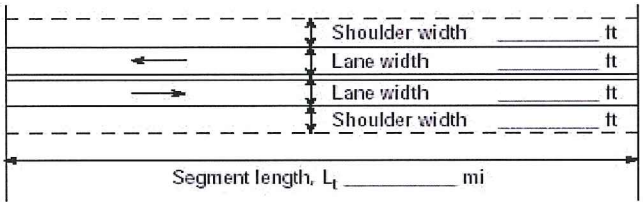
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	ATL	Highway	LA 378
Agency or Company	USI	From/To	Hudson Dr/Hollis Rd
Date Performed	7/17/2013	Jurisdiction	Westlake, LA
Analysis Time Period	PM Peak	Analysis Year	2013 Existing

Project Description: 11-100 LA 378

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1127 veh/h
Directional split	70 / 30
Peak-hour factor, PHF	0.90
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	0%
Access points/ *mi*	14

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1255
v_p * highest directional split proportion[2] (pc/h)	879

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	46 *mi/h*	Base free-flow speed, $BFFS_{FM}$	*mi/h*
Observed volume, V_f	1127 *veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	54.8 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	2.0
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	43.0

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1252
v_p * highest directional split proportion[2] (pc/h)	876
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	66.7
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	9.9
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	76.6

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	D
Volume to capacity ratio, v/c=V_p/ 3,200	0.39
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	219
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=$V*L_t$	789
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	5.1

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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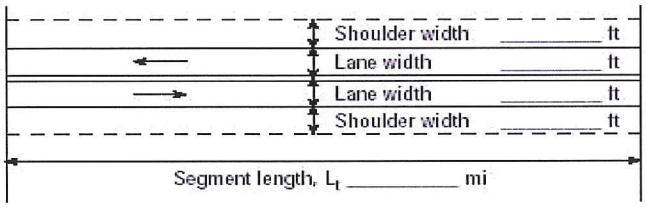
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	ATL	Highway	LA 378
Agency or Company	USI	From/To	Hollis Rd/Davis Rd
Date Performed	7/17/2013	Jurisdiction	Westlake, LA
Analysis Time Period	PM Peak	Analysis Year	2013 Existing

Project Description: 11-100 LA 378

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	859 veh/h
Directional split	68 / 32
Peak-hour factor, PHF	0.90
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	0%
Access points/ *mi*	40

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.2
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	958
v_p * highest directional split proportion[2] (pc/h)	651

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	46 *mi/h*	Base free-flow speed, $BFFS_{FM}$	*mi/h*
Observed volume, V_f	859 *veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	52.7 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	2.7
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	42.6

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	956
v_p * highest directional split proportion[2] (pc/h)	650
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	56.8
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	12.9
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	69.8

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	D
Volume to capacity ratio, $v/c=V_p/3{,}200$	0.30
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	119
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V^*L_t	430
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	2.8

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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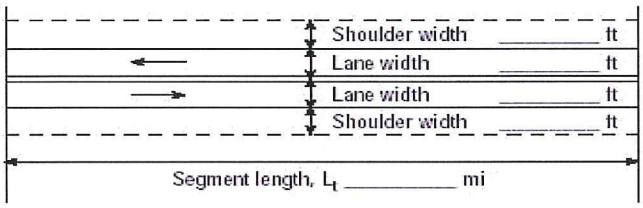
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	ATL	Highway	LA 378
Agency or Company	USI	From/To	Phillips Rd/West Fork Bridge
Date Performed	7/17/2013	Jurisdiction	Westlake, LA
Analysis Time Period	PM Peak	Analysis Year	2013 Existing

Project Description: 11-100 LA 378

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1330 veh/h
Directional split	69 / 31
Peak-hour factor, PHF	0.90
No-passing zone	72
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	0%
Access points/ *mi*	33

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1481
v_p * highest directional split proportion[2] (pc/h)	1022

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	56 *mi/h*	Base free-flow speed, $BFFS_{FM}$	*mi/h*
Observed volume, V_f	1330 *veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	66.3 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	1.3
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	53.6

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1478
v_p * highest directional split proportion[2] (pc/h)	1020
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	72.7
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	7.2
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	79.9

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	D
Volume to capacity ratio, $v/c=V_p/3{,}200$	0.46
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	296
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V^*L_t	1064
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	5.5

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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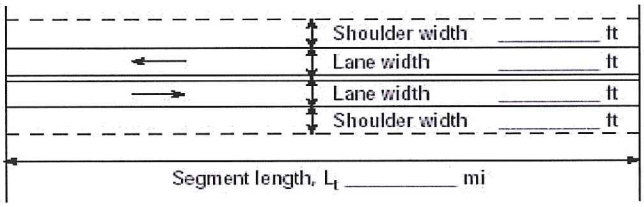
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	ATL	Highway	LA 378
Agency or Company	USI	From/To	West Fork Bridge/Sam Houston
Date Performed	7/17/2013	Jurisdiction	Westlake, LA
Analysis Time Period	PM Peak	Analysis Year	2013 Existing

Project Description: 11-100 LA 378

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1446 veh/h
Directional split	66 / 34
Peak-hour factor, PHF	0.90
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	0%
Access points/ *mi*	19

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1610
v_p * highest directional split proportion[2] (pc/h)	1063

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	56 *mi/h*	Base free-flow speed, $BFFS_{FM}$	*mi/h*
Observed volume, V_f	1400 *veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	66.9 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	1.5
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	52.9

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1607
v_p * highest directional split proportion[2] (pc/h)	1061
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	75.6
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	6.8
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	82.5

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, $v/c=V_p/3{,}200$	0.50
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	161
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V^*L_t	578
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	3.0

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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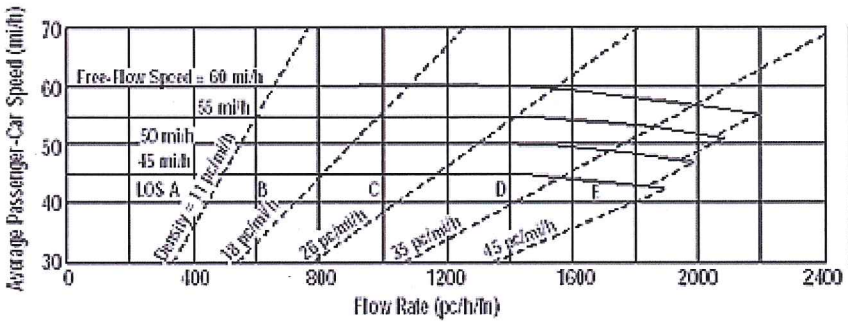
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/12/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	493	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	280
Speed, S (mi/h)	45.0
D (pc/mi/ln)	6.2
LOS	A

Design

Design (N)	
Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

7/23/13

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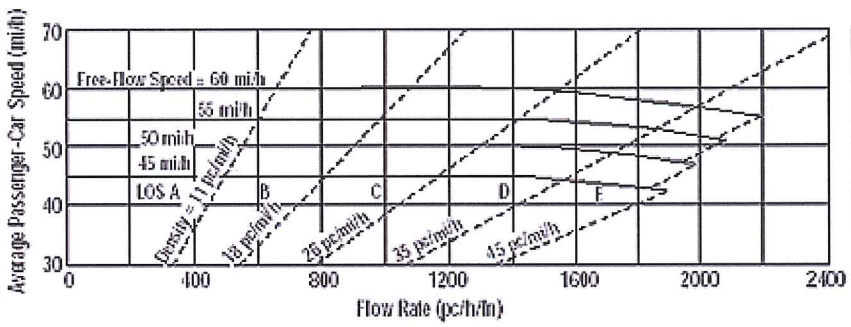
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/12/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1239	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	705
Speed, S (mi/h)	45.0
D (pc/mi/ln)	15.7
LOS	B

Design

Design (N)	
Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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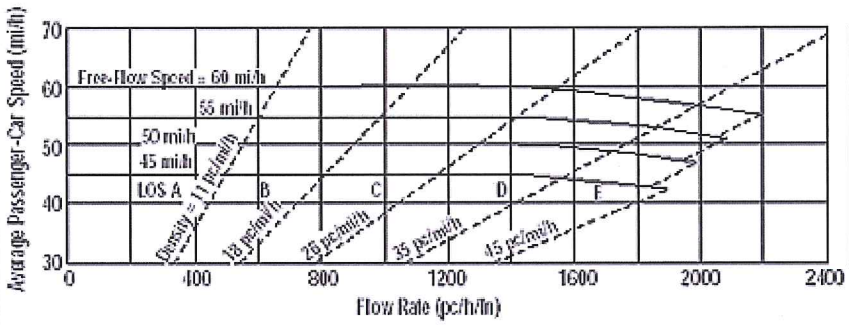
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/12/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	333	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	186
Speed, S (mi/h)	45.0
D (pc/mi/ln)	4.1
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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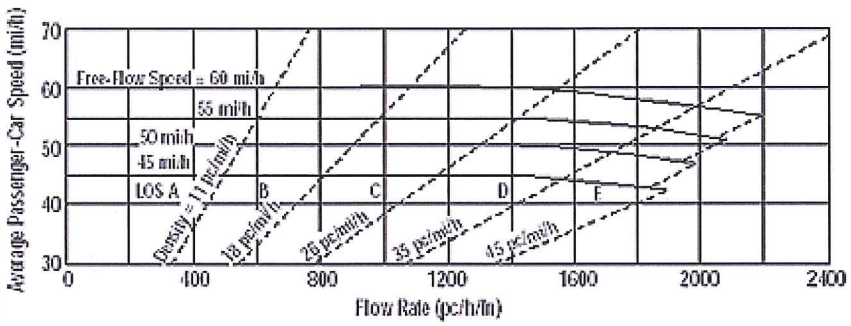
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/12/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1040	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	583
Speed, S (mi/h)	45.0
D (pc/mi/ln)	13.0
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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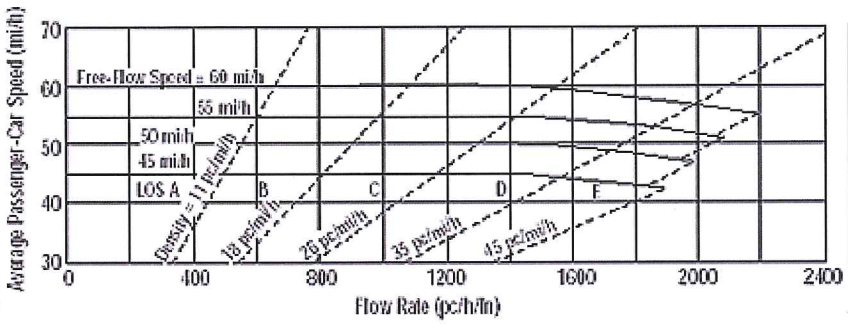
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/12/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	366	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	205
Speed, S (mi/h)	46.0
D (pc/mi/ln)	4.5
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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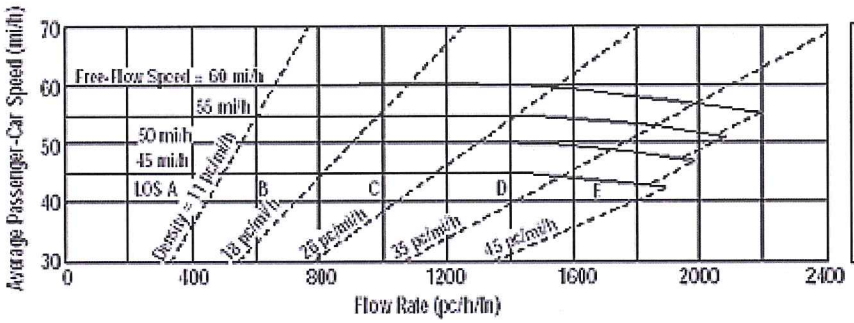
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/12/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	985	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	552
Speed, S (mi/h)	46.0
D (pc/mi/ln)	12.0
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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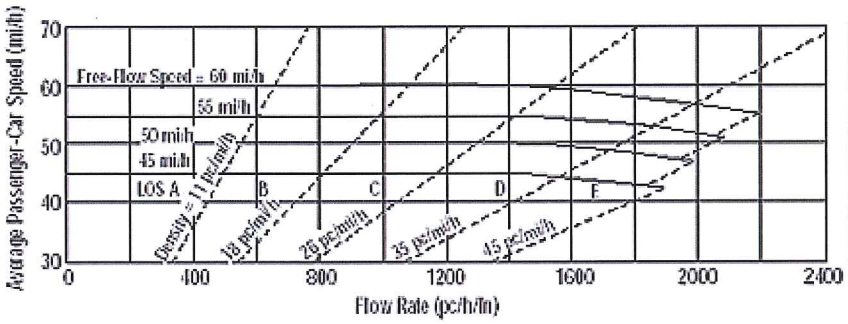
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	301	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	168
Speed, S (mi/h)	46.8
D (pc/mi/ln)	3.6
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

BLP 7-18-13

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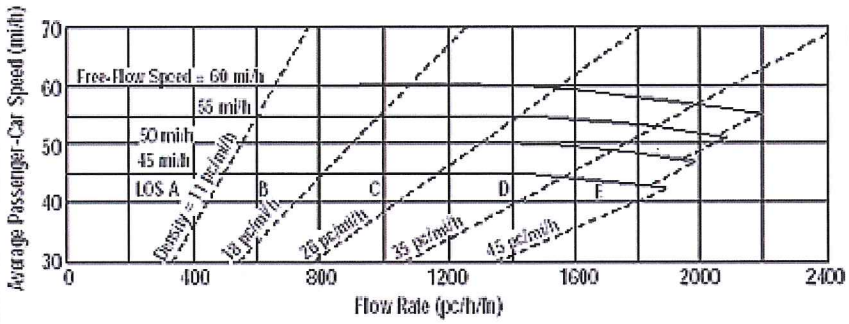
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	858	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	481
Speed, S (mi/h)	46.8
D (pc/mi/ln)	10.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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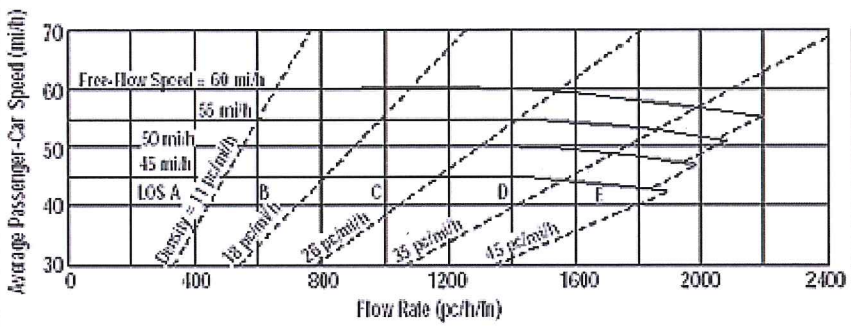
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	378	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	212
Speed, S (mi/h)	48.3
D (pc/mi/ln)	4.4
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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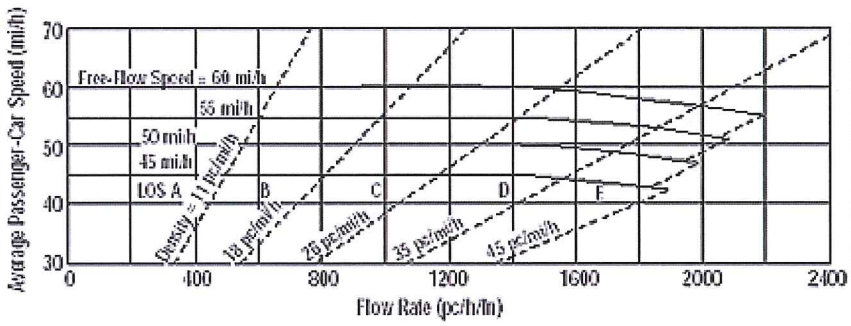
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	796	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	446
Speed, S (mi/h)	48.3
D (pc/mi/ln)	9.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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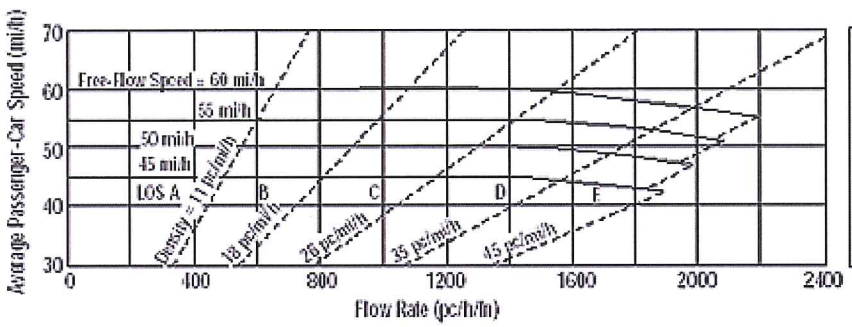
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hollis Rd/Davis Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - EB, Dir2 - WB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	262	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	20
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	5.0
f_M (mi/h)	0.0
FFS (mi/h)	45.0

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	147
Speed, S (mi/h)	45.0
D (pc/mi/ln)	3.3
LOS	A

Design

Design (N)
Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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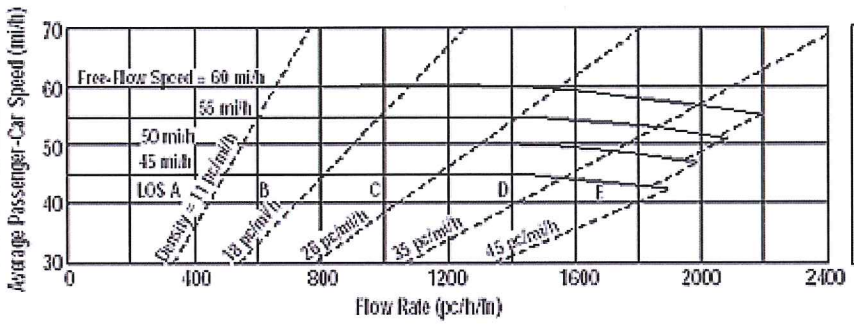
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hollis Rd/Davis Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - EB, Dir2 - WB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	660	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	20
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	5.0
f_M (mi/h)	0.0
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	370
Speed, S (mi/h)	45.0
D (pc/mi/ln)	8.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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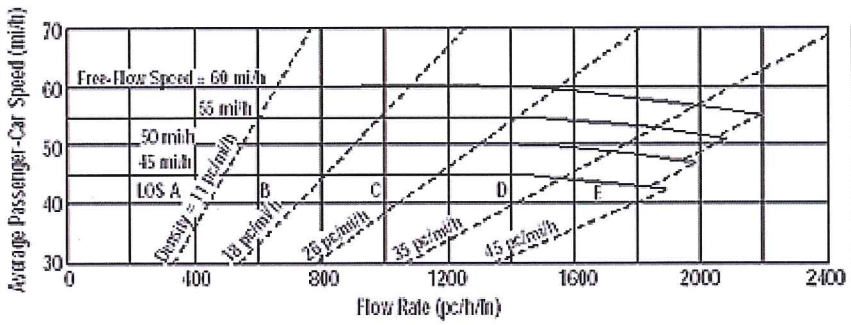
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	DavisRd/West Fork Bridge
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	281	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	157
Speed, S (mi/h)	48.3
D (pc/mi/ln)	3.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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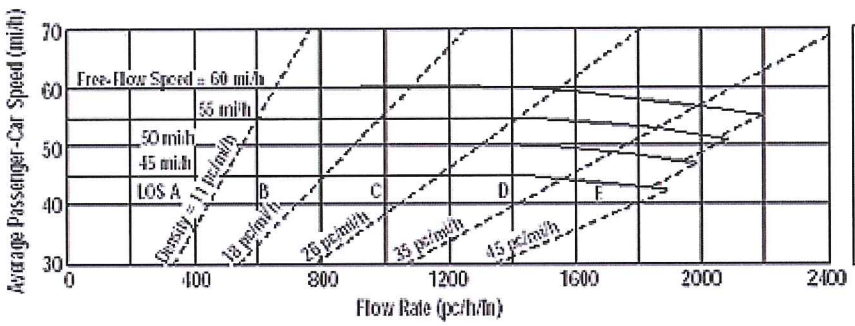
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	DavisRd/West Fork Bridge
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	866	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	485
Speed, S (mi/h)	48.3
D (pc/mi/ln)	10.1
LOS	A

Design

Design (N)
Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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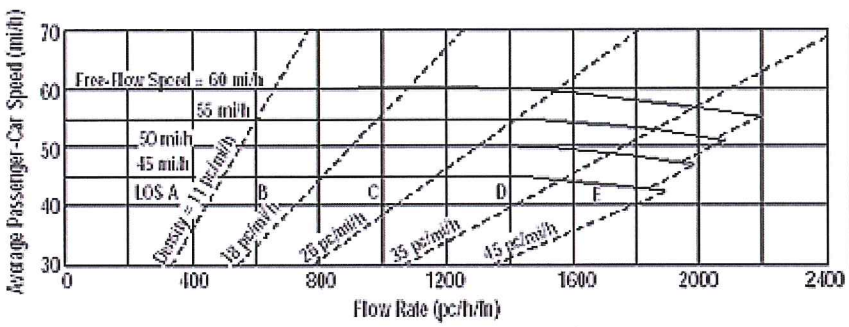
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	West Fork Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	442	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	10
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	2.5
f_M (mi/h)	0.0
FFS (mi/h)	47.5

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	248
Speed, S (mi/h)	47.5
D (pc/mi/ln)	5.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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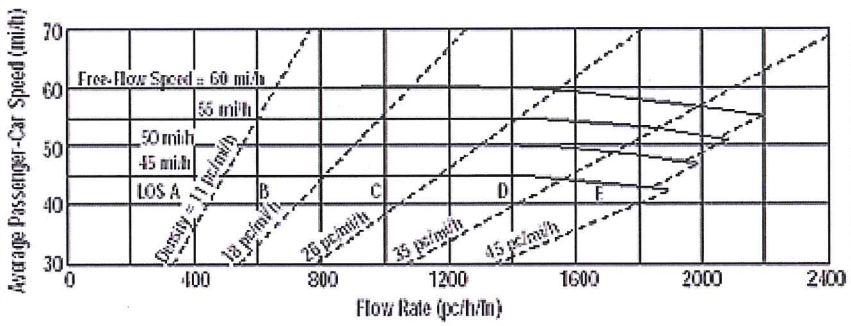
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	West Fork Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1024	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	10
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	2.5
f_M (mi/h)	0.0
FFS (mi/h)	47.5

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	574
Speed, S (mi/h)	47.5
D (pc/mi/ln)	12.1
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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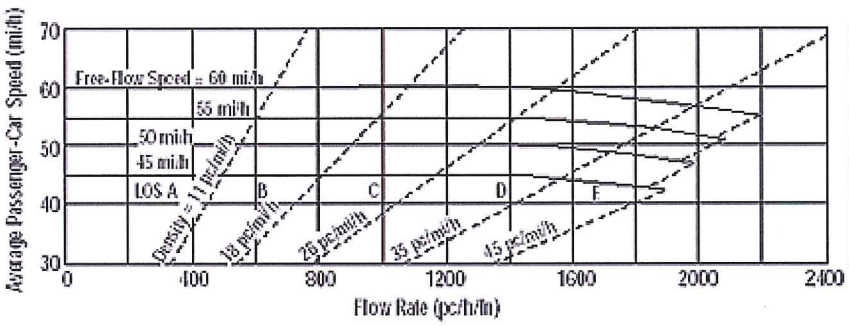
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/17/13
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1276	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	715
Speed, S (mi/h)	45.0
D (pc/mi/ln)	15.9
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

7/23/13

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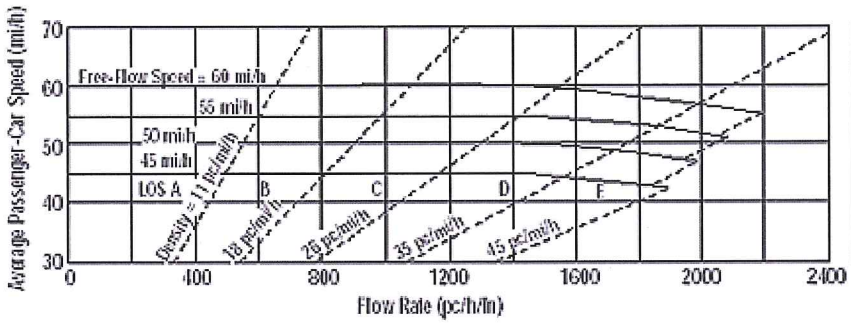
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/17/13
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	900	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	505
Speed, S (mi/h)	45.0
D (pc/mi/ln)	11.2
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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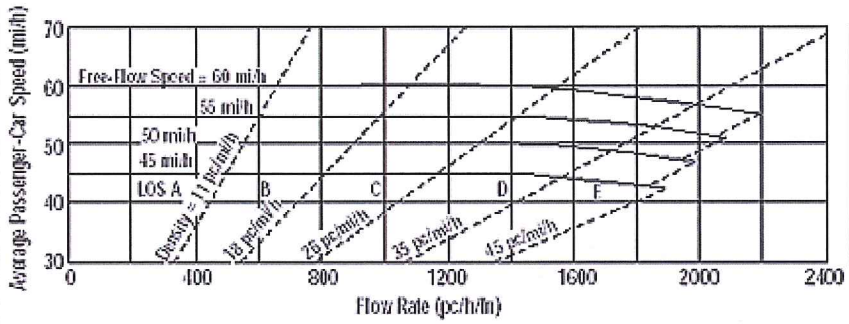
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/17/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1258	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	705
Speed, S (mi/h)	45.0
D (pc/mi/ln)	15.7
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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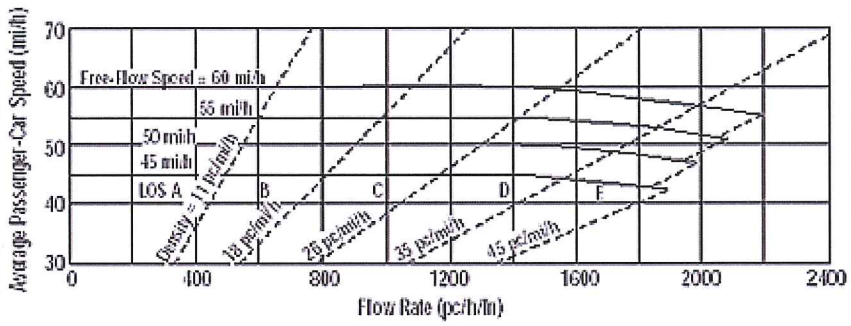
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/17/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	559	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	313
Speed, S (mi/h)	45.0
D (pc/mi/ln)	7.0
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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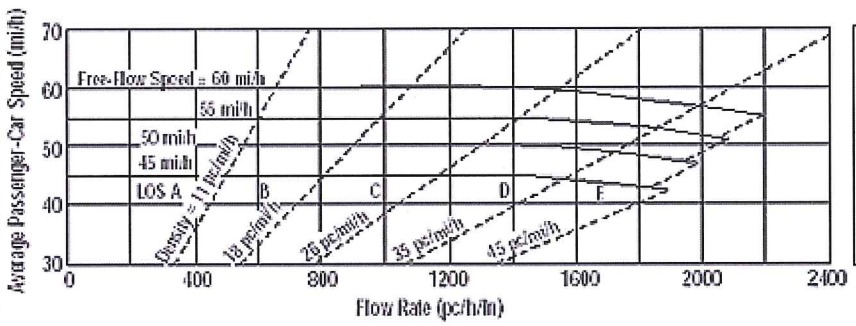
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/17/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1258	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	705
Speed, S (mi/h)	46.0
D (pc/mi/ln)	15.3
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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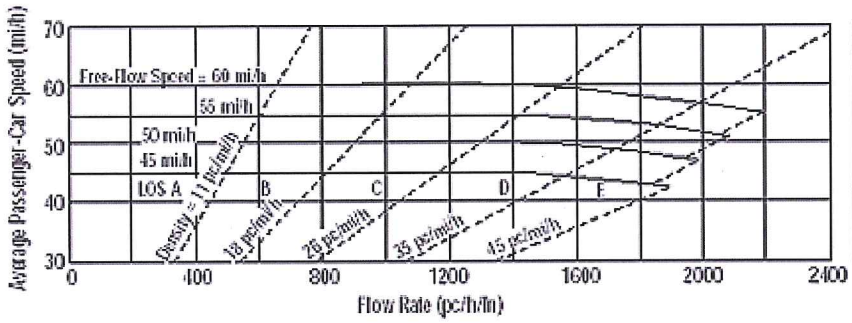
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/17/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	515	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	288
Speed, S (mi/h)	46.0
D (pc/mi/ln)	6.3
LOS	A

Design

Design (N)	
Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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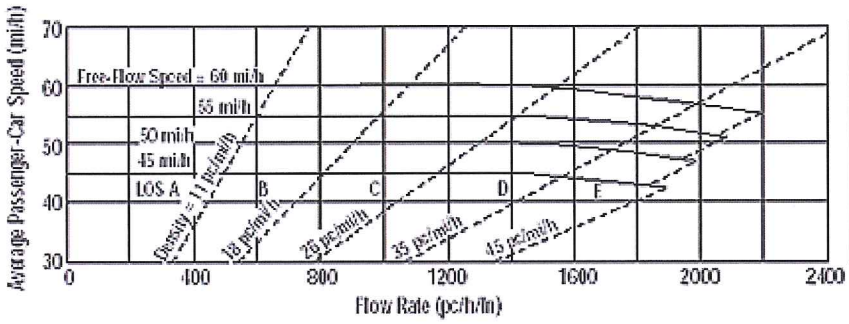
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1060	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	594
Speed, S (mi/h)	46.8
D (pc/mi/ln)	12.7
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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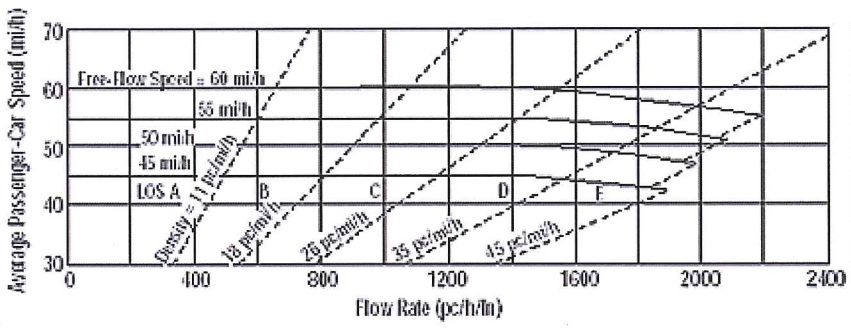
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	414	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	232
Speed, S (mi/h)	46.8
D (pc/mi/ln)	5.0
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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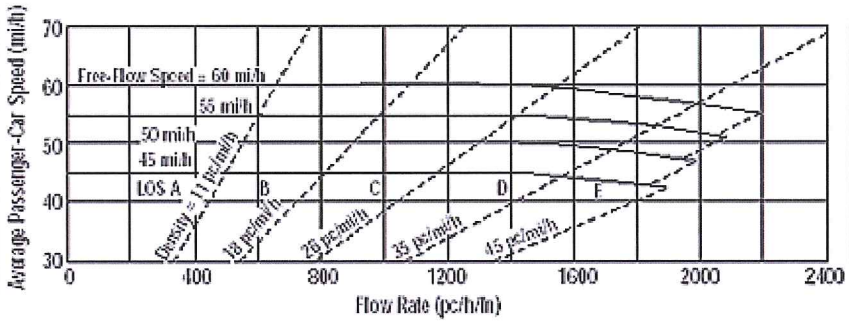
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	865	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	485
Speed, S (mi/h)	48.3
D (pc/mi/ln)	10.1
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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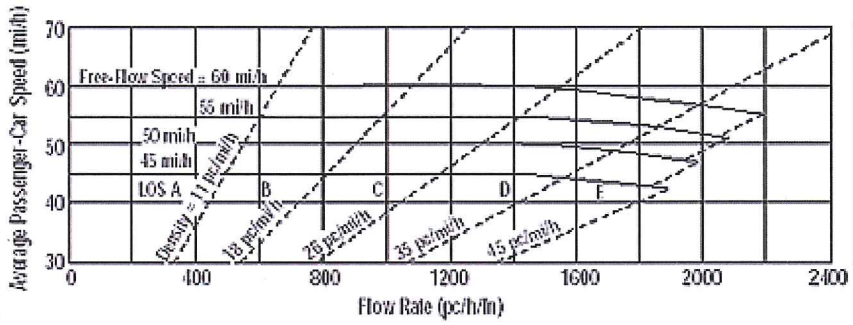
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	398	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	223
Speed, S (mi/h)	48.3
D (pc/mi/ln)	4.6
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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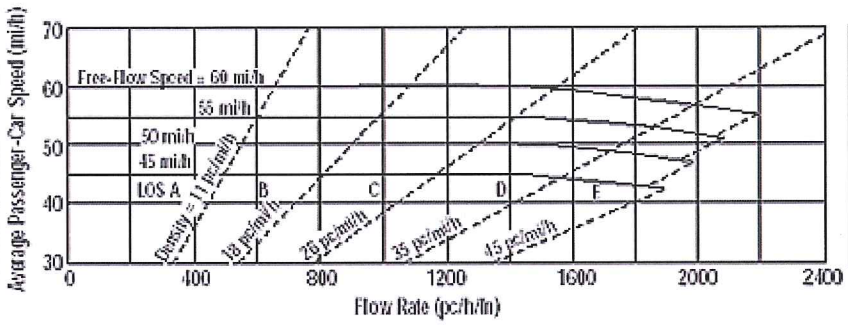
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hollis Rd/Davis Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - EB, Dir2 - WB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	652	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	20
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	5.0
f_M (mi/h)	0.0
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	365
Speed, S (mi/h)	45.0
D (pc/mi/ln)	8.1
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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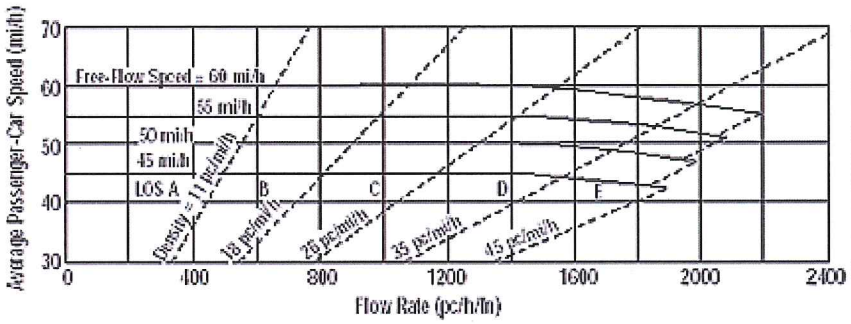
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hollis Rd/Davis Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - EB, Dir2 - WB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	343	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	20
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	5.0
f_M (mi/h)	0.0
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	192
Speed, S (mi/h)	45.0
D (pc/mi/ln)	4.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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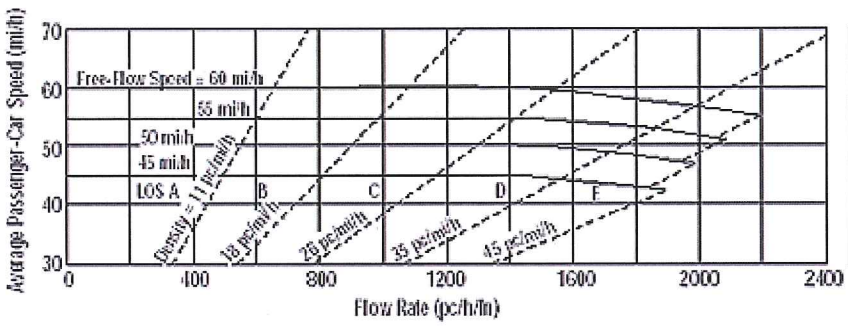
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	DavisRd/West Fork Bridge
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	925	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	17
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	4.3
f_M (mi/h)	0.0
FFS (mi/h)	45.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	519
Speed, S (mi/h)	45.8
D (pc/mi/ln)	11.3
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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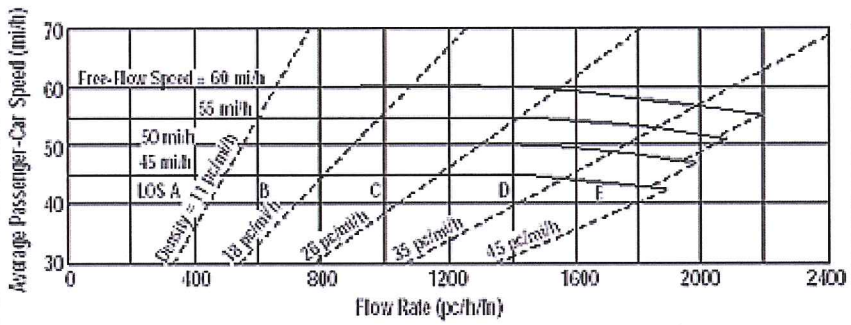
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	DavisRd/West Fork Bridge
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	411	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	17
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	4.3
f_M (mi/h)	0.0
FFS (mi/h)	45.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	230
Speed, S (mi/h)	45.8
D (pc/mi/ln)	5.0
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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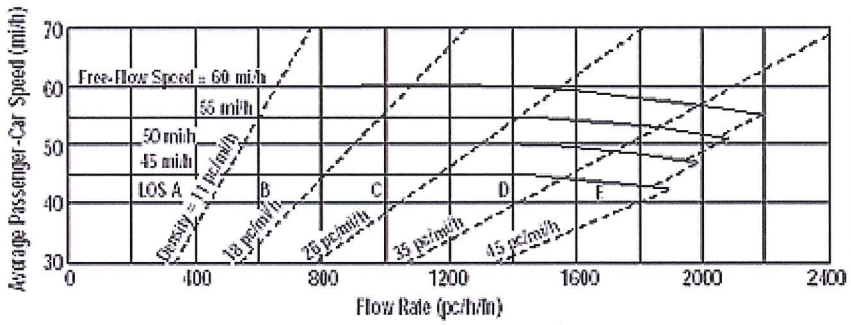
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	West Fork Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1043	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	10
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	2.5
f_M (mi/h)	0.0
FFS (mi/h)	47.5

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	585
Speed, S (mi/h)	47.5
D (pc/mi/ln)	12.3
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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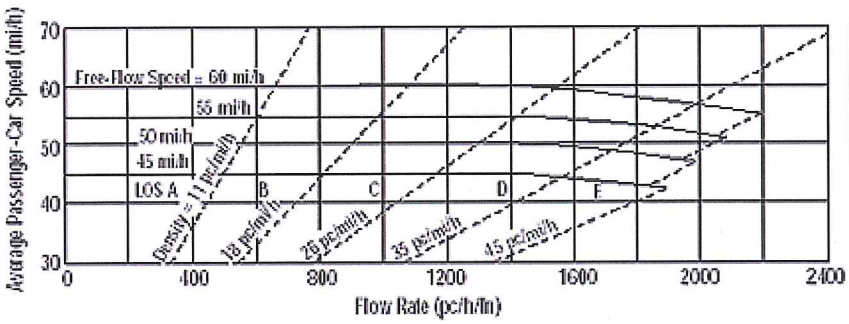
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	West Fork Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	587	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	10
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	2.5
f_M (mi/h)	0.0
FFS (mi/h)	47.5

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	329
Speed, S (mi/h)	47.5
D (pc/mi/ln)	6.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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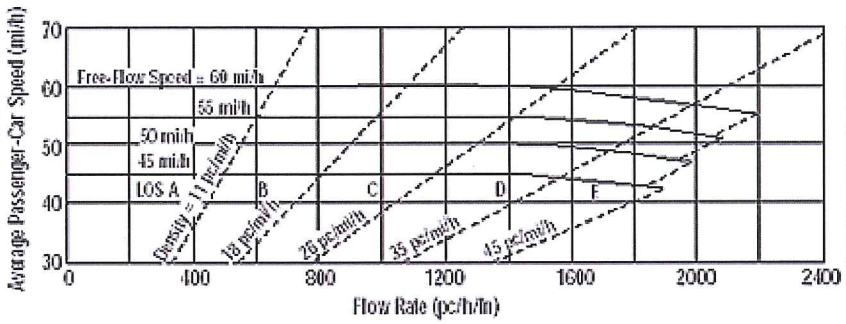
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	493	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	280
Speed, S (mi/h)	45.0
D (pc/mi/ln)	6.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

7/23/13

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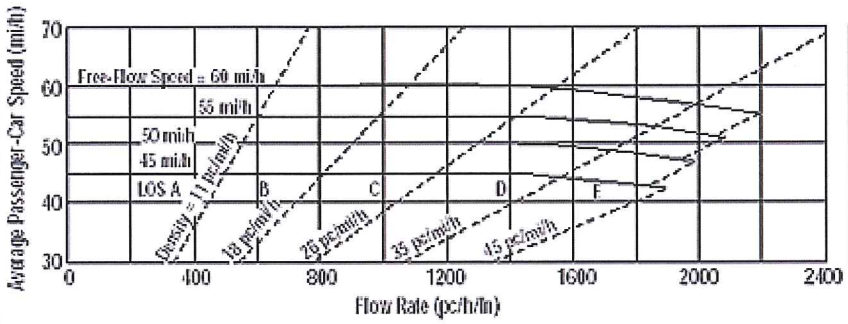
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1239	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	705
Speed, S (mi/h)	45.0
D (pc/mi/ln)	15.7
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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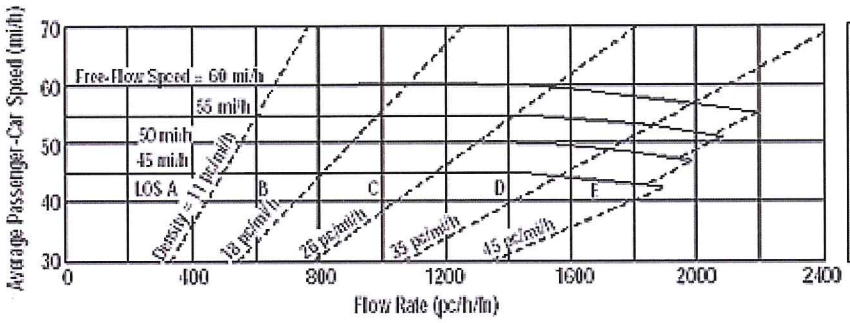
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	377	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	211
Speed, S (mi/h)	45.0
D (pc/mi/ln)	4.7
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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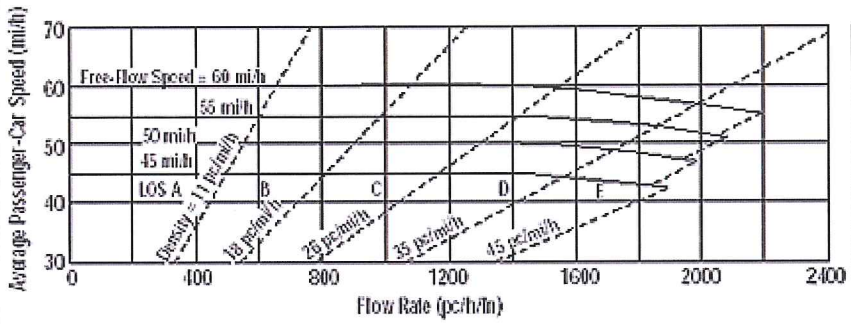
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1040	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	583
Speed, S (mi/h)	45.0
D (pc/mi/ln)	13.0
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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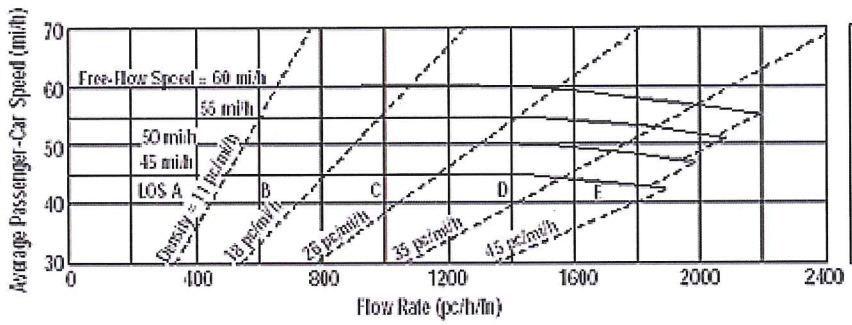
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	366	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	205
Speed, S (mi/h)	46.0
D (pc/mi/ln)	4.5
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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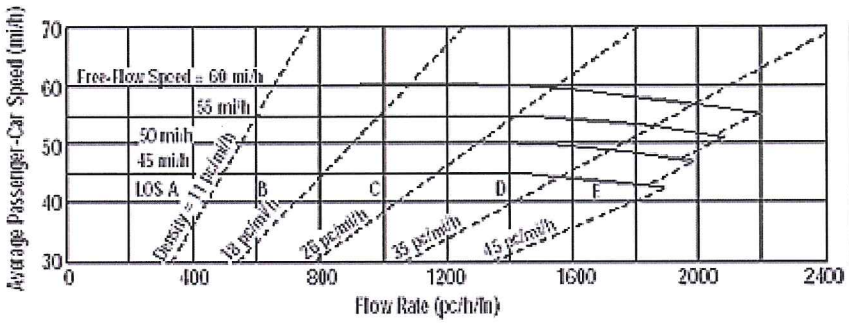
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1042	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	584
Speed, S (mi/h)	46.0
D (pc/mi/ln)	12.7
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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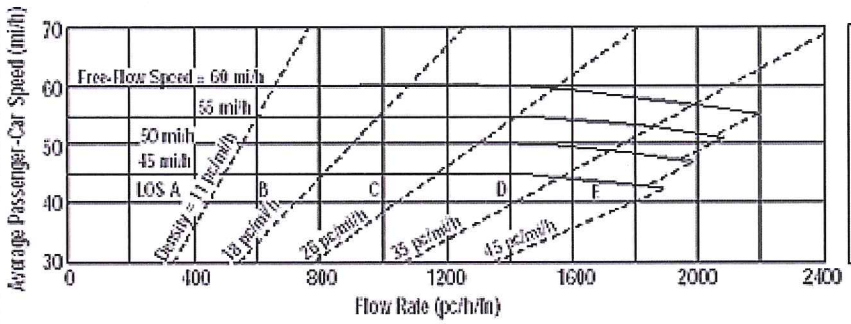
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7//2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	301	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	168
Speed, S (mi/h)	46.8
D (pc/mi/ln)	3.6
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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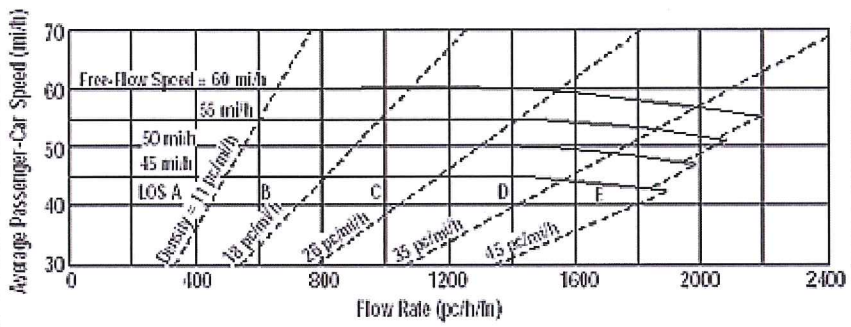
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7//2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	870	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	488
Speed, S (mi/h)	46.8
D (pc/mi/ln)	10.4
LOS	A

Design

Design (N)	
Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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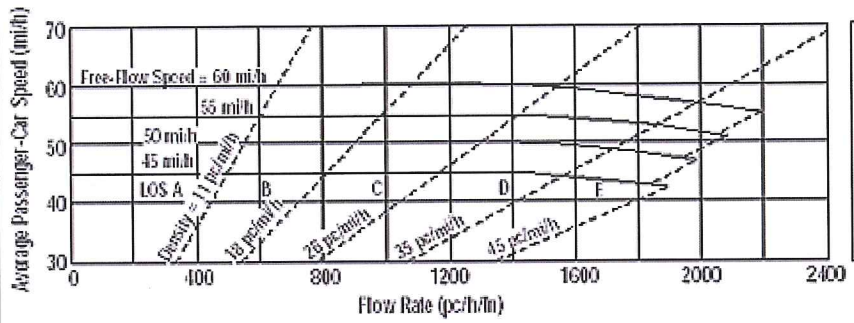
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	325	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	182
Speed, S (mi/h)	48.3
D (pc/mi/ln)	3.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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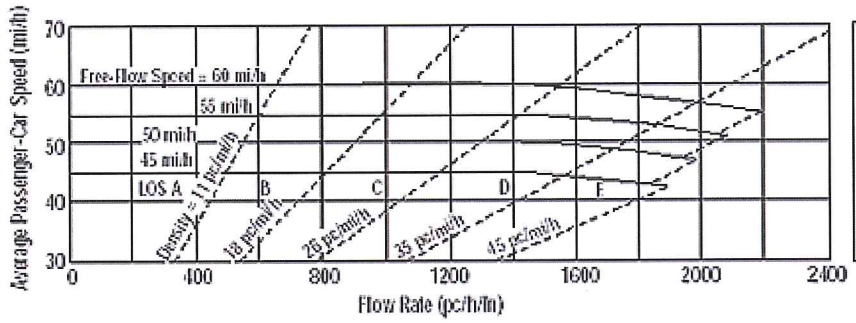
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	657	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	368
Speed, S (mi/h)	48.3
D (pc/mi/ln)	7.6
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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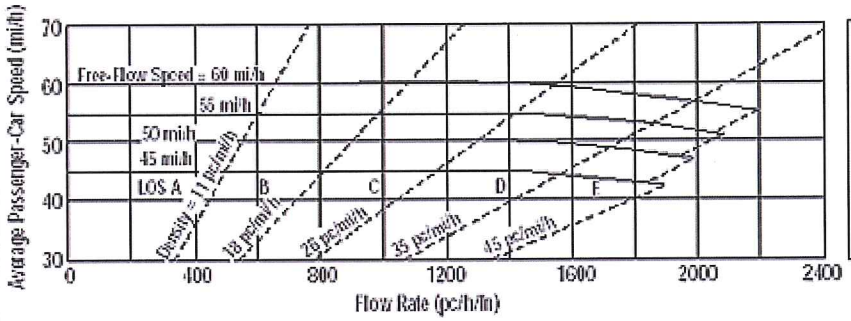
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hollis Rd/West Fork Bridge
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	300	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	168
Speed, S (mi/h)	48.3
D (pc/mi/ln)	3.5
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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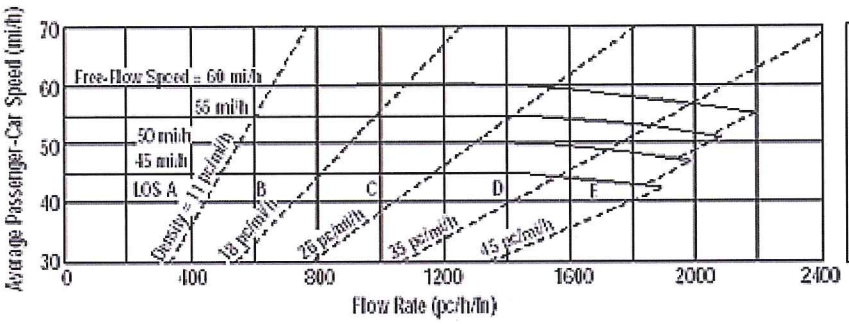
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hollis Rd/West Fork Bridge
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	877	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	492
Speed, S (mi/h)	48.3
D (pc/mi/ln)	10.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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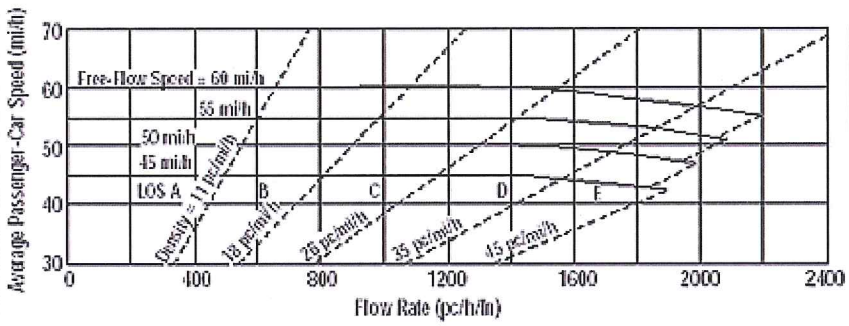
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	West Fork Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	276	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	10
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	2.5
f_M (mi/h)	0.0
FFS (mi/h)	47.5

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	154
Speed, S (mi/h)	47.5
D (pc/mi/ln)	3.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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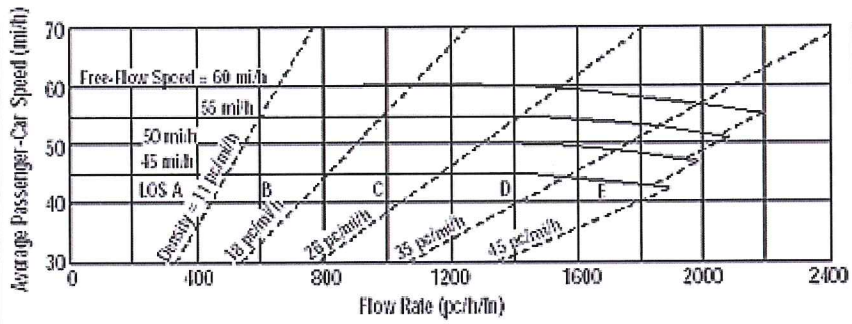
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	West Fork Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	858	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	10
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	2.5
f_M (mi/h)	0.0
FFS (mi/h)	47.5

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	481
Speed, S (mi/h)	47.5
D (pc/mi/ln)	10.1
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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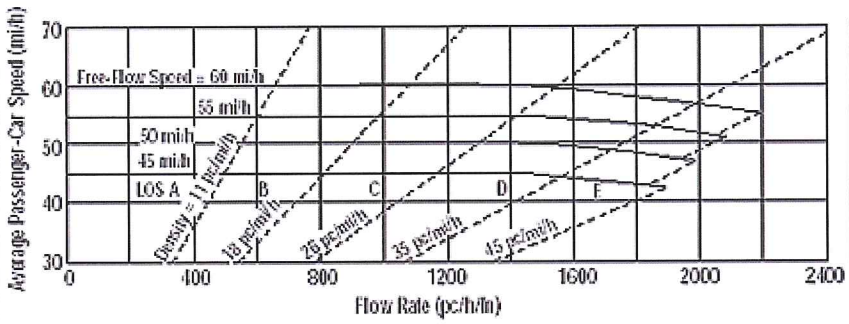
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1276	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	715
Speed, S (mi/h)	45.0
D (pc/mi/ln)	15.9
LOS	B

Design

Design (N)	
Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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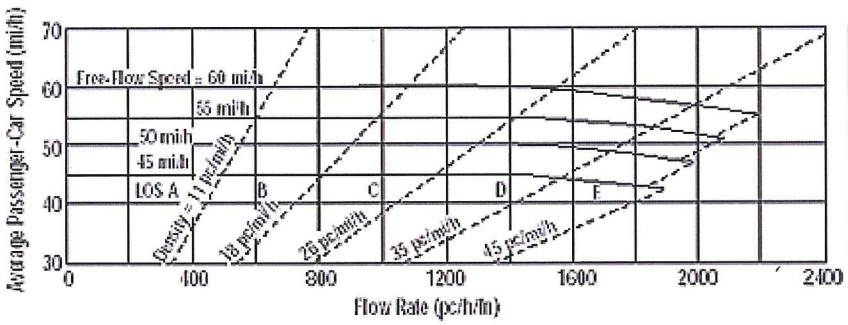
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	900	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	505
Speed, S (mi/h)	45.0
D (pc/mi/ln)	11.2
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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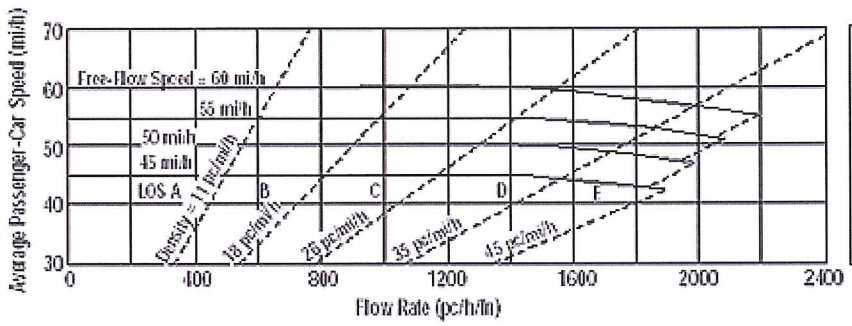
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1290	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	723
Speed, S (mi/h)	45.0
D (pc/mi/ln)	16.1
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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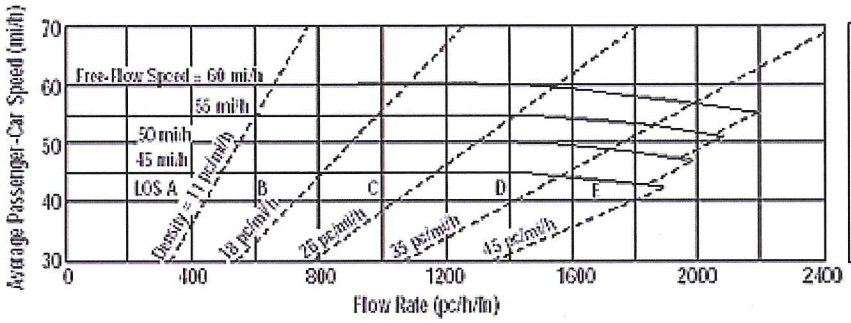
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	559	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	313
Speed, S (mi/h)	45.0
D (pc/mi/ln)	7.0
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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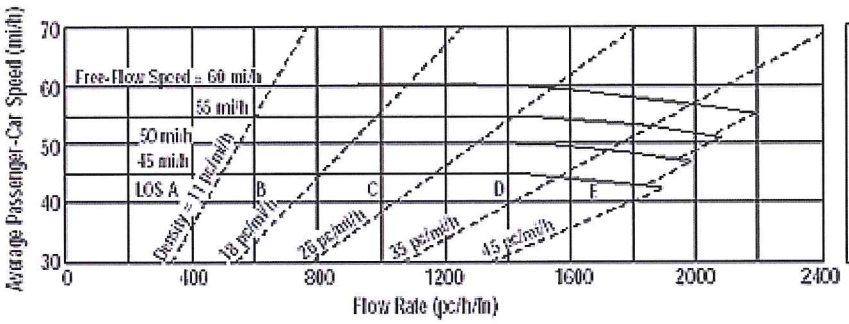
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1258	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	705
Speed, S (mi/h)	46.0
D (pc/mi/ln)	15.3
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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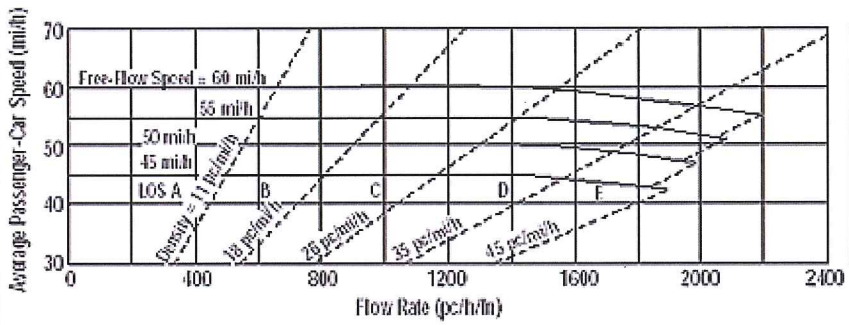
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	622	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	349
Speed, S (mi/h)	46.0
D (pc/mi/ln)	7.6
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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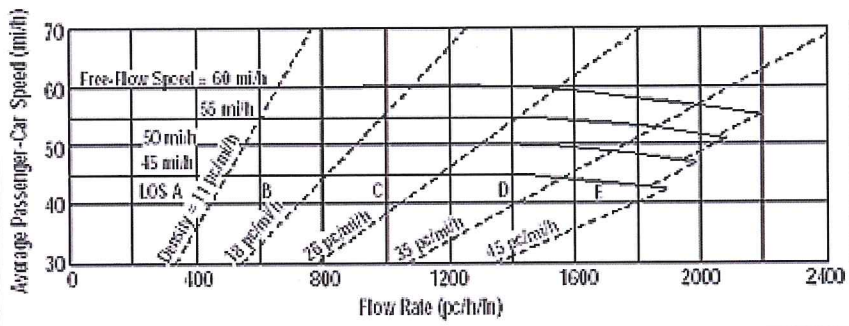
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt b

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1060	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	594
Speed, S (mi/h)	46.8
D (pc/mi/ln)	12.7
LOS	B

Design

Design (N)	
Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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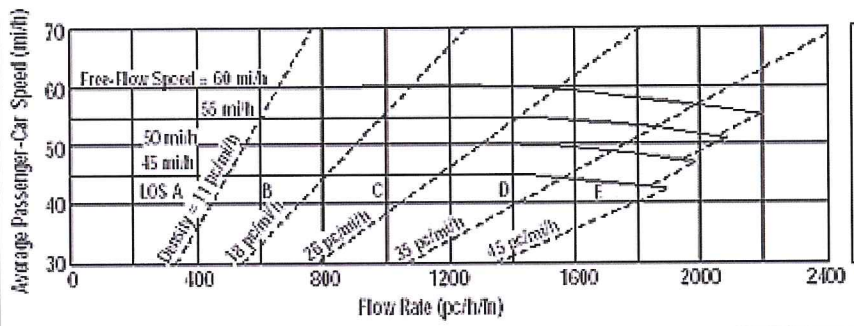
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt b

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	438	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	245
Speed, S (mi/h)	46.8
D (pc/mi/ln)	5.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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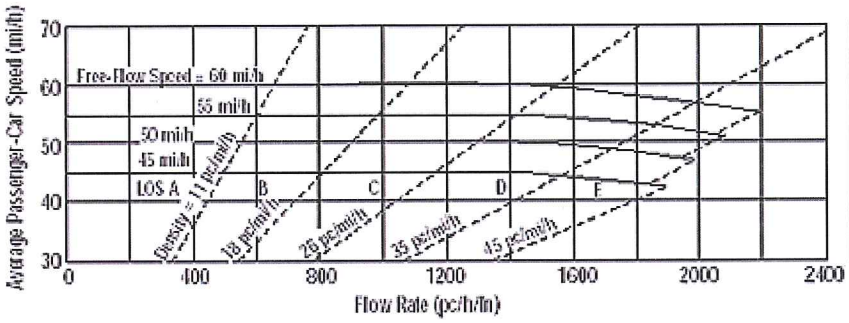
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	835	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	468
Speed, S (mi/h)	48.3
D (pc/mi/ln)	9.7
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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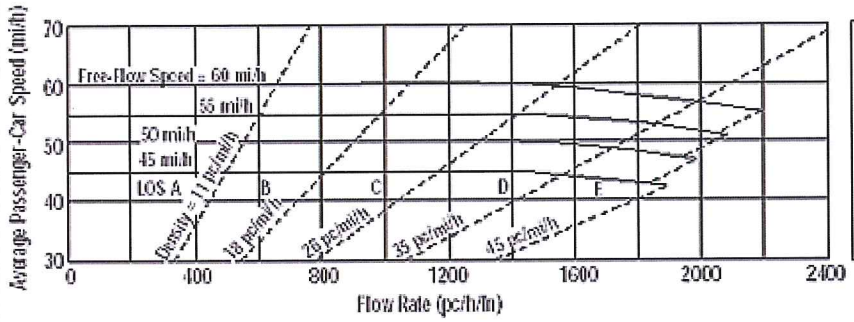
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	342	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	191
Speed, S (mi/h)	48.3
D (pc/mi/ln)	4.0
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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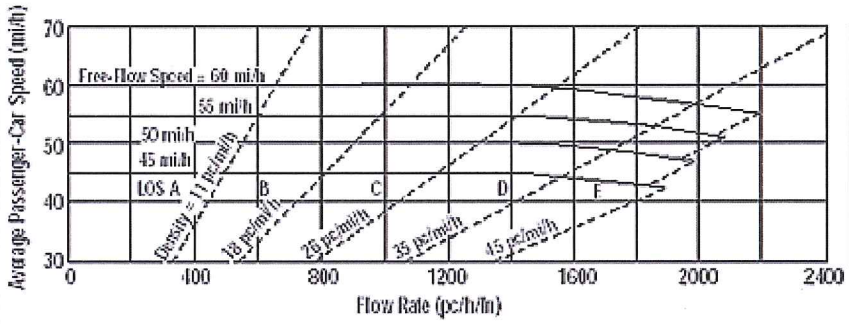
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hollis Rd/West Fork Bridge
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	947	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	17
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	4.3
f_M (mi/h)	0.0
FFS (mi/h)	45.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	531
Speed, S (mi/h)	45.8
D (pc/mi/ln)	11.6
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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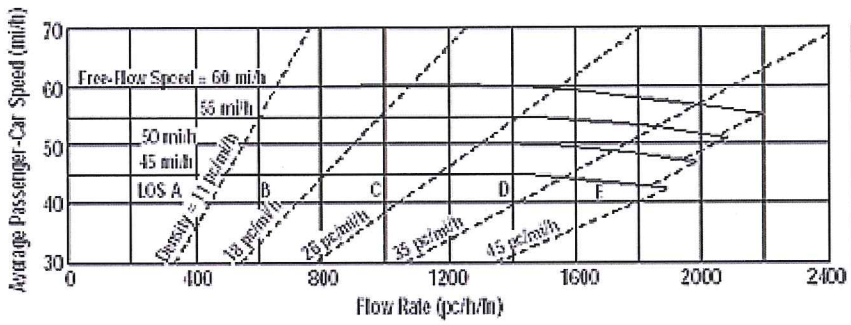
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hollis Rd/West Fork Bridge
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	407	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	17
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	4.3
f_M (mi/h)	0.0
FFS (mi/h)	45.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	228
Speed, S (mi/h)	45.8
D (pc/mi/ln)	5.0
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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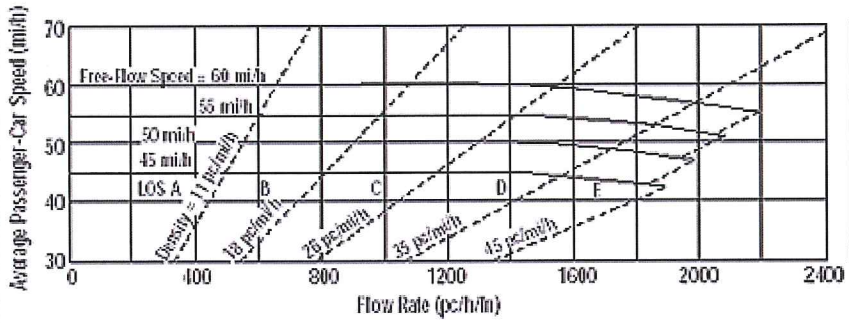
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	West Fork Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	958	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	10
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	2.5
f_M (mi/h)	0.0
FFS (mi/h)	47.5

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	537
Speed, S (mi/h)	47.5
D (pc/mi/ln)	11.3
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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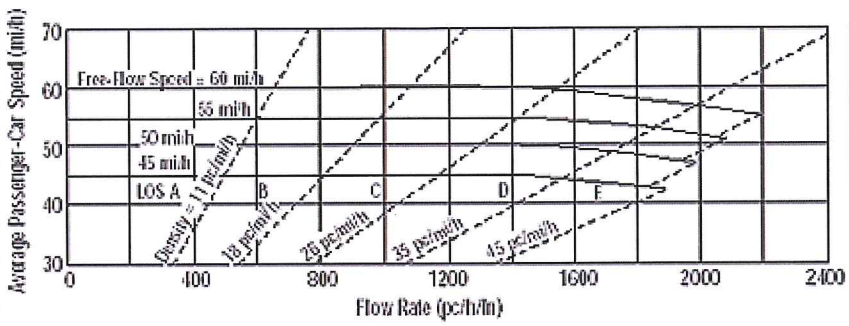
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	West Fork Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	493	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	10
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	2.5
f_M (mi/h)	0.0
FFS (mi/h)	47.5

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	276
Speed, S (mi/h)	47.5
D (pc/mi/ln)	5.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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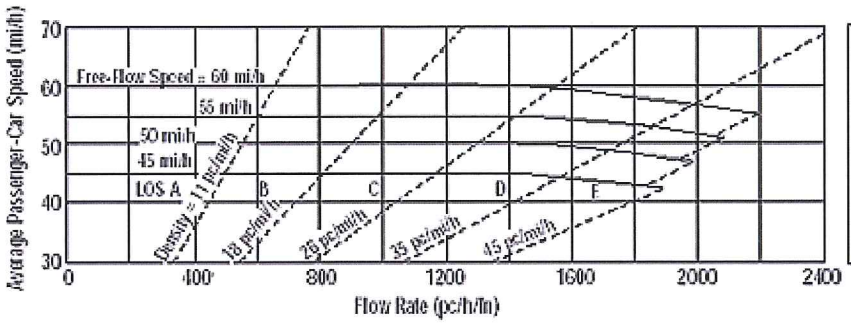
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	493	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	280
Speed, S (mi/h)	45.0
D (pc/mi/ln)	6.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

7/23/13

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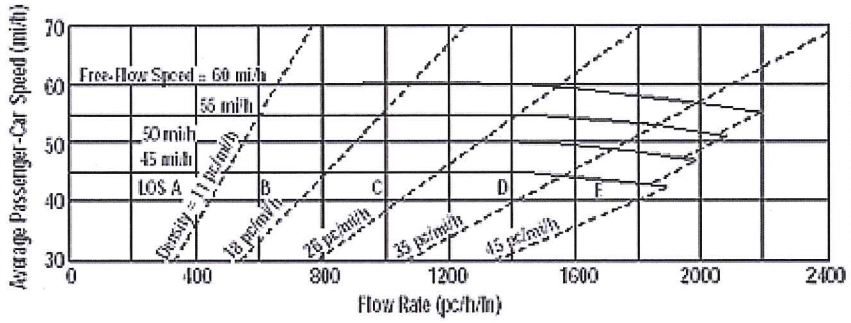
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1239	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	705
Speed, S (mi/h)	45.0
D (pc/mi/ln)	15.7
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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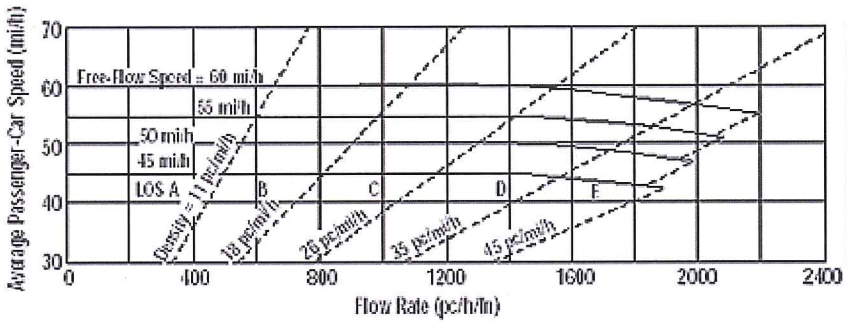
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	489	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	274
Speed, S (mi/h)	45.0
D (pc/mi/ln)	6.1
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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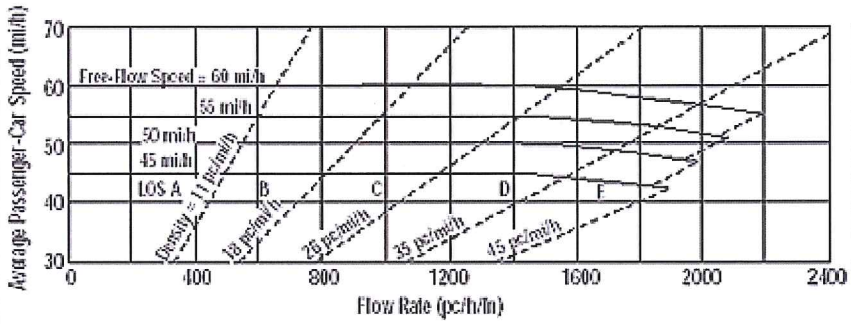
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1196	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	671
Speed, S (mi/h)	45.0
D (pc/mi/ln)	14.9
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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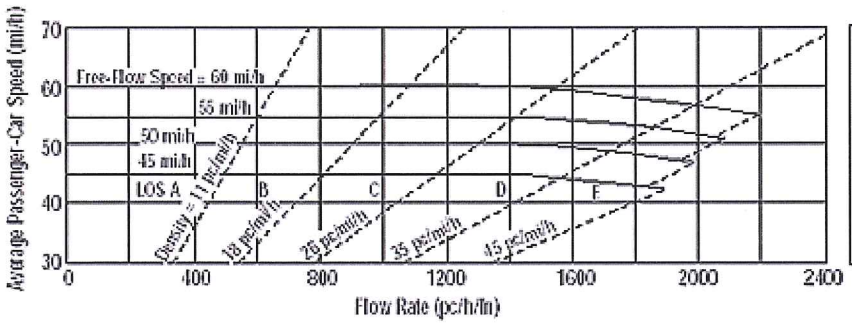
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	607	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	340
Speed, S (mi/h)	46.0
D (pc/mi/ln)	7.4
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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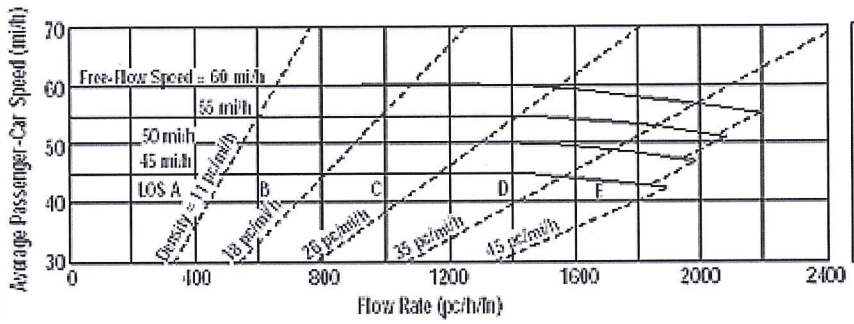
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1219	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	683
Speed, S (mi/h)	46.0
D (pc/mi/ln)	14.8
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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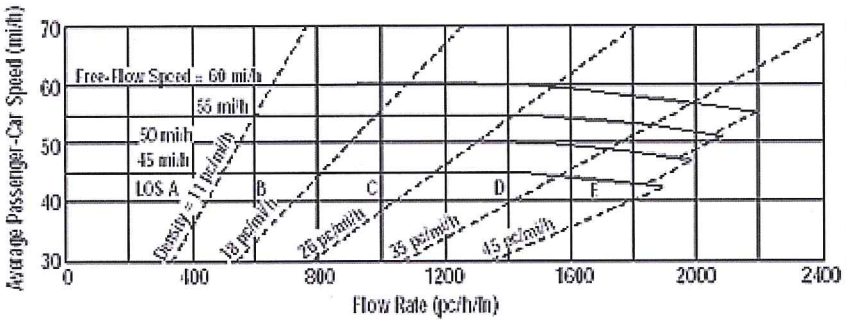
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	601	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	337
Speed, S (mi/h)	46.8
D (pc/mi/ln)	7.2
LOS	A

Design

Design (N)	
Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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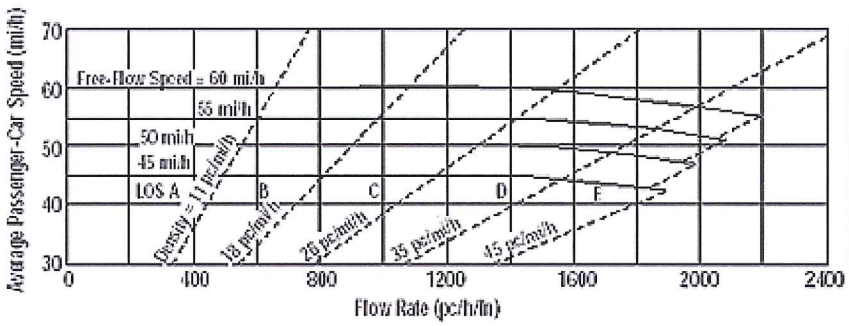
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1272	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	713
Speed, S (mi/h)	46.8
D (pc/mi/ln)	15.3
LOS	B

Design

Design (N)	
Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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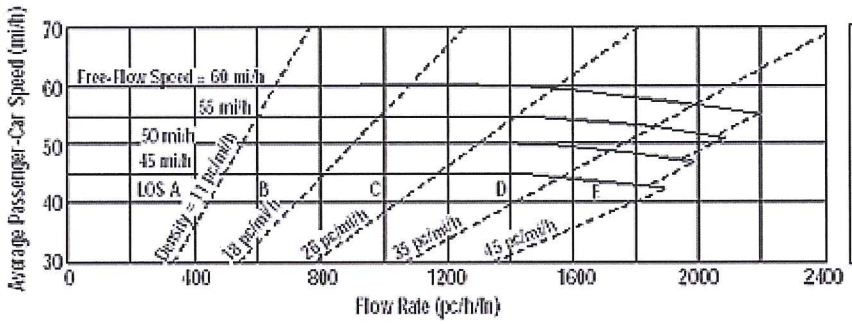
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	354	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	198
Speed, S (mi/h)	48.3
D (pc/mi/ln)	4.1
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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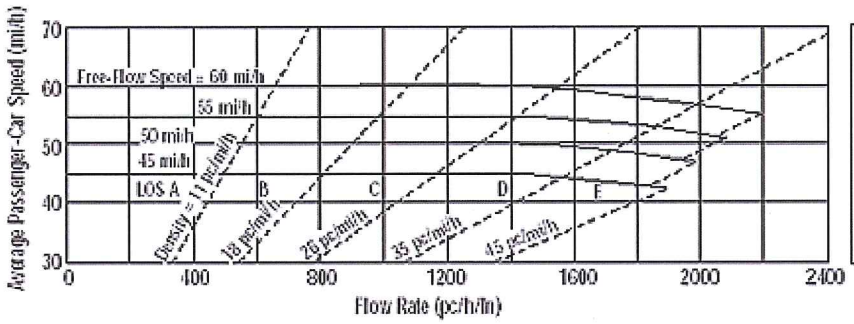
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	820	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	460
Speed, S (mi/h)	48.3
D (pc/mi/ln)	9.5
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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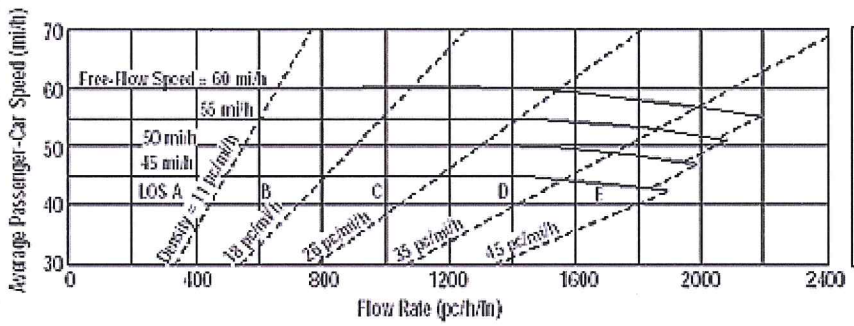
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hollis Rd/Bridge
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	168	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	0.0
f_M (mi/h)	0.0
FFS (mi/h)	50.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	94
Speed, S (mi/h)	50.0
D (pc/mi/ln)	1.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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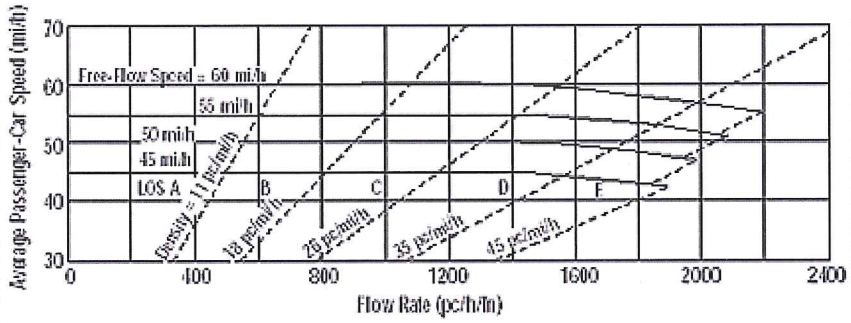
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hollis Rd/Bridge
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	589	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	0.0
f_M (mi/h)	0.0
FFS (mi/h)	50.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	330
Speed, S (mi/h)	50.0
D (pc/mi/ln)	6.6
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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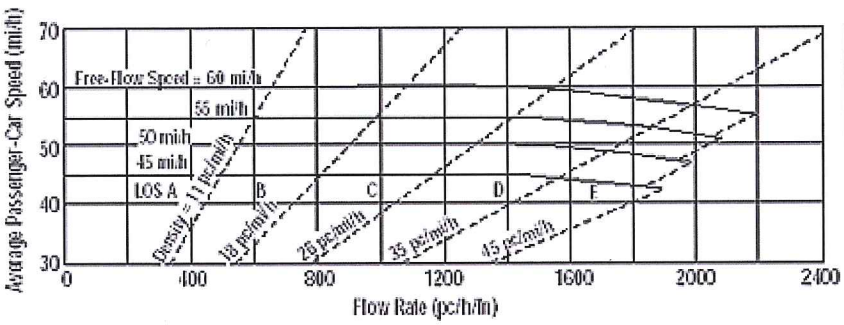
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	605	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	0.0
f_M (mi/h)	0.0
FFS (mi/h)	50.0

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	339
Speed, S (mi/h)	50.0
D (pc/mi/ln)	6.8
LOS	A

Design

Design (N)
Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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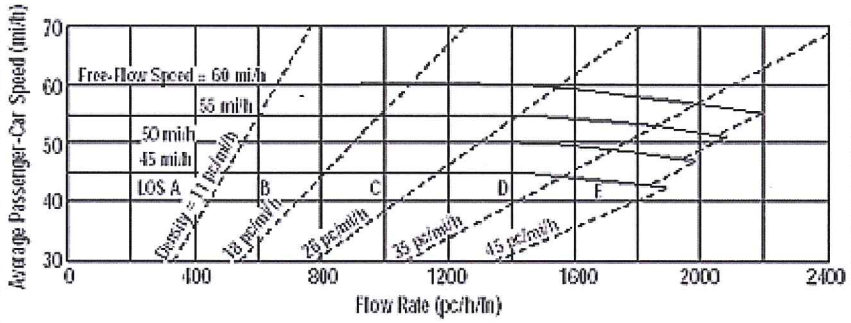
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1026	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	0.0
f_M (mi/h)	0.0
FFS (mi/h)	50.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	575
Speed, S (mi/h)	50.0
D (pc/mi/ln)	11.5
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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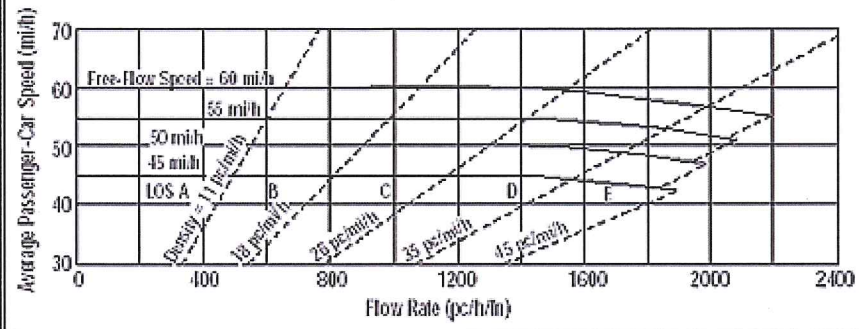
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1276	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	715
Speed, S (mi/h)	45.0
D (pc/mi/ln)	15.9
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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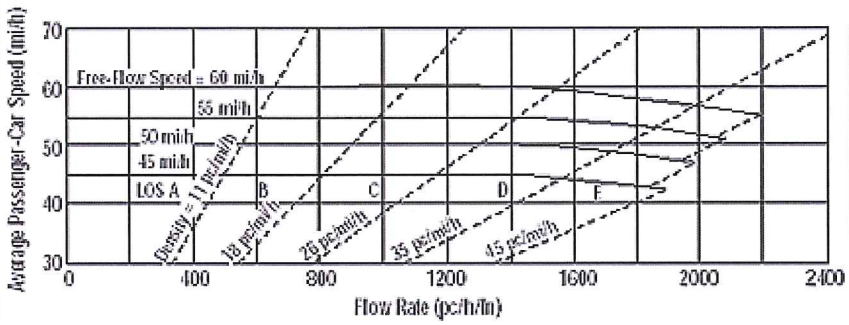
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	900	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	505
Speed, S (mi/h)	45.0
D (pc/mi/ln)	11.2
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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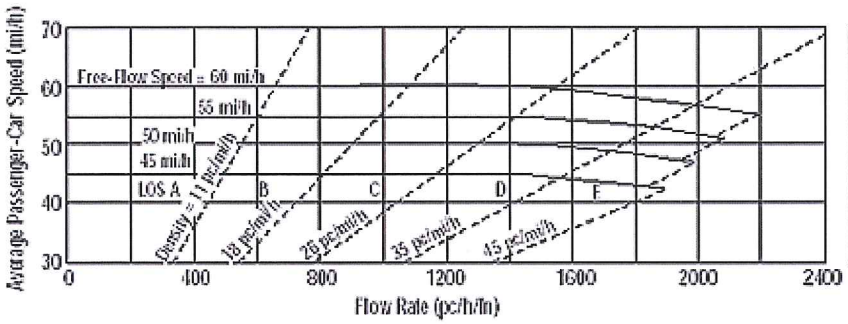
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1504	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	843
Speed, S (mi/h)	45.0
D (pc/mi/ln)	18.7
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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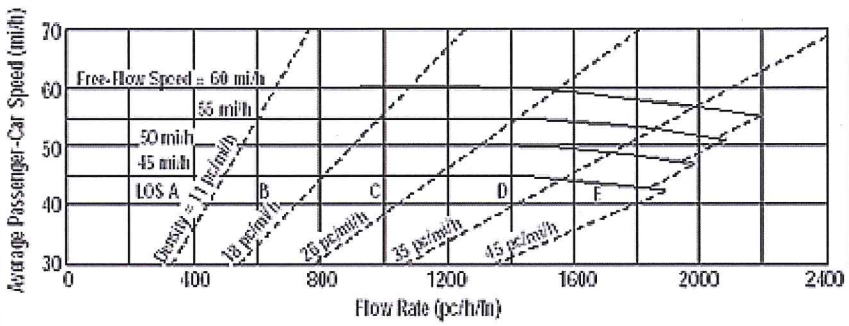
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	805	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	451
Speed, S (mi/h)	45.0
D (pc/mi/ln)	10.0
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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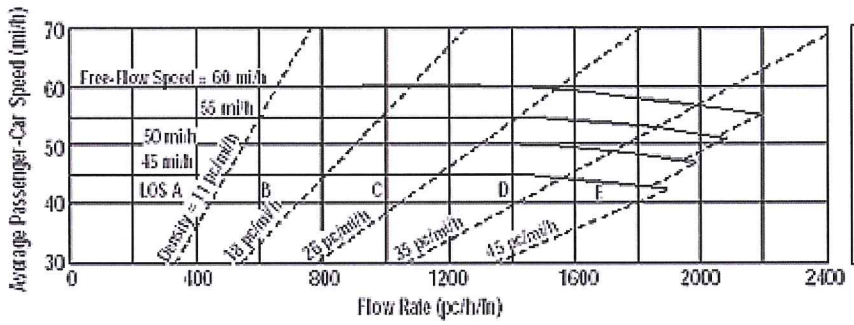
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1493	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	837
Speed, S (mi/h)	46.0
D (pc/mi/ln)	18.2
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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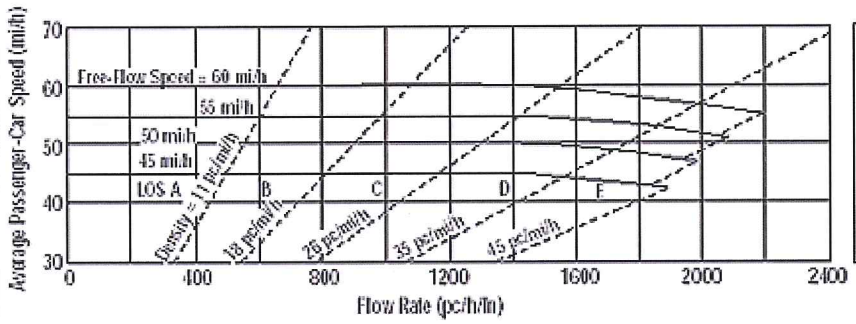
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	757	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	424
Speed, S (mi/h)	46.0
D (pc/mi/ln)	9.2
LOS	A

Design

Design (N)
Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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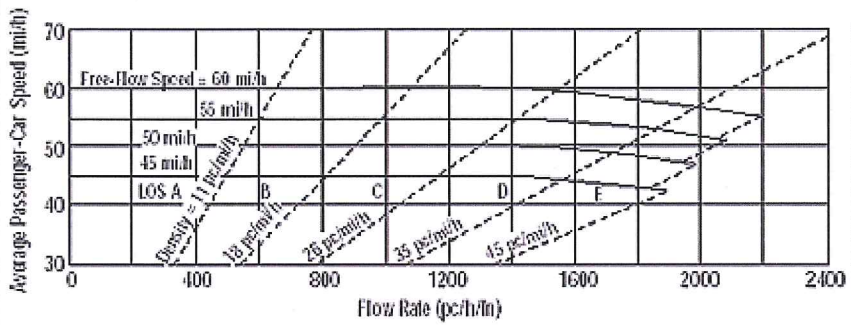
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1384	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	776
Speed, S (mi/h)	46.8
D (pc/mi/ln)	16.6
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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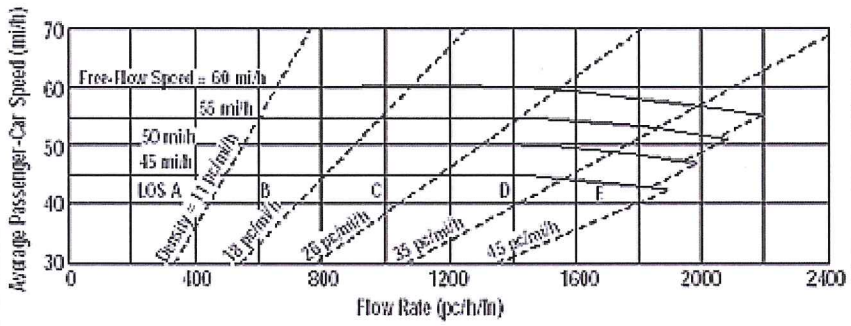
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	738	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	414
Speed, S (mi/h)	46.8
D (pc/mi/ln)	8.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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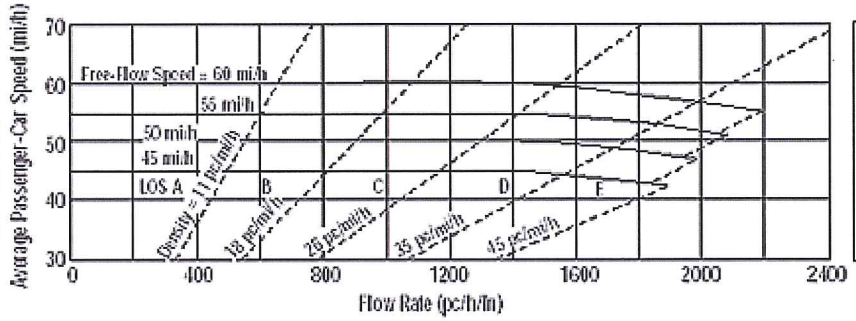
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	853	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	478
Speed, S (mi/h)	48.3
D (pc/mi/ln)	9.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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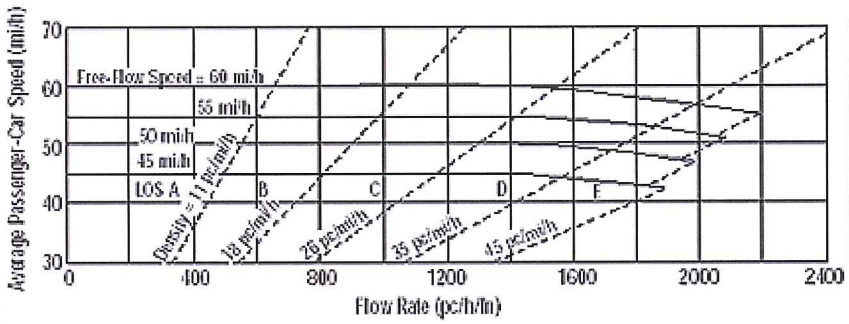
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	410	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	230
Speed, S (mi/h)	48.3
D (pc/mi/ln)	4.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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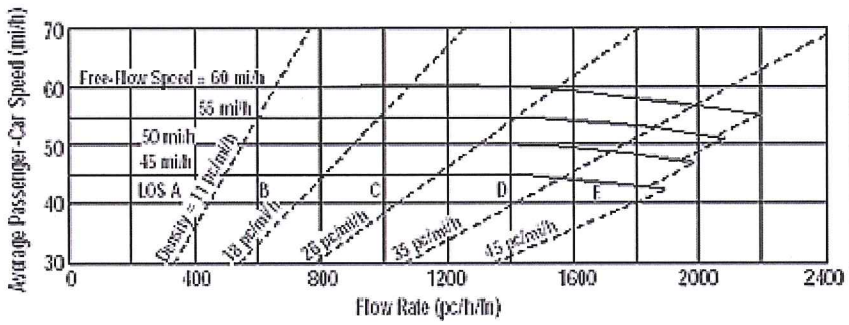
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	HollisRd/Bridge
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	554	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	0.0
f_M (mi/h)	0.0
FFS (mi/h)	50.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	310
Speed, S (mi/h)	50.0
D (pc/mi/ln)	6.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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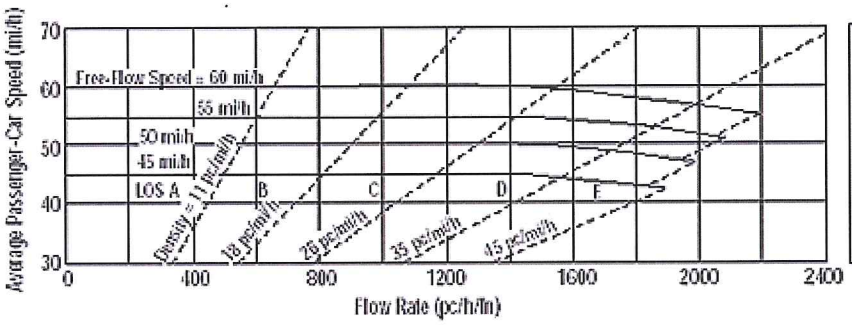
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	HollisRd/Bridge
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	307	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	0.0
f_M (mi/h)	0.0
FFS (mi/h)	50.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	172
Speed, S (mi/h)	50.0
D (pc/mi/ln)	3.4
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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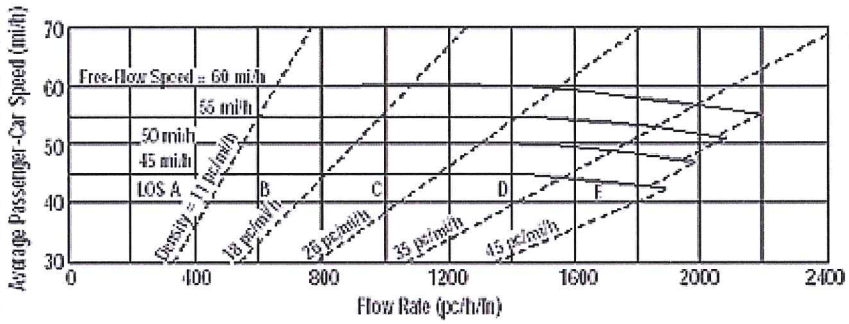
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	844	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	0.0
f_M (mi/h)	0.0
FFS (mi/h)	50.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	473
Speed, S (mi/h)	50.0
D (pc/mi/ln)	9.5
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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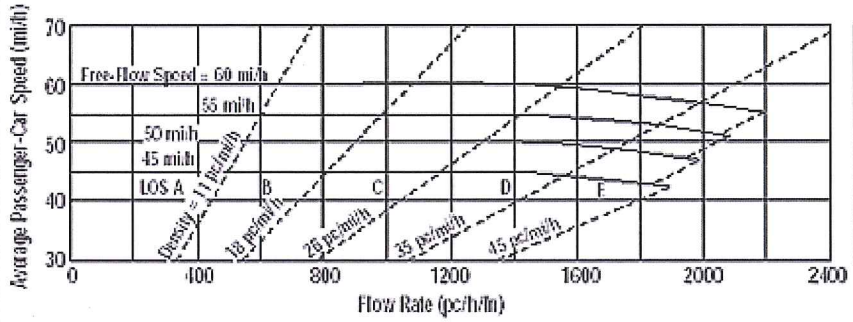
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2013 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	597	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	0.0
f_M (mi/h)	0.0
FFS (mi/h)	50.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	334
Speed, S (mi/h)	50.0
D (pc/mi/ln)	6.7
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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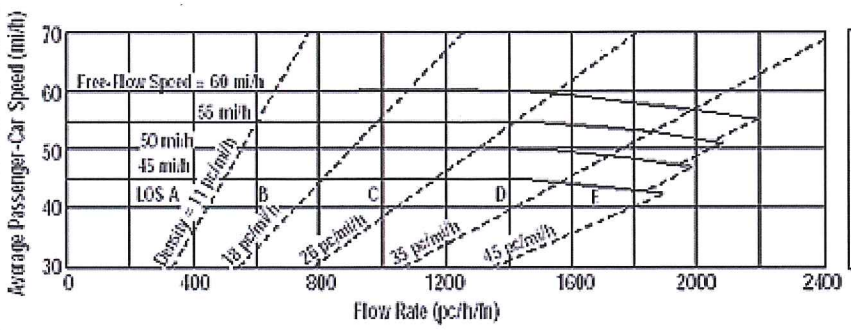
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

AT 7/23/13

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2028 No Build

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	730	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	415
Speed, S (mi/h)	45.0
D (pc/mi/ln)	9.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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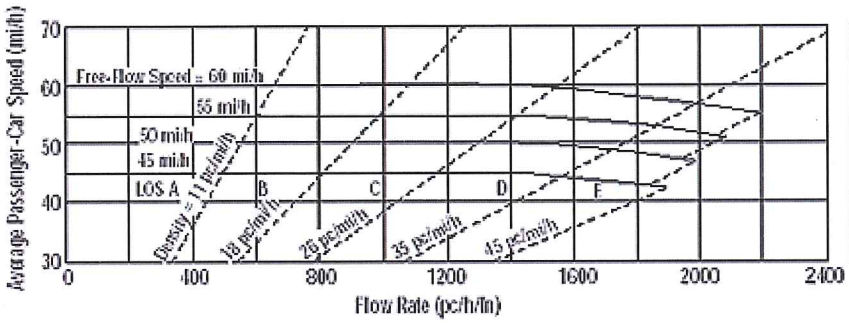
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2028 No Build

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1335	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	760
Speed, S (mi/h)	45.0
D (pc/mi/ln)	16.9
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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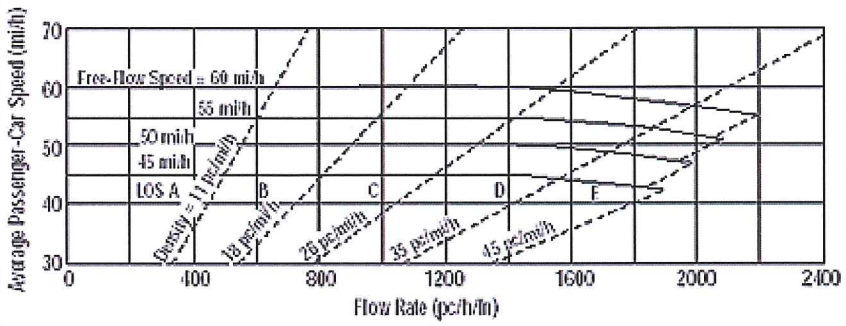
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2028 No Build

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	397	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	222
Speed, S (mi/h)	45.0
D (pc/mi/ln)	4.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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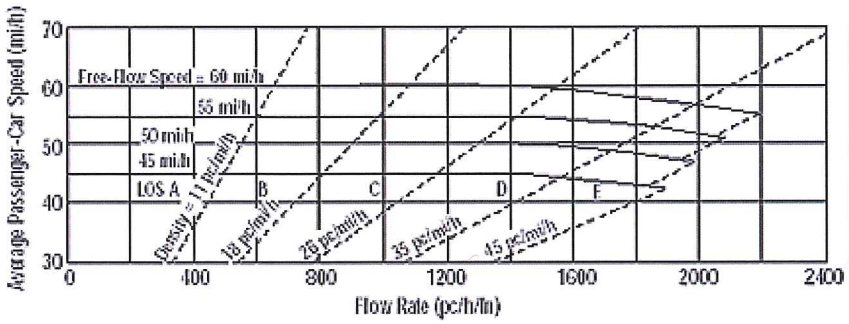
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2028 No Build

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1138	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	638
Speed, S (mi/h)	45.0
D (pc/mi/ln)	14.2
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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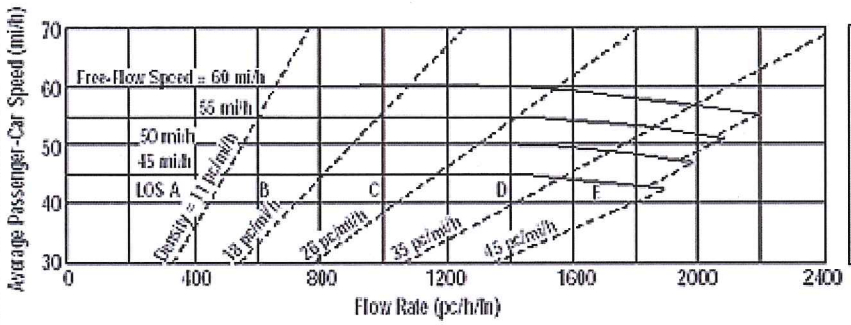
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 No Build

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	395	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	221
Speed, S (mi/h)	46.0
D (pc/mi/ln)	4.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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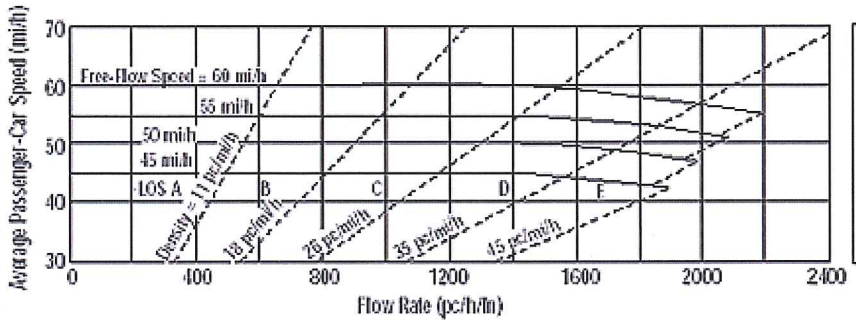
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 No Build

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1135	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	636
Speed, S (mi/h)	46.0
D (pc/mi/ln)	13.8
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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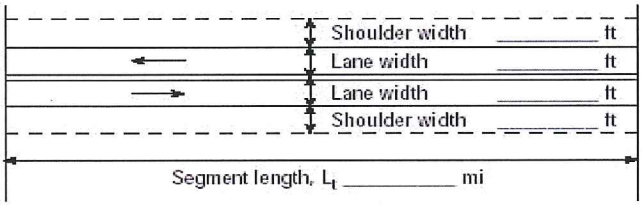
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	ATL	Highway	LA 378
Agency or Company	USI	From/To	John Stine Rd/Hudson Dr
Date Performed	7/18/2013	Jurisdiction	Westlake, LA
Analysis Time Period	AM Peak	Analysis Year	2028 No Build

Project Description: 11-100 LA 378

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1309 veh/h
Directional split	75 / 25
Peak-hour factor, PHF	0.90
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	0%
Access points/ mi	26

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1457
v_p * highest directional split proportion[2] (pc/h)	1093

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	46 mi/h	Base free-flow speed, $BFFS_{FM}$	mi/h
Observed volume, V_f	1309 veh/h	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	mi/h
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	mi/h	Adj. for access points, f_A (Exhibit 20-6)	mi/h
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	56.2 mi/h

Adj. for no-passing zones, f_{np} (mi/h) (Exhibit 20-11)	1.6
Average travel speed, ATS (mi/h) $ATS=FFS-0.00776v_p-f_{np}$	43.2

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1454
v_p * highest directional split proportion[2] (pc/h)	1091
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	72.1
Adj. for directional distribution and no-passing zone, $f_{d/hp}$(%)(Exh. 20-12)	8.5
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	80.7

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, v/c=V_p/ 3,200	0.46
Peak 15-min veh-miles of travel, VMT_{15} (veh- mi)= $0.25L_t$(V/PHF)	291
Peak-hour vehicle-miles of travel, VMT_{60}(veh- mi)=V*L_t	1047
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	6.7

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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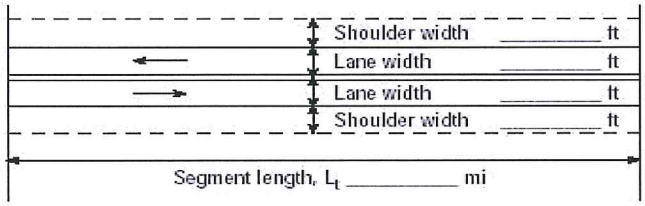
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	ATL	Highway	LA 378
Agency or Company	USI	From/To	Hudson Dr/Hollis Rd
Date Performed	7/18/2013	Jurisdiction	Westlake, LA
Analysis Time Period	AM Peak	Analysis Year	2028 No Build

Project Description: 11-100 LA 378

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	953 veh/h
Directional split	78 / 22
Peak-hour factor, PHF	0.90
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	0%
Access points/ mi	14

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.2
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1063
v_p * highest directional split proportion[2] (pc/h)	829

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	46 mi/h	Base free-flow speed, $BFFS_{FM}$	mi/h
Observed volume, V_f	953 veh/h	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	mi/h
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	mi/h	Adj. for access points, f_A (Exhibit 20-6)	mi/h
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	53.4 mi/h

Adj. for no-passing zones, f_{np} (mi/h) (Exhibit 20-11)	2.4
Average travel speed, ATS (mi/h) $ATS=FFS-0.00776v_p-f_{np}$	42.7

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1061
v_p * highest directional split proportion[2] (pc/h)	828
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	60.6
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	13.4
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	74.0

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	D
Volume to capacity ratio, v/c=V_p/ 3,200	0.33
Peak 15-min veh-miles of travel, VMT_{15} (veh- mi)= $0.25L_t(V/PHF)$	185
Peak-hour vehicle-miles of travel, VMT_{60}(veh- mi)=V*L_t	667
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	4.3

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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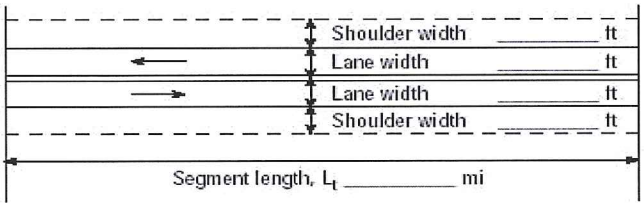
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	ATL	Highway	LA 378
Agency or Company	USI	From/To	Hollis Rd/Davis Rd
Date Performed	7/18/2013	Jurisdiction	Westlake, LA
Analysis Time Period	AM Peak	Analysis Year	2028 No Build

Project Description: 11-100 LA 378

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	894 veh/h
Directional split	78 / 22
Peak-hour factor, PHF	0.90
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	0%
Access points/ mi	40

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.2
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	997
v_p * highest directional split proportion[2] (pc/h)	778

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	46 mi/h	Base free-flow speed, $BFFS_{FM}$	mi/h
Observed volume, V_f	894 veh/h	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	mi/h
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	mi/h	Adj. for access points, f_A (Exhibit 20-6)	mi/h
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	53.0 mi/h

Adj. for no-passing zones, f_{np} (mi/h) (Exhibit 20-11)	2.6
Average travel speed, ATS (mi/h) $ATS=FFS-0.00776v_p-f_{np}$	42.6

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	995
v_p * highest directional split proportion[2] (pc/h)	776
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	58.3
Adj. for directional distribution and no-passing zone, $f_{d/hp}$(%)(Exh. 20-12)	14.2
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	72.5

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	D
Volume to capacity ratio, v/c=V_p/ 3,200	0.31
Peak 15-min veh-miles of travel, VMT_{15} (veh- mi)= $0.25L_t(V/PHF)$	124
Peak-hour vehicle-miles of travel, VMT_{60}(veh- mi)=$V*L_t$	447
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	2.9

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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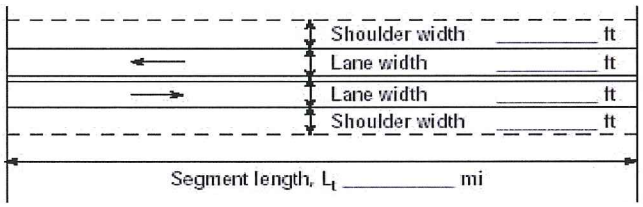
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	ATL	Highway	LA 378
Agency or Company	USI	From/To	Phillips Rd/West Fork Bridge
Date Performed	7/18/2013	Jurisdiction	Westlake, LA
Analysis Time Period	AM Peak	Analysis Year	2028 No Build

Project Description: 11-100 LA 378

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1371 veh/h
Directional split	76 / 24
Peak-hour factor, PHF	0.90
No-passing zone	72
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	0%
Access points/ *mi*	33

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1526
v_p * highest directional split proportion[2] (pc/h)	1160

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	56 *mi/h*	Base free-flow speed, $BFFS_{FM}$	*mi/h*
Observed volume, V_f	1371 *veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	66.7 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	1.3
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	53.6

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1523
v_p * highest directional split proportion[2] (pc/h)	1157
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	73.8
Adj. for directional distribution and no-passing zone, $f_{d/hp}$(%)(Exh. 20-12)	7.6
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	81.4

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, $v/c=V_p/3{,}200$	0.48
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	305
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=$V*L_t$	1097
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	5.7

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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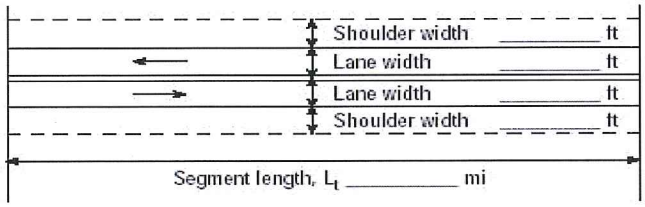
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	ATL	Highway	LA 378
Agency or Company	USI	From/To	West Fork Bridge/Sam Houston
Date Performed	7/18/2013	Jurisdiction	Westlake, LA
Analysis Time Period	AM Peak	Analysis Year	2028 No Build

Project Description: 11-100 LA 378

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1356 veh/h
Directional split	76 / 24
Peak-hour factor, PHF	0.90
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	0%
Access points/ mi	19

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1510
v_p * highest directional split proportion[2] (pc/h)	1148

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	56 mi/h	Base free-flow speed, $BFFS_{FM}$	mi/h
Observed volume, V_f	1356 veh/h	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	mi/h
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	mi/h	Adj. for access points, f_A (Exhibit 20-6)	mi/h
		Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$	66.5 mi/h

Adj. for no-passing zones, f_{np} (mi/h) (Exhibit 20-11)	1.6
Average travel speed, ATS (mi/h) $ATS=FFS-0.00776v_p-f_{np}$	53.2

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1507
v_p * highest directional split proportion[2] (pc/h)	1145
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	73.4
Adj. for directional distribution and no-passing zone, $f_{d/hp}$(%)(Exh. 20-12)	8.2
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	81.6

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, $v/c=V_p/3{,}200$	0.47
Peak 15-min veh-miles of travel, VMT_{15} (veh- mi)= $0.25L_t(V/PHF)$	151
Peak-hour vehicle-miles of travel, VMT_{60}(veh- mi)=$V*L_t$	542
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	2.8

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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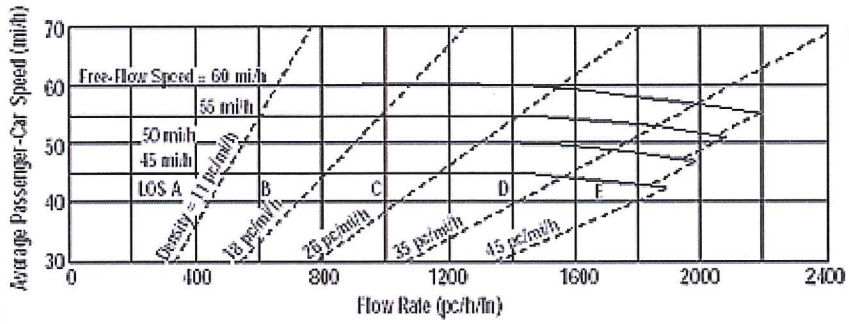
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/13
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2028 No Build

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1399	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	784
Speed, S (mi/h)	45.0
D (pc/mi/ln)	17.4
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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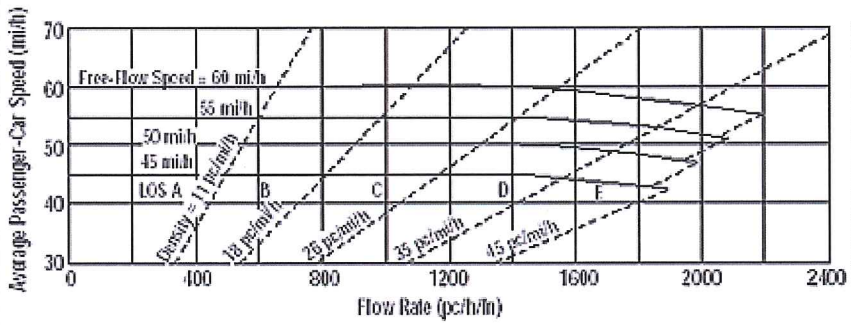
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/13
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2028 No Build

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1158	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	649
Speed, S (mi/h)	45.0
D (pc/mi/ln)	14.4
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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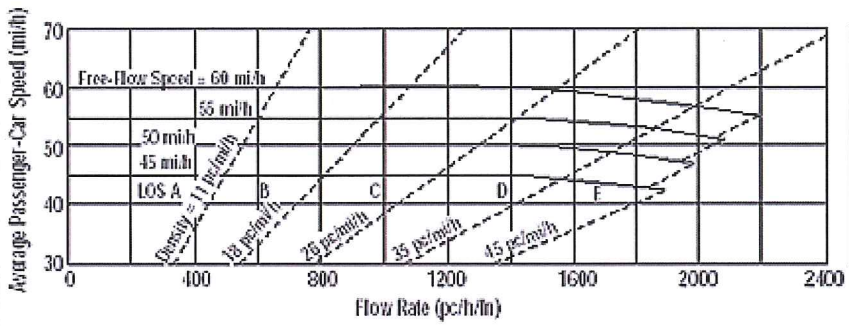
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2028 No Build

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1371	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	769
Speed, S (mi/h)	45.0
D (pc/mi/ln)	17.1
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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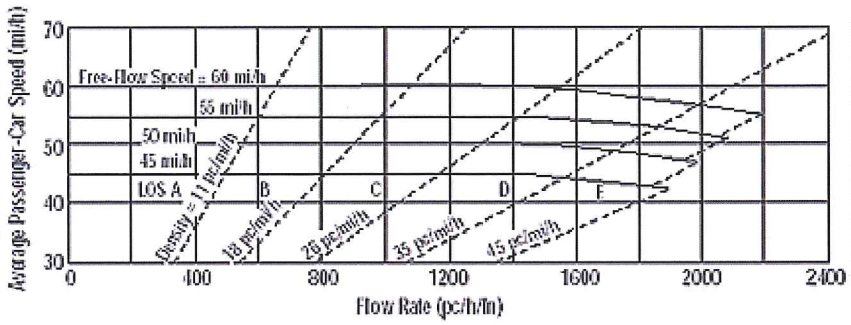
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2028 No Build

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	643	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	360
Speed, S (mi/h)	45.0
D (pc/mi/ln)	8.0
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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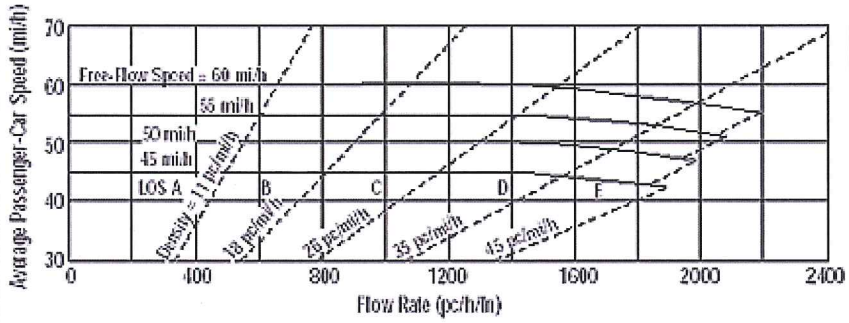
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 No Build

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1441	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	808
Speed, S (mi/h)	46.0
D (pc/mi/ln)	17.6
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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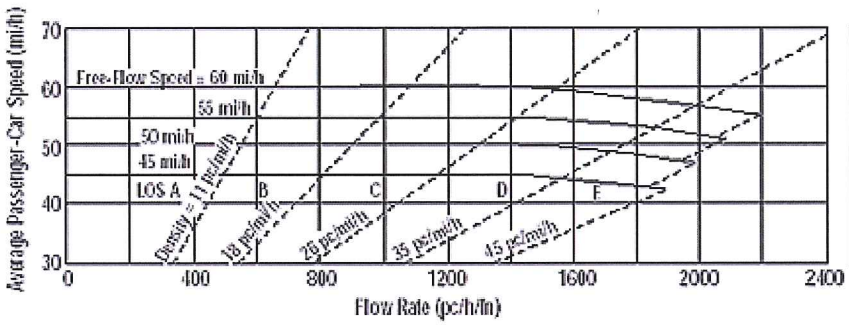
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 No Build

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	562	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	315
Speed, S (mi/h)	46.0
D (pc/mi/ln)	6.8
LOS	A

Design

Design (N)	
Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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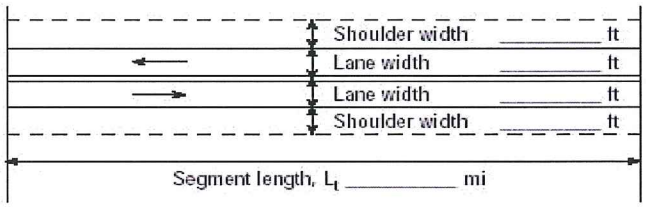
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	ATL	Highway	LA 378
Agency or Company	USI	From/To	John Stine Rd/Hudson Dr
Date Performed	7/18/2013	Jurisdiction	Westlake, LA
Analysis Time Period	PM Peak	Analysis Year	2028 No Build

Project Description: 11-100 LA 378

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1652 veh/h
Directional split	73 / 27
Peak-hour factor, PHF	0.90
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	0%
Access points/ *mi*	26

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1839
v_p * highest directional split proportion[2] (pc/h)	1342

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	46 *mi/h*	Base free-flow speed, $BFFS_{FM}$	*mi/h*
Observed volume, V_f	1400 *veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	56.9 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	1.3
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	41.4

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1836
v_p * highest directional split proportion[2] (pc/h)	1340
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	80.1
Adj. for directional distribution and no-passing zone, $f_{d/hp}$(%)(Exh. 20-12)	5.6
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	85.7

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, $v/c=V_p/3{,}200$	0.57
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	367
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V^*L_t	1322
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	8.9

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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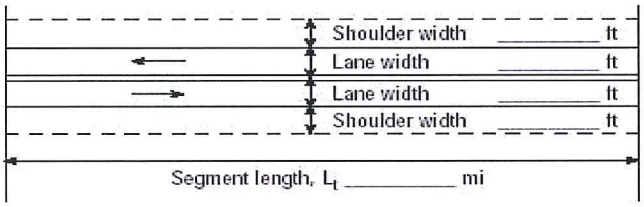
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	ATL	Highway	LA 378
Agency or Company	USI	From/To	Hudson Dr/Hollis Rd
Date Performed	7/18/2013	Jurisdiction	Westlake, LA
Analysis Time Period	PM Peak	Analysis Year	2028 No Build

Project Description: 11-100 LA 378

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1257 veh/h
Directional split	71 / 29
Peak-hour factor, PHF	0.90
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	0%
Access points/ *mi*	14

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1399
v_p * highest directional split proportion[2] (pc/h)	993

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	46 *mi/h*	Base free-flow speed, $BFFS_{FM}$	*mi/h*
Observed volume, V_f	1257 *veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	55.8 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	1.7
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	43.2

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1397
v_p * highest directional split proportion[2] (pc/h)	992
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	70.7
Adj. for directional distribution and no-passing zone, $f_{d/hp}$(%)(Exh. 20-12)	8.5
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	79.2

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	D
Volume to capacity ratio, v/c=V_p/ 3,200	0.44
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t$(V/PHF)	244
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	880
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	5.6

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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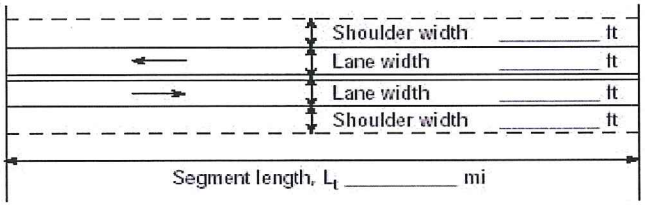
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*ATL*	Highway	*LA 378*
Agency or Company	*USI*	From/To	*Hollis Rd/Davis Rd*
Date Performed	*7/18/2013*	Jurisdiction	*Westlake, LA*
Analysis Time Period	*PM Peak*	Analysis Year	*2028 No Build*

Project Description: *11-100 LA 378*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*995 veh/h*
Directional split	*68 / 32*
Peak-hour factor, PHF	*0.90*
No-passing zone	*100*
% Trucks and Buses , P_T	*2 %*
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*40*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.2*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T$-1)+$P_R(E_R$-1))	*0.996*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1110*
v_p * highest directional split proportion[2] (pc/h)	*755*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*46 mi/h*	Base free-flow speed, $BFFS_{FM}$	*mi/h*
Observed volume, V_f	*995 veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*53.8 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*2.3*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*42.8*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T$-1)+$P_R(E_R$-1))	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1108*
v_p * highest directional split proportion[2] (pc/h)	*753*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*62.2*
Adj. for directional distribution and no-passing zone, $f_{d/hp}$(%)(Exh. 20-12)	*11.3*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*73.6*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*D*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.35*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*138*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*498*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*3.2*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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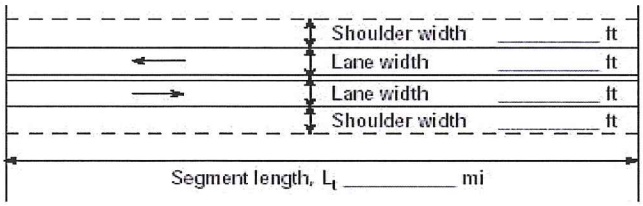
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	ATL	Highway	LA 378
Agency or Company	USI	From/To	Phillips Rd/West Fork Bridge
Date Performed	7/18/2013	Jurisdiction	Westlake, LA
Analysis Time Period	PM Peak	Analysis Year	2028 No Build

Project Description: 11-100 LA 378

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1591 veh/h
Directional split	70 / 30
Peak-hour factor, PHF	0.90
No-passing zone	72
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	0%
Access points/ mi	33

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1771
v_p * highest directional split proportion[2] (pc/h)	1240

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	56 mi/h	Base free-flow speed, $BFFS_{FM}$	mi/h
Observed volume, V_f	1400 veh/h	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	mi/h
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	mi/h	Adj. for access points, f_A (Exhibit 20-6)	mi/h
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	66.9 mi/h

Adj. for no-passing zones, f_{np} (mi/h) (Exhibit 20-11)	1.1
Average travel speed, ATS (mi/h) $ATS=FFS-0.00776v_p-f_{np}$	52.1

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1768
v_p * highest directional split proportion[2] (pc/h)	1238
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	78.9
Adj. for directional distribution and no-passing zone, $f_{d/hp}$(%)(Exh. 20-12)	5.3
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	84.1

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, v/c=V_p/ 3,200	0.55
Peak 15-min veh-miles of travel, VMT_{15} (veh- mi)= $0.25L_t$(V/PHF)	354
Peak-hour vehicle-miles of travel, VMT_{60}(veh- mi)=V*L_t	1273
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	6.8

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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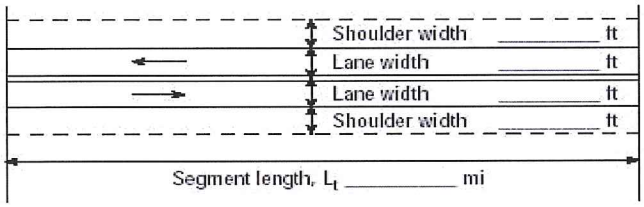
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	ATL	Highway	LA 378
Agency or Company	USI	From/To	West Fork Bridge/Sam Houston
Date Performed	7/18/2013	Jurisdiction	Westlake, LA
Analysis Time Period	PM Peak	Analysis Year	2028 No Build

Project Description: 11-100 LA 378

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1720 veh/h
Directional split	67 / 33
Peak-hour factor, PHF	0.90
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	0%
Access points/ mi	19

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1915
v_p * highest directional split proportion[2] (pc/h)	1283

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	56 mi/h	Base free-flow speed, $BFFS_{FM}$	mi/h
Observed volume, V_f	1400 veh/h	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	mi/h
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	mi/h	Adj. for access points, f_A (Exhibit 20-6)	mi/h
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	66.9 mi/h

Adj. for no-passing zones, f_{np} (mi/h) (Exhibit 20-11)	1.2
Average travel speed, ATS (mi/h) $ATS=FFS-0.00776v_p-f_{np}$	50.8

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1911
v_p * highest directional split proportion[2] (pc/h)	1280
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	81.4
Adj. for directional distribution and no-passing zone, $f_{d/hp}$(%)(Exh. 20-12)	4.8
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	86.2

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, $v/c=V_p/3{,}200$	0.60
Peak 15-min veh-miles of travel, VMT_{15} (veh- mi)= $0.25L_t(V/PHF)$	191
Peak-hour vehicle-miles of travel, VMT_{60}(veh- mi)=$V*L_t$	688
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	3.8

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split Vp>= 1,700 pc/h, terminated anlysis-the LOS is F.

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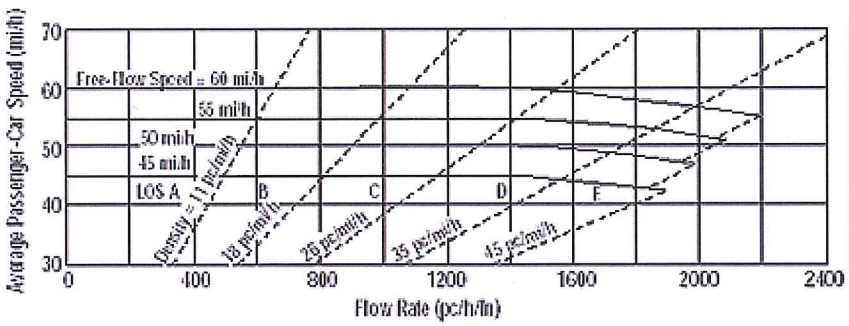
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	730	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	415
Speed, S (mi/h)	45.0
D (pc/mi/ln)	9.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

7/23/13

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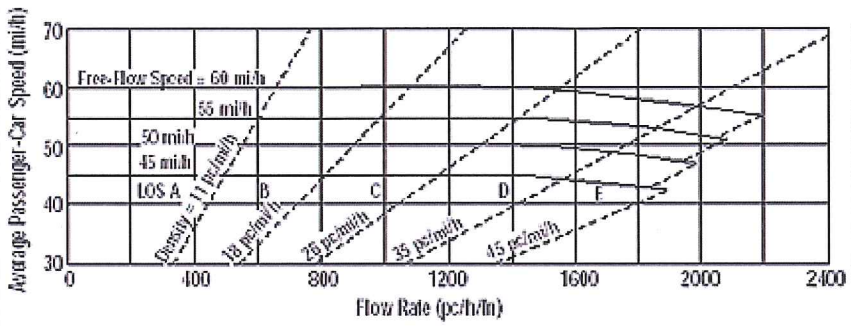
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1335	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	760
Speed, S (mi/h)	45.0
D (pc/mi/ln)	16.9
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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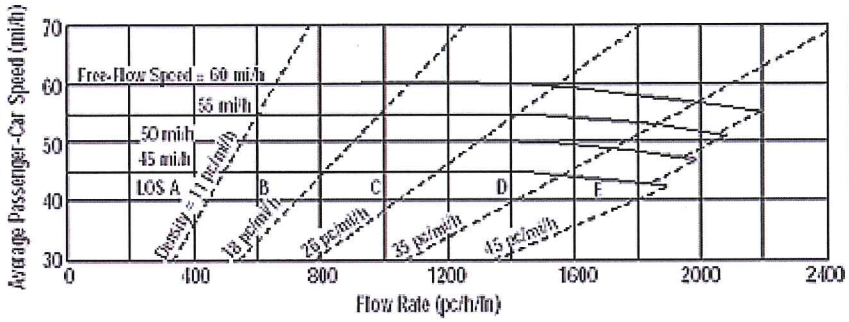
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	397	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	222
Speed, S (mi/h)	45.0
D (pc/mi/ln)	4.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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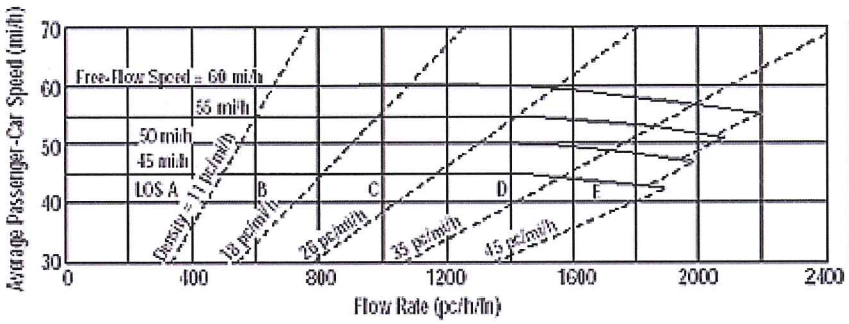
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1138	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	638
Speed, S (mi/h)	45.0
D (pc/mi/ln)	14.2
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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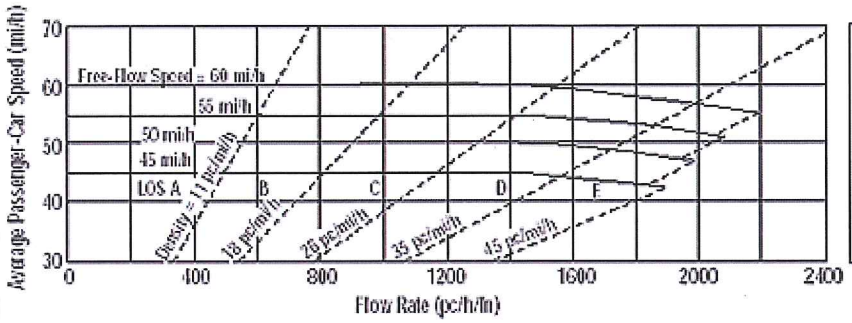
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	395	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	221
Speed, S (mi/h)	46.0
D (pc/mi/ln)	4.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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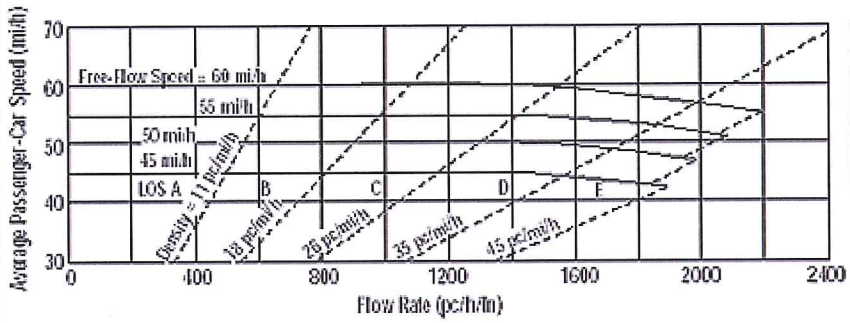
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1135	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	636
Speed, S (mi/h)	46.0
D (pc/mi/ln)	13.8
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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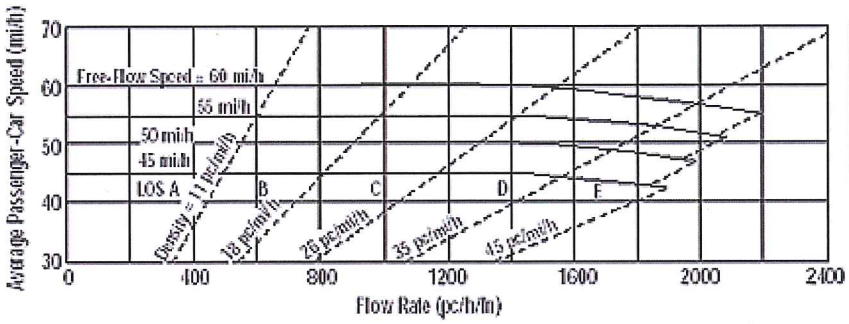
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	327	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	183
Speed, S (mi/h)	46.8
D (pc/mi/ln)	3.9
LOS	A

Design

Design (N)
Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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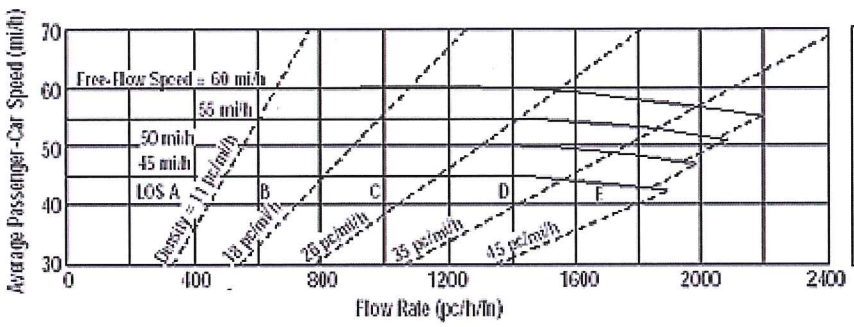
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	982	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	551
Speed, S (mi/h)	46.8
D (pc/mi/ln)	11.8
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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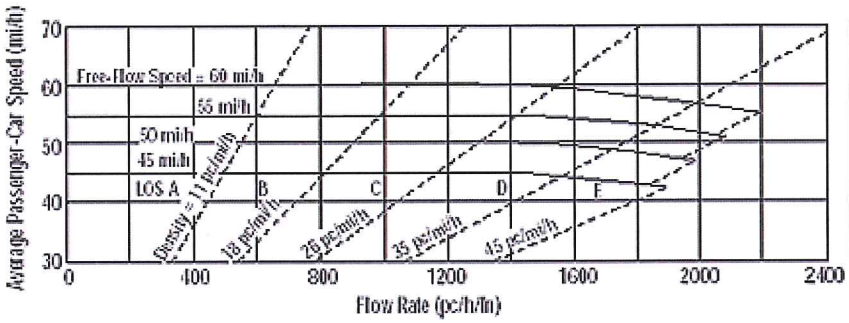
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	440	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	246
Speed, S (mi/h)	48.3
D (pc/mi/ln)	5.1
LOS	A

Design

Design (N)
Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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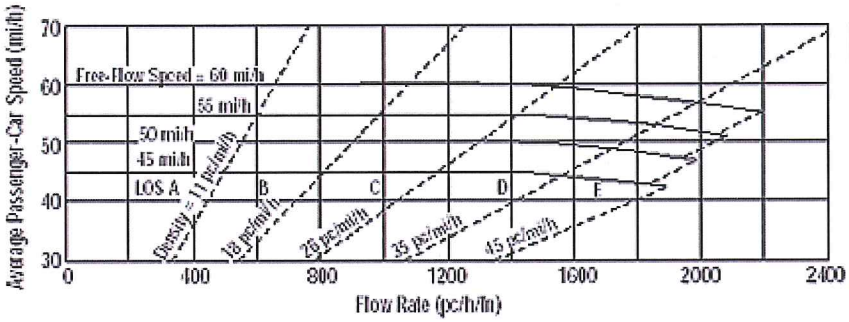
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	921	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	516
Speed, S (mi/h)	48.3
D (pc/mi/ln)	10.7
LOS	A

Design

Design (N)	
Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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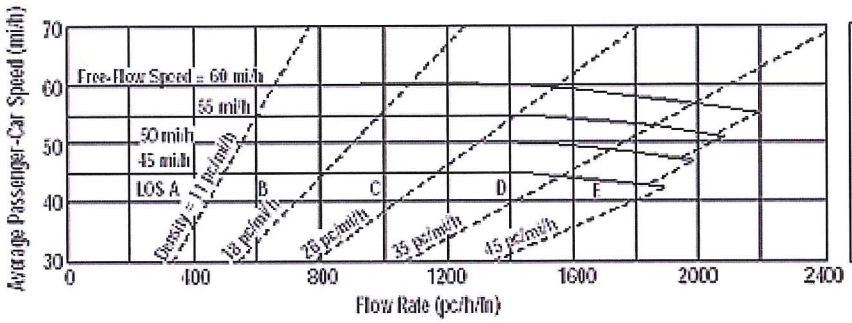
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hollis Rd/Davis Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - EB, Dir2 - WB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	307	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	20
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	5.0
f_M (mi/h)	0.0
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	172
Speed, S (mi/h)	45.0
D (pc/mi/ln)	3.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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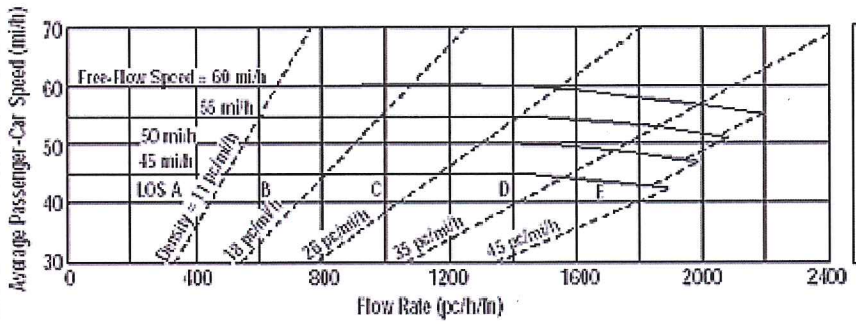
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hollis Rd/Davis Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - EB, Dir2 - WB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	817	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	20
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	5.0
f_M (mi/h)	0.0
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	458
Speed, S (mi/h)	45.0
D (pc/mi/ln)	10.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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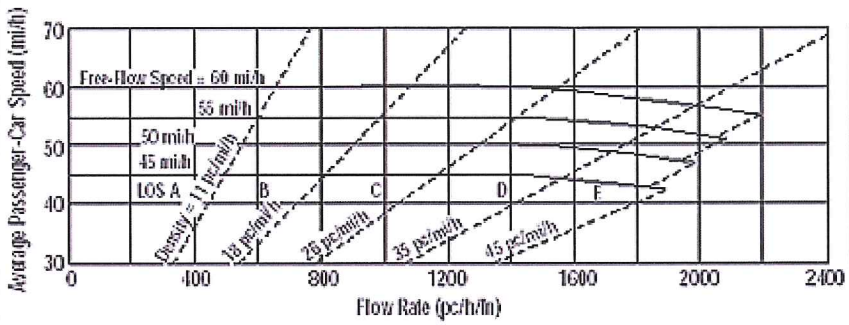
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	DavisRd/West Fork Bridge
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	329	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	184
Speed, S (mi/h)	48.3
D (pc/mi/ln)	3.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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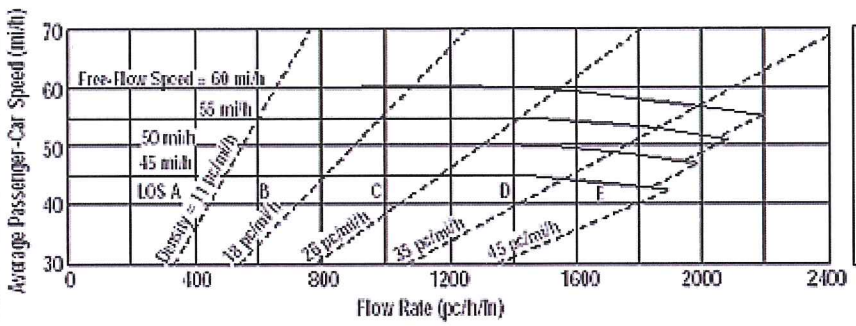
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	DavisRd/West Fork Bridge
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1048	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	588
Speed, S (mi/h)	48.3
D (pc/mi/ln)	12.2
LOS	B

Design

Design (N)
Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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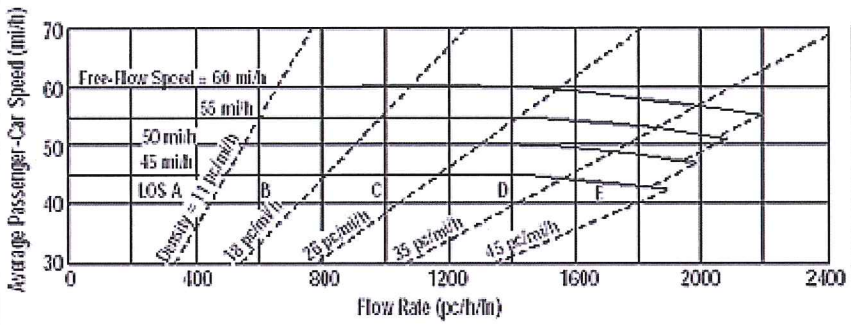
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	West Fork Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	509	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	10
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	2.5
f_M (mi/h)	0.0
FFS (mi/h)	47.5

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	285
Speed, S (mi/h)	47.5
D (pc/mi/ln)	6.0
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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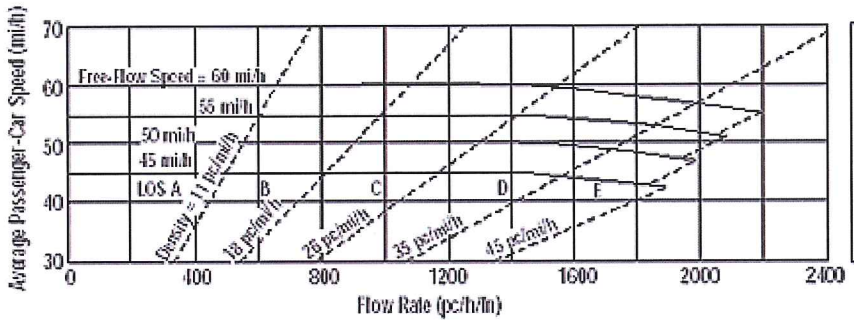
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	West Fork Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1217	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	10
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	2.5
f_M (mi/h)	0.0
FFS (mi/h)	47.5

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	682
Speed, S (mi/h)	47.5
D (pc/mi/ln)	14.4
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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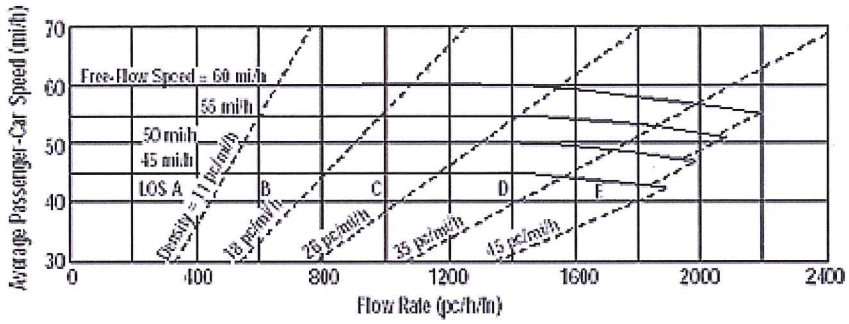
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/13
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1399	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	784
Speed, S (mi/h)	45.0
D (pc/mi/ln)	17.4
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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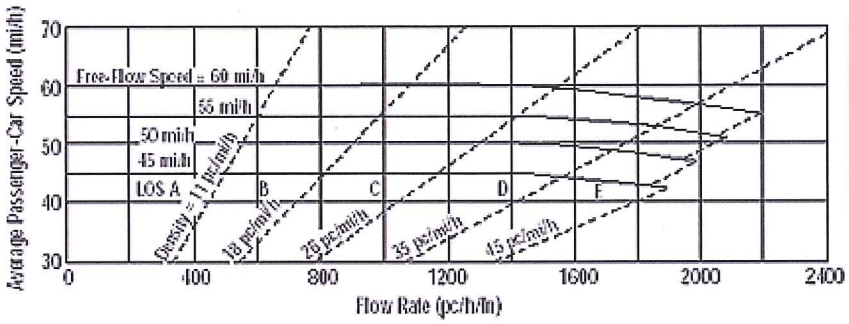
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1158	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	649
Speed, S (mi/h)	45.0
D (pc/mi/ln)	14.4
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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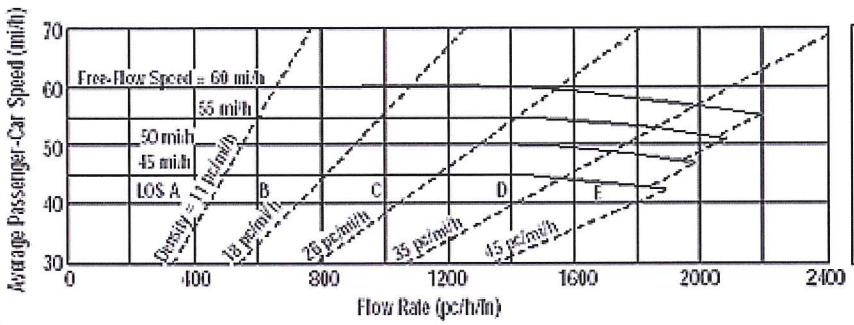
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1371	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	769
Speed, S (mi/h)	45.0
D (pc/mi/ln)	17.1
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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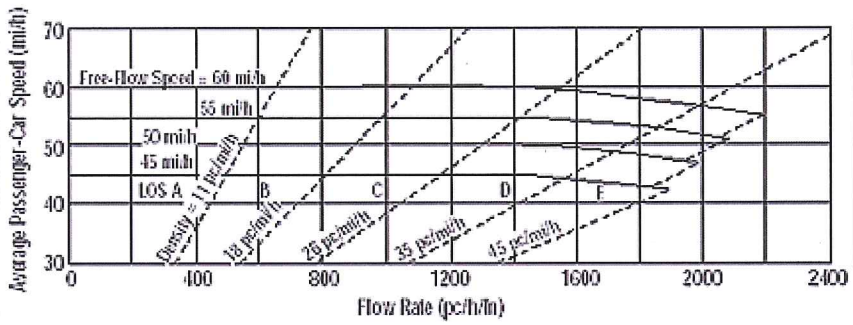
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	643	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	360
Speed, S (mi/h)	45.0
D (pc/mi/ln)	8.0
LOS	A

Design

Design (N)	
Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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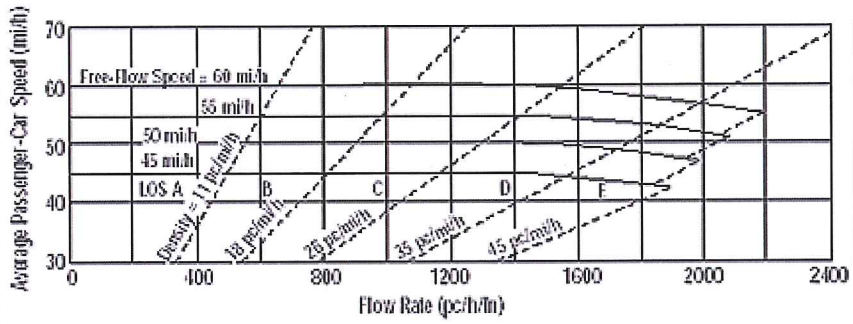
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1441	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	808
Speed, S (mi/h)	46.0
D (pc/mi/ln)	17.6
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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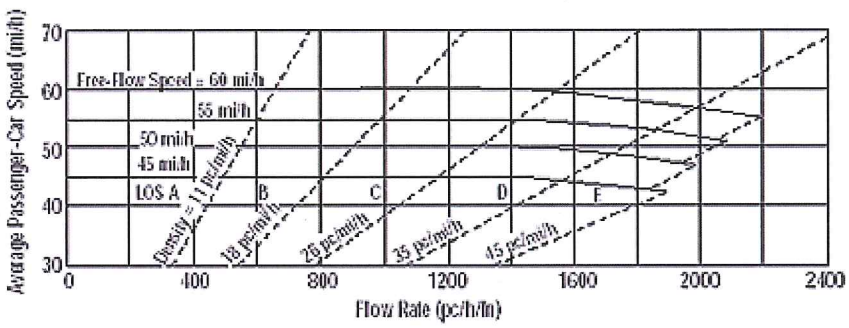
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	562	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	315
Speed, S (mi/h)	46.0
D (pc/mi/ln)	6.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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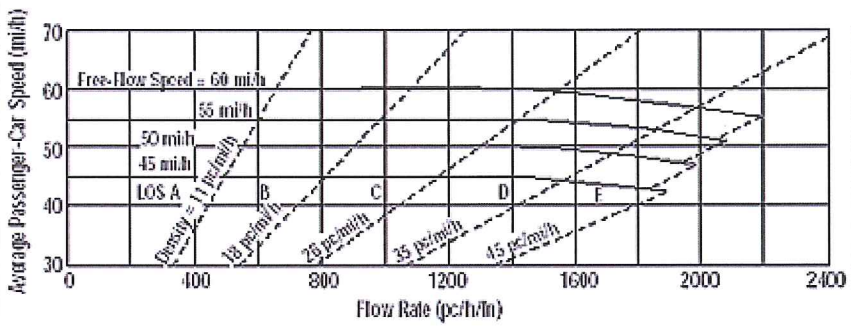
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1207	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	677
Speed, S (mi/h)	46.8
D (pc/mi/ln)	14.5
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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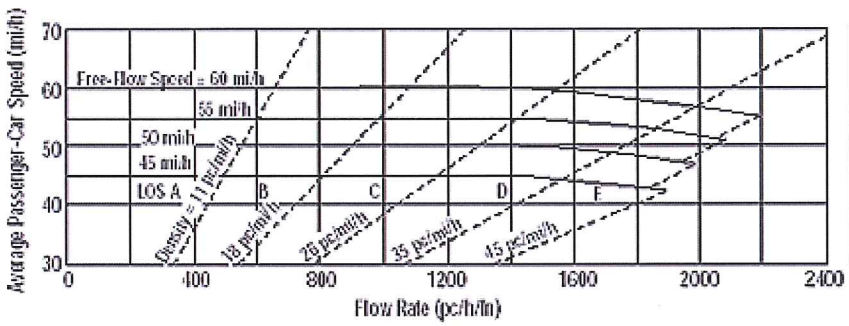
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	445	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	249
Speed, S (mi/h)	46.8
D (pc/mi/ln)	5.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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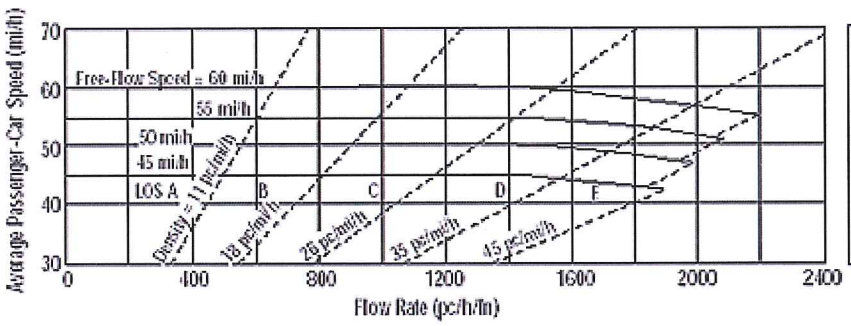
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	978	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	548
Speed, S (mi/h)	48.3
D (pc/mi/ln)	11.4
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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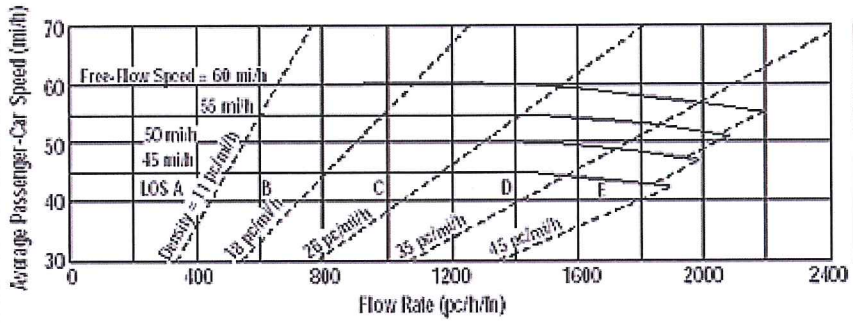
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	431	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	241
Speed, S (mi/h)	48.3
D (pc/mi/ln)	5.0
LOS	A

Design

Design (N)
Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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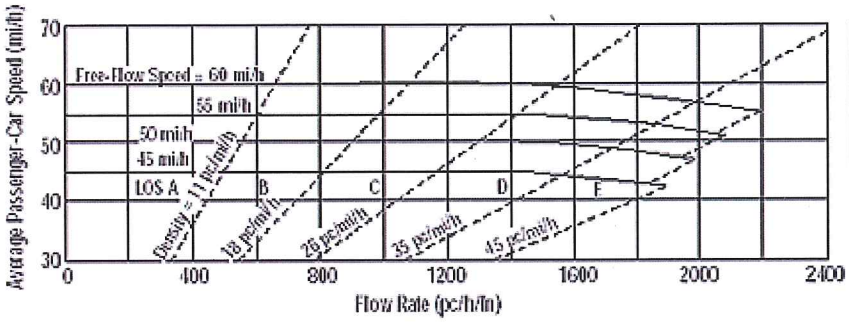
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hollis Rd/Davis Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - EB, Dir2 - WB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	768	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	20
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	5.0
f_M (mi/h)	0.0
FFS (mi/h)	45.0

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	430
Speed, S (mi/h)	45.0
D (pc/mi/ln)	9.6
LOS	A

Design

Design (N)
Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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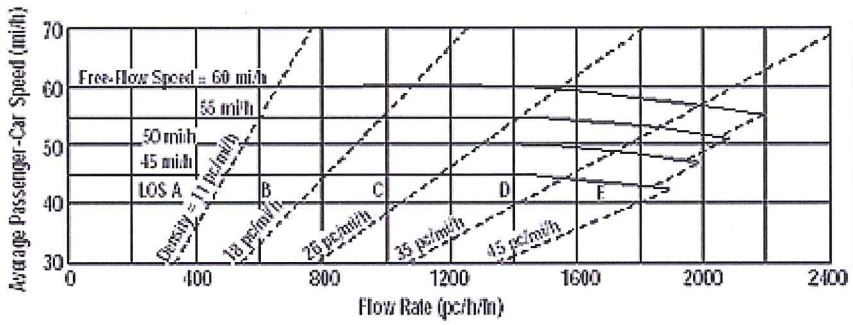
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hollis Rd/Davis Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - EB, Dir2 - WB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	420	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	20
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	5.0
f_M (mi/h)	0.0
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	235
Speed, S (mi/h)	45.0
D (pc/mi/ln)	5.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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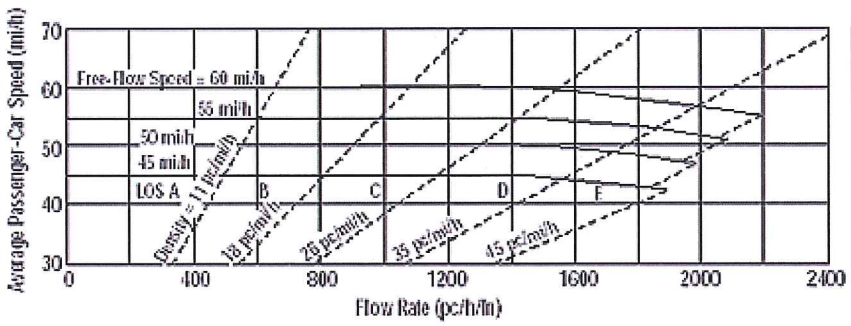
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	DavisRd/West Fork Bridge
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1119	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	17
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	4.3
f_M (mi/h)	0.0
FFS (mi/h)	45.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	627
Speed, S (mi/h)	45.8
D (pc/mi/ln)	13.7
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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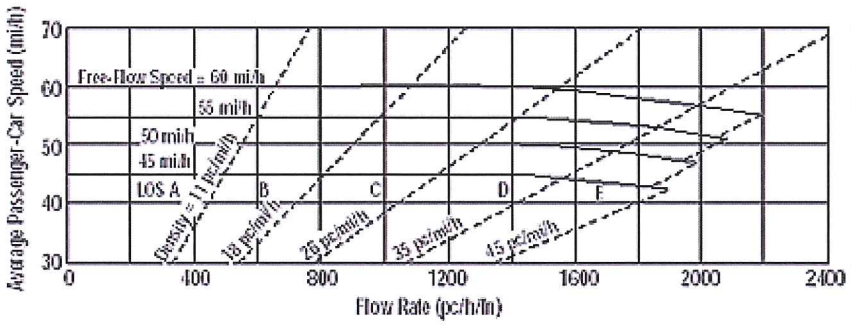
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	DavisRd/West Fork Bridge
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	480	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	17
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	4.3
f_M (mi/h)	0.0
FFS (mi/h)	45.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	269
Speed, S (mi/h)	45.8
D (pc/mi/ln)	5.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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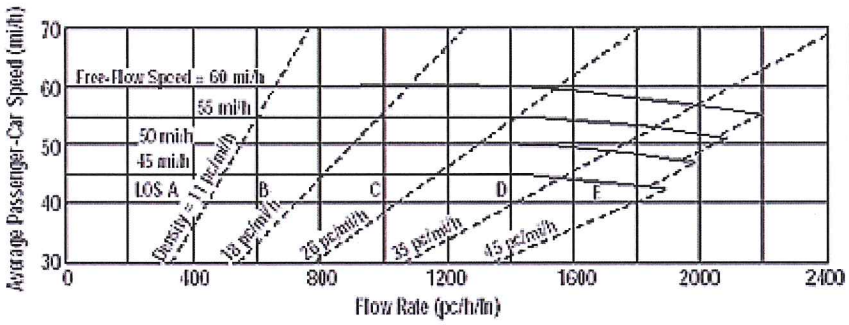
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	West Fork Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1256	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	10
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	2.5
f_M (mi/h)	0.0
FFS (mi/h)	47.5

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	704
Speed, S (mi/h)	47.5
D (pc/mi/ln)	14.8
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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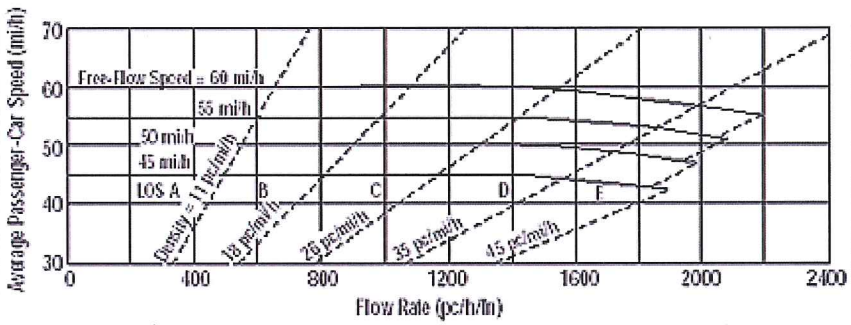
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/18/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	West Fork Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt A

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	662	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	10
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	2.5
f_M (mi/h)	0.0
FFS (mi/h)	47.5

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	371
Speed, S (mi/h)	47.5
D (pc/mi/ln)	7.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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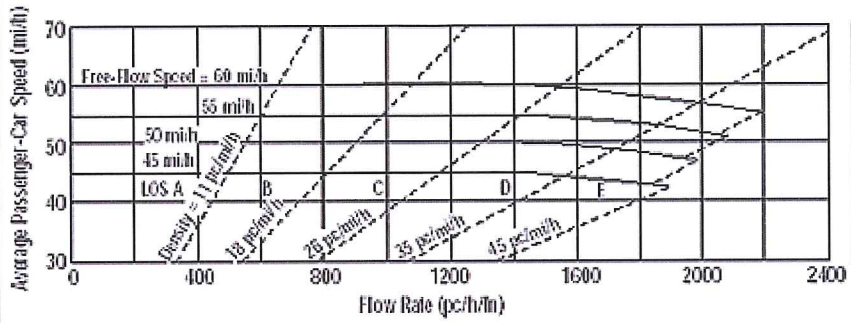
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	730	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	415
Speed, S (mi/h)	45.0
D (pc/mi/ln)	9.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

7/23/13

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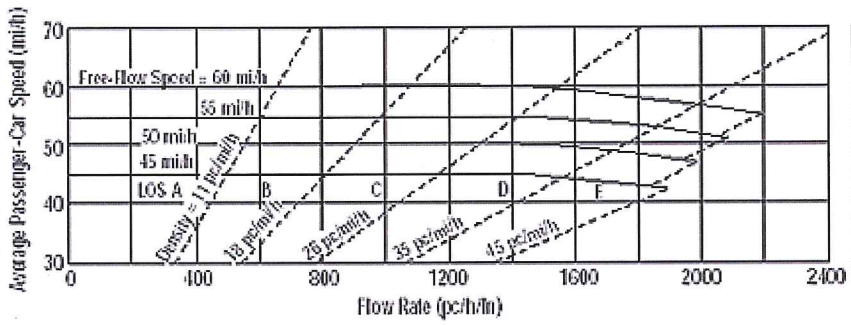
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1335	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	760
Speed, S (mi/h)	45.0
D (pc/mi/ln)	16.9
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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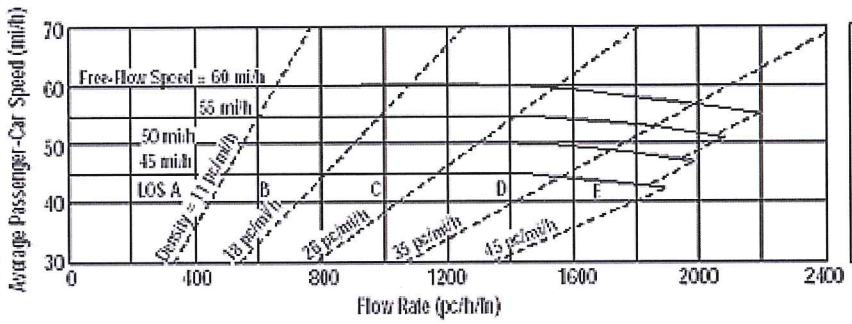
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	455	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	255
Speed, S (mi/h)	45.0
D (pc/mi/ln)	5.7
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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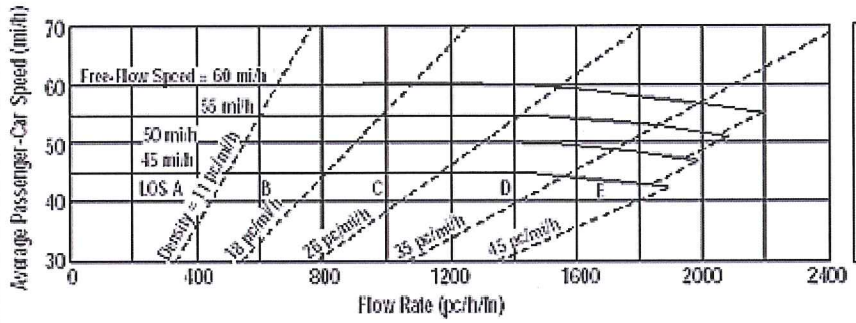
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1138	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	638
Speed, S (mi/h)	45.0
D (pc/mi/ln)	14.2
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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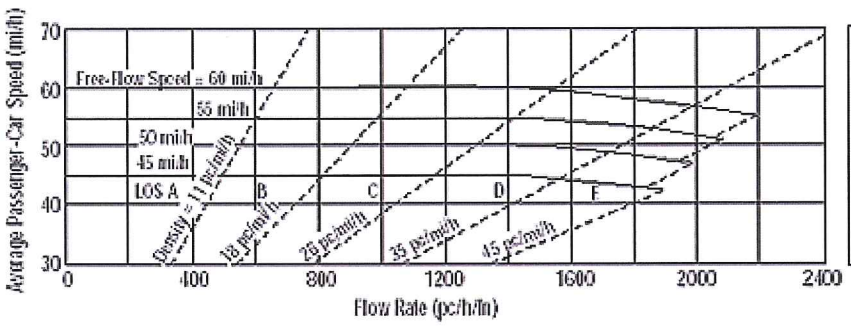
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	395	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	221
Speed, S (mi/h)	46.0
D (pc/mi/ln)	4.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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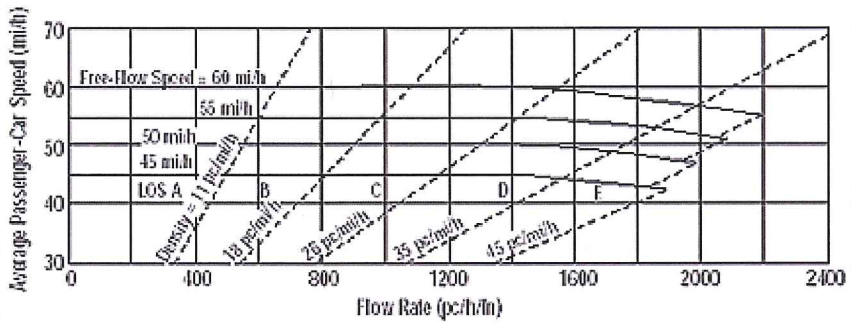
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1219	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	683
Speed, S (mi/h)	46.0
D (pc/mi/ln)	14.8
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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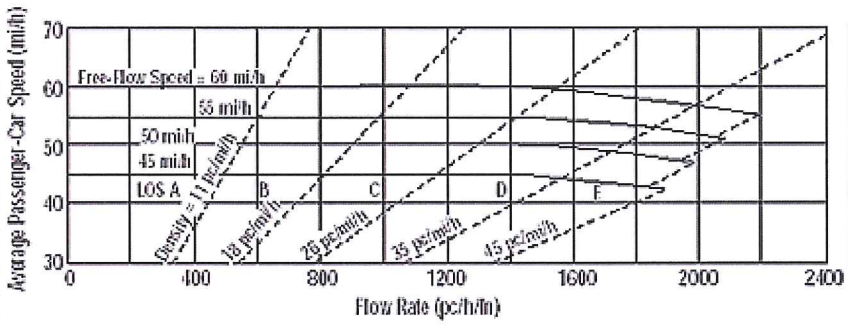
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	327	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	183
Speed, S (mi/h)	46.8
D (pc/mi/ln)	3.9
LOS	A

Design

Design (N)	
Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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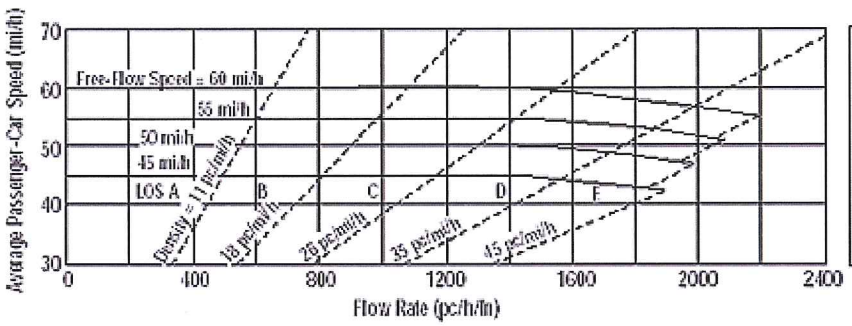
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	998	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	559
Speed, S (mi/h)	46.8
D (pc/mi/ln)	12.0
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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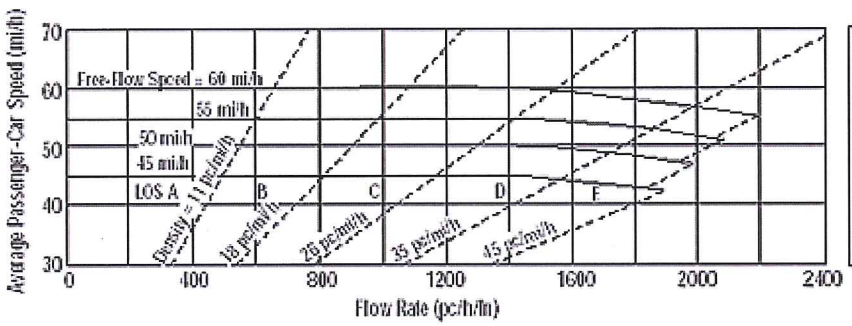
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	371	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	208
Speed, S (mi/h)	48.3
D (pc/mi/ln)	4.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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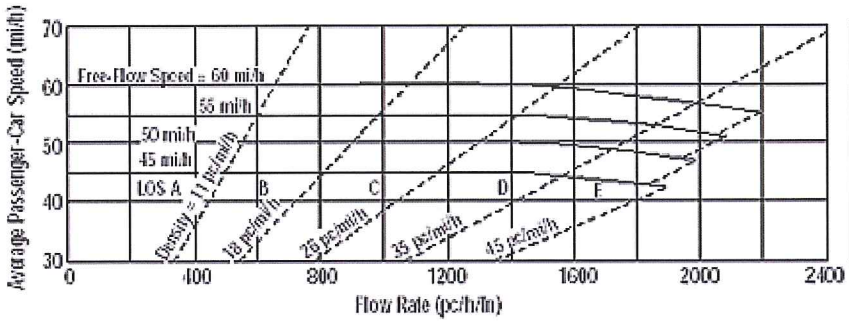
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	942	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	528
Speed, S (mi/h)	48.3
D (pc/mi/ln)	10.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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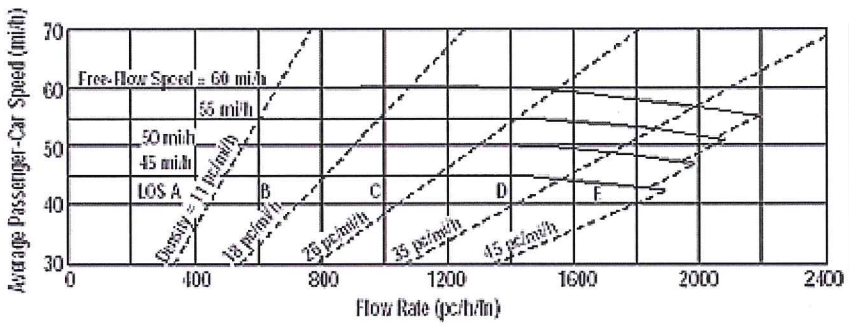
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hollis Dr/West Fork Bridge
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	352	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	197
Speed, S (mi/h)	48.3
D (pc/mi/ln)	4.1
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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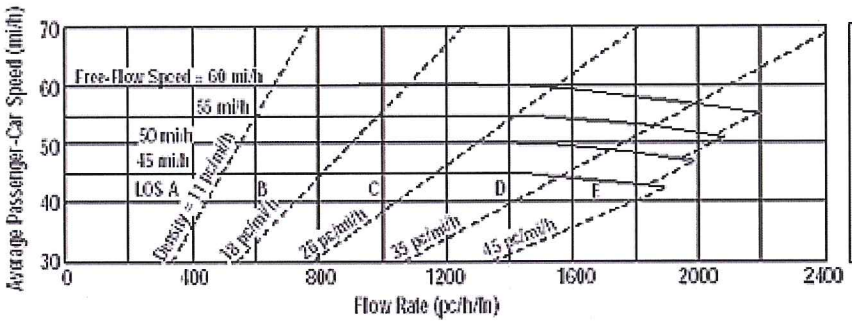
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hollis Dr/West Fork Bridge
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1059	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	594
Speed, S (mi/h)	48.3
D (pc/mi/ln)	12.3
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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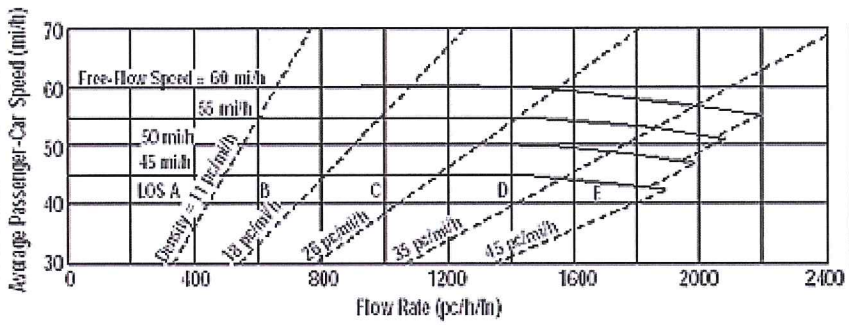
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	West Fork Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	320	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	10
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	2.5
f_M (mi/h)	0.0
FFS (mi/h)	47.5

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	179
Speed, S (mi/h)	47.5
D (pc/mi/ln)	3.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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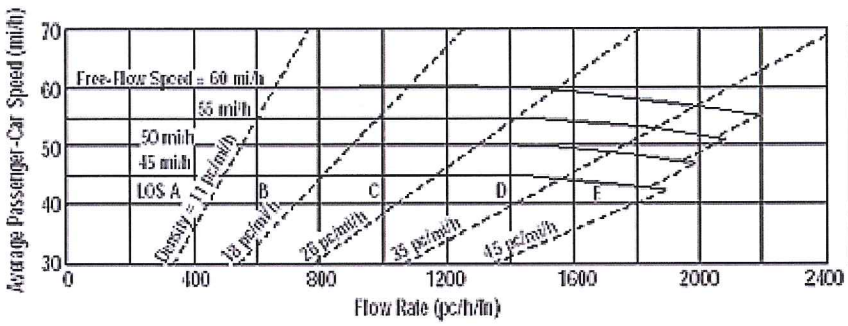
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	West Fork Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1037	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	10
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	2.5
f_M (mi/h)	0.0
FFS (mi/h)	47.5

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	581
Speed, S (mi/h)	47.5
D (pc/mi/ln)	12.2
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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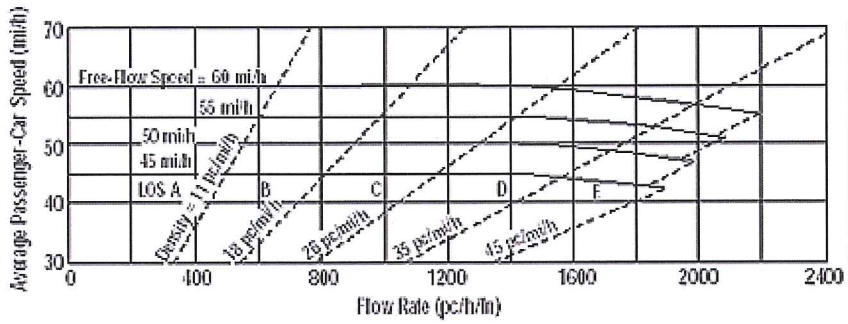
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1399	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	784
Speed, S (mi/h)	45.0
D (pc/mi/ln)	17.4
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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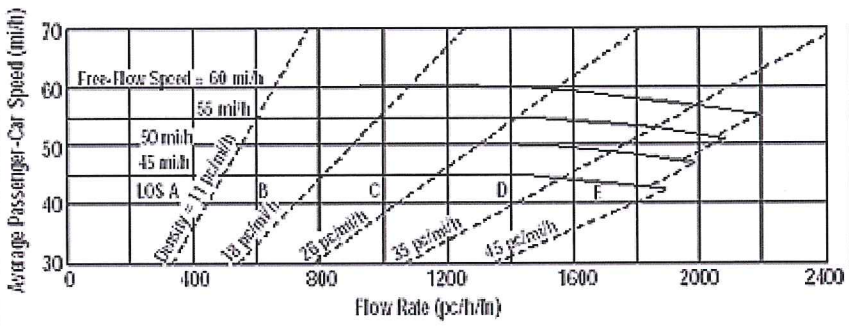
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1158	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	649
Speed, S (mi/h)	45.0
D (pc/mi/ln)	14.4
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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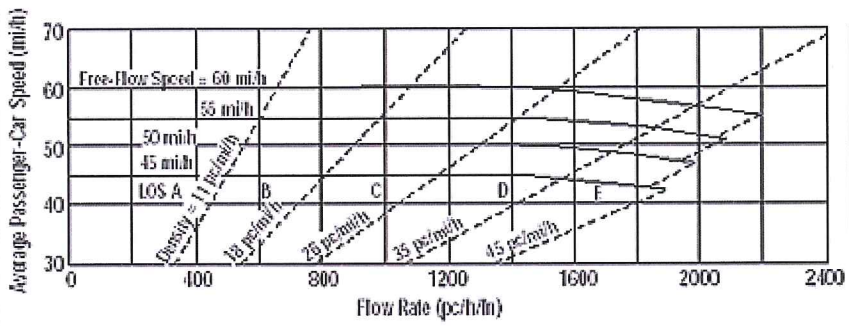
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1413	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	792
Speed, S (mi/h)	45.0
D (pc/mi/ln)	17.6
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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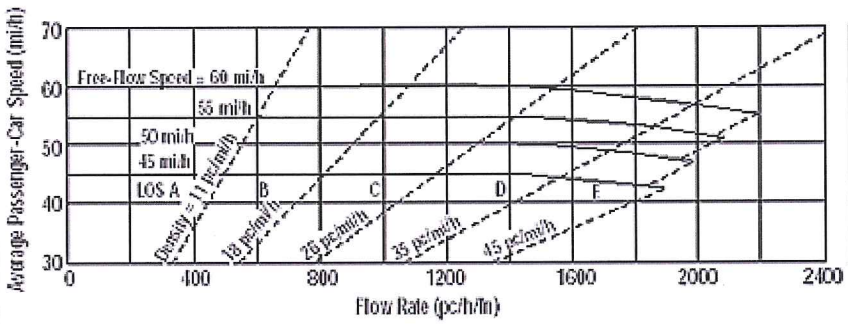
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	643	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	360
Speed, S (mi/h)	45.0
D (pc/mi/ln)	8.0
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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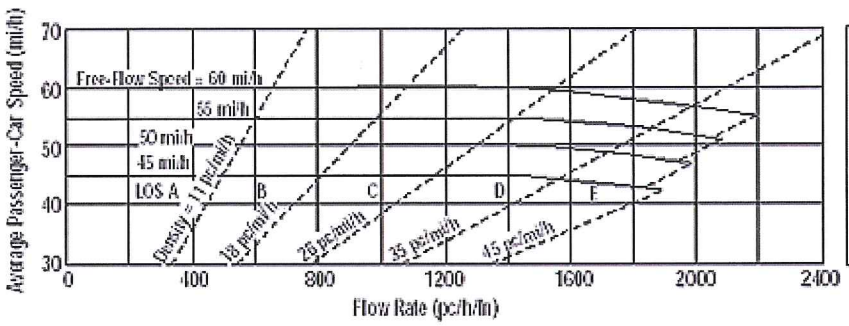
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1441	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	808
Speed, S (mi/h)	46.0
D (pc/mi/ln)	17.6
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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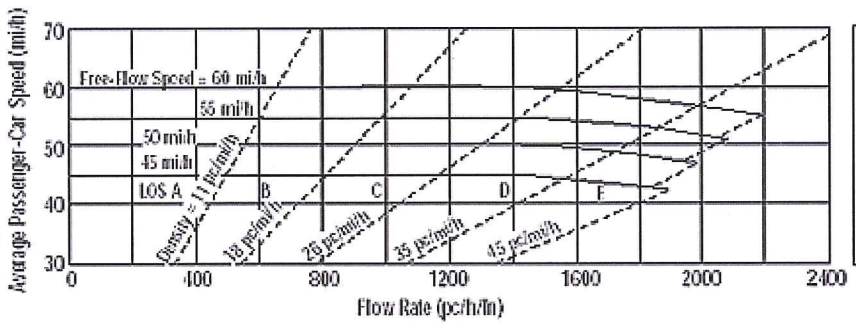
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	692	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	388
Speed, S (mi/h)	46.0
D (pc/mi/ln)	8.4
LOS	A

Design

Design (N)	
Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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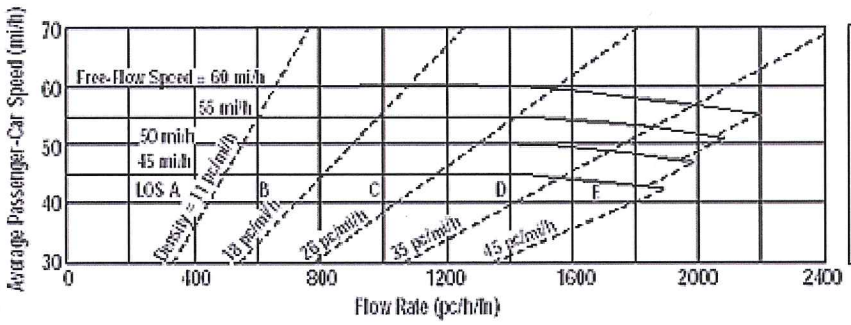
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1207	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	677
Speed, S (mi/h)	46.8
D (pc/mi/ln)	14.5
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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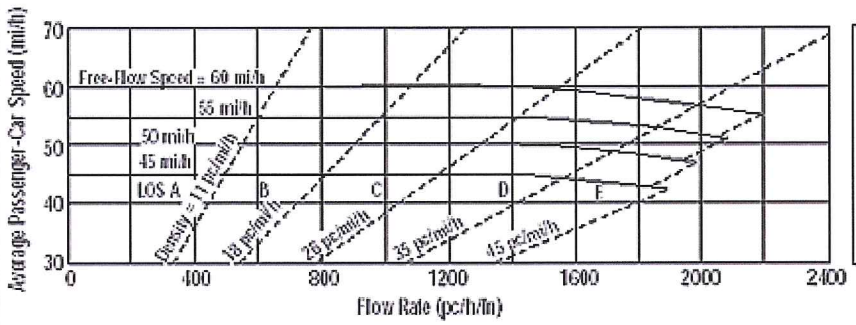
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	477	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	267
Speed, S (mi/h)	46.8
D (pc/mi/ln)	5.7
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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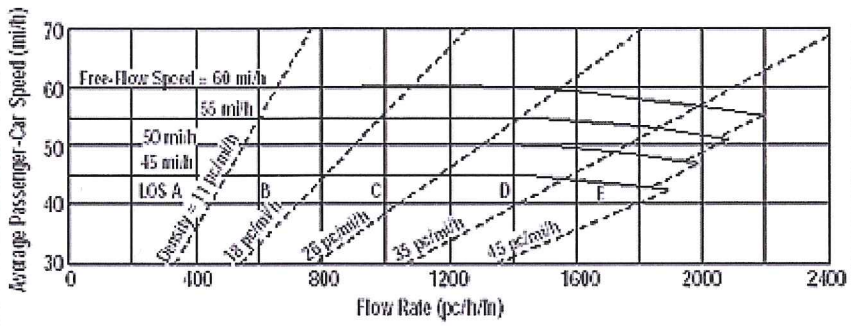
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	959	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	538
Speed, S (mi/h)	48.3
D (pc/mi/ln)	11.2
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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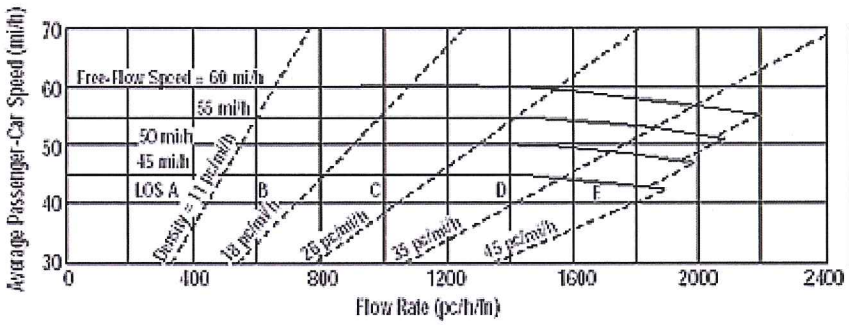
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	439	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	246
Speed, S (mi/h)	48.3
D (pc/mi/ln)	5.1
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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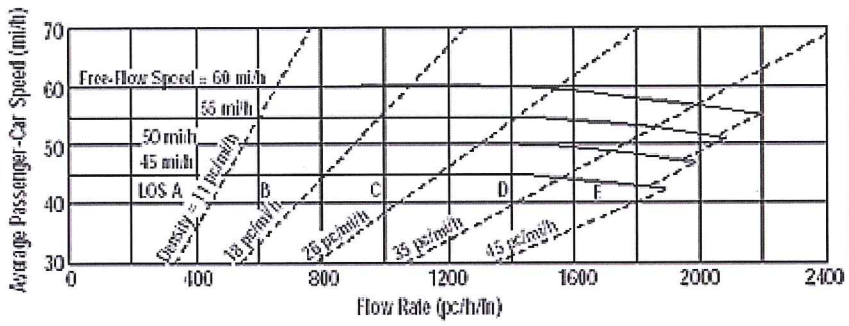
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hollis Dr/West Fork Bridge
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1145	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	17
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	4.3
f_M (mi/h)	0.0
FFS (mi/h)	45.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	642
Speed, S (mi/h)	45.8
D (pc/mi/ln)	14.0
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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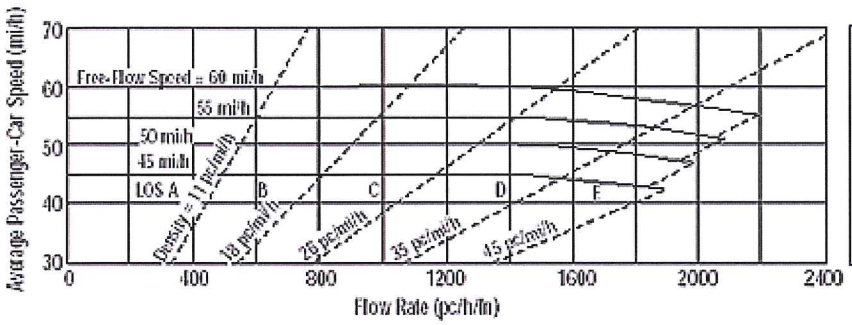
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hollis Dr/West Fork Bridge
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	475	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	17
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	4.3
f_M (mi/h)	0.0
FFS (mi/h)	45.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	266
Speed, S (mi/h)	45.8
D (pc/mi/ln)	5.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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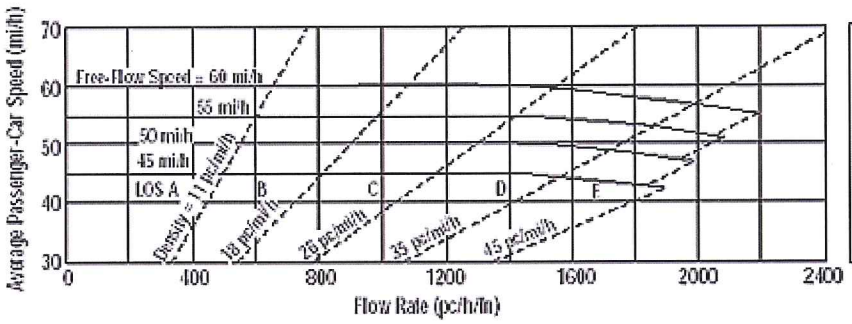
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	West Fork Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1157	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	10
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	2.5
f_M (mi/h)	0.0
FFS (mi/h)	47.5

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	649
Speed, S (mi/h)	47.5
D (pc/mi/ln)	13.7
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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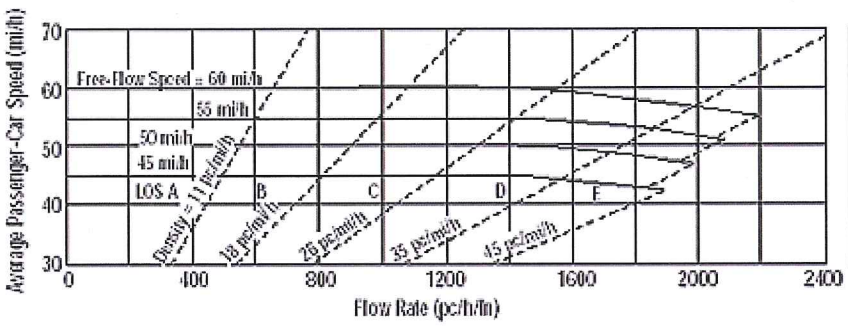
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/22/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	West Fork Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt B

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	572	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	10
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	2.5
f_M (mi/h)	0.0
FFS (mi/h)	47.5

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	320
Speed, S (mi/h)	47.5
D (pc/mi/ln)	6.7
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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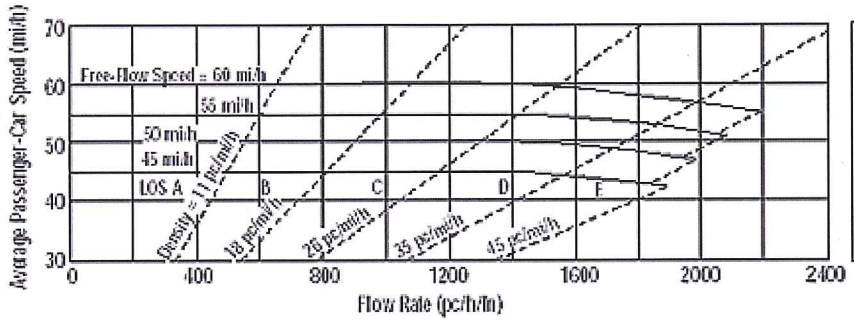
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	730	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	415
Speed, S (mi/h)	45.0
D (pc/mi/ln)	9.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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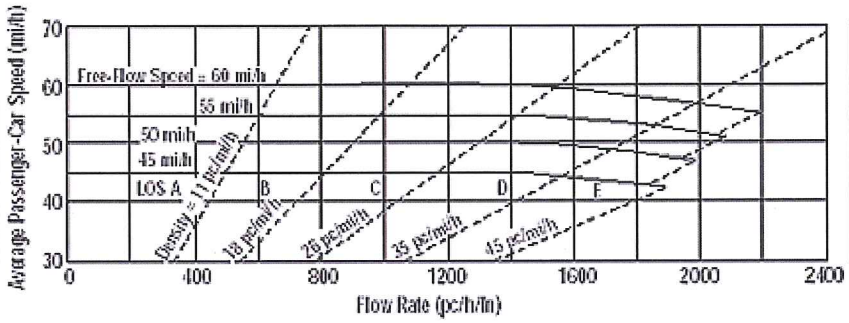
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1335	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	760
Speed, S (mi/h)	45.0
D (pc/mi/ln)	16.9
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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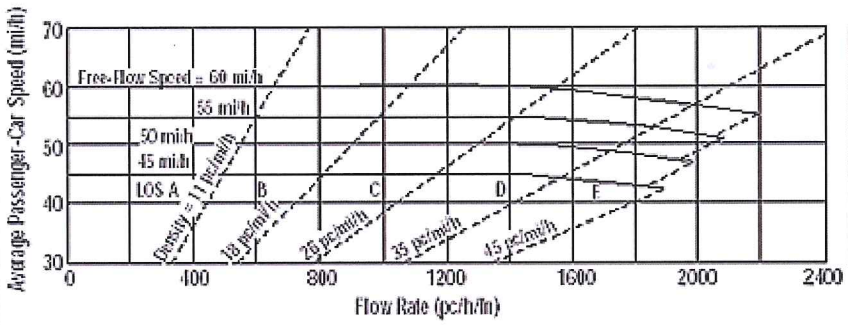
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	593	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	332
Speed, S (mi/h)	45.0
D (pc/mi/ln)	7.4
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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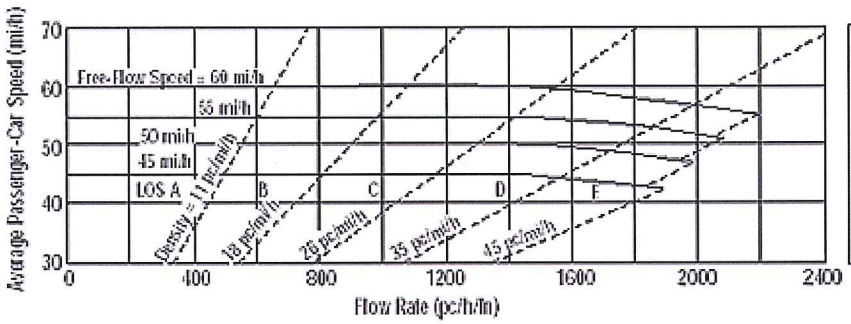
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1334	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	748
Speed, S (mi/h)	45.0
D (pc/mi/ln)	16.6
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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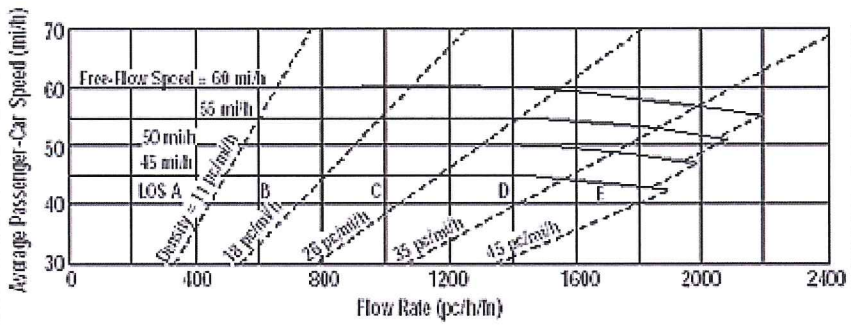
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	680	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	381
Speed, S (mi/h)	46.0
D (pc/mi/ln)	8.3
LOS	A

Design

Design (N)	
Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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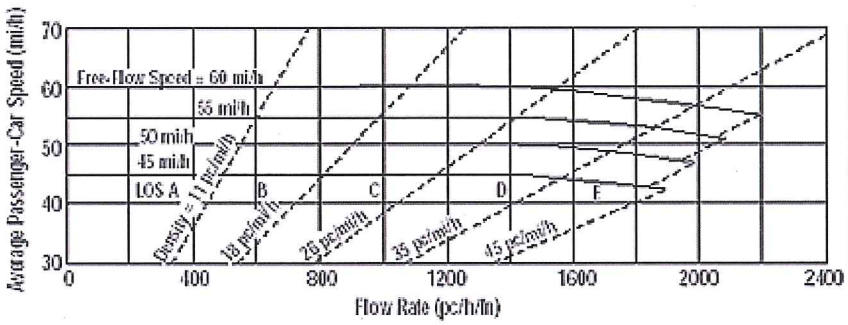
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1420	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	796
Speed, S (mi/h)	46.0
D (pc/mi/ln)	17.3
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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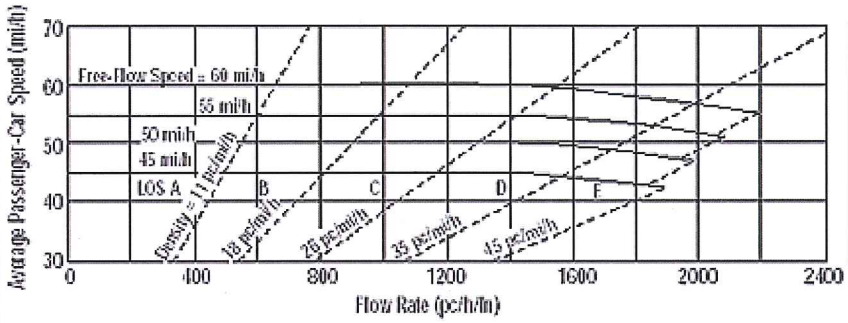
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	695	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	389
Speed, S (mi/h)	46.8
D (pc/mi/ln)	8.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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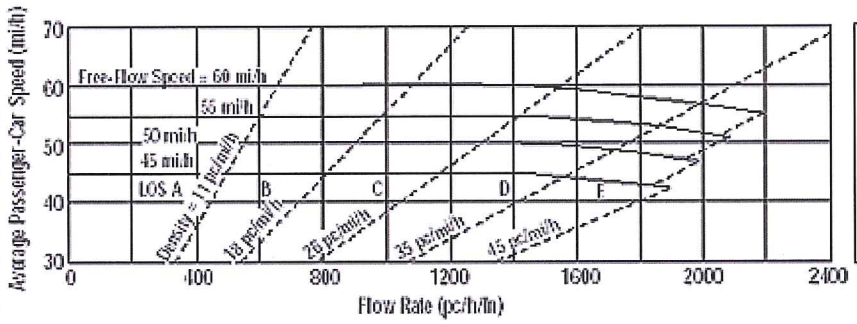
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1350	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	757
Speed, S (mi/h)	46.8
D (pc/mi/ln)	16.2
LOS	B

Design

Design (N)	
Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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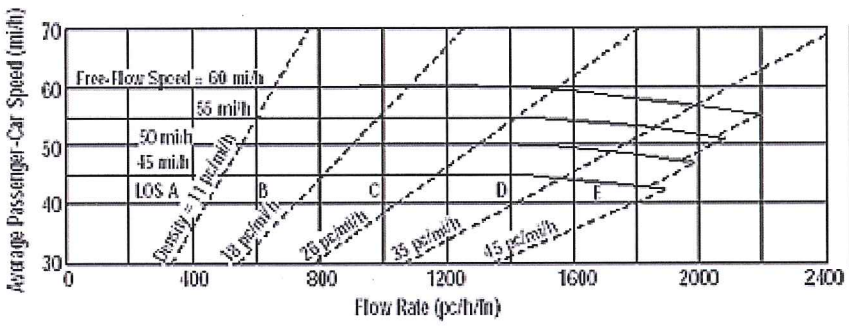
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	409	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	229
Speed, S (mi/h)	48.3
D (pc/mi/ln)	4.7
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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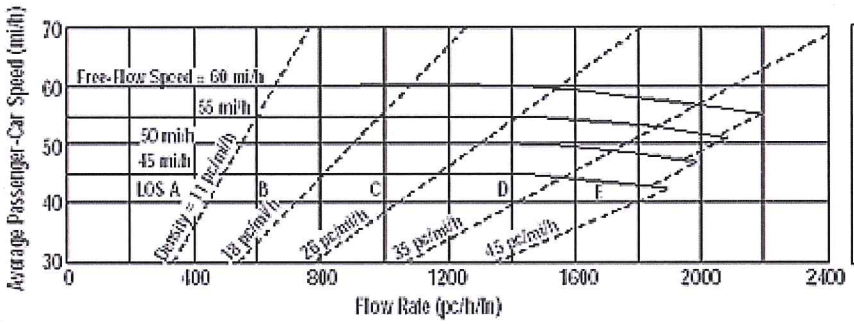
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	952	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	534
Speed, S (mi/h)	48.3
D (pc/mi/ln)	11.1
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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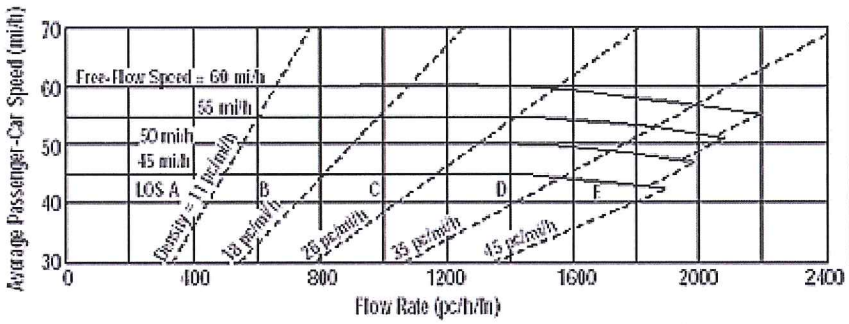
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hollis Rd/Bridge
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	187	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	0.0
f_M (mi/h)	0.0
FFS (mi/h)	50.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	104
Speed, S (mi/h)	50.0
D (pc/mi/ln)	2.1
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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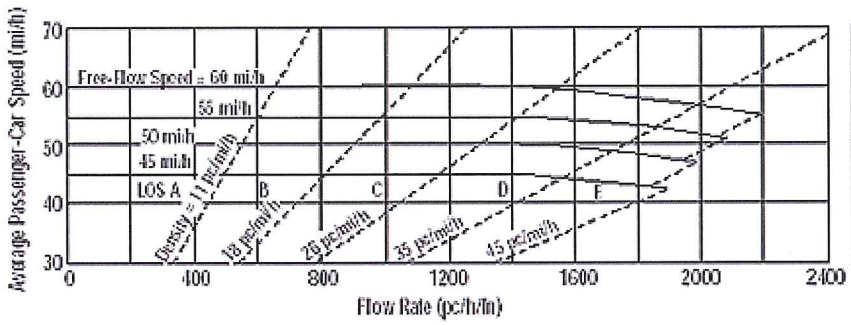
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hollis Rd/Bridge
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	725	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	0.0
f_M (mi/h)	0.0
FFS (mi/h)	50.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	406
Speed, S (mi/h)	50.0
D (pc/mi/ln)	8.1
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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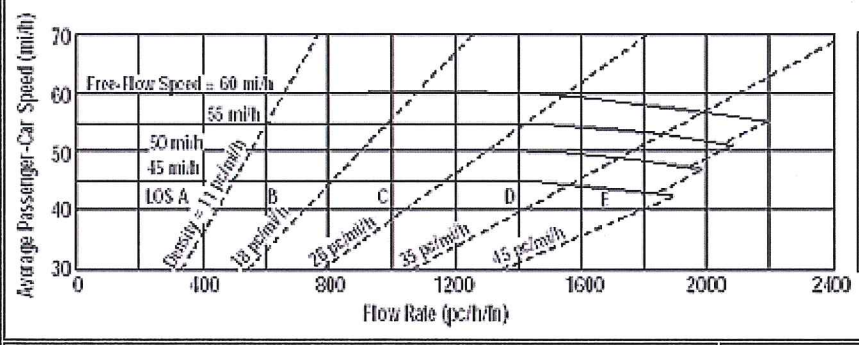
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	692	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	0.0
f_M (mi/h)	0.0
FFS (mi/h)	50.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	388
Speed, S (mi/h)	50.0
D (pc/mi/ln)	7.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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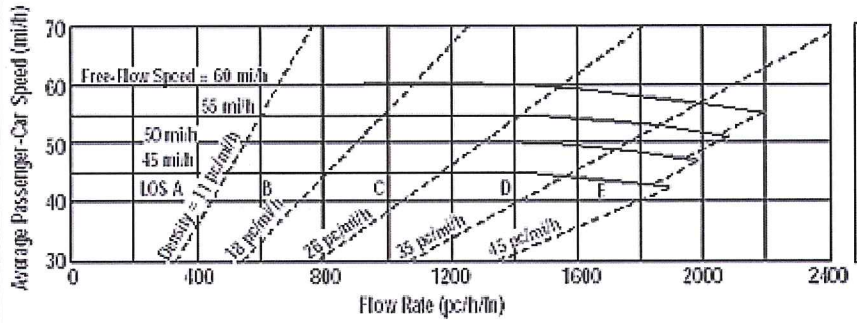
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1233	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	0.0
f_M (mi/h)	0.0
FFS (mi/h)	50.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	691
Speed, S (mi/h)	50.0
D (pc/mi/ln)	13.8
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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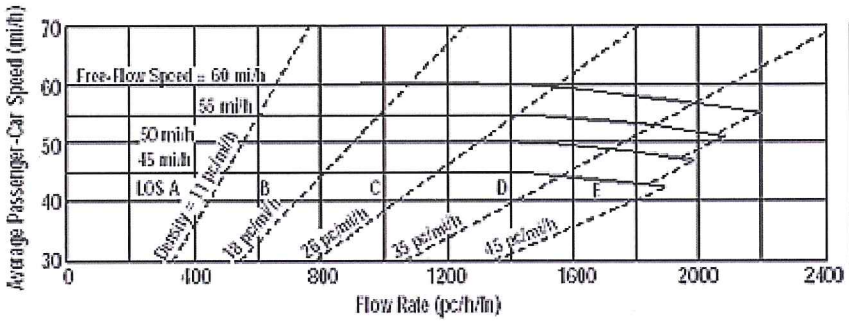
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1399	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	784
Speed, S (mi/h)	45.0
D (pc/mi/ln)	17.4
LOS	B

Design

Design (N)	
Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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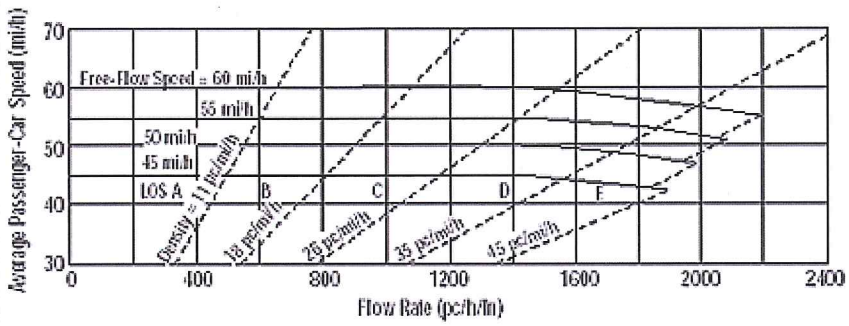
ATN 7/23/13

MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	I-10 WB/Sulphur Ave
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1158	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	649
Speed, S (mi/h)	45.0
D (pc/mi/ln)	14.4
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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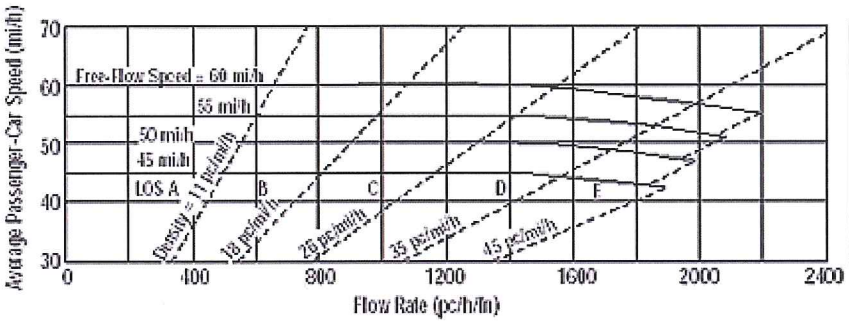
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1743	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	978
Speed, S (mi/h)	45.0
D (pc/mi/ln)	21.7
LOS	C

Design

Design (N)	
Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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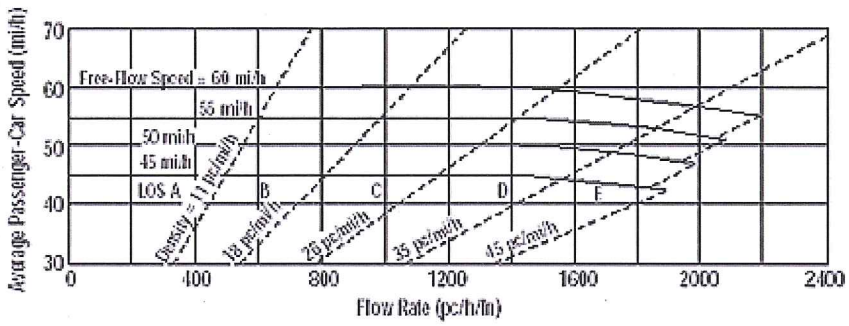
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	Sulphur Ave/McKinley St
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1009	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	566
Speed, S (mi/h)	45.0
D (pc/mi/ln)	12.6
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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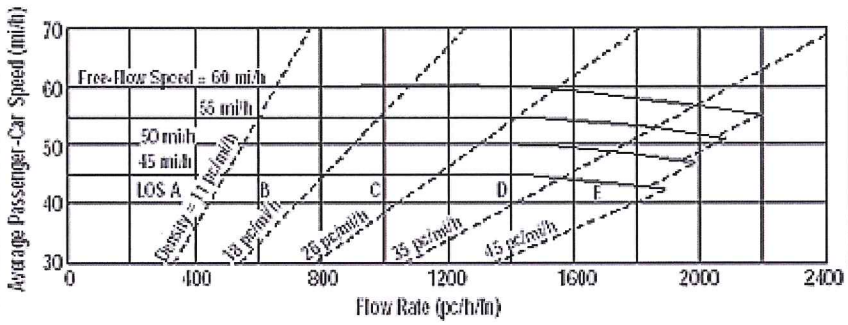
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1729	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	970
Speed, S (mi/h)	46.0
D (pc/mi/ln)	21.1
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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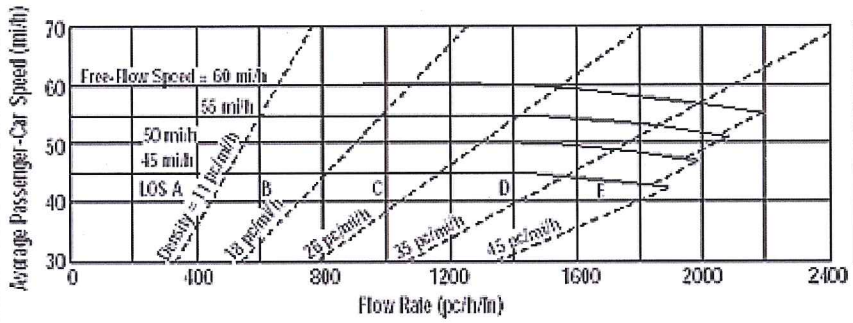
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 738
From/To	McKinley St/John Stine Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	844	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	46.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	46.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	473
Speed, S (mi/h)	46.0
D (pc/mi/ln)	10.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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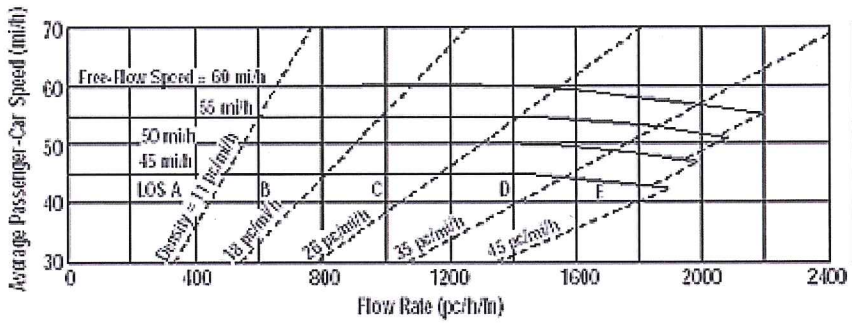
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1598	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	896
Speed, S (mi/h)	46.8
D (pc/mi/ln)	19.2
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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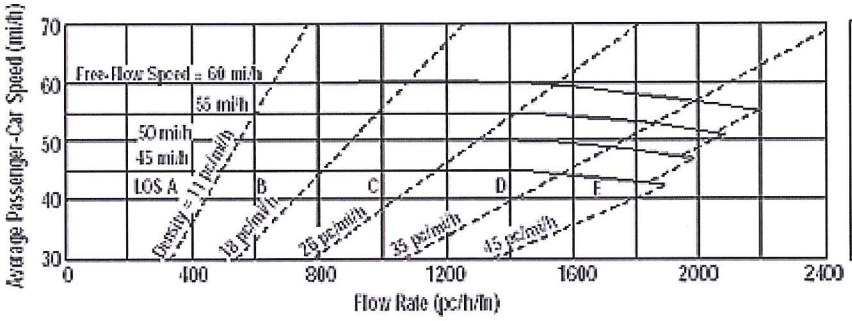
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	John Stine Rd/Hudson Dr
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	836	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	13
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	3.3
f_M (mi/h)	0.0
FFS (mi/h)	46.8

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	469
Speed, S (mi/h)	46.8
D (pc/mi/ln)	10.0
LOS	A

Design

Design (N)	
Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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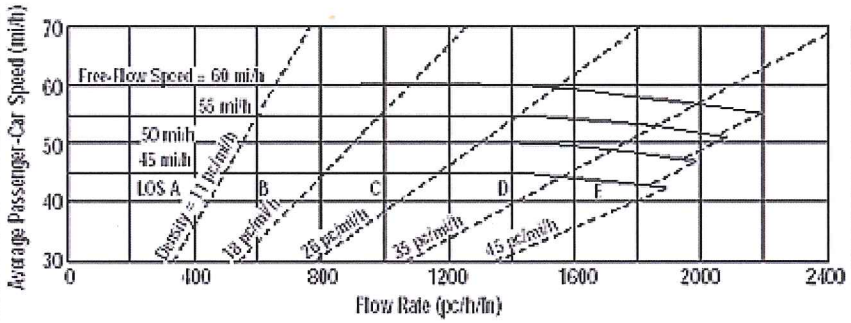
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	966	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	542
Speed, S (mi/h)	48.3
D (pc/mi/ln)	11.2
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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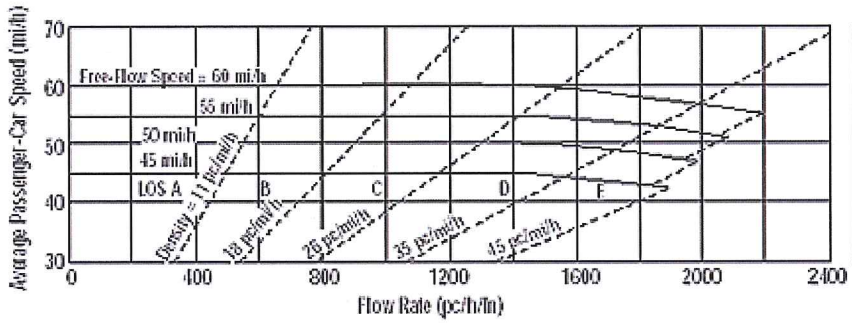
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Hudson Dr/Hollis Rd
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	447	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	7
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	1.8
f_M (mi/h)	0.0
FFS (mi/h)	48.3

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	250
Speed, S (mi/h)	48.3
D (pc/mi/ln)	5.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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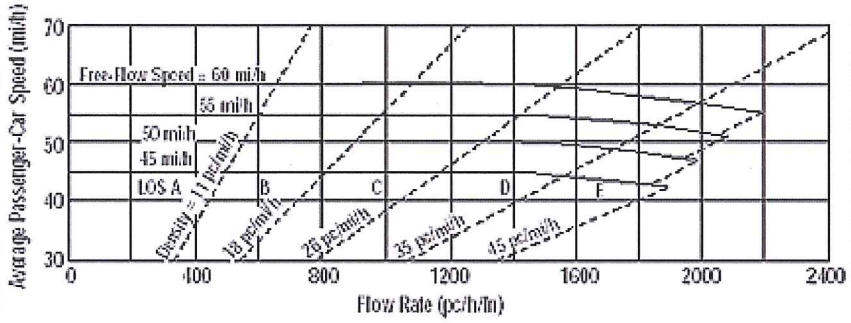
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	HollisRd/Bridge
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	643	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	0.0
f_M (mi/h)	0.0
FFS (mi/h)	50.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	360
Speed, S (mi/h)	50.0
D (pc/mi/ln)	7.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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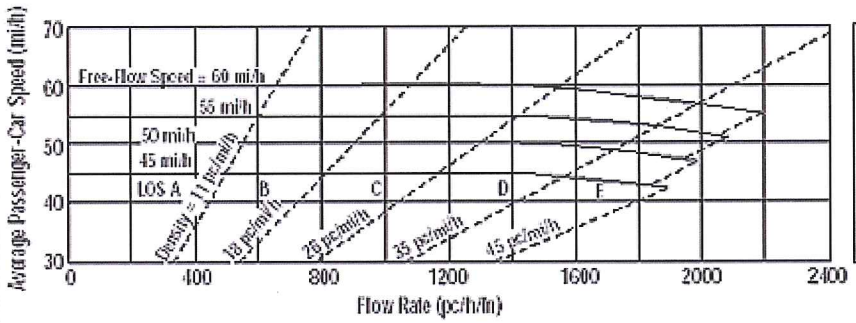
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	HollisRd/Bridge
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	347	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	0.0
f_M (mi/h)	0.0
FFS (mi/h)	50.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	194
Speed, S (mi/h)	50.0
D (pc/mi/ln)	3.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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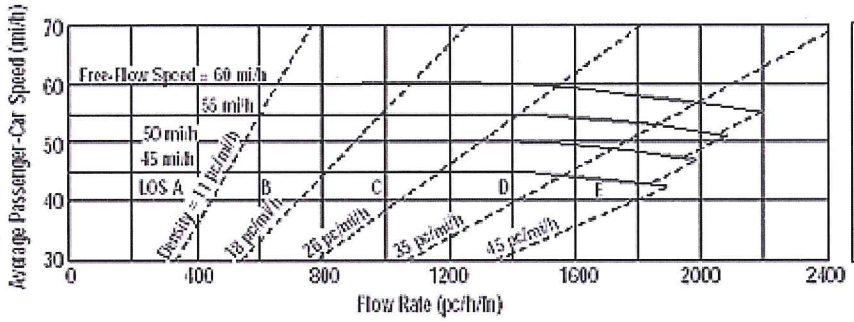
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	974	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	0.0
f_M (mi/h)	0.0
FFS (mi/h)	50.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	546
Speed, S (mi/h)	50.0
D (pc/mi/ln)	10.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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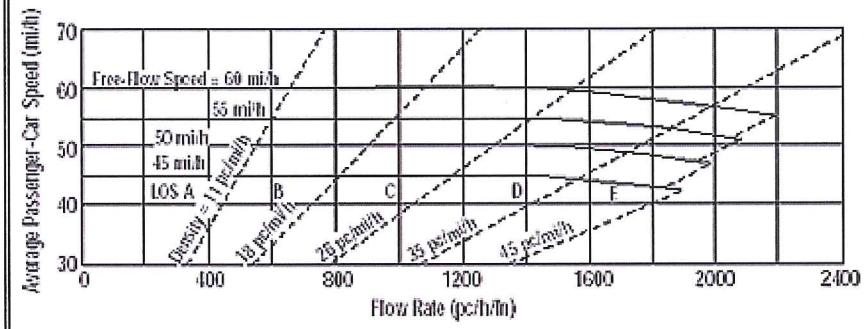
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	ATL
Agency or Company	USI
Date Performed	7/23/2013
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	LA 378
From/To	Bridge/Sam Houston
Jurisdiction	Westlake, LA
Analysis Year	2028 Alt C

Project Description 11-100 LA 378 (Dir1 - NB, Dir2 - SB)

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	683	Peak-Hour Factor, PHF	0.90
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	50.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	0.0
f_A (mi/h)	0.0
f_M (mi/h)	0.0
FFS (mi/h)	50.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	383
Speed, S (mi/h)	50.0
D (pc/mi/ln)	7.7
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	2	52	11	751	294	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95	1.00	1.00	0.97	
Frt		1.00	1.00	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3433	1810	1538	3336	
Flt Permitted		0.95	1.00	1.00	0.95	
Satd. Flow (perm)		3274	1810	1538	3336	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	2	65	14	939	368	8
RTOR Reduction (vph)	0	0	0	394	121	0
Lane Group Flow (vph)	0	67	14	545	255	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	pm+pt	NA	NA	Perm	NA	
Protected Phases	7	4	8		6	
Permitted Phases	4			8		
Actuated Green, G (s)		25.9	25.9	25.9	8.7	
Effective Green, g (s)		25.9	25.9	25.9	8.7	
Actuated g/C Ratio		0.58	0.58	0.58	0.20	
Clearance Time (s)		5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1901	1051	893	650	
v/s Ratio Prot			0.01		c0.08	
v/s Ratio Perm		0.02		c0.35		
v/c Ratio		0.04	0.01	0.61	0.39	
Uniform Delay, d1		4.0	4.0	6.1	15.6	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0	0.0	3.1	0.4	
Delay (s)		4.0	4.0	9.2	16.0	
Level of Service		A	A	A	B	
Approach Delay (s)		4.0	9.1		16.0	
Approach LOS		A	A		B	

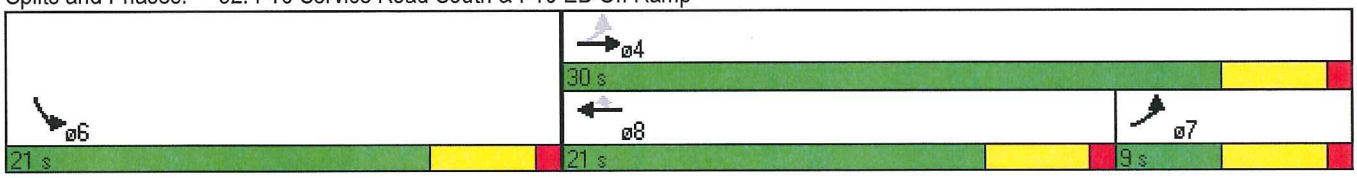
Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	44.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	4	6	7	8
Movement	EBTL	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Max	None	None	Max
Maximum Split (s)	30	21	9	21
Maximum Split (%)	58.8%	41.2%	17.6%	41.2%
Minimum Split (s)	21	21	9	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	7	4	15
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21	0	42	21
End Time (s)	0	21	0	42
Yield/Force Off (s)	46	16	46	37
Yield/Force Off 170(s)	35	5	46	26
Local Start Time (s)	21	0	42	21
Local Yield (s)	46	16	46	37
Local Yield 170(s)	35	5	46	26

Intersection Summary	
Cycle Length	51
Control Type	Semi Act-Uncoord
Natural Cycle	60

Splits and Phases: 32: I-10 Service Road South & I-10 EB Off Ramp



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	246	91	188	95	82	512
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	3438	1810	1538	1719	1538
Flt Permitted	0.61	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1108	3438	1810	1538	1719	1538
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.90	0.90
Adj. Flow (vph)	308	114	235	119	91	569
RTOR Reduction (vph)	0	0	0	81	0	474
Lane Group Flow (vph)	308	114	235	38	91	95
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	30.4	30.4	15.3	15.3	8.1	8.1
Effective Green, g (s)	30.4	30.4	15.3	15.3	8.1	8.1
Actuated g/C Ratio	0.63	0.63	0.32	0.32	0.17	0.17
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.3	2.3	2.3	2.0	2.0
Lane Grp Cap (vph)	821	2154	570	485	287	256
v/s Ratio Prot	c0.08	0.03	0.13		0.05	
v/s Ratio Perm	c0.16			0.02		c0.06
v/c Ratio	0.38	0.05	0.41	0.08	0.32	0.37
Uniform Delay, d1	4.7	3.5	13.1	11.6	17.8	17.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.3	0.0	0.2	0.3
Delay (s)	4.8	3.5	13.3	11.7	18.0	18.3
Level of Service	A	A	B	B	B	B
Approach Delay (s)		4.4	12.8		18.2	
Approach LOS		A	B		B	

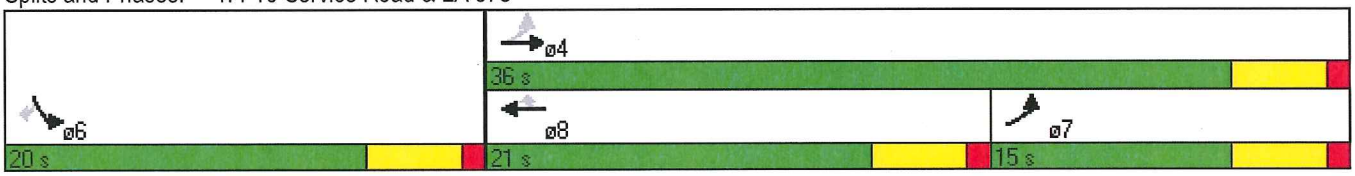
Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	48.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	4	6	7	8
Movement	EBTL	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	36	20	15	21
Maximum Split (%)	64.3%	35.7%	26.8%	37.5%
Minimum Split (s)	21	21	15	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	20	0	41	20
End Time (s)	0	20	0	41
Yield/Force Off (s)	51	15	51	36
Yield/Force Off 170(s)	51	4	51	36
Local Start Time (s)	20	0	41	20
Local Yield (s)	51	15	51	36
Local Yield 170(s)	51	4	51	36

Intersection Summary	
Cycle Length	56
Control Type	Actuated-Uncoordinated
Natural Cycle	60

Splits and Phases: 1: I-10 Service Road & LA 378



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	248	77	99	245	517	722
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3335	1538	1719	3438	3438	1538
Flt Permitted	0.95	1.00	0.41	1.00	1.00	1.00
Satd. Flow (perm)	3335	1538	741	3438	3438	1538
Peak-hour factor, PHF	0.80	0.80	0.90	0.90	0.90	0.90
Adj. Flow (vph)	310	96	110	272	574	802
RTOR Reduction (vph)	0	78	0	0	0	527
Lane Group Flow (vph)	310	18	110	272	574	275
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	NA	Prot	pm+pt	NA	NA	Perm
Protected Phases	4	4	5	2	6	
Permitted Phases			2			6
Actuated Green, G (s)	8.8	8.8	28.7	28.7	16.3	16.3
Effective Green, g (s)	8.8	8.8	28.7	28.7	16.3	16.3
Actuated g/C Ratio	0.19	0.19	0.60	0.60	0.34	0.34
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.3	2.3	2.3
Lane Grp Cap (vph)	617	284	600	2077	1179	527
v/s Ratio Prot	c0.09	0.01	c0.03	0.08	0.17	
v/s Ratio Perm			0.08			c0.18
v/c Ratio	0.50	0.06	0.18	0.13	0.49	0.52
Uniform Delay, d1	17.4	16.0	4.9	4.0	12.3	12.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.1	0.0	0.2	0.6
Delay (s)	17.6	16.0	5.0	4.1	12.5	13.1
Level of Service	B	B	A	A	B	B
Approach Delay (s)	17.2			4.3	12.8	
Approach LOS	B			A	B	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	47.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	5	6
Movement	NBTL	EBL	NBL	SBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	41	21	20	21
Maximum Split (%)	66.1%	33.9%	32.3%	33.9%
Minimum Split (s)	21	21	20	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	41	21	0
End Time (s)	41	0	41	21
Yield/Force Off (s)	36	57	36	16
Yield/Force Off 170(s)	36	46	36	16
Local Start Time (s)	0	41	21	0
Local Yield (s)	36	57	36	16
Local Yield 170(s)	36	46	36	16

Intersection Summary	
Cycle Length	62
Control Type	Actuated-Uncoordinated
Natural Cycle	65

Splits and Phases: 30: LA 378 & I-10 Service Road North

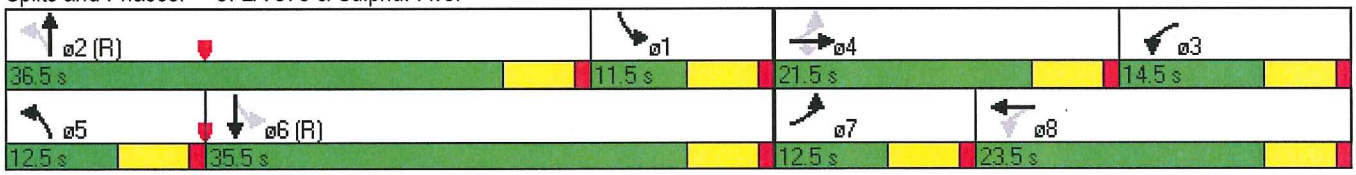
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	41	259	168	37	22	156	269	32	31	875	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1810	1538	1719	1725		1719	3471		1770	3491	
Flt Permitted	0.44	1.00	1.00	0.72	1.00		0.17	1.00		0.55	1.00	
Satd. Flow (perm)	828	1810	1538	1310	1725		302	3471		1024	3491	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	45	51	324	210	46	28	173	299	36	34	972	98
RTOR Reduction (vph)	0	0	212	0	22	0	0	11	0	0	9	0
Lane Group Flow (vph)	45	51	112	210	52	0	173	324	0	34	1061	0
Heavy Vehicles (%)	2%	5%	5%	5%	5%	2%	5%	2%	5%	2%	2%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	16.0	16.0	16.0	18.0	18.0		31.0	31.0		30.0	30.0	
Effective Green, g (s)	16.0	16.0	16.0	18.0	18.0		31.0	31.0		30.0	30.0	
Actuated g/C Ratio	0.19	0.19	0.19	0.21	0.21		0.37	0.37		0.36	0.36	
Clearance Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)	236	344	292	324	369		229	1280		419	1246	
v/s Ratio Prot	0.02	0.03		c0.07	0.03		c0.06	0.09		0.01	c0.30	
v/s Ratio Perm	0.02		c0.07	c0.07			0.22			0.02		
v/c Ratio	0.19	0.15	0.38	0.65	0.14		0.76	0.25		0.08	0.85	
Uniform Delay, d1	28.4	28.3	29.7	29.8	26.7		21.2	18.4		18.0	24.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.8	0.9	3.8	9.6	0.8		20.5	0.5		0.4	7.5	
Delay (s)	30.2	29.2	33.5	39.5	27.5		41.7	18.9		18.3	32.4	
Level of Service	C	C	C	D	C		D	B		B	C	
Approach Delay (s)		32.6			36.4			26.7			32.0	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	31.5	HCM 2010 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	84.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
Maximum Split (s)	11.5	36.5	14.5	21.5	12.5	35.5	12.5	23.5
Maximum Split (%)	13.7%	43.5%	17.3%	25.6%	14.9%	42.3%	14.9%	28.0%
Minimum Split (s)	10.5	25.5	10.5	21.5	10.5	25.5	10.5	21.5
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	20	5	10	5	20	5	10
Vehicle Extension (s)	2	3	2	3	2	3	2	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		5		5		5		5
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	38.5	2	71.5	50	2	14.5	50	62.5
End Time (s)	50	38.5	2	71.5	14.5	50	62.5	2
Yield/Force Off (s)	44.5	33	80.5	66	9	44.5	57	80.5
Yield/Force Off 170(s)	44.5	22	80.5	55	9	33.5	57	69.5
Local Start Time (s)	24	71.5	57	35.5	71.5	0	35.5	48
Local Yield (s)	30	18.5	66	51.5	78.5	30	42.5	66
Local Yield 170(s)	30	7.5	66	40.5	78.5	19	42.5	55

Intersection Summary	
Cycle Length	84
Control Type	Pretimed
Natural Cycle	80
Offset: 14.5 (17%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 5: LA 378 & Sulphur Ave.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	34	14	97	36	45	5	307	21	22	929	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.97			0.97		1.00	0.99		1.00	1.00	
Flt Protected		0.99			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1784			1752		1770	3506		1770	3524	
Flt Permitted		0.91			0.82		0.22	1.00		0.53	1.00	
Satd. Flow (perm)		1648			1472		417	3506		996	3524	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	42	18	121	45	56	6	341	23	24	1032	30
RTOR Reduction (vph)	0	14	0	0	17	0	0	7	0	0	3	0
Lane Group Flow (vph)	0	65	0	0	205	0	6	357	0	24	1059	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		17.5			17.5		44.1	44.1		44.1	44.1	
Effective Green, g (s)		17.5			17.5		44.1	44.1		44.1	44.1	
Actuated g/C Ratio		0.25			0.25		0.63	0.63		0.63	0.63	
Clearance Time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Grp Cap (vph)		412			368		262	2208		627	2220	
v/s Ratio Prot								0.10			c0.30	
v/s Ratio Perm		0.04			c0.14		0.01			0.02		
v/c Ratio		0.16			0.56		0.02	0.16		0.04	0.48	
Uniform Delay, d1		20.5			22.9		4.9	5.3		4.9	6.9	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.8			6.0		0.2	0.2		0.1	0.7	
Delay (s)		21.3			28.8		5.0	5.5		5.0	7.6	
Level of Service		C			C		A	A		A	A	
Approach Delay (s)		21.3			28.8			5.5			7.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	48.3	21.7	48.3	21.7
Maximum Split (%)	69.0%	31.0%	69.0%	31.0%
Minimum Split (s)	20.5	20.5	20.5	20.5
Yellow Time (s)	3.2	3.2	3.2	3.2
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	61.7	40	61.7	40
End Time (s)	40	61.7	40	61.7
Yield/Force Off (s)	35.8	57.5	35.8	57.5
Yield/Force Off 170(s)	24.8	46.5	24.8	46.5
Local Start Time (s)	25.9	4.2	25.9	4.2
Local Yield (s)	0	21.7	0	21.7
Local Yield 170(s)	59	10.7	59	10.7

Intersection Summary	
Cycle Length	70
Control Type	Pretimed
Natural Cycle	45
Offset: 35.8 (51%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	

Splits and Phases: 16: LA 378 & Mc Kinley Street

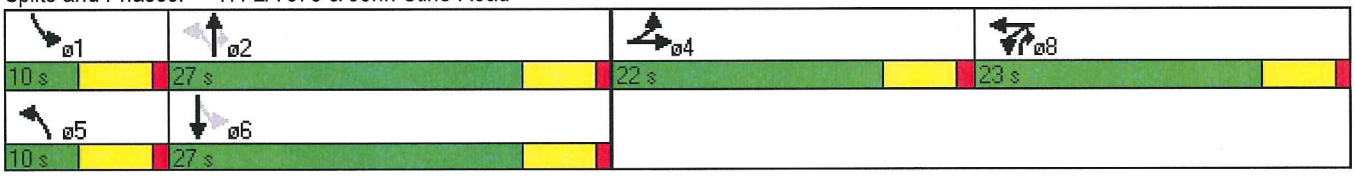
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	22	65	131	59	9	18	221	43	1	755	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5		5.5	5.5	5.5	5.5	5.5	
Lane Util. Factor		1.00			1.00		1.00	1.00	1.00	1.00	0.95	
Frt		0.94			0.99		1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1721			1793		1770	1863	1583	1770	3476	
Flt Permitted		0.98			0.97		0.17	1.00	1.00	0.58	1.00	
Satd. Flow (perm)		1721			1793		312	1863	1583	1073	3476	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	89	28	81	164	74	11	20	246	48	1	839	113
RTOR Reduction (vph)	0	32	0	0	2	0	0	0	23	0	11	0
Lane Group Flow (vph)	0	166	0	0	247	0	20	246	25	1	941	0
Turn Type	Split	NA		Split	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	4	4		8	8		5	2	8	1	6	
Permitted Phases							2		2	6		
Actuated Green, G (s)		11.1			13.3		25.4	23.9	37.2	23.8	23.1	
Effective Green, g (s)		11.1			13.3		25.4	23.9	37.2	23.8	23.1	
Actuated g/C Ratio		0.16			0.19		0.36	0.34	0.52	0.34	0.33	
Clearance Time (s)		5.5			5.5		5.5	5.5	5.5	5.5	5.5	
Vehicle Extension (s)		2.5			2.5		2.3	5.0	2.5	2.3	5.0	
Lane Grp Cap (vph)		269			335		142	627	829	366	1130	
v/s Ratio Prot		c0.10			c0.14		c0.00	0.13	0.01	0.00	c0.27	
v/s Ratio Perm							0.05		0.01	0.00		
v/c Ratio		0.62			0.74		0.14	0.39	0.03	0.00	0.83	
Uniform Delay, d1		28.0			27.2		16.2	18.0	8.2	15.7	22.2	
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		3.6			7.7		0.3	0.9	0.0	0.0	6.0	
Delay (s)		31.5			34.9		16.5	18.8	8.2	15.7	28.1	
Level of Service		C			C		B	B	A	B	C	
Approach Delay (s)		31.5			34.9			17.1			28.1	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2010 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	71.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	10	27	22	10	27	23
Maximum Split (%)	12.2%	32.9%	26.8%	12.2%	32.9%	28.0%
Minimum Split (s)	9.5	21.5	21.5	9.5	21.5	21.5
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	15	6	4	15	6
Vehicle Extension (s)	2.3	5	2.5	2.3	5	2.5
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		5	5		5	5
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	10	37	0	10	59
End Time (s)	10	37	59	10	37	0
Yield/Force Off (s)	4.5	31.5	53.5	4.5	31.5	76.5
Yield/Force Off 170(s)	4.5	31.5	42.5	4.5	31.5	65.5
Local Start Time (s)	72	0	27	72	0	49
Local Yield (s)	76.5	21.5	43.5	76.5	21.5	66.5
Local Yield 170(s)	76.5	21.5	32.5	76.5	21.5	55.5

Intersection Summary	
Cycle Length	82
Control Type	Actuated-Uncoordinated
Natural Cycle	80

Splits and Phases: 17: LA 378 & John Stine Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	2	3	124	5	4	6	186	51	5	648	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	2	4	155	6	5	7	207	57	6	720	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	990	1010	722	987	984	235	724			263		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	990	1010	722	987	984	235	724			263		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	99	30	97	99	99			100		
cM capacity (veh/h)	218	237	427	221	246	804	878			1301		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	3	4	86	238	725
Volume Left	1	0	78	3	3
Volume Right	0	4	2	28	2
cSH	233	427	227	878	1301
Volume to Capacity	0.01	0.01	0.38	0.01	0.00
Queue Length 95th (ft)	1	1	42	1	0
Control Delay (s)	20.7	13.5	30.2	0.2	0.1
Lane LOS	C	B	D	A	A
Approach Delay (s)	16.8		30.2	0.2	0.1
Approach LOS	C		D		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	558	8	7	156	19	23
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.80	0.80
Hourly flow rate (vph)	620	9	8	173	24	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	171	94			181	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	171	94			181	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	23	99			98	
cM capacity (veh/h)	805	962			1394	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	624	94	41
Volume Left	620	0	12
Volume Right	4	87	0
cSH	806	1700	1394
Volume to Capacity	0.77	0.06	0.02
Queue Length 95th (ft)	192	0	1
Control Delay (s)	23.0	0.0	2.3
Lane LOS	C		A
Approach Delay (s)	23.0	0.0	2.3
Approach LOS	C		

Intersection Summary			
Average Delay	19.0		
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

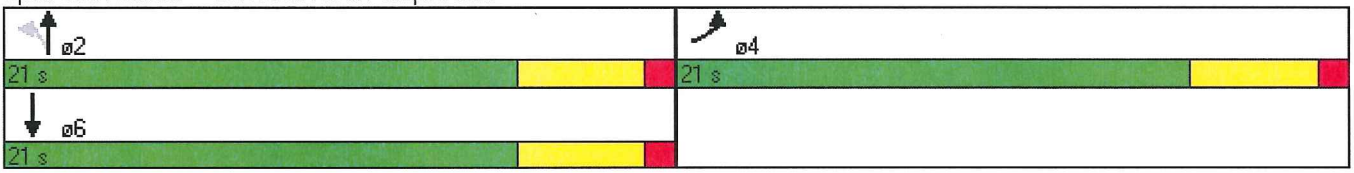
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	176	2	4	105	300	565
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	1.00			1.00	0.91	
Flt Protected	0.95			1.00	1.00	
Satd. Flow (prot)	1772			1859	1698	
Flt Permitted	0.95			0.92	1.00	
Satd. Flow (perm)	1772			1720	1698	
Peak-hour factor, PHF	0.90	0.90	0.80	0.80	0.90	0.90
Adj. Flow (vph)	196	2	5	131	333	628
RTOR Reduction (vph)	42	0	0	0	116	0
Lane Group Flow (vph)	156	0	0	136	845	0
Turn Type	NA		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	7.0			21.1	21.1	
Effective Green, g (s)	7.0			21.1	21.1	
Actuated g/C Ratio	0.18			0.55	0.55	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	2.5			2.5	2.5	
Lane Grp Cap (vph)	325			952	940	
v/s Ratio Prot	c0.09				c0.50	
v/s Ratio Perm				0.08		
v/c Ratio	0.48			0.14	0.90	
Uniform Delay, d1	13.9			4.1	7.5	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.8			0.3	13.2	
Delay (s)	14.7			4.4	20.7	
Level of Service	B			A	C	
Approach Delay (s)	14.7			4.4	20.7	
Approach LOS	B			A	C	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	38.1	Sum of lost time (s)	10.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6
Movement	NBTL	EBL	SBT
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	Max	None	Max
Maximum Split (s)	21	21	21
Maximum Split (%)	50.0%	50.0%	50.0%
Minimum Split (s)	21	21	21
Yellow Time (s)	4	4	4
All-Red Time (s)	1	1	1
Minimum Initial (s)	10	5	10
Vehicle Extension (s)	2.5	2.5	2.5
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	5	5	5
Flash Dont Walk (s)	11	11	11
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	21	0
End Time (s)	21	0	21
Yield/Force Off (s)	16	37	16
Yield/Force Off 170(s)	5	26	5
Local Start Time (s)	0	21	0
Local Yield (s)	16	37	16
Local Yield 170(s)	5	26	5

Intersection Summary	
Cycle Length	42
Control Type	Actuated-Uncoordinated
Natural Cycle	60

Splits and Phases: 21: Davis Rd & Phillips Road



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	1	0	281	0	0	864
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	0	312	0	0	960
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			77			
pX, platoon unblocked	0.98	0.98			0.98	
vC, conflicting volume	1272	312			312	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1268	292			292	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	183	735			1248	

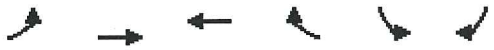
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	1	156	480
Volume Left	1	0	0
Volume Right	0	0	0
cSH	183	1700	1248
Volume to Capacity	0.00	0.09	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	24.8	0.0	0.0
Lane LOS	C		
Approach Delay (s)	24.8	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	249	1	1	732	68	2	0	3	167	0	124
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	271	1	1	796	74	2	0	3	182	0	135
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												5
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	796			272			1123	1123	271	1126	1124	796
vC1, stage 1 conf vol							326	326		798	798	
vC2, stage 2 conf vol							798	798		328	326	
vCu, unblocked vol	796			272			1123	1123	271	1126	1124	796
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			99	100	100	38	100	65
cM capacity (veh/h)	826			1292			186	293	767	291	305	387

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	27	271	1	796	74	3	158
Volume Left	27	0	1	0	0	1	91
Volume Right	0	1	0	0	74	2	67
cSH	826	1700	1292	1700	1700	341	508
Volume to Capacity	0.03	0.16	0.00	0.47	0.04	0.01	0.31
Queue Length 95th (ft)	3	0	0	0	0	1	33
Control Delay (s)	9.5	0.0	7.8	0.0	0.0	15.7	20.0
Lane LOS	A		A			C	C
Approach Delay (s)	0.9		0.0			15.7	20.0
Approach LOS						C	C

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		



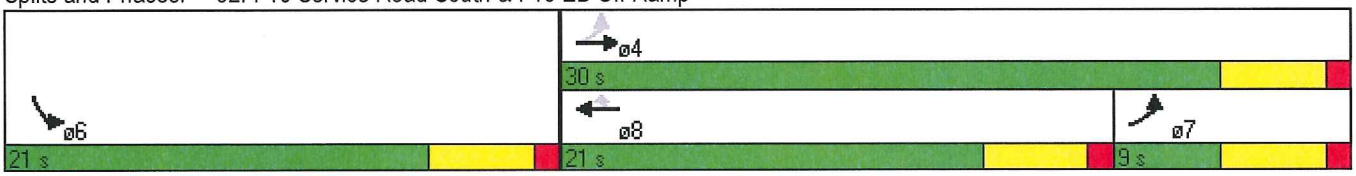
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	5	223	4	468	761	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95	1.00	1.00	0.97	
Frt		1.00	1.00	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3535	1863	1583	3441	
Flt Permitted		0.95	1.00	1.00	0.95	
Satd. Flow (perm)		3371	1863	1583	3441	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	6	279	5	585	951	1
RTOR Reduction (vph)	0	0	0	294	105	0
Lane Group Flow (vph)	0	285	5	291	847	0
Turn Type	pm+pt	NA	NA	Perm	NA	
Protected Phases	7	4	8		6	
Permitted Phases	4			8		
Actuated Green, G (s)		25.0	25.0	25.0	15.2	
Effective Green, g (s)		25.0	25.0	25.0	15.2	
Actuated g/C Ratio		0.50	0.50	0.50	0.30	
Clearance Time (s)		5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1678	927	788	1041	
v/s Ratio Prot			0.00		c0.25	
v/s Ratio Perm		0.08		c0.18		
v/c Ratio		0.17	0.01	0.37	0.81	
Uniform Delay, d1		6.9	6.3	7.8	16.2	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0	0.0	1.3	5.0	
Delay (s)		7.0	6.4	9.1	21.2	
Level of Service		A	A	A	C	
Approach Delay (s)		7.0	9.1		21.2	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	50.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	4	6	7	8
Movement	EBTL	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Max	None	None	Max
Maximum Split (s)	30	21	9	21
Maximum Split (%)	58.8%	41.2%	17.6%	41.2%
Minimum Split (s)	21	21	9	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	7	4	15
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21	0	42	21
End Time (s)	0	21	0	42
Yield/Force Off (s)	46	16	46	37
Yield/Force Off 170(s)	35	5	46	26
Local Start Time (s)	21	0	42	21
Local Yield (s)	46	16	46	37
Local Yield 170(s)	35	5	46	26

Intersection Summary	
Cycle Length	51
Control Type	Semi Act-Uncoord
Natural Cycle	60

Splits and Phases: 32: I-10 Service Road South & I-10 EB Off Ramp



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	707	277	102	152	114	353
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	1863	1583	1770	1583
Flt Permitted	0.67	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1257	3539	1863	1583	1770	1583
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.90	0.90
Adj. Flow (vph)	884	346	128	190	127	392
RTOR Reduction (vph)	0	0	0	140	0	346
Lane Group Flow (vph)	884	346	128	50	127	46
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	40.0	40.0	15.0	15.0	6.6	6.6
Effective Green, g (s)	40.0	40.0	15.0	15.0	6.6	6.6
Actuated g/C Ratio	0.71	0.71	0.27	0.27	0.12	0.12
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.3	2.3	2.3	2.0	2.0
Lane Grp Cap (vph)	1069	2501	493	419	206	184
v/s Ratio Prot	c0.29	0.10	0.07		c0.07	
v/s Ratio Perm	c0.29			0.03		0.03
v/c Ratio	0.83	0.14	0.26	0.12	0.62	0.25
Uniform Delay, d1	6.1	2.7	16.4	15.8	23.8	22.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.2	0.0	0.2	0.1	3.8	0.3
Delay (s)	11.3	2.7	16.6	15.9	27.6	23.0
Level of Service	B	A	B	B	C	C
Approach Delay (s)		8.9	16.2		24.1	
Approach LOS		A	B		C	

Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	56.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	4	6	7	8
Movement	EBTL	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	Max	Min
Maximum Split (s)	45	12	25	20
Maximum Split (%)	78.9%	21.1%	43.9%	35.1%
Minimum Split (s)	21	21	15	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	12	0	32	12
End Time (s)	0	12	0	32
Yield/Force Off (s)	52	7	52	27
Yield/Force Off 170(s)	52	53	52	27
Local Start Time (s)	12	0	32	12
Local Yield (s)	52	7	52	27
Local Yield 170(s)	52	53	52	27

Intersection Summary	
Cycle Length	57
Control Type	Actuated-Uncoordinated
Natural Cycle	70

Splits and Phases: 1: I-10 Service Road & LA 378

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	578	96	142	698	379	521
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.50	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	929	3539	3539	1583
Peak-hour factor, PHF	0.80	0.80	0.90	0.90	0.90	0.90
Adj. Flow (vph)	722	120	158	776	421	579
RTOR Reduction (vph)	0	86	0	0	0	406
Lane Group Flow (vph)	722	34	158	776	421	173
Turn Type	NA	Prot	pm+pt	NA	NA	Perm
Protected Phases	4	4	5	2	6	
Permitted Phases			2			6
Actuated Green, G (s)	15.3	15.3	28.5	28.5	16.1	16.1
Effective Green, g (s)	15.3	15.3	28.5	28.5	16.1	16.1
Actuated g/C Ratio	0.28	0.28	0.53	0.53	0.30	0.30
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.3	2.3	2.3
Lane Grp Cap (vph)	976	450	607	1874	1059	473
v/s Ratio Prot	c0.21	0.02	c0.04	c0.22	0.12	
v/s Ratio Perm			0.10			0.11
v/c Ratio	0.74	0.08	0.26	0.41	0.40	0.37
Uniform Delay, d1	17.4	14.1	7.3	7.6	15.0	14.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	0.0	0.1	0.1	0.1	0.3
Delay (s)	20.0	14.1	7.4	7.7	15.1	15.1
Level of Service	C	B	A	A	B	B
Approach Delay (s)	19.2			7.7	15.1	
Approach LOS	B			A	B	

Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	53.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	5	6
Movement	NBTL	EBL	NBL	SBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	36	26	15	21
Maximum Split (%)	58.1%	41.9%	24.2%	33.9%
Minimum Split (s)	21	21	20	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	36	21	0
End Time (s)	36	0	36	21
Yield/Force Off (s)	31	57	31	16
Yield/Force Off 170(s)	31	46	31	16
Local Start Time (s)	0	36	21	0
Local Yield (s)	31	57	31	16
Local Yield 170(s)	31	46	31	16

Intersection Summary	
Cycle Length	62
Control Type	Actuated-Uncoordinated
Natural Cycle	65

Splits and Phases: 30: LA 378 & I-10 Service Road North

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	191	49	397	83	37	44	159	850	77	33	471	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.92		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1711		1770	3495		1770	3475	
Flt Permitted	0.67	1.00	1.00	0.72	1.00		0.22	1.00		0.22	1.00	
Satd. Flow (perm)	1242	1863	1583	1336	1711		419	3495		414	3475	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	239	61	496	104	46	55	177	944	86	37	523	72
RTOR Reduction (vph)	0	0	310	0	46	0	0	8	0	0	13	0
Lane Group Flow (vph)	239	61	186	104	55	0	177	1022	0	37	582	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	16.5	16.5	16.5	14.5	14.5		31.0	31.0		30.0	30.0	
Effective Green, g (s)	16.5	16.5	16.5	14.5	14.5		31.0	31.0		30.0	30.0	
Actuated g/C Ratio	0.20	0.20	0.20	0.17	0.17		0.37	0.37		0.36	0.36	
Clearance Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)	309	365	310	274	295		267	1289		244	1241	
v/s Ratio Prot	c0.10	0.03		c0.04	0.03		0.06	c0.29		0.01	c0.17	
v/s Ratio Perm	c0.06		0.12	0.03			0.19			0.04		
v/c Ratio	0.77	0.17	0.60	0.38	0.19		0.66	0.79		0.15	0.47	
Uniform Delay, d1	31.4	28.0	30.7	31.2	29.7		19.6	23.6		22.2	20.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	17.0	1.0	8.3	4.0	1.4		12.3	5.1		1.3	1.3	
Delay (s)	48.4	29.0	39.0	35.1	31.1		31.8	28.7		23.5	22.1	
Level of Service	D	C	D	D	C		C	C		C	C	
Approach Delay (s)		41.1			33.2			29.2			22.2	
Approach LOS		D			C			C			C	

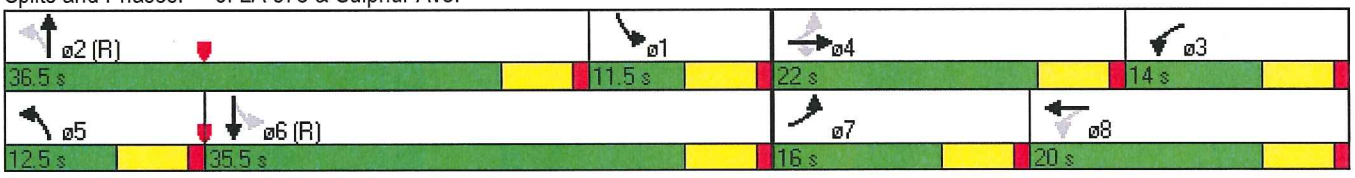
Intersection Summary			
HCM 2000 Control Delay	31.2	HCM 2010 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	84.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
Maximum Split (s)	11.5	36.5	14	22	12.5	35.5	16	20
Maximum Split (%)	13.7%	43.5%	16.7%	26.2%	14.9%	42.3%	19.0%	23.8%
Minimum Split (s)	10.5	25.5	10.5	21.5	10.5	25.5	10.5	21.5
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	20	5	10	5	20	5	10
Vehicle Extension (s)	2	3	2	3	2	3	2	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		5		5		5		5
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	38.5	2	72	50	2	14.5	50	66
End Time (s)	50	38.5	2	72	14.5	50	66	2
Yield/Force Off (s)	44.5	33	80.5	66.5	9	44.5	60.5	80.5
Yield/Force Off 170(s)	44.5	22	80.5	55.5	9	33.5	60.5	69.5
Local Start Time (s)	24	71.5	57.5	35.5	71.5	0	35.5	51.5
Local Yield (s)	30	18.5	66	52	78.5	30	46	66
Local Yield 170(s)	30	7.5	66	41	78.5	19	46	55

Intersection Summary	
Cycle Length	84
Control Type	Pretimed
Natural Cycle	80
Offset: 14.5 (17%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 5: LA 378 & Sulphur Ave.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	35	30	61	22	64	19	1135	104	29	468	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.97			0.94		1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1760			1718		1770	3494		1770	3512	
Flt Permitted		0.79			0.83		0.44	1.00		0.14	1.00	
Satd. Flow (perm)		1427			1461		819	3494		256	3512	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	74	44	38	76	28	80	21	1261	116	32	520	28
RTOR Reduction (vph)	0	17	0	0	40	0	0	10	0	0	6	0
Lane Group Flow (vph)	0	140	0	0	144	0	21	1367	0	32	542	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		17.5			17.5		44.1	44.1		44.1	44.1	
Effective Green, g (s)		17.5			17.5		44.1	44.1		44.1	44.1	
Actuated g/C Ratio		0.25			0.25		0.63	0.63		0.63	0.63	
Clearance Time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Grp Cap (vph)		356			365		515	2201		161	2212	
v/s Ratio Prot								c0.39			0.15	
v/s Ratio Perm		0.10			c0.10		0.03			0.13		
v/c Ratio		0.39			0.40		0.04	0.62		0.20	0.25	
Uniform Delay, d1		21.8			21.8		4.9	7.9		5.5	5.7	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.2			3.2		0.1	1.3		2.8	0.3	
Delay (s)		25.0			25.0		5.1	9.2		8.2	5.9	
Level of Service		C			C		A	A		A	A	
Approach Delay (s)		25.0			25.0			9.1			6.1	
Approach LOS		C			C			A			A	

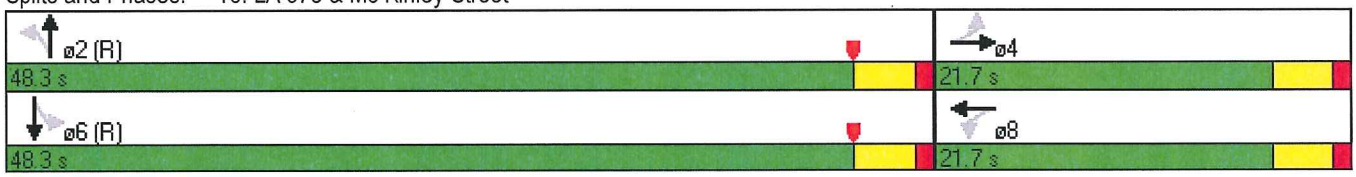
Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	48.3	21.7	48.3	21.7
Maximum Split (%)	69.0%	31.0%	69.0%	31.0%
Minimum Split (s)	20.5	20.5	20.5	20.5
Yellow Time (s)	3.2	3.2	3.2	3.2
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	61.7	40	61.7	40
End Time (s)	40	61.7	40	61.7
Yield/Force Off (s)	35.8	57.5	35.8	57.5
Yield/Force Off 170(s)	24.8	46.5	24.8	46.5
Local Start Time (s)	25.9	4.2	25.9	4.2
Local Yield (s)	0	21.7	0	21.7
Local Yield 170(s)	59	10.7	59	10.7

Intersection Summary	
Cycle Length	70
Control Type	Pretimed
Natural Cycle	50
Offset: 35.8 (51%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	

Splits and Phases: 16: LA 378 & Mc Kinley Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	46	53	93	47	8	64	878	166	5	352	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5		5.5	5.5	5.5	5.5	5.5	
Lane Util. Factor		1.00			1.00		1.00	1.00	1.00	1.00	0.95	
Frt		0.97			0.99		1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.97			0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1758			1793		1770	1863	1583	1770	3466	
Flt Permitted		0.97			0.97		0.42	1.00	1.00	0.09	1.00	
Satd. Flow (perm)		1758			1793		791	1863	1583	169	3466	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	218	58	66	116	59	10	71	976	184	6	391	63
RTOR Reduction (vph)	0	8	0	0	2	0	0	0	67	0	11	0
Lane Group Flow (vph)	0	334	0	0	183	0	71	976	117	6	443	0
Turn Type	Split	NA		Split	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	4	4		8	8		5	2	8	1	6	
Permitted Phases							2		2	6		
Actuated Green, G (s)		19.6			14.0		50.2	46.7	60.7	44.8	44.0	
Effective Green, g (s)		19.6			14.0		50.2	46.7	60.7	44.8	44.0	
Actuated g/C Ratio		0.19			0.14		0.49	0.45	0.59	0.43	0.43	
Clearance Time (s)		5.5			5.5		5.5	5.5	5.5	5.5	5.5	
Vehicle Extension (s)		2.5			2.5		2.3	5.0	2.5	2.3	5.0	
Lane Grp Cap (vph)		334			243		418	843	931	85	1479	
v/s Ratio Prot		c0.19			c0.10		c0.01	c0.52	0.02	0.00	0.13	
v/s Ratio Perm							0.08		0.06	0.03		
v/c Ratio		1.00			0.75		0.17	1.16	0.13	0.07	0.30	
Uniform Delay, d1		41.7			42.9		14.3	28.2	9.4	24.3	19.4	
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		48.8			11.9		0.1	84.2	0.0	0.2	0.2	
Delay (s)		90.5			54.8		14.5	112.4	9.5	24.5	19.7	
Level of Service		F			D		B	F	A	C	B	
Approach Delay (s)		90.5			54.8			91.4			19.7	
Approach LOS		F			D			F			B	

Intersection Summary			
HCM 2000 Control Delay	73.3	HCM 2010 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	103.1	Sum of lost time (s)	22.0
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	10	52	25	10	52	23
Maximum Split (%)	9.1%	47.3%	22.7%	9.1%	47.3%	20.9%
Minimum Split (s)	9.5	21.5	21.5	9.5	21.5	21.5
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	15	6	4	15	6
Vehicle Extension (s)	2.3	5	2.5	2.3	5	2.5
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		5	5		5	5
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	10	62	0	10	87
End Time (s)	10	62	87	10	62	0
Yield/Force Off (s)	4.5	56.5	81.5	4.5	56.5	104.5
Yield/Force Off 170(s)	4.5	56.5	70.5	4.5	56.5	93.5
Local Start Time (s)	100	0	52	100	0	77
Local Yield (s)	104.5	46.5	71.5	104.5	46.5	94.5
Local Yield 170(s)	104.5	46.5	60.5	104.5	46.5	83.5

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Uncoordinated
Natural Cycle	150

Splits and Phases: 17: LA 378 & John Stine Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	3	9	45	9	9	2	770	240	7	330	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	8	4	11	56	11	11	2	856	267	8	367	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1395	1512	369	1391	1381	989	372			1122		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1395	1512	369	1391	1381	989	372			1122		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	97	98	50	92	96	100			99		
cM capacity (veh/h)	106	118	676	113	142	299	1186			622		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	8	11	45	990	373
Volume Left	4	0	28	1	4
Volume Right	0	11	6	133	3
cSH	112	676	130	1186	622
Volume to Capacity	0.07	0.02	0.35	0.00	0.01
Queue Length 95th (ft)	5	1	35	0	1
Control Delay (s)	39.5	10.4	46.7	0.0	0.3
Lane LOS	E	B	E	A	A
Approach Delay (s)	22.0		46.7	0.0	0.3
Approach LOS	C		E		

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	73.0%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	258	15	38	560	22	19
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.80	0.80
Hourly flow rate (vph)	287	17	42	622	28	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	432	353			664	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	432	353			664	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	49	98			97	
cM capacity (veh/h)	563	690			925	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	295	353	38
Volume Left	287	0	14
Volume Right	8	311	0
cSH	566	1700	925
Volume to Capacity	0.52	0.21	0.03
Queue Length 95th (ft)	75	0	2
Control Delay (s)	18.1	0.0	3.5
Lane LOS	C		A
Approach Delay (s)	18.1	0.0	3.5
Approach LOS	C		

Intersection Summary			
Average Delay	8.0		
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

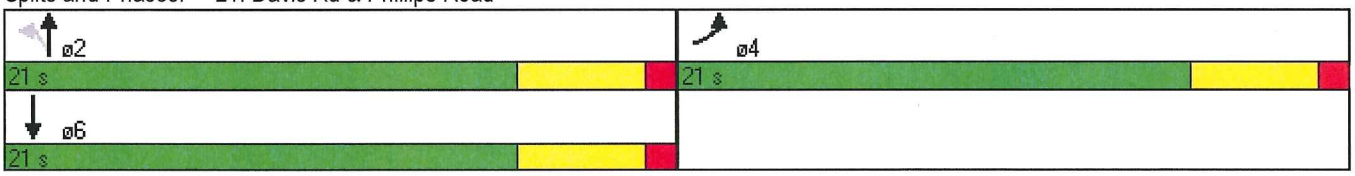
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	572	3	1	353	132	278
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	1.00			1.00	0.91	
Flt Protected	0.95			1.00	1.00	
Satd. Flow (prot)	1773			1863	1692	
Flt Permitted	0.95			1.00	1.00	
Satd. Flow (perm)	1773			1861	1692	
Peak-hour factor, PHF	0.90	0.90	0.80	0.80	0.90	0.90
Adj. Flow (vph)	636	3	1	441	147	309
RTOR Reduction (vph)	33	0	0	0	179	0
Lane Group Flow (vph)	607	0	0	442	277	0
Turn Type	NA		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	15.6			16.0	16.0	
Effective Green, g (s)	15.6			16.0	16.0	
Actuated g/C Ratio	0.38			0.38	0.38	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	2.5			2.5	2.5	
Lane Grp Cap (vph)	664			715	650	
v/s Ratio Prot	c0.34				0.16	
v/s Ratio Perm				c0.24		
v/c Ratio	0.91			0.62	0.43	
Uniform Delay, d1	12.4			10.3	9.4	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	17.0			4.0	2.0	
Delay (s)	29.4			14.3	11.5	
Level of Service	C			B	B	
Approach Delay (s)	29.4			14.3	11.5	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay	19.7	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	41.6	Sum of lost time (s)	10.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6
Movement	NBTL	EBL	SBT
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	Max	None	Max
Maximum Split (s)	21	21	21
Maximum Split (%)	50.0%	50.0%	50.0%
Minimum Split (s)	21	21	21
Yellow Time (s)	4	4	4
All-Red Time (s)	1	1	1
Minimum Initial (s)	10	5	10
Vehicle Extension (s)	2.5	2.5	2.5
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	5	5	5
Flash Dont Walk (s)	11	11	11
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	21	0
End Time (s)	21	0	21
Yield/Force Off (s)	16	37	16
Yield/Force Off 170(s)	5	26	5
Local Start Time (s)	0	21	0
Local Yield (s)	16	37	16
Local Yield 170(s)	5	26	5

Intersection Summary	
Cycle Length	42
Control Type	Actuated-Uncoordinated
Natural Cycle	50

Splits and Phases: 21: Davis Rd & Phillips Road



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	1	1	919	6	1	409
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	1	1021	7	1	454
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			77			
pX, platoon unblocked	0.81	0.81			0.81	
vC, conflicting volume	1481	1024			1028	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1477	912			916	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	112	268			602	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	2	1024	455
Volume Left	1	0	1
Volume Right	1	3	0
cSH	139	1700	602
Volume to Capacity	0.01	0.60	0.00
Queue Length 95th (ft)	1	0	0
Control Delay (s)	31.2	0.0	0.0
Lane LOS	D		A
Approach Delay (s)	31.2	0.0	0.0
Approach LOS	D		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	136	813	4	4	435	139	0	1	5	90	0	58
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	148	884	4	4	473	151	0	1	5	98	0	63
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												5
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	473			888			1663	1663	886	1667	1665	473
vC1, stage 1 conf vol							1182	1182		482	482	
vC2, stage 2 conf vol							482	482		1185	1184	
vCu, unblocked vol	473			888			1663	1663	886	1667	1665	473
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	86			99			100	99	98	35	100	89
cM capacity (veh/h)	1089			763			142	167	344	152	174	591

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	148	886	4	473	151	3	80
Volume Left	148	0	4	0	0	0	49
Volume Right	0	2	0	0	151	3	32
cSH	1089	1700	763	1700	1700	292	249
Volume to Capacity	0.14	0.52	0.01	0.28	0.09	0.01	0.32
Queue Length 95th (ft)	12	0	0	0	0	1	34
Control Delay (s)	8.8	0.0	9.7	0.0	0.0	17.5	28.6
Lane LOS	A		A			C	D
Approach Delay (s)	1.3		0.1			17.5	28.6
Approach LOS						C	D

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	2	52	11	751	294	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95	1.00	1.00	0.97	
Frt		1.00	1.00	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3433	1810	1538	3336	
Flt Permitted		0.95	1.00	1.00	0.95	
Satd. Flow (perm)		3274	1810	1538	3336	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	2	65	14	939	368	8
RTOR Reduction (vph)	0	0	0	394	121	0
Lane Group Flow (vph)	0	67	14	545	255	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	pm+pt	NA	NA	Perm	NA	
Protected Phases	7	4	8		6	
Permitted Phases	4			8		
Actuated Green, G (s)		25.9	25.9	25.9	8.7	
Effective Green, g (s)		25.9	25.9	25.9	8.7	
Actuated g/C Ratio		0.58	0.58	0.58	0.20	
Clearance Time (s)		5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1901	1051	893	650	
v/s Ratio Prot			0.01		c0.08	
v/s Ratio Perm		0.02		c0.35		
v/c Ratio		0.04	0.01	0.61	0.39	
Uniform Delay, d1		4.0	4.0	6.1	15.6	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0	0.0	3.1	0.4	
Delay (s)		4.0	4.0	9.2	16.0	
Level of Service		A	A	A	B	
Approach Delay (s)		4.0	9.1		16.0	
Approach LOS		A	A		B	

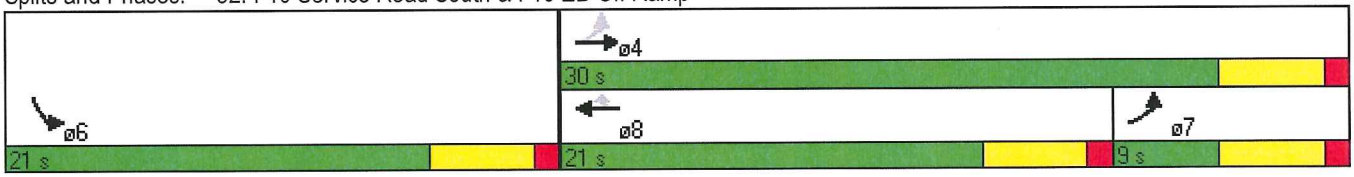
Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	44.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	4	6	7	8
Movement	EBTL	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Max	None	None	Max
Maximum Split (s)	30	21	9	21
Maximum Split (%)	58.8%	41.2%	17.6%	41.2%
Minimum Split (s)	21	21	9	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	7	4	15
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21	0	42	21
End Time (s)	0	21	0	42
Yield/Force Off (s)	46	16	46	37
Yield/Force Off 170(s)	35	5	46	26
Local Start Time (s)	21	0	42	21
Local Yield (s)	46	16	46	37
Local Yield 170(s)	35	5	46	26

Intersection Summary	
Cycle Length	51
Control Type	Semi Act-Uncoord
Natural Cycle	60

Splits and Phases: 32: I-10 Service Road South & I-10 EB Off Ramp



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	246	91	188	95	82	512
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	3438	1810	1538	1719	1538
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1719	3438	1810	1538	1719	1538
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.90	0.90
Adj. Flow (vph)	308	114	235	119	91	569
RTOR Reduction (vph)	0	0	0	89	0	470
Lane Group Flow (vph)	308	114	235	30	91	99
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	12.4	29.5	12.1	12.1	8.3	8.3
Effective Green, g (s)	12.4	29.5	12.1	12.1	8.3	8.3
Actuated g/C Ratio	0.26	0.62	0.25	0.25	0.17	0.17
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.3	2.3	2.3	2.0	2.0
Lane Grp Cap (vph)	445	2121	458	389	298	267
v/s Ratio Prot	c0.18	0.03	c0.13		0.05	
v/s Ratio Perm				0.02		c0.06
v/c Ratio	0.69	0.05	0.51	0.08	0.31	0.37
Uniform Delay, d1	16.0	3.6	15.3	13.6	17.2	17.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.7	0.0	0.6	0.0	0.2	0.3
Delay (s)	19.7	3.6	15.9	13.6	17.4	17.8
Level of Service	B	A	B	B	B	B
Approach Delay (s)		15.4	15.2		17.7	
Approach LOS		B	B		B	

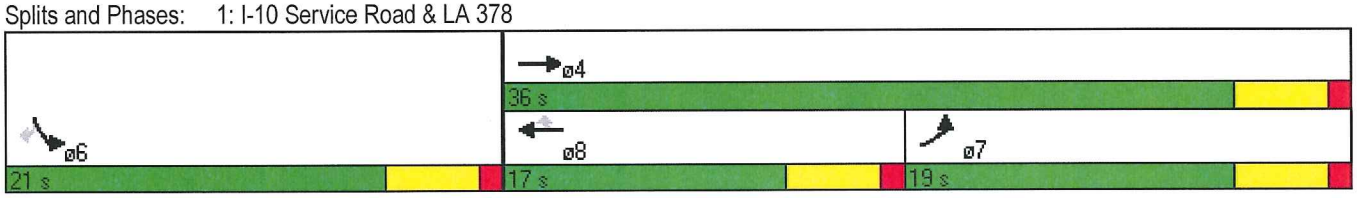
Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	47.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	4	6	7	8
Movement	EBT	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	36	21	19	17
Maximum Split (%)	63.2%	36.8%	33.3%	29.8%
Minimum Split (s)	21	21	15	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21	0	38	21
End Time (s)	0	21	0	38
Yield/Force Off (s)	52	16	52	33
Yield/Force Off 170(s)	52	5	52	33
Local Start Time (s)	21	0	38	21
Local Yield (s)	52	16	52	33
Local Yield 170(s)	52	5	52	33

Intersection Summary	
Cycle Length	57
Control Type	Actuated-Uncoordinated
Natural Cycle	60

Splits and Phases: 1: I-10 Service Road & LA 378



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	248	77	99	245	517	722
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3335	1538	1719	3438	3438	1538
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3335	1538	1719	3438	3438	1538
Peak-hour factor, PHF	0.80	0.80	0.90	0.90	0.90	0.90
Adj. Flow (vph)	310	96	110	272	574	802
RTOR Reduction (vph)	0	78	0	0	0	527
Lane Group Flow (vph)	310	18	110	272	574	275
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	NA	Prot	Prot	NA	NA	Perm
Protected Phases	4	4	5	2	6	
Permitted Phases						6
Actuated Green, G (s)	8.8	8.8	7.5	28.8	16.3	16.3
Effective Green, g (s)	8.8	8.8	7.5	28.8	16.3	16.3
Actuated g/C Ratio	0.18	0.18	0.16	0.61	0.34	0.34
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.3	2.3	2.3
Lane Grp Cap (vph)	616	284	270	2080	1177	526
v/s Ratio Prot	c0.09	0.01	c0.06	0.08	0.17	
v/s Ratio Perm						c0.18
v/c Ratio	0.50	0.06	0.41	0.13	0.49	0.52
Uniform Delay, d1	17.4	16.0	18.0	4.0	12.4	12.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.4	0.0	0.2	0.6
Delay (s)	17.7	16.0	18.4	4.0	12.5	13.1
Level of Service	B	B	B	A	B	B
Approach Delay (s)	17.3			8.2	12.9	
Approach LOS	B			A	B	

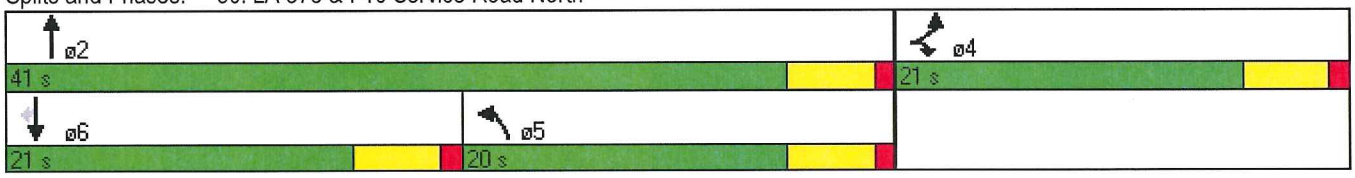
Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	47.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	5	6
Movement	NBT	EBL	NBL	SBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	41	21	20	21
Maximum Split (%)	66.1%	33.9%	32.3%	33.9%
Minimum Split (s)	21	21	20	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	41	21	0
End Time (s)	41	0	41	21
Yield/Force Off (s)	36	57	36	16
Yield/Force Off 170(s)	36	46	36	16
Local Start Time (s)	0	41	21	0
Local Yield (s)	36	57	36	16
Local Yield 170(s)	36	46	36	16

Intersection Summary	
Cycle Length	62
Control Type	Actuated-Uncoordinated
Natural Cycle	65

Splits and Phases: 30: LA 378 & I-10 Service Road North



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	41	259	176	37	22	160	269	32	63	875	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1810	1538	1719	1725		1719	3471		1770	3491	
Flt Permitted	0.42	1.00	1.00	0.72	1.00		0.24	1.00		0.55	1.00	
Satd. Flow (perm)	784	1810	1538	1310	1725		426	3471		1024	3491	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	65	51	324	220	46	28	178	299	36	70	972	98
RTOR Reduction (vph)	0	0	108	0	23	0	0	10	0	0	9	0
Lane Group Flow (vph)	65	51	216	220	51	0	178	325	0	70	1061	0
Heavy Vehicles (%)	2%	5%	5%	5%	5%	2%	5%	2%	5%	2%	2%	2%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	16.0	16.0	30.5	17.0	17.0		31.5	31.5		30.0	30.0	
Effective Green, g (s)	16.0	16.0	30.5	17.0	17.0		31.5	31.5		30.0	30.0	
Actuated g/C Ratio	0.18	0.18	0.34	0.19	0.19		0.35	0.35		0.33	0.33	
Clearance Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)	210	321	521	281	325		357	1214		449	1163	
v/s Ratio Prot	0.02	0.03	c0.07	c0.07	0.03		c0.08	0.09		0.02	c0.30	
v/s Ratio Perm	0.03		0.07	c0.08			0.09			0.03		
v/c Ratio	0.31	0.16	0.41	0.78	0.16		0.50	0.27		0.16	0.91	
Uniform Delay, d1	31.8	31.3	22.9	34.1	30.5		22.2	21.0		21.5	28.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.8	1.1	2.4	19.3	1.0		4.9	0.5		0.7	12.3	
Delay (s)	35.6	32.4	25.3	53.4	31.6		27.2	21.5		22.2	41.1	
Level of Service	D	C	C	D	C		C	C		C	D	
Approach Delay (s)		27.6			47.9			23.5			39.9	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	35.1	HCM 2010 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
Maximum Split (s)	18.5	37	13	21.5	20	35.5	12	22.5
Maximum Split (%)	20.6%	41.1%	14.4%	23.9%	22.2%	39.4%	13.3%	25.0%
Minimum Split (s)	10.5	25.5	10.5	21.5	10.5	25.5	10.5	21.5
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	20	5	10	5	20	5	10
Vehicle Extension (s)	2	3	2	3	2	3	2	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		5		5		5		5
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	17	70	57	35.5	70	0	35.5	47.5
End Time (s)	35.5	17	70	57	0	35.5	47.5	70
Yield/Force Off (s)	30	11.5	64.5	51.5	84.5	30	42	64.5
Yield/Force Off 170(s)	30	0.5	64.5	40.5	84.5	19	42	53.5
Local Start Time (s)	17	70	57	35.5	70	0	35.5	47.5
Local Yield (s)	30	11.5	64.5	51.5	84.5	30	42	64.5
Local Yield 170(s)	30	0.5	64.5	40.5	84.5	19	42	53.5

Intersection Summary	
Cycle Length	90
Control Type	Pretimed
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 5: LA 378 & Sulphur Ave.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	34	14	97	36	45	5	307	21	22	929	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.97			0.97		1.00	0.99		1.00	1.00	
Flt Protected		0.99			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1784			1752		1770	3506		1770	3524	
Flt Permitted		0.92			0.80		0.18	1.00		0.53	1.00	
Satd. Flow (perm)		1669			1447		330	3506		996	3524	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	42	18	121	45	56	6	341	23	24	1032	30
RTOR Reduction (vph)	0	11	0	0	20	0	0	8	0	0	4	0
Lane Group Flow (vph)	0	67	0	0	202	0	6	356	0	24	1058	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		22.8			22.8		28.8	28.8		28.8	28.8	
Effective Green, g (s)		22.8			22.8		28.8	28.8		28.8	28.8	
Actuated g/C Ratio		0.38			0.38		0.48	0.48		0.48	0.48	
Clearance Time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Grp Cap (vph)		634			549		158	1682		478	1691	
v/s Ratio Prot								0.10			c0.30	
v/s Ratio Perm		0.04			c0.14		0.02			0.02		
v/c Ratio		0.11			0.37		0.04	0.21		0.05	0.63	
Uniform Delay, d1		12.0			13.4		8.3	9.0		8.3	11.6	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3			1.9		0.4	0.3		0.2	1.8	
Delay (s)		12.3			15.3		8.7	9.3		8.5	13.4	
Level of Service		B			B		A	A		A	B	
Approach Delay (s)		12.3			15.3			9.3			13.3	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

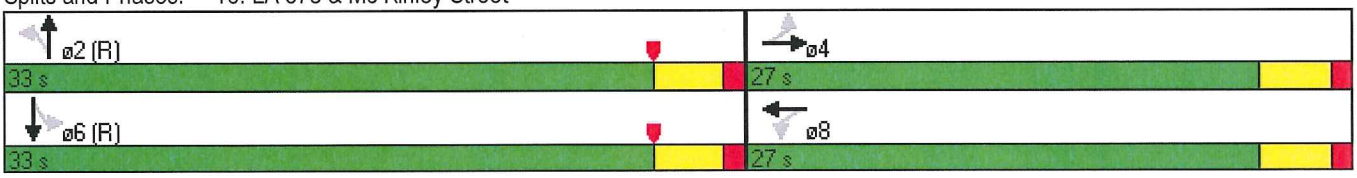
c Critical Lane Group

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	33	27	33	27
Maximum Split (%)	55.0%	45.0%	55.0%	45.0%
Minimum Split (s)	20.5	20.5	20.5	20.5
Yellow Time (s)	3.2	3.2	3.2	3.2
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	7	40	7	40
End Time (s)	40	7	40	7
Yield/Force Off (s)	35.8	2.8	35.8	2.8
Yield/Force Off 170(s)	24.8	51.8	24.8	51.8
Local Start Time (s)	31.2	4.2	31.2	4.2
Local Yield (s)	0	27	0	27
Local Yield 170(s)	49	16	49	16

Intersection Summary	
Cycle Length	60
Control Type	Pretimed
Natural Cycle	45

Offset: 35.8 (60%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Splits and Phases: 16: LA 378 & Mc Kinley Street



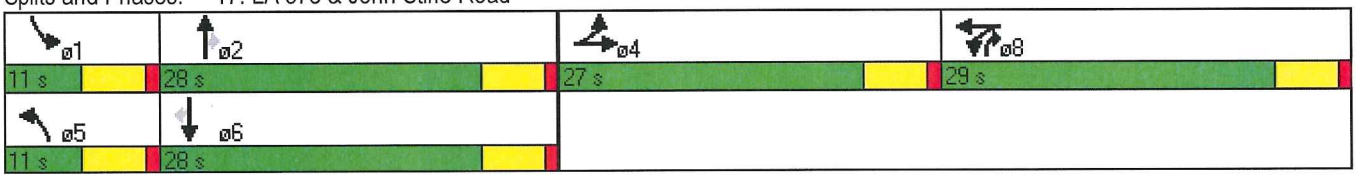
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	22	65	131	59	9	18	221	43	1	755	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.89			0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1655			1793		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1655			1793		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	89	28	81	164	74	11	20	246	48	1	839	113
RTOR Reduction (vph)	0	73	0	0	2	0	0	0	20	0	0	73
Lane Group Flow (vph)	89	36	0	0	247	0	20	246	28	1	839	40
Turn Type	Split	NA		Split	NA		Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2	8	1	6	
Permitted Phases									2			6
Actuated Green, G (s)	6.9	6.9			14.1		1.7	25.8	39.9	0.8	24.9	24.9
Effective Green, g (s)	6.9	6.9			14.1		1.7	25.8	39.9	0.8	24.9	24.9
Actuated g/C Ratio	0.10	0.10			0.20		0.02	0.37	0.57	0.01	0.36	0.36
Clearance Time (s)	5.5	5.5			5.5		5.5	5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	2.5	2.5			2.5		2.3	5.0	2.5	2.3	5.0	5.0
Lane Grp Cap (vph)	175	164			363		43	1311	907	20	1266	566
v/s Ratio Prot	c0.05	0.02			c0.14		c0.01	0.07	0.01	0.00	c0.24	
v/s Ratio Perm									0.01			0.03
v/c Ratio	0.51	0.22			0.68		0.47	0.19	0.03	0.05	0.66	0.07
Uniform Delay, d1	29.7	28.9			25.7		33.5	14.8	6.4	34.0	18.8	14.7
Progression Factor	1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	0.5			4.8		4.6	0.1	0.0	0.6	1.7	0.1
Delay (s)	31.4	29.4			30.4		38.1	15.0	6.5	34.6	20.6	14.8
Level of Service	C	C			C		D	B	A	C	C	B
Approach Delay (s)		30.3			30.4			15.1			19.9	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2010 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	69.6	Sum of lost time (s)	22.0
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	2	4	5	6	8
Movement	SBL	NBT	EBTL	NBL	SBT	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	11	28	27	11	28	29
Maximum Split (%)	11.6%	29.5%	28.4%	11.6%	29.5%	30.5%
Minimum Split (s)	9.5	21.5	21.5	9.5	21.5	21.5
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	15	6	4	15	6
Vehicle Extension (s)	2.3	5	2.5	2.3	5	2.5
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		5	5		5	5
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	11	39	0	11	66
End Time (s)	11	39	66	11	39	0
Yield/Force Off (s)	5.5	33.5	60.5	5.5	33.5	89.5
Yield/Force Off 170(s)	5.5	33.5	49.5	5.5	33.5	78.5
Local Start Time (s)	84	0	28	84	0	55
Local Yield (s)	89.5	22.5	49.5	89.5	22.5	78.5
Local Yield 170(s)	89.5	22.5	38.5	89.5	22.5	67.5

Intersection Summary	
Cycle Length	95
Control Type	Actuated-Uncoordinated
Natural Cycle	80

Splits and Phases: 17: LA 378 & John Stine Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	6	0	0	133	0	245	58	0	781	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	8	0	0	166	0	272	64	0	868	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1170	1204	434	746	1189	168	884			337		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1170	1204	434	746	1189	168	884			337		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	80	100			100		
cM capacity (veh/h)	119	183	570	298	187	846	761			1219		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	8	166	181	123	434	434	17
Volume Left	0	0	0	0	0	0	0
Volume Right	8	166	0	32	0	0	17
cSH	570	846	1700	1700	1700	1700	1700
Volume to Capacity	0.01	0.20	0.11	0.07	0.26	0.26	0.01
Queue Length 95th (ft)	1	18	0	0	0	0	0
Control Delay (s)	11.4	10.3	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B					
Approach Delay (s)	11.4	10.3	0.0		0.0		
Approach LOS	B	B					

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	31.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	187	1	0	481	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	534	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	537	267	0	534			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	537	267	0	534			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	100			
cM capacity (veh/h)	473	731	0	667			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	267	267
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	667	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.16	0.16
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	10.4	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	10.4			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	30.3%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	262	645	15	0	42
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.80	0.80
Hourly flow rate (vph)	0	291	717	17	0	52
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	733				871	367
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	733				871	367
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	92
cM capacity (veh/h)	867				291	630

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	146	146	478	247	52
Volume Left	0	0	0	0	0
Volume Right	0	0	0	8	52
cSH	1700	1700	1700	1700	630
Volume to Capacity	0.09	0.09	0.28	0.15	0.08
Queue Length 95th (ft)	0	0	0	0	7
Control Delay (s)	0.0	0.0	0.0	0.0	11.2
Lane LOS					B
Approach Delay (s)	0.0		0.0		11.2
Approach LOS					B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	28.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑	↑↑			
Volume (veh/h)	87	1	0	569	0	0	0
Sign Control			Free	Free		Stop	
Grade			0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	0	632	0	0	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None	None			
Median storage veh)							
Upstream signal (ft)				1219			
pX, platoon unblocked	0.00						
vC, conflicting volume	0	632				634	316
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	0	632				634	316
tC, single (s)	0.0	*6.4				6.8	6.9
tC, 2 stage (s)							
tF (s)	0.0	*2.5				3.5	3.3
p0 queue free %	0	100				100	100
cM capacity (veh/h)	0	578				410	680

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2
Volume Total	1	0	0	316	316
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	578	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.19	0.19
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	11.2	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.2			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	27.2%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

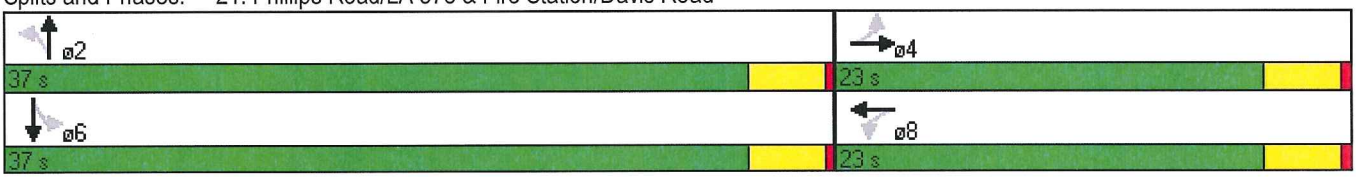
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	1	1	4	1	105	1	176	2	300	565	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.96			0.87			1.00			1.00	
Flt Protected		0.98			1.00			1.00			0.98	
Satd. Flow (prot)		1750			1619			3533			3478	
Flt Permitted		0.95			0.99			0.95			0.77	
Satd. Flow (perm)		1699			1614			3367			2719	
Peak-hour factor, PHF	0.90	0.90	0.90	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1	1	1	5	1	131	1	196	2	333	628	1
RTOR Reduction (vph)	0	1	0	0	90	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	2	0	0	47	0	0	198	0	0	962	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		19.0			19.0			33.0			33.0	
Effective Green, g (s)		19.0			19.0			33.0			33.0	
Actuated g/C Ratio		0.32			0.32			0.55			0.55	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		538			511			1851			1495	
v/s Ratio Prot												
v/s Ratio Perm		0.00			c0.03			0.06			c0.35	
v/c Ratio		0.00			0.09			0.11			0.64	
Uniform Delay, d1		14.0			14.4			6.5			9.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.0			0.4			0.0			2.1	
Delay (s)		14.0			14.8			6.5			11.5	
Level of Service		B			B			A			B	
Approach Delay (s)		14.0			14.8			6.5			11.5	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	None	None	Max	Max
Maximum Split (s)	37	23	37	23
Maximum Split (%)	61.7%	38.3%	61.7%	38.3%
Minimum Split (s)	20	20	20	20
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	37	0	37
End Time (s)	37	0	37	0
Yield/Force Off (s)	33	56	33	56
Yield/Force Off 170(s)	22	45	22	45
Local Start Time (s)	0	37	0	37
Local Yield (s)	33	56	33	56
Local Yield 170(s)	22	45	22	45

Intersection Summary	
Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	45

Splits and Phases: 21: Phillips Road/LA 378 & Fire Station/Davis Road



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (veh/h)	260	0	168	1	0	0	0
Sign Control	Free				Free	Stop	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	289	0	0	1	0	0	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None				None		
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume			0	289		291	144
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			0	289		291	144
tC, single (s)			0.0	*6.4		6.8	6.9
tC, 2 stage (s)							
tF (s)			0.0	*2.5		3.5	3.3
p0 queue free %			0	100		100	100
cM capacity (veh/h)			0	951		675	877

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3
Volume Total	144	144	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	951	1700	1700
Volume to Capacity	0.08	0.08	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	8.8	0.0	0.0
Lane LOS			A		
Approach Delay (s)	0.0		8.8		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	23.2%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	416	1	0	737	68	0	0	5	0	0	291
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	28	462	1	0	819	76	0	0	6	0	0	364
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	819			463			928	1337	232	1112	1338	409
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	819			463			928	1337	232	1112	1338	409
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			100	100	99	100	100	38
cM capacity (veh/h)	805			1094			84	147	771	158	147	591

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	28	308	155	409	409	76	6	364
Volume Left	28	0	0	0	0	0	0	0
Volume Right	0	0	1	0	0	76	6	364
cSH	805	1700	1700	1700	1700	1700	771	591
Volume to Capacity	0.03	0.18	0.09	0.24	0.24	0.04	0.01	0.62
Queue Length 95th (ft)	3	0	0	0	0	0	1	105
Control Delay (s)	9.6	0.0	0.0	0.0	0.0	0.0	9.7	20.3
Lane LOS	A						A	C
Approach Delay (s)	0.5			0.0			9.7	20.3
Approach LOS							A	C

Intersection Summary				
Average Delay	4.4			
Intersection Capacity Utilization	45.1%	ICU Level of Service		A
Analysis Period (min)	15			

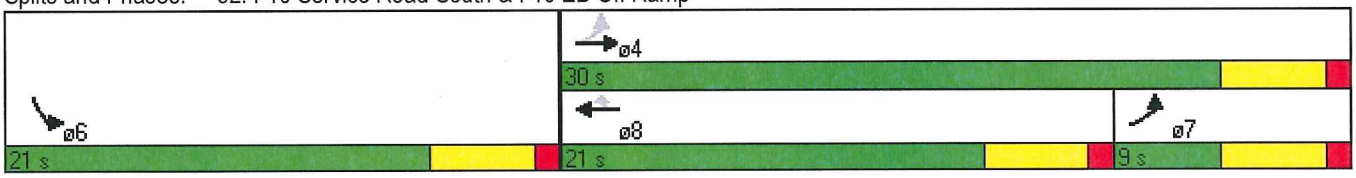
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	5	223	4	468	761	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95	1.00	1.00	0.97	
Frt		1.00	1.00	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3535	1863	1583	3441	
Flt Permitted		0.95	1.00	1.00	0.95	
Satd. Flow (perm)		3371	1863	1583	3441	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	6	279	5	585	951	1
RTOR Reduction (vph)	0	0	0	294	105	0
Lane Group Flow (vph)	0	285	5	291	847	0
Turn Type	pm+pt	NA	NA	Perm	NA	
Protected Phases	7	4	8		6	
Permitted Phases	4			8		
Actuated Green, G (s)		25.0	25.0	25.0	15.2	
Effective Green, g (s)		25.0	25.0	25.0	15.2	
Actuated g/C Ratio		0.50	0.50	0.50	0.30	
Clearance Time (s)		5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1678	927	788	1041	
v/s Ratio Prot			0.00		c0.25	
v/s Ratio Perm		0.08		c0.18		
v/c Ratio		0.17	0.01	0.37	0.81	
Uniform Delay, d1		6.9	6.3	7.8	16.2	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0	0.0	1.3	5.0	
Delay (s)		7.0	6.4	9.1	21.2	
Level of Service		A	A	A	C	
Approach Delay (s)		7.0	9.1		21.2	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	50.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	4	6	7	8
Movement	EBTL	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Max	None	None	Max
Maximum Split (s)	30	21	9	21
Maximum Split (%)	58.8%	41.2%	17.6%	41.2%
Minimum Split (s)	21	21	9	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	7	4	15
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21	0	42	21
End Time (s)	0	21	0	42
Yield/Force Off (s)	46	16	46	37
Yield/Force Off 170(s)	35	5	46	26
Local Start Time (s)	21	0	42	21
Local Yield (s)	46	16	46	37
Local Yield 170(s)	35	5	46	26

Intersection Summary	
Cycle Length	51
Control Type	Semi Act-Uncoord
Natural Cycle	60

Splits and Phases: 32: I-10 Service Road South & I-10 EB Off Ramp



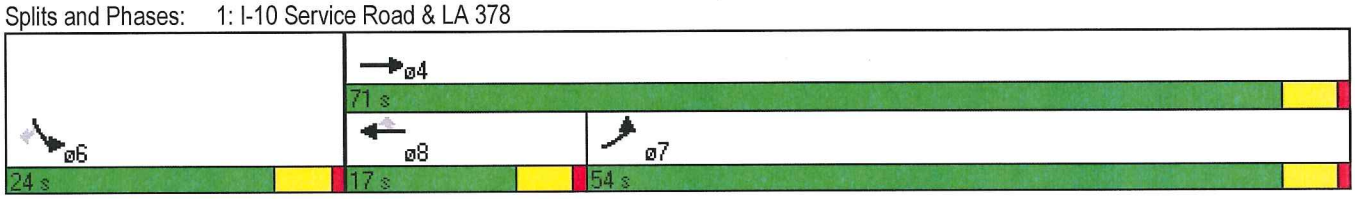
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	707	277	102	152	114	353
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	1863	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	1863	1583	1770	1583
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.90	0.90
Adj. Flow (vph)	884	346	128	190	127	392
RTOR Reduction (vph)	0	0	0	163	0	342
Lane Group Flow (vph)	884	346	128	27	127	50
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	46.0	63.1	12.1	12.1	10.6	10.6
Effective Green, g (s)	46.0	63.1	12.1	12.1	10.6	10.6
Actuated g/C Ratio	0.55	0.75	0.14	0.14	0.13	0.13
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.3	2.3	2.3	2.0	2.0
Lane Grp Cap (vph)	972	2667	269	228	224	200
v/s Ratio Prot	c0.50	0.10	c0.07		c0.07	
v/s Ratio Perm				0.02		0.03
v/c Ratio	0.91	0.13	0.48	0.12	0.57	0.25
Uniform Delay, d1	17.0	2.8	32.9	31.2	34.4	33.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.8	0.0	0.8	0.1	2.0	0.2
Delay (s)	28.8	2.8	33.7	31.3	36.3	33.2
Level of Service	C	A	C	C	D	C
Approach Delay (s)		21.5	32.3		34.0	
Approach LOS		C	C		C	

Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2010 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	83.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	4	6	7	8
Movement	EBT	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	71	24	54	17
Maximum Split (%)	74.7%	25.3%	56.8%	17.9%
Minimum Split (s)	21	21	15	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	24	0	41	24
End Time (s)	0	24	0	41
Yield/Force Off (s)	90	19	90	36
Yield/Force Off 170(s)	90	8	90	36
Local Start Time (s)	24	0	41	24
Local Yield (s)	90	19	90	36
Local Yield 170(s)	90	8	90	36

Intersection Summary	
Cycle Length	95
Control Type	Actuated-Uncoordinated
Natural Cycle	90

Splits and Phases: 1: I-10 Service Road & LA 378



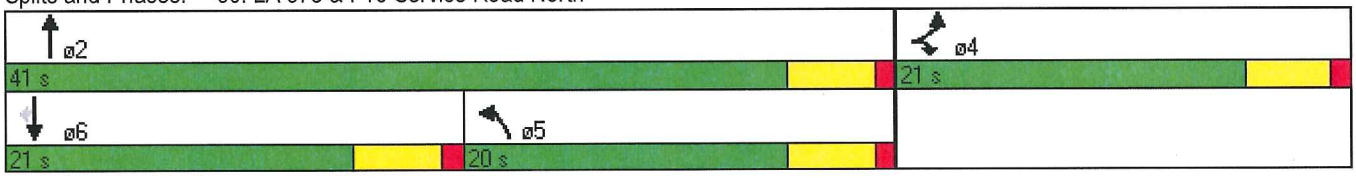
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	578	96	142	698	379	521
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	3539	3539	1583
Peak-hour factor, PHF	0.80	0.80	0.90	0.90	0.90	0.90
Adj. Flow (vph)	722	120	158	776	421	579
RTOR Reduction (vph)	0	88	0	0	0	406
Lane Group Flow (vph)	722	32	158	776	421	173
Turn Type	NA	Prot	Prot	NA	NA	Perm
Protected Phases	4	4	5	2	6	
Permitted Phases						6
Actuated Green, G (s)	14.3	14.3	8.2	29.2	16.0	16.0
Effective Green, g (s)	14.3	14.3	8.2	29.2	16.0	16.0
Actuated g/C Ratio	0.27	0.27	0.15	0.55	0.30	0.30
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.3	2.3	2.3
Lane Grp Cap (vph)	917	423	271	1931	1058	473
v/s Ratio Prot	c0.21	0.02	c0.09	c0.22	0.12	
v/s Ratio Perm						0.11
v/c Ratio	0.79	0.08	0.58	0.40	0.40	0.37
Uniform Delay, d1	18.2	14.7	21.1	7.1	14.9	14.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.2	0.0	2.1	0.1	0.1	0.3
Delay (s)	22.4	14.7	23.1	7.1	15.1	15.0
Level of Service	C	B	C	A	B	B
Approach Delay (s)	21.3			9.9	15.0	
Approach LOS	C			A	B	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	53.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	5	6
Movement	NBT	EBL	NBL	SBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	41	21	20	21
Maximum Split (%)	66.1%	33.9%	32.3%	33.9%
Minimum Split (s)	21	21	20	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	41	21	0
End Time (s)	41	0	41	21
Yield/Force Off (s)	36	57	36	16
Yield/Force Off 170(s)	36	46	36	16
Local Start Time (s)	0	41	21	0
Local Yield (s)	36	57	36	16
Local Yield 170(s)	36	46	36	16

Intersection Summary	
Cycle Length	62
Control Type	Actuated-Uncoordinated
Natural Cycle	65

Splits and Phases: 30: LA 378 & I-10 Service Road North



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	49	397	87	37	44	171	850	77	53	471	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.92		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1711		1770	3495		1770	3475	
Flt Permitted	0.57	1.00	1.00	0.72	1.00		0.27	1.00		0.28	1.00	
Satd. Flow (perm)	1064	1863	1583	1336	1711		497	3495		518	3475	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	244	61	496	109	46	55	190	944	86	59	523	72
RTOR Reduction (vph)	0	0	108	0	46	0	0	7	0	0	12	0
Lane Group Flow (vph)	244	61	388	109	55	0	190	1023	0	59	583	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	18.5	18.5	39.0	15.5	15.5		35.5	35.5		20.5	20.5	
Effective Green, g (s)	18.5	18.5	39.0	15.5	15.5		35.5	35.5		20.5	20.5	
Actuated g/C Ratio	0.21	0.21	0.43	0.17	0.17		0.39	0.39		0.23	0.23	
Clearance Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)	308	382	685	271	294		486	1378		194	791	
v/s Ratio Prot	c0.10	0.03	0.13	c0.04	0.03		0.09	c0.29		0.02	c0.17	
v/s Ratio Perm	c0.06		0.12	0.03			0.07			0.05		
v/c Ratio	0.79	0.16	0.57	0.40	0.19		0.39	0.74		0.30	0.74	
Uniform Delay, d1	33.0	29.4	19.2	33.6	31.9		19.2	23.3		30.3	32.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	18.6	0.9	3.4	4.4	1.4		2.4	3.6		4.0	6.1	
Delay (s)	51.6	30.3	22.5	38.0	33.3		21.6	27.0		34.3	38.3	
Level of Service	D	C	C	D	C		C	C		C	D	
Approach Delay (s)		32.0			35.7			26.1			38.0	
Approach LOS		C			D			C			D	

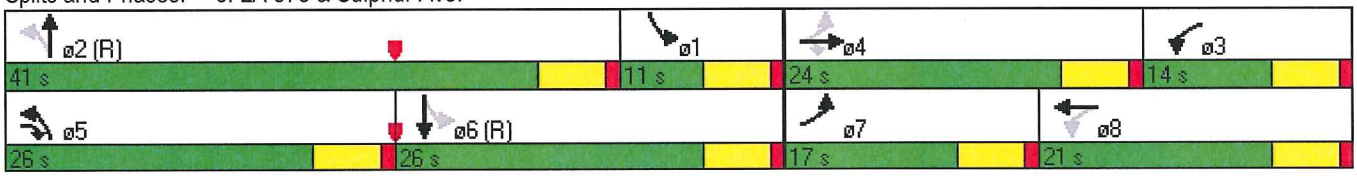
Intersection Summary			
HCM 2000 Control Delay	31.1	HCM 2010 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
Maximum Split (s)	11	41	14	24	26	26	17	21
Maximum Split (%)	12.2%	45.6%	15.6%	26.7%	28.9%	28.9%	18.9%	23.3%
Minimum Split (s)	10.5	25.5	10.5	21.5	10.5	25.5	10.5	21.5
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	20	5	10	5	20	5	10
Vehicle Extension (s)	2	3	2	3	2	3	2	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		5		5		5		5
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	15	64	50	26	64	0	26	43
End Time (s)	26	15	64	50	0	26	43	64
Yield/Force Off (s)	20.5	9.5	58.5	44.5	84.5	20.5	37.5	58.5
Yield/Force Off 170(s)	20.5	88.5	58.5	33.5	84.5	9.5	37.5	47.5
Local Start Time (s)	15	64	50	26	64	0	26	43
Local Yield (s)	20.5	9.5	58.5	44.5	84.5	20.5	37.5	58.5
Local Yield 170(s)	20.5	88.5	58.5	33.5	84.5	9.5	37.5	47.5

Intersection Summary	
Cycle Length	90
Control Type	Pretimed
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 5: LA 378 & Sulphur Ave.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	35	30	61	22	64	19	1135	104	29	468	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.97			0.94		1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1760			1718		1770	3494		1770	3512	
Flt Permitted		0.80			0.83		0.42	1.00		0.14	1.00	
Satd. Flow (perm)		1450			1461		782	3494		259	3512	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	74	44	38	76	28	80	21	1261	116	32	520	28
RTOR Reduction (vph)	0	19	0	0	19	0	0	11	0	0	6	0
Lane Group Flow (vph)	0	137	0	0	165	0	21	1366	0	32	542	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		22.8			22.8		28.8	28.8		28.8	28.8	
Effective Green, g (s)		22.8			22.8		28.8	28.8		28.8	28.8	
Actuated g/C Ratio		0.38			0.38		0.48	0.48		0.48	0.48	
Clearance Time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Grp Cap (vph)		551			555		375	1677		124	1685	
v/s Ratio Prot								c0.39			0.15	
v/s Ratio Perm		0.09			c0.11		0.03			0.12		
v/c Ratio		0.25			0.30		0.06	0.81		0.26	0.32	
Uniform Delay, d1		12.7			13.0		8.3	13.3		9.3	9.6	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.1			1.4		0.3	4.5		5.0	0.5	
Delay (s)		13.8			14.4		8.6	17.8		14.2	10.1	
Level of Service		B			B		A	B		B	B	
Approach Delay (s)		13.8			14.4			17.6			10.3	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	33	27	33	27
Maximum Split (%)	55.0%	45.0%	55.0%	45.0%
Minimum Split (s)	20.5	20.5	20.5	20.5
Yellow Time (s)	3.2	3.2	3.2	3.2
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	7	40	7	40
End Time (s)	40	7	40	7
Yield/Force Off (s)	35.8	2.8	35.8	2.8
Yield/Force Off 170(s)	24.8	51.8	24.8	51.8
Local Start Time (s)	31.2	4.2	31.2	4.2
Local Yield (s)	0	27	0	27
Local Yield 170(s)	49	16	49	16

Intersection Summary	
Cycle Length	60
Control Type	Pretimed
Natural Cycle	50

Offset: 35.8 (60%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Splits and Phases: 16: LA 378 & Mc Kinley Street

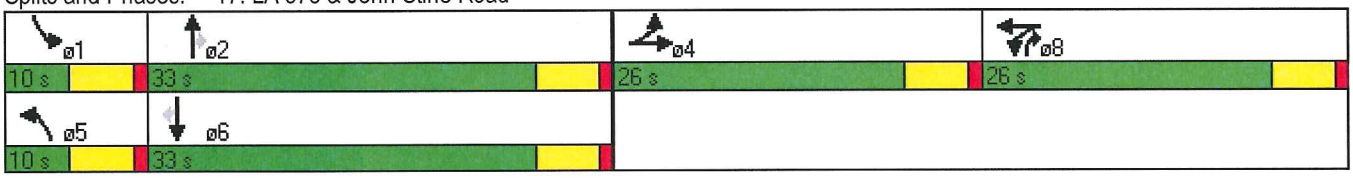
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	46	53	93	47	8	64	878	166	5	352	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.92			0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1714			1793		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1714			1793		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	218	58	66	116	59	10	71	976	184	6	391	63
RTOR Reduction (vph)	0	45	0	0	3	0	0	0	87	0	0	43
Lane Group Flow (vph)	218	79	0	0	182	0	71	976	97	6	391	20
Turn Type	Split	NA		Split	NA		Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2	8	1	6	
Permitted Phases									2			6
Actuated Green, G (s)	13.7	13.7			12.5		4.6	28.0	40.5	0.7	24.1	24.1
Effective Green, g (s)	13.7	13.7			12.5		4.6	28.0	40.5	0.7	24.1	24.1
Actuated g/C Ratio	0.18	0.18			0.16		0.06	0.36	0.53	0.01	0.31	0.31
Clearance Time (s)	5.5	5.5			5.5		5.5	5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	2.5	2.5			2.5		2.3	5.0	2.5	2.3	5.0	5.0
Lane Grp Cap (vph)	315	305			291		105	1288	833	16	1109	496
v/s Ratio Prot	c0.12	0.05			c0.10		c0.04	c0.28	0.02	0.00	0.11	
v/s Ratio Perm									0.04			0.01
v/c Ratio	0.69	0.26			0.63		0.68	0.76	0.12	0.38	0.35	0.04
Uniform Delay, d1	29.6	27.2			30.0		35.4	21.5	9.2	37.9	20.4	18.4
Progression Factor	1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.9	0.3			3.6		13.8	3.1	0.0	8.4	0.4	0.1
Delay (s)	35.6	27.6			33.7		49.2	24.6	9.2	46.3	20.8	18.4
Level of Service	D	C			C		D	C	A	D	C	B
Approach Delay (s)		32.7			33.7			23.7			20.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2010 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	76.9	Sum of lost time (s)	22.0
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	2	4	5	6	8
Movement	SBL	NBT	EBTL	NBL	SBT	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	10	33	26	10	33	26
Maximum Split (%)	10.5%	34.7%	27.4%	10.5%	34.7%	27.4%
Minimum Split (s)	9.5	21.5	21.5	9.5	21.5	21.5
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	15	6	4	15	6
Vehicle Extension (s)	2.3	5	2.5	2.3	5	2.5
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		5	5		5	5
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	10	43	0	10	69
End Time (s)	10	43	69	10	43	0
Yield/Force Off (s)	4.5	37.5	63.5	4.5	37.5	89.5
Yield/Force Off 170(s)	4.5	37.5	52.5	4.5	37.5	78.5
Local Start Time (s)	85	0	33	85	0	59
Local Yield (s)	89.5	27.5	53.5	89.5	27.5	79.5
Local Yield 170(s)	89.5	27.5	42.5	89.5	27.5	68.5

Intersection Summary	
Cycle Length	95
Control Type	Actuated-Uncoordinated
Natural Cycle	80

Splits and Phases: 17: LA 378 & John Stine Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	18	0	0	63	0	802	250	0	382	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	22	0	0	79	0	891	278	0	424	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	949	1593	212	1265	1472	584	442			1169		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	949	1593	212	1265	1472	584	442			1169		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	97	100	100	83	100			100		
cM capacity (veh/h)	178	106	793	122	126	455	1114			593		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	22	79	594	436	212	212	18
Volume Left	0	0	0	0	0	0	0
Volume Right	22	79	0	139	0	0	18
cSH	793	455	1700	1700	1700	1700	1700
Volume to Capacity	0.03	0.17	0.35	0.26	0.12	0.12	0.01
Queue Length 95th (ft)	2	16	0	0	0	0	0
Control Delay (s)	9.7	14.6	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	B					
Approach Delay (s)	9.7	14.6	0.0		0.0		
Approach LOS	A	B					

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	40.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	80	1	0	273	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	303	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	306	152	0	303			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	306	152	0	303			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	100			
cM capacity (veh/h)	661	867	0	931			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	152	152
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	931	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.09	0.09
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	8.9	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	8.9			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	18.6%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	652	328	53	0	41
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.80	0.80
Hourly flow rate (vph)	0	724	364	59	0	51
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	423				756	212
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	423				756	212
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	94
cM capacity (veh/h)	1132				344	794

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	362	362	243	151	51
Volume Left	0	0	0	0	0
Volume Right	0	0	0	29	51
cSH	1700	1700	1700	1700	794
Volume to Capacity	0.21	0.21	0.14	0.09	0.06
Queue Length 95th (ft)	0	0	0	0	5
Control Delay (s)	0.0	0.0	0.0	0.0	9.8
Lane LOS					A
Approach Delay (s)	0.0		0.0		9.8
Approach LOS					A

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	21.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	70	1	0	288	0	0	0
Sign Control			Free	Free		Stop	
Grade			0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	0	320	0	0	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None	None			
Median storage veh)							
Upstream signal (ft)				1219			
pX, platoon unblocked	0.00						
vC, conflicting volume	0	320				322	160
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	0	320				322	160
tC, single (s)	0.0	*6.4				6.8	6.9
tC, 2 stage (s)							
tF (s)	0.0	*2.5				3.5	3.3
p0 queue free %	0	100				100	100
cM capacity (veh/h)	0	909				646	857

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2
Volume Total	1	0	0	160	160
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	909	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.09	0.09
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	9.0	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	9.0			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	18.5%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

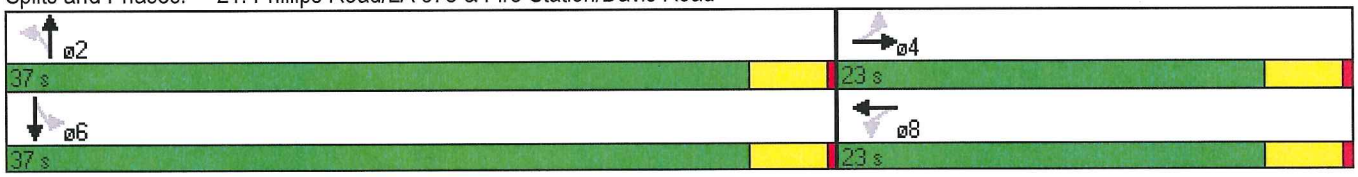
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	1	1	10	1	353	1	572	3	132	278	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.96			0.87			1.00			1.00	
Flt Protected		0.98			1.00			1.00			0.98	
Satd. Flow (prot)		1750			1616			3536			3482	
Flt Permitted		0.92			1.00			0.95			0.67	
Satd. Flow (perm)		1640			1611			3376			2363	
Peak-hour factor, PHF	0.90	0.90	0.90	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1	1	1	12	1	441	1	636	3	147	309	1
RTOR Reduction (vph)	0	1	0	0	165	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2	0	0	289	0	0	640	0	0	457	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		19.0			19.0			33.0			33.0	
Effective Green, g (s)		19.0			19.0			33.0			33.0	
Actuated g/C Ratio		0.32			0.32			0.55			0.55	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		519			510			1856			1299	
v/s Ratio Prot												
v/s Ratio Perm		0.00			c0.18			0.19			c0.19	
v/c Ratio		0.00			0.57			0.34			0.35	
Uniform Delay, d1		14.0			17.1			7.5			7.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.0			4.5			0.1			0.7	
Delay (s)		14.0			21.6			7.6			8.3	
Level of Service		B			C			A			A	
Approach Delay (s)		14.0			21.6			7.6			8.3	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	None	None	Max	Max
Maximum Split (s)	37	23	37	23
Maximum Split (%)	61.7%	38.3%	61.7%	38.3%
Minimum Split (s)	20	20	20	20
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	37	0	37
End Time (s)	37	0	37	0
Yield/Force Off (s)	33	56	33	56
Yield/Force Off 170(s)	22	45	22	45
Local Start Time (s)	0	37	0	37
Local Yield (s)	33	56	33	56
Local Yield 170(s)	22	45	22	45

Intersection Summary	
Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	40

Splits and Phases: 21: Phillips Road/LA 378 & Fire Station/Davis Road



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (veh/h)	930	0	94	1	0	0	0
Sign Control	Free				Free	Stop	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1033	0	0	1	0	0	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None				None		
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume			0	1033		1036	517
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			0	1033		1036	517
tC, single (s)			0.0	*6.4		6.8	6.9
tC, 2 stage (s)							
tF (s)			0.0	*2.5		3.5	3.3
p0 queue free %			0	100		100	100
cM capacity (veh/h)			0	321		227	503

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3
Volume Total	517	517	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	321	1700	1700
Volume to Capacity	0.30	0.30	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	16.2	0.0	0.0
Lane LOS			C		
Approach Delay (s)	0.0		16.2		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	37.6%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	136	903	4	0	449	140	0	0	6	0	0	148
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	151	1003	4	0	499	156	0	0	8	0	0	185
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	499			1008			1557	1807	504	1310	1809	249
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	499			1008			1557	1807	504	1310	1809	249
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	86			100			100	100	99	100	100	75
cM capacity (veh/h)	1061			683			51	67	513	102	67	750

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	151	669	337	249	249	156	8	185
Volume Left	151	0	0	0	0	0	0	0
Volume Right	0	0	2	0	0	156	8	185
cSH	1061	1700	1700	1700	1700	1700	513	750
Volume to Capacity	0.14	0.39	0.20	0.15	0.15	0.09	0.01	0.25
Queue Length 95th (ft)	12	0	0	0	0	0	1	24
Control Delay (s)	9.0	0.0	0.0	0.0	0.0	0.0	12.1	11.4
Lane LOS	A						B	B
Approach Delay (s)	1.2			0.0			12.1	11.4
Approach LOS							B	B

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	35.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	2	52	11	751	294	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95	1.00	1.00	0.97	
Frt		1.00	1.00	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3433	1810	1538	3336	
Flt Permitted		0.95	1.00	1.00	0.95	
Satd. Flow (perm)		3274	1810	1538	3336	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	2	65	14	939	368	8
RTOR Reduction (vph)	0	0	0	394	121	0
Lane Group Flow (vph)	0	67	14	545	255	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	pm+pt	NA	NA	Perm	NA	
Protected Phases	7	4	8		6	
Permitted Phases	4			8		
Actuated Green, G (s)		25.9	25.9	25.9	8.7	
Effective Green, g (s)		25.9	25.9	25.9	8.7	
Actuated g/C Ratio		0.58	0.58	0.58	0.20	
Clearance Time (s)		5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1901	1051	893	650	
v/s Ratio Prot			0.01		c0.08	
v/s Ratio Perm		0.02		c0.35		
v/c Ratio		0.04	0.01	0.61	0.39	
Uniform Delay, d1		4.0	4.0	6.1	15.6	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0	0.0	3.1	0.4	
Delay (s)		4.0	4.0	9.2	16.0	
Level of Service		A	A	A	B	
Approach Delay (s)		4.0	9.1		16.0	
Approach LOS		A	A		B	

AT 7/22/13

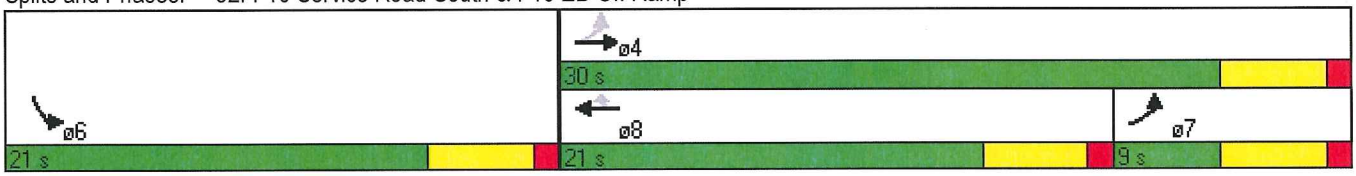
Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	44.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	4	6	7	8
Movement	EBTL	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Max	None	None	Max
Maximum Split (s)	30	21	9	21
Maximum Split (%)	58.8%	41.2%	17.6%	41.2%
Minimum Split (s)	21	21	9	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	7	4	15
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21	0	42	21
End Time (s)	0	21	0	42
Yield/Force Off (s)	46	16	46	37
Yield/Force Off 170(s)	35	5	46	26
Local Start Time (s)	21	0	42	21
Local Yield (s)	46	16	46	37
Local Yield 170(s)	35	5	46	26

Intersection Summary	
Cycle Length	51
Control Type	Semi Act-Uncoord
Natural Cycle	60

Splits and Phases: 32: I-10 Service Road South & I-10 EB Off Ramp



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	246	91	188	95	82	512
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	3438	1810	1538	1719	1538
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1719	3438	1810	1538	1719	1538
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.90	0.90
Adj. Flow (vph)	308	114	235	119	91	569
RTOR Reduction (vph)	0	0	0	89	0	470
Lane Group Flow (vph)	308	114	235	30	91	99
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	12.4	29.5	12.1	12.1	8.3	8.3
Effective Green, g (s)	12.4	29.5	12.1	12.1	8.3	8.3
Actuated g/C Ratio	0.26	0.62	0.25	0.25	0.17	0.17
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.3	2.3	2.3	2.0	2.0
Lane Grp Cap (vph)	445	2121	458	389	298	267
v/s Ratio Prot	c0.18	0.03	c0.13		0.05	
v/s Ratio Perm				0.02		c0.06
v/c Ratio	0.69	0.05	0.51	0.08	0.31	0.37
Uniform Delay, d1	16.0	3.6	15.3	13.6	17.2	17.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.7	0.0	0.6	0.0	0.2	0.3
Delay (s)	19.7	3.6	15.9	13.6	17.4	17.8
Level of Service	B	A	B	B	B	B
Approach Delay (s)		15.4	15.2		17.7	
Approach LOS		B	B		B	

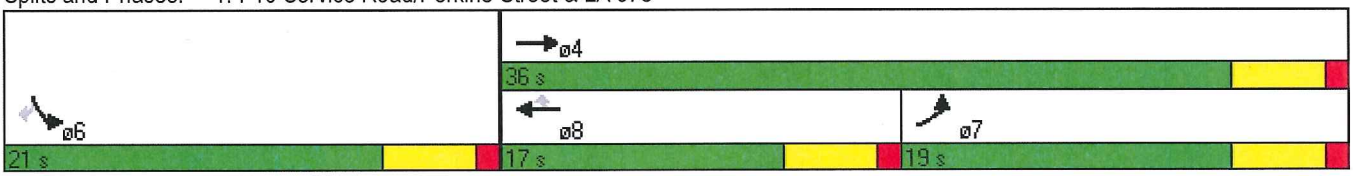
Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	47.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	4	6	7	8
Movement	EBT	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	36	21	19	17
Maximum Split (%)	63.2%	36.8%	33.3%	29.8%
Minimum Split (s)	21	21	15	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21	0	38	21
End Time (s)	0	21	0	38
Yield/Force Off (s)	52	16	52	33
Yield/Force Off 170(s)	52	5	52	33
Local Start Time (s)	21	0	38	21
Local Yield (s)	52	16	52	33
Local Yield 170(s)	52	5	52	33

Intersection Summary	
Cycle Length	57
Control Type	Actuated-Uncoordinated
Natural Cycle	60

Splits and Phases: 1: I-10 Service Road/Perkins Street & LA 378



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	248	77	99	245	517	722
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3335	1538	1719	3438	3438	1538
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3335	1538	1719	3438	3438	1538
Peak-hour factor, PHF	0.80	0.80	0.90	0.90	0.90	0.90
Adj. Flow (vph)	310	96	110	272	574	802
RTOR Reduction (vph)	0	78	0	0	0	527
Lane Group Flow (vph)	310	18	110	272	574	275
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	NA	Prot	Prot	NA	NA	Perm
Protected Phases	4	4	5	2	6	
Permitted Phases						6
Actuated Green, G (s)	8.8	8.8	7.5	28.8	16.3	16.3
Effective Green, g (s)	8.8	8.8	7.5	28.8	16.3	16.3
Actuated g/C Ratio	0.18	0.18	0.16	0.61	0.34	0.34
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.3	2.3	2.3
Lane Grp Cap (vph)	616	284	270	2080	1177	526
v/s Ratio Prot	c0.09	0.01	c0.06	0.08	0.17	
v/s Ratio Perm						c0.18
v/c Ratio	0.50	0.06	0.41	0.13	0.49	0.52
Uniform Delay, d1	17.4	16.0	18.0	4.0	12.4	12.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.4	0.0	0.2	0.6
Delay (s)	17.7	16.0	18.4	4.0	12.5	13.1
Level of Service	B	B	B	A	B	B
Approach Delay (s)	17.3			8.2	12.9	
Approach LOS	B			A	B	

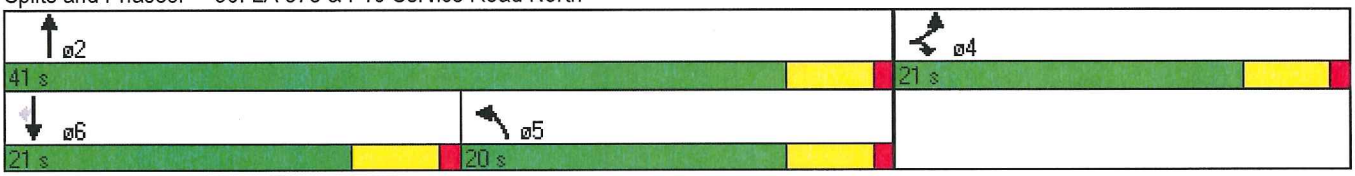
Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	47.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	5	6
Movement	NBT	EBL	NBL	SBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	41	21	20	21
Maximum Split (%)	66.1%	33.9%	32.3%	33.9%
Minimum Split (s)	21	21	20	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	41	21	0
End Time (s)	41	0	41	21
Yield/Force Off (s)	36	57	36	16
Yield/Force Off 170(s)	36	46	36	16
Local Start Time (s)	0	41	21	0
Local Yield (s)	36	57	36	16
Local Yield 170(s)	36	46	36	16

Intersection Summary	
Cycle Length	62
Control Type	Actuated-Uncoordinated
Natural Cycle	65

Splits and Phases: 30: LA 378 & I-10 Service Road North



Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations			↑↑		↓		↑↑
Volume (veh/h)	0	0	457	0	133	1	0
Sign Control	Stop		Free				Free
Grade	0%		0%				0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	508	0	0	1	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)			1218				498
pX, platoon unblocked					0.00		
vC, conflicting volume	510	254			0	508	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	510	254			0	508	
tC, single (s)	6.9	7.0			0.0	*6.4	
tC, 2 stage (s)							
tF (s)	3.6	3.4			0.0	*2.5	
p0 queue free %	100	100			0	100	
cM capacity (veh/h)	485	736			0	693	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	254	254	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	693	1700	1700
Volume to Capacity	0.15	0.15	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	10.2	0.0	0.0
Lane LOS			B		
Approach Delay (s)	0.0		10.2		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	26.7%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

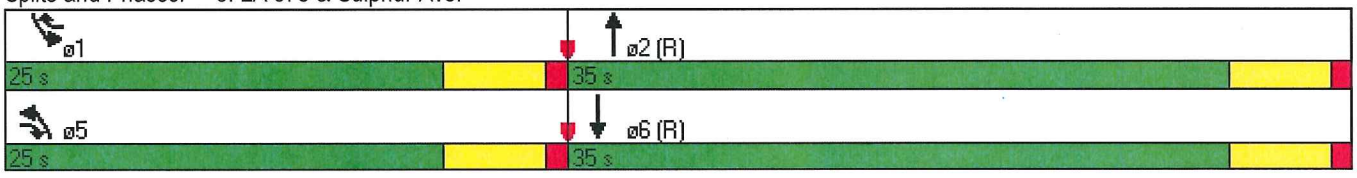
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	336	0	0	227	156	361	73	31	1099	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.5			5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor			0.88			1.00	1.00	0.95		1.00	0.95	
Frt			0.85			0.86	1.00	0.97		1.00	0.98	
Flt Protected			1.00			1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)			2707			1611	1719	3433		1770	3485	
Flt Permitted			1.00			1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)			2707			1611	1719	3433		1770	3485	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	420	0	0	284	173	401	81	34	1221	139
RTOR Reduction (vph)	0	0	45	0	0	192	0	28	0	0	14	0
Lane Group Flow (vph)	0	0	375	0	0	92	173	454	0	34	1346	0
Heavy Vehicles (%)	2%	5%	5%	5%	5%	2%	5%	2%	5%	2%	2%	2%
Turn Type			Over			Over	Prot	NA		Prot	NA	
Protected Phases			5			1	5	2		1	6	
Permitted Phases												
Actuated Green, G (s)			19.5			19.5	19.5	29.5		19.5	29.5	
Effective Green, g (s)			19.5			19.5	19.5	29.5		19.5	29.5	
Actuated g/C Ratio			0.32			0.32	0.32	0.49		0.32	0.49	
Clearance Time (s)			5.5			5.5	5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)			879			523	558	1687		575	1713	
v/s Ratio Prot			c0.14			0.06	0.10	0.13		0.02	c0.39	
v/s Ratio Perm												
v/c Ratio			0.43			0.18	0.31	0.27		0.06	0.79	
Uniform Delay, d1			15.9			14.5	15.2	8.9		13.9	12.6	
Progression Factor			1.00			1.00	0.95	1.11		0.99	0.93	
Incremental Delay, d2			1.5			0.7	1.4	0.4		0.2	3.7	
Delay (s)			17.4			15.2	15.9	10.3		14.0	15.5	
Level of Service			B			B	B	B		B	B	
Approach Delay (s)		17.4			15.2			11.8			15.5	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	2	5	6
Movement	SBL	NBT	NBL	SBT
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	25	35	25	35
Maximum Split (%)	41.7%	58.3%	41.7%	58.3%
Minimum Split (s)	10.5	25.5	10.5	25.5
Yellow Time (s)	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	20	5	20
Vehicle Extension (s)	2	3	2	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		5		5
Flash Dont Walk (s)		11		11
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	35	0	35	0
End Time (s)	0	35	0	35
Yield/Force Off (s)	54.5	29.5	54.5	29.5
Yield/Force Off 170(s)	54.5	18.5	54.5	18.5
Local Start Time (s)	35	0	35	0
Local Yield (s)	54.5	29.5	54.5	29.5
Local Yield 170(s)	54.5	18.5	54.5	18.5

Intersection Summary	
Cycle Length	60
Control Type	Pretimed
Natural Cycle	50
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Splits and Phases: 5: LA 378 & Sulphur Ave.



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	213	1	0	1080	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	1200	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)					516		
pX, platoon unblocked			0.00				
vC, conflicting volume	1202	600	0	1200			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1202	600	0	1200			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	100			
cM capacity (veh/h)	176	444	0	251			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	600	600
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	251	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.35	0.35
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	19.4	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	19.4			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations			↑↑				↑↑
Volume (veh/h)	0	0	359	0	132	1	0
Sign Control	Stop		Free				Free
Grade	0%		0%				0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	399	0	0	1	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)			1227				675
pX, platoon unblocked					0.00		
vC, conflicting volume	401	199			0	399	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	401	199			0	399	
tC, single (s)	6.8	6.9			0.0	*6.4	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	*2.5	
p0 queue free %	100	100			0	100	
cM capacity (veh/h)	576	808			0	811	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	199	199	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	811	1700	1700
Volume to Capacity	0.12	0.12	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	9.4	0.0	0.0
Lane LOS			A		
Approach Delay (s)	0.0		9.4		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	23.9%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	62	0	0	178	5	429	55	22	1134	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0			4.0		4.0			4.0	
Lane Util. Factor			1.00			1.00		0.95			0.95	
Frt			0.86			0.86		0.98			0.99	
Flt Protected			1.00			1.00		1.00			1.00	
Satd. Flow (prot)			1611			1611		3478			3509	
Flt Permitted			1.00			1.00		0.94			0.94	
Satd. Flow (perm)			1611			1611		3277			3308	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	78	0	0	222	6	477	61	24	1260	70
RTOR Reduction (vph)	0	0	39	0	0	155	0	16	0	0	7	0
Lane Group Flow (vph)	0	0	40	0	0	67	0	528	0	0	1348	0
Turn Type			custom			custom	Perm	NA		Perm	NA	
Protected Phases								2			6	
Permitted Phases			4			8	2			6		
Actuated Green, G (s)			18.0			18.0		34.0			34.0	
Effective Green, g (s)			18.0			18.0		34.0			34.0	
Actuated g/C Ratio			0.30			0.30		0.57			0.57	
Clearance Time (s)			4.0			4.0		4.0			4.0	
Lane Grp Cap (vph)			483			483		1856			1874	
v/s Ratio Prot												
v/s Ratio Perm			0.02			c0.04		0.16			c0.41	
v/c Ratio			0.08			0.14		0.28			0.72	
Uniform Delay, d1			15.1			15.3		6.7			9.5	
Progression Factor			1.00			1.00		1.30			1.12	
Incremental Delay, d2			0.3			0.6		0.4			2.4	
Delay (s)			15.4			15.9		9.1			13.0	
Level of Service			B			B		A			B	
Approach Delay (s)		15.4			15.9			9.1			13.0	
Approach LOS		B			B			A			B	

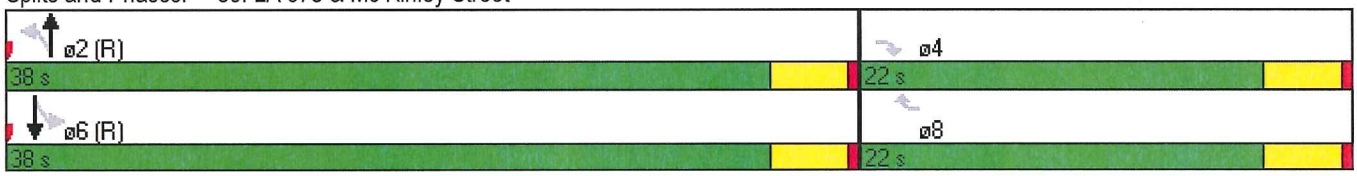
Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	6	8
Movement	NBTL	EBR	SBTL	WBR
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	38	22	38	22
Maximum Split (%)	63.3%	36.7%	63.3%	36.7%
Minimum Split (s)	20	20	20	20
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	38	0	38
End Time (s)	38	0	38	0
Yield/Force Off (s)	34	56	34	56
Yield/Force Off 170(s)	23	45	23	45
Local Start Time (s)	0	38	0	38
Local Yield (s)	34	56	34	56
Local Yield 170(s)	23	45	23	45

Intersection Summary	
Cycle Length	60
Control Type	Pretimed
Natural Cycle	50
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 83: LA 378 & Mc Kinley Street



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	193	1	0	1019	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	1132	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)					880		
pX, platoon unblocked			0.00				
vC, conflicting volume	1134	566	0	1132			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1134	566	0	1132			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	100			
cM capacity (veh/h)	195	467	0	278			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	566	566
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	278	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.33	0.33
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	18.0	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	18.0			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations			↑↑		⇂		↑↑
Volume (veh/h)	0	0	538	0	240	1	0
Sign Control	Stop		Free				Free
Grade	0%		0%				0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	598	0	0	1	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked					0.00		
vC, conflicting volume	600	299			0	598	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	600	299			0	598	
tC, single (s)	6.8	6.9			0.0	*6.4	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	*2.5	
p0 queue free %	100	100			0	100	
cM capacity (veh/h)	432	697			0	608	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	299	299	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	608	1700	1700
Volume to Capacity	0.18	0.18	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	10.9	0.0	0.0
Lane LOS			B		
Approach Delay (s)	0.0		10.9		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	176	1	0	1099	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	1221	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	1223	611	0	1221			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1223	611	0	1221			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	100			
cM capacity (veh/h)	171	437	0	244			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	611	611
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	244	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.36	0.36
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	19.8	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	19.8			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations			↑↑		↰		↑↑
Volume (veh/h)	0	0	362	0	106	1	0
Sign Control	Stop		Free				Free
Grade	0%		0%				0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	402	0	0	1	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked					0.00		
vC, conflicting volume	404	201			0	402	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	404	201			0	402	
tC, single (s)	6.8	6.9			0.0	*6.4	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	*2.5	
p0 queue free %	100	100			0	100	
cM capacity (veh/h)	573	806			0	807	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	201	201	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	807	1700	1700
Volume to Capacity	0.12	0.12	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	9.5	0.0	0.0
Lane LOS			A		
Approach Delay (s)	0.0		9.5		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	22.5%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	158	0	0	199	0	402	66	0	1093	179
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	198	0	0	249	0	447	73	0	1214	199
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1786	1834	707	1251	1860	223	1413			520		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1786	1834	707	1251	1860	223	1413			520		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	48	100	100	68	100			100		
cM capacity (veh/h)	35	75	378	62	72	780	478			1042		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	198	249	223	223	73	810	504
Volume Left	0	0	0	0	0	0	0
Volume Right	198	249	0	0	73	0	99
cSH	378	780	1700	1700	1700	1700	1700
Volume to Capacity	0.52	0.32	0.13	0.13	0.04	0.48	0.30
Queue Length 95th (ft)	73	34	0	0	0	0	0
Control Delay (s)	24.5	11.8	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	B					
Approach Delay (s)	24.5	11.8	0.0			0.0	
Approach LOS	C	B					

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	288	1	0	855	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	950	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	952	475	0	950			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	952	475	0	950			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	100			
cM capacity (veh/h)	257	536	0	363			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	475	475
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	363	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.28	0.28
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	14.9	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	14.9			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	6	0	0	133	0	221	58	0	805	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	8	0	0	166	0	246	64	0	894	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1192	1213	456	732	1189	155	911			310		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1192	1213	456	732	1189	155	911			310		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	81	100			100		
cM capacity (veh/h)	115	181	552	305	187	863	743			1247		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	8	166	164	114	596	306
Volume Left	0	0	0	0	0	0
Volume Right	8	166	0	32	0	8
cSH	552	863	1700	1700	1700	1700
Volume to Capacity	0.01	0.19	0.10	0.07	0.35	0.18
Queue Length 95th (ft)	1	18	0	0	0	0
Control Delay (s)	11.6	10.2	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	11.6	10.2	0.0		0.0	
Approach LOS	B	B				

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	32.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	211	1	0	637	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	708	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	710	354	0	708			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	710	354	0	708			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	100			
cM capacity (veh/h)	367	642	0	518			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	354	354
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	518	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.21	0.21
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	12.0	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	12.0			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	36.0%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑		↑↑		
Volume (veh/h)	169	0	436	1	0	0	0
Sign Control	Free				Free	Stop	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	188	0	0	1	0	0	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None				None		
Median storage veh)							
Upstream signal (ft)					840		
pX, platoon unblocked			0.00				
vC, conflicting volume			0	188		190	94
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			0	188		190	94
tC, single (s)			0.0	*6.4		6.8	6.9
tC, 2 stage (s)							
tF (s)			0.0	*2.5		3.5	3.3
p0 queue free %			0	100		100	100
cM capacity (veh/h)			0	1100		780	945

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3
Volume Total	94	94	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1100	1700	1700
Volume to Capacity	0.06	0.06	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	8.3	0.0	0.0
Lane LOS			A		
Approach Delay (s)	0.0		8.3		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	35.5%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

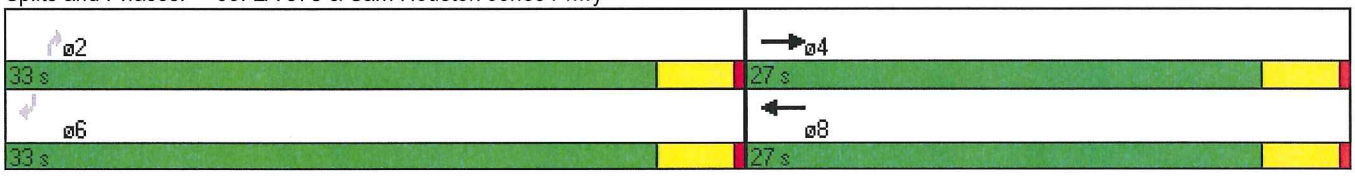
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	335	270	0	735	104	0	0	118	0	0	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0				4.0			4.0
Lane Util. Factor		0.95			0.95				1.00			1.00
Frt		0.93			0.98				0.86			0.86
Flt Protected		1.00			1.00				1.00			1.00
Satd. Flow (prot)		3302			3473				1611			1611
Flt Permitted		1.00			1.00				1.00			1.00
Satd. Flow (perm)		3302			3473				1611			1611
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	0	372	300	0	817	116	0	0	148	0	0	364
RTOR Reduction (vph)	0	165	0	0	17	0	0	0	97	0	0	41
Lane Group Flow (vph)	0	507	0	0	916	0	0	0	51	0	0	323
Turn Type		NA			NA				custom			custom
Protected Phases		4			8							
Permitted Phases									2			6
Actuated Green, G (s)		17.5			17.5				13.4			13.4
Effective Green, g (s)		17.5			17.5				13.4			13.4
Actuated g/C Ratio		0.45			0.45				0.34			0.34
Clearance Time (s)		4.0			4.0				4.0			4.0
Vehicle Extension (s)		3.0			3.0				3.0			3.0
Lane Grp Cap (vph)		1485			1562				554			554
v/s Ratio Prot		0.15			c0.26							
v/s Ratio Perm									0.03			c0.20
v/c Ratio		0.34			0.59				0.09			0.58
Uniform Delay, d1		7.0			8.0				8.6			10.5
Progression Factor		0.96			1.00				1.00			1.00
Incremental Delay, d2		0.1			0.6				0.1			1.6
Delay (s)		6.8			8.6				8.7			12.0
Level of Service		A			A				A			B
Approach Delay (s)		6.8			8.6			8.7			12.0	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2010 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	38.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBR	EBT	SBR	WBT
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Min	None	Min	None
Maximum Split (s)	33	27	33	27
Maximum Split (%)	55.0%	45.0%	55.0%	45.0%
Minimum Split (s)	20	20	20	20
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	33	0	33
End Time (s)	33	0	33	0
Yield/Force Off (s)	29	56	29	56
Yield/Force Off 170(s)	29	45	29	45
Local Start Time (s)	0	33	0	33
Local Yield (s)	29	56	29	56
Local Yield 170(s)	29	45	29	45

Intersection Summary	
Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	40

Splits and Phases: 99: LA 378 & Sam Houston Jones Pkwy



Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	39	1	0	800	0	0	0
Sign Control			Free	Free		Stop	
Grade			0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	0	889	0	0	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None	None			
Median storage veh)							
Upstream signal (ft)			788				
pX, platoon unblocked	0.00						
vC, conflicting volume	0	889				891	444
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	0	889				891	444
tC, single (s)	0.0	*6.4				6.8	6.9
tC, 2 stage (s)							
tF (s)	0.0	*2.5				3.5	3.3
p0 queue free %	0	100				100	100
cM capacity (veh/h)	0	397				281	561

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2
Volume Total	1	0	0	444	444
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	397	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.26	0.26
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	14.1	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	14.1			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	32.1%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

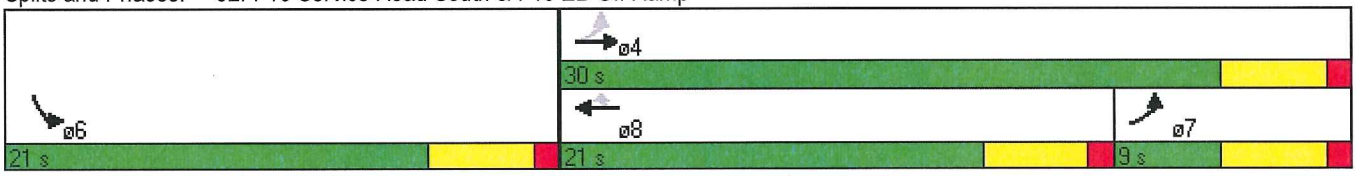
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	5	223	4	468	761	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95	1.00	1.00	0.97	
Frt		1.00	1.00	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3535	1863	1583	3441	
Flt Permitted		0.95	1.00	1.00	0.95	
Satd. Flow (perm)		3371	1863	1583	3441	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	6	279	5	585	951	1
RTOR Reduction (vph)	0	0	0	294	105	0
Lane Group Flow (vph)	0	285	5	291	847	0
Turn Type	pm+pt	NA	NA	Perm	NA	
Protected Phases	7	4	8		6	
Permitted Phases	4			8		
Actuated Green, G (s)		25.0	25.0	25.0	15.2	
Effective Green, g (s)		25.0	25.0	25.0	15.2	
Actuated g/C Ratio		0.50	0.50	0.50	0.30	
Clearance Time (s)		5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1678	927	788	1041	
v/s Ratio Prot			0.00		c0.25	
v/s Ratio Perm		0.08		c0.18		
v/c Ratio		0.17	0.01	0.37	0.81	
Uniform Delay, d1		6.9	6.3	7.8	16.2	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0	0.0	1.3	5.0	
Delay (s)		7.0	6.4	9.1	21.2	
Level of Service		A	A	A	C	
Approach Delay (s)		7.0	9.1		21.2	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	50.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	4	6	7	8
Movement	EBTL	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Max	None	None	Max
Maximum Split (s)	30	21	9	21
Maximum Split (%)	58.8%	41.2%	17.6%	41.2%
Minimum Split (s)	21	21	9	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	7	4	15
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21	0	42	21
End Time (s)	0	21	0	42
Yield/Force Off (s)	46	16	46	37
Yield/Force Off 170(s)	35	5	46	26
Local Start Time (s)	21	0	42	21
Local Yield (s)	46	16	46	37
Local Yield 170(s)	35	5	46	26

Intersection Summary	
Cycle Length	51
Control Type	Semi Act-Uncoord
Natural Cycle	60

Splits and Phases: 32: I-10 Service Road South & I-10 EB Off Ramp



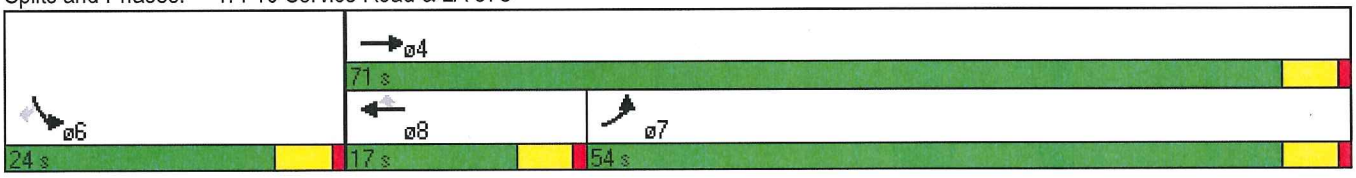
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	707	277	102	152	114	353
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	1863	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	1863	1583	1770	1583
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.90	0.90
Adj. Flow (vph)	884	346	128	190	127	392
RTOR Reduction (vph)	0	0	0	163	0	342
Lane Group Flow (vph)	884	346	128	27	127	50
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	46.0	63.1	12.1	12.1	10.6	10.6
Effective Green, g (s)	46.0	63.1	12.1	12.1	10.6	10.6
Actuated g/C Ratio	0.55	0.75	0.14	0.14	0.13	0.13
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.3	2.3	2.3	2.0	2.0
Lane Grp Cap (vph)	972	2667	269	228	224	200
v/s Ratio Prot	c0.50	0.10	c0.07		c0.07	
v/s Ratio Perm				0.02		0.03
v/c Ratio	0.91	0.13	0.48	0.12	0.57	0.25
Uniform Delay, d1	17.0	2.8	32.9	31.2	34.4	33.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.8	0.0	0.8	0.1	2.0	0.2
Delay (s)	28.8	2.8	33.7	31.3	36.3	33.2
Level of Service	C	A	C	C	D	C
Approach Delay (s)		21.5	32.3		34.0	
Approach LOS		C	C		C	

Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2010 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	83.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	4	6	7	8
Movement	EBT	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	71	24	54	17
Maximum Split (%)	74.7%	25.3%	56.8%	17.9%
Minimum Split (s)	21	21	15	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	24	0	41	24
End Time (s)	0	24	0	41
Yield/Force Off (s)	90	19	90	36
Yield/Force Off 170(s)	90	8	90	36
Local Start Time (s)	24	0	41	24
Local Yield (s)	90	19	90	36
Local Yield 170(s)	90	8	90	36

Intersection Summary	
Cycle Length	95
Control Type	Actuated-Uncoordinated
Natural Cycle	90

Splits and Phases: 1: I-10 Service Road & LA 378



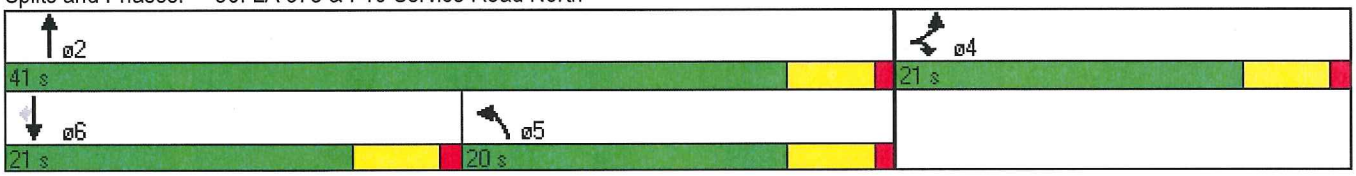
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	578	96	142	698	379	521
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	3539	3539	1583
Peak-hour factor, PHF	0.80	0.80	0.90	0.90	0.90	0.90
Adj. Flow (vph)	722	120	158	776	421	579
RTOR Reduction (vph)	0	88	0	0	0	406
Lane Group Flow (vph)	722	32	158	776	421	173
Turn Type	NA	Prot	Prot	NA	NA	Perm
Protected Phases	4	4	5	2	6	
Permitted Phases						6
Actuated Green, G (s)	14.3	14.3	8.2	29.2	16.0	16.0
Effective Green, g (s)	14.3	14.3	8.2	29.2	16.0	16.0
Actuated g/C Ratio	0.27	0.27	0.15	0.55	0.30	0.30
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.3	2.3	2.3
Lane Grp Cap (vph)	917	423	271	1931	1058	473
v/s Ratio Prot	c0.21	0.02	c0.09	c0.22	0.12	
v/s Ratio Perm						0.11
v/c Ratio	0.79	0.08	0.58	0.40	0.40	0.37
Uniform Delay, d1	18.2	14.7	21.1	7.1	14.9	14.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.2	0.0	2.1	0.1	0.1	0.3
Delay (s)	22.4	14.7	23.1	7.1	15.1	15.0
Level of Service	C	B	C	A	B	B
Approach Delay (s)	21.3			9.9	15.0	
Approach LOS	C			A	B	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	53.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	5	6
Movement	NBT	EBL	NBL	SBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	41	21	20	21
Maximum Split (%)	66.1%	33.9%	32.3%	33.9%
Minimum Split (s)	21	21	20	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	41	21	0
End Time (s)	41	0	41	21
Yield/Force Off (s)	36	57	36	16
Yield/Force Off 170(s)	36	46	36	16
Local Start Time (s)	0	41	21	0
Local Yield (s)	36	57	36	16
Local Yield 170(s)	36	46	36	16

Intersection Summary	
Cycle Length	62
Control Type	Actuated-Uncoordinated
Natural Cycle	65

Splits and Phases: 30: LA 378 & I-10 Service Road North



Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Volume (veh/h)	0	0	1086	0	276	1	0
Sign Control	Stop		Free				Free
Grade	0%		0%				0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	1207	0	0	1	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)			1218				498
pX, platoon unblocked					0.00		
vC, conflicting volume	1209	603			0	1207	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1209	603			0	1207	
tC, single (s)	6.8	6.9			0.0	*6.4	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	*2.5	
p0 queue free %	100	100			0	100	
cM capacity (veh/h)	175	442			0	249	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	603	603	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	249	1700	1700
Volume to Capacity	0.35	0.35	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	19.5	0.0	0.0
Lane LOS			C		
Approach Delay (s)	0.0		19.5		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	637	0	0	164	159	1077	126	33	590	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.5			5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor			0.88			1.00	1.00	0.95		1.00	0.95	
Frt			0.85			0.86	1.00	0.98		1.00	0.98	
Flt Protected			1.00			1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)			2787			1611	1770	3484		1770	3461	
Flt Permitted			1.00			1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)			2787			1611	1770	3484		1770	3461	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	796	0	0	205	177	1197	140	37	656	113
RTOR Reduction (vph)	0	0	188	0	0	29	0	15	0	0	23	0
Lane Group Flow (vph)	0	0	608	0	0	176	177	1322	0	37	746	0
Turn Type			Over			Over	Prot	NA		Prot	NA	
Protected Phases			5			1	5	2		1	6	
Permitted Phases												
Actuated Green, G (s)			21.5			21.5	21.5	27.5		21.5	27.5	
Effective Green, g (s)			21.5			21.5	21.5	27.5		21.5	27.5	
Actuated g/C Ratio			0.36			0.36	0.36	0.46		0.36	0.46	
Clearance Time (s)			5.5			5.5	5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)			998			577	634	1596		634	1586	
v/s Ratio Prot			c0.22			0.11	0.10	c0.38		0.02	0.22	
v/s Ratio Perm												
v/c Ratio			0.61			0.31	0.28	0.83		0.06	0.47	
Uniform Delay, d1			15.8			13.9	13.7	14.2		12.6	11.2	
Progression Factor			1.00			1.00	1.08	0.98		0.94	1.10	
Incremental Delay, d2			2.8			1.4	1.1	5.1		0.2	1.0	
Delay (s)			18.6			15.2	15.9	19.0		12.0	13.4	
Level of Service			B			B	B	B		B	B	
Approach Delay (s)		18.6			15.2			18.6			13.3	
Approach LOS		B			B			B			B	

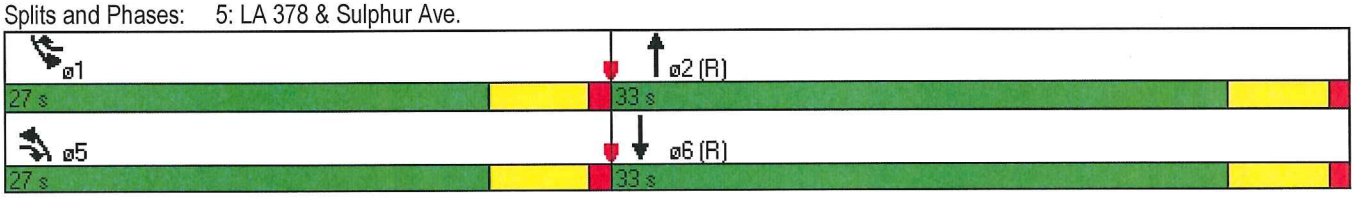
Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	5	6
Movement	SBL	NBT	NBL	SBT
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	27	33	27	33
Maximum Split (%)	45.0%	55.0%	45.0%	55.0%
Minimum Split (s)	10.5	25.5	10.5	25.5
Yellow Time (s)	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	20	5	20
Vehicle Extension (s)	2	3	2	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		5		5
Flash Dont Walk (s)		11		11
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	33	0	33	0
End Time (s)	0	33	0	33
Yield/Force Off (s)	54.5	27.5	54.5	27.5
Yield/Force Off 170(s)	54.5	16.5	54.5	16.5
Local Start Time (s)	33	0	33	0
Local Yield (s)	54.5	27.5	54.5	27.5
Local Yield 170(s)	54.5	16.5	54.5	16.5

Intersection Summary	
Cycle Length	60
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

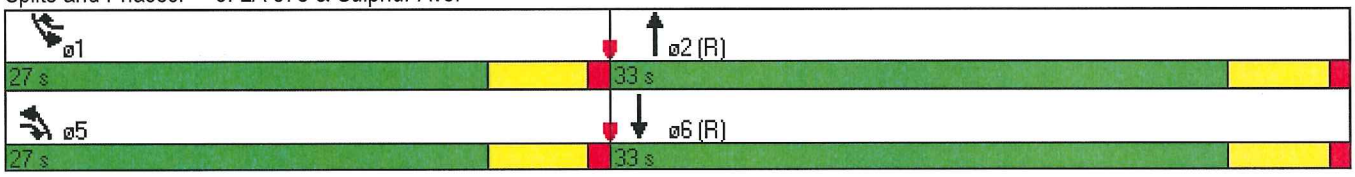
Splits and Phases: 5: LA 378 & Sulphur Ave.



Phase Number	1	2	5	6
Movement	SBL	NBT	NBL	SBT
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	27	33	27	33
Maximum Split (%)	45.0%	55.0%	45.0%	55.0%
Minimum Split (s)	10.5	25.5	10.5	25.5
Yellow Time (s)	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	20	5	20
Vehicle Extension (s)	2	3	2	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		5		5
Flash Dont Walk (s)		11		11
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	33	0	33	0
End Time (s)	0	33	0	33
Yield/Force Off (s)	54.5	27.5	54.5	27.5
Yield/Force Off 170(s)	54.5	16.5	54.5	16.5
Local Start Time (s)	33	0	33	0
Local Yield (s)	54.5	27.5	54.5	27.5
Local Yield 170(s)	54.5	16.5	54.5	16.5

Intersection Summary	
Cycle Length	60
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Splits and Phases: 5: LA 378 & Sulphur Ave.



Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations			↑↑		↲		↑↑
Volume (veh/h)	0	0	1157	0	238	1	0
Sign Control	Stop		Free				Free
Grade	0%		0%				0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	1286	0	0	1	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)			1227				675
pX, platoon unblocked					0.00		
vC, conflicting volume	1288	643			0	1286	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1288	643			0	1286	
tC, single (s)	6.8	6.9			0.0	*6.4	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	*2.5	
p0 queue free %	100	100			0	99	
cM capacity (veh/h)	155	416			0	221	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	643	643	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	221	1700	1700
Volume to Capacity	0.38	0.38	0.01	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	21.3	0.0	0.0
Lane LOS			C		
Approach Delay (s)	0.0		21.3		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	124	0	0	147	19	1346	139	29	681	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0			4.0		4.0			4.0	
Lane Util. Factor			1.00			1.00		0.95			0.95	
Frt			0.86			0.86		0.99			0.99	
Flt Protected			1.00			1.00		1.00			1.00	
Satd. Flow (prot)			1611			1611		3488			3500	
Flt Permitted			1.00			1.00		0.94			0.84	
Satd. Flow (perm)			1611			1611		3284			2961	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	155	0	0	184	21	1496	154	32	757	52
RTOR Reduction (vph)	0	0	117	0	0	34	0	12	0	0	7	0
Lane Group Flow (vph)	0	0	38	0	0	150	0	1659	0	0	834	0
Turn Type			custom			custom	Perm	NA		Perm	NA	
Protected Phases								2			6	
Permitted Phases			4			8	2			6		
Actuated Green, G (s)			16.0			16.0		41.0			41.0	
Effective Green, g (s)			16.0			16.0		41.0			41.0	
Actuated g/C Ratio			0.25			0.25		0.63			0.63	
Clearance Time (s)			4.0			4.0		4.0			4.0	
Lane Grp Cap (vph)			396			396		2071			1867	
v/s Ratio Prot												
v/s Ratio Perm			0.02			c0.09		c0.51			0.28	
v/c Ratio			0.10			0.38		0.80			0.45	
Uniform Delay, d1			18.9			20.4		9.0			6.2	
Progression Factor			1.00			1.00		0.98			1.17	
Incremental Delay, d2			0.5			2.7		3.4			0.8	
Delay (s)			19.4			23.1		12.1			8.0	
Level of Service			B			C		B			A	
Approach Delay (s)		19.4			23.1			12.1			8.0	
Approach LOS		B			C			B			A	

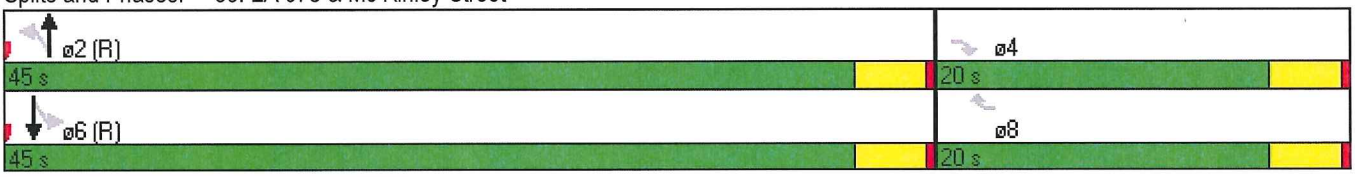
Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	6	8
Movement	NBTL	EBR	SBTL	WBR
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	45	20	45	20
Maximum Split (%)	69.2%	30.8%	69.2%	30.8%
Minimum Split (s)	20	20	20	20
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	45	0	45
End Time (s)	45	0	45	0
Yield/Force Off (s)	41	61	41	61
Yield/Force Off 170(s)	30	50	30	50
Local Start Time (s)	0	45	0	45
Local Yield (s)	41	61	41	61
Local Yield 170(s)	30	50	30	50

Intersection Summary	
Cycle Length	65
Control Type	Pretimed
Natural Cycle	60
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 83: LA 378 & Mc Kinley Street



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	119	1	0	642	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	713	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)					880		
pX, platoon unblocked			0.00				
vC, conflicting volume	716	357	0	713			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	716	357	0	713			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	100			
cM capacity (veh/h)	364	640	0	514			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	357	357
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	514	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.21	0.21
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	12.0	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	12.0			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	31.0%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations			↑↑		⇂		↑↑
Volume (veh/h)	0	0	1430	0	232	1	0
Sign Control	Stop		Free				Free
Grade	0%		0%				0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	1589	0	0	1	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked					0.00		
vC, conflicting volume	1591	794			0	1589	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1591	794			0	1589	
tC, single (s)	6.8	6.9			0.0	*6.4	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	*2.5	
p0 queue free %	100	100			0	99	
cM capacity (veh/h)	97	331			0	141	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	794	794	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	141	1700	1700
Volume to Capacity	0.47	0.47	0.01	0.00	0.00
Queue Length 95th (ft)	0	0	1	0	0
Control Delay (s)	0.0	0.0	30.7	0.0	0.0
Lane LOS			D		
Approach Delay (s)	0.0		30.7		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	188	1	0	686	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	762	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	764	381	0	762			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	764	381	0	762			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	100			
cM capacity (veh/h)	339	617	0	478			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	381	381
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	478	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.22	0.22
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	12.5	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	12.5			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	36.0%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations			↑↑		↑		↑↑
Volume (veh/h)	0	0	1204	0	249	1	0
Sign Control	Stop		Free				Free
Grade	0%		0%				0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	1338	0	0	1	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked					0.00		
vC, conflicting volume	1340	669			0	1338	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1340	669			0	1338	
tC, single (s)	6.8	6.9			0.0	*6.4	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	*2.5	
p0 queue free %	100	100			0	99	
cM capacity (veh/h)	143	400			0	205	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	669	669	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	205	1700	1700
Volume to Capacity	0.39	0.39	0.01	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	22.7	0.0	0.0
Lane LOS			C		
Approach Delay (s)	0.0		22.7		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	273	0	0	148	0	1236	217	0	570	168
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	341	0	0	185	0	1373	241	0	633	187
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1598	2341	410	2031	2193	687	820			1614		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1598	2341	410	2031	2193	687	820			1614		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	42	100	100	53	100			100		
cM capacity (veh/h)	37	36	591	14	45	390	805			400		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	341	185	687	687	241	422	304
Volume Left	0	0	0	0	0	0	0
Volume Right	341	185	0	0	241	0	93
cSH	591	390	1700	1700	1700	1700	1700
Volume to Capacity	0.58	0.47	0.40	0.40	0.14	0.25	0.18
Queue Length 95th (ft)	92	62	0	0	0	0	0
Control Delay (s)	19.1	22.3	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	C					
Approach Delay (s)	19.1	22.3	0.0			0.0	
Approach LOS	C	C					

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	300	1	0	464	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	516	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	518	258	0	516			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	518	258	0	516			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	100			
cM capacity (veh/h)	487	741	0	685			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	258	258
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	685	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.15	0.15
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	10.3	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	10.3			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	18	0	0	63	0	790	250	0	394	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	22	0	0	79	0	878	278	0	438	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	964	1602	228	1258	1472	578	456			1156		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	964	1602	228	1258	1472	578	456			1156		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	97	100	100	83	100			100		
cM capacity (veh/h)	174	105	775	124	126	459	1102			600		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	22	79	585	431	292	155
Volume Left	0	0	0	0	0	0
Volume Right	22	79	0	139	0	9
cSH	775	459	1700	1700	1700	1700
Volume to Capacity	0.03	0.17	0.34	0.25	0.17	0.09
Queue Length 95th (ft)	2	15	0	0	0	0
Control Delay (s)	9.8	14.5	0.0	0.0	0.0	0.0
Lane LOS	A	B				
Approach Delay (s)	9.8	14.5	0.0		0.0	
Approach LOS	A	B				

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	40.4%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	84	1	0	328	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	364	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	367	182	0	364			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	367	182	0	364			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	100			
cM capacity (veh/h)	606	829	0	853			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	182	182
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	853	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.11	0.11
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	9.2	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	9.2			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	20.4%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (veh/h)	557	0	287	1	0	0	0
Sign Control	Free				Free	Stop	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	619	0	0	1	0	0	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None				None		
Median storage veh)							
Upstream signal (ft)					840		
pX, platoon unblocked			0.00				
vC, conflicting volume			0	619		621	309
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			0	619		621	309
tC, single (s)			0.0	*6.4		6.8	6.9
tC, 2 stage (s)							
tF (s)			0.0	*2.5		3.5	3.3
p0 queue free %			0	100		100	100
cM capacity (veh/h)			0	590		418	686

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3
Volume Total	309	309	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	590	1700	1700
Volume to Capacity	0.18	0.18	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	11.1	0.0	0.0
Lane LOS			B		
Approach Delay (s)	0.0		11.1		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	38.0%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

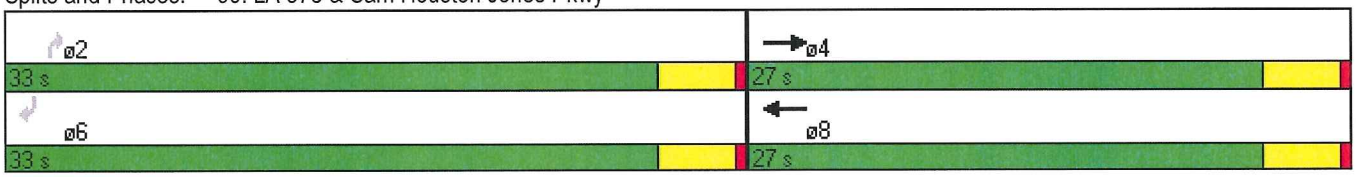
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	644	200	0	440	270	0	0	317	0	0	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0				4.0			4.0
Lane Util. Factor		0.95			0.95				1.00			1.00
Frt		0.96			0.94				0.86			0.86
Flt Protected		1.00			1.00				1.00			1.00
Satd. Flow (prot)		3414			3337				1611			1611
Flt Permitted		1.00			1.00				1.00			1.00
Satd. Flow (perm)		3414			3337				1611			1611
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	0	716	222	0	489	300	0	0	396	0	0	196
RTOR Reduction (vph)	0	44	0	0	141	0	0	0	59	0	0	127
Lane Group Flow (vph)	0	894	0	0	648	0	0	0	337	0	0	69
Turn Type		NA			NA				custom			custom
Protected Phases		4			8							
Permitted Phases									2			6
Actuated Green, G (s)		17.6			17.6				13.8			13.8
Effective Green, g (s)		17.6			17.6				13.8			13.8
Actuated g/C Ratio		0.45			0.45				0.35			0.35
Clearance Time (s)		4.0			4.0				4.0			4.0
Vehicle Extension (s)		3.0			3.0				3.0			3.0
Lane Grp Cap (vph)		1525			1490				564			564
v/s Ratio Prot		c0.26			0.19							
v/s Ratio Perm									c0.21			0.04
v/c Ratio		0.59			0.44				0.60			0.12
Uniform Delay, d1		8.2			7.5				10.5			8.7
Progression Factor		0.97			1.00				1.00			1.00
Incremental Delay, d2		0.6			0.2				1.7			0.1
Delay (s)		8.5			7.7				12.2			8.8
Level of Service		A			A				B			A
Approach Delay (s)		8.5			7.7			12.2			8.8	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	8.9	HCM 2010 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	39.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBR	EBT	SBR	WBT
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Min	None	Min	None
Maximum Split (s)	33	27	33	27
Maximum Split (%)	55.0%	45.0%	55.0%	45.0%
Minimum Split (s)	20	20	20	20
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	33	0	33
End Time (s)	33	0	33	0
Yield/Force Off (s)	29	56	29	56
Yield/Force Off 170(s)	29	45	29	45
Local Start Time (s)	0	33	0	33
Local Yield (s)	29	56	29	56
Local Yield 170(s)	29	45	29	45

Intersection Summary		
Cycle Length		60
Control Type	Actuated-Uncoordinated	
Natural Cycle		40

Splits and Phases: 99: LA 378 & Sam Houston Jones Pkwy



Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	136	1	0	574	0	0	0
Sign Control			Free	Free		Stop	
Grade			0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	0	638	0	0	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None	None			
Median storage veh)							
Upstream signal (ft)			788				
pX, platoon unblocked	0.00						
vC, conflicting volume	0	638				640	319
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	0	638				640	319
tC, single (s)	0.0	*6.4				6.8	6.9
tC, 2 stage (s)							
tF (s)	0.0	*2.5				3.5	3.3
p0 queue free %	0	100				100	100
cM capacity (veh/h)	0	574				407	677

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2
Volume Total	1	0	0	319	319
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	574	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.19	0.19
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	11.3	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.3			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	2	58	12	840	423	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95	1.00	1.00	0.97	
Frt		1.00	1.00	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3433	1810	1538	3338	
Flt Permitted		0.95	1.00	1.00	0.95	
Satd. Flow (perm)		3274	1810	1538	3338	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	2	72	15	1050	529	9
RTOR Reduction (vph)	0	0	0	477	114	0
Lane Group Flow (vph)	0	74	15	573	424	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	pm+pt	NA	NA	Perm	NA	
Protected Phases	7	4	8		6	
Permitted Phases	4			8		
Actuated Green, G (s)		25.1	25.1	25.1	10.9	
Effective Green, g (s)		25.1	25.1	25.1	10.9	
Actuated g/C Ratio		0.55	0.55	0.55	0.24	
Clearance Time (s)		5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1786	987	839	790	
v/s Ratio Prot			0.01		c0.13	
v/s Ratio Perm		0.02		c0.37		
v/c Ratio		0.04	0.02	0.68	0.54	
Uniform Delay, d1		4.9	4.8	7.6	15.3	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0	0.0	4.5	0.7	
Delay (s)		4.9	4.8	12.0	16.0	
Level of Service		A	A	B	B	
Approach Delay (s)		4.9	11.9		16.0	
Approach LOS		A	B		B	

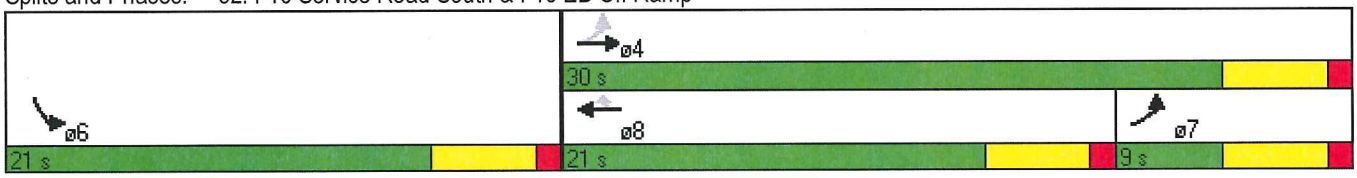
Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	4	6	7	8
Movement	EBTL	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Max	None	None	Max
Maximum Split (s)	30	21	9	21
Maximum Split (%)	58.8%	41.2%	17.6%	41.2%
Minimum Split (s)	21	21	9	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	7	4	15
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21	0	42	21
End Time (s)	0	21	0	42
Yield/Force Off (s)	46	16	46	37
Yield/Force Off 170(s)	35	5	46	26
Local Start Time (s)	21	0	42	21
Local Yield (s)	46	16	46	37
Local Yield 170(s)	35	5	46	26

Intersection Summary	
Cycle Length	51
Control Type	Semi Act-Uncoord
Natural Cycle	55

Splits and Phases: 32: I-10 Service Road South & I-10 EB Off Ramp



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	369	102	210	106	88	552
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	3438	1810	1538	1719	1538
Flt Permitted	0.57	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1026	3438	1810	1538	1719	1538
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.90	0.90
Adj. Flow (vph)	461	128	262	132	98	613
RTOR Reduction (vph)	0	0	0	98	0	503
Lane Group Flow (vph)	461	128	262	34	98	110
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	28.3	28.3	12.2	12.2	8.4	8.4
Effective Green, g (s)	28.3	28.3	12.2	12.2	8.4	8.4
Actuated g/C Ratio	0.61	0.61	0.26	0.26	0.18	0.18
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.3	2.3	2.3	2.0	2.0
Lane Grp Cap (vph)	786	2083	472	401	309	276
v/s Ratio Prot	c0.14	0.04	0.14		0.06	
v/s Ratio Perm	c0.22			0.02		c0.07
v/c Ratio	0.59	0.06	0.56	0.09	0.32	0.40
Uniform Delay, d1	6.9	3.8	14.9	13.0	16.7	16.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.0	1.0	0.1	0.2	0.3
Delay (s)	7.7	3.8	15.9	13.1	16.9	17.3
Level of Service	A	A	B	B	B	B
Approach Delay (s)		6.8	15.0		17.2	
Approach LOS		A	B		B	

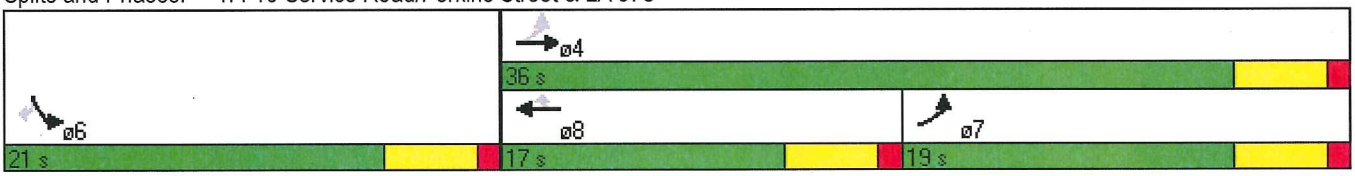
Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	46.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	4	6	7	8
Movement	EBTL	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	36	21	19	17
Maximum Split (%)	63.2%	36.8%	33.3%	29.8%
Minimum Split (s)	21	21	15	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21	0	38	21
End Time (s)	0	21	0	38
Yield/Force Off (s)	52	16	52	33
Yield/Force Off 170(s)	52	5	52	33
Local Start Time (s)	21	0	38	21
Local Yield (s)	52	16	52	33
Local Yield 170(s)	52	5	52	33

Intersection Summary	
Cycle Length	57
Control Type	Actuated-Uncoordinated
Natural Cycle	60

Splits and Phases: 1: I-10 Service Road/Perkins Street & LA 378



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	372	68	107	358	557	778
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3335	1538	1719	3438	3438	1538
Flt Permitted	0.95	1.00	0.37	1.00	1.00	1.00
Satd. Flow (perm)	3335	1538	670	3438	3438	1538
Peak-hour factor, PHF	0.80	0.80	0.90	0.90	0.90	0.90
Adj. Flow (vph)	465	85	119	398	619	864
RTOR Reduction (vph)	0	66	0	0	0	581
Lane Group Flow (vph)	465	19	119	398	619	283
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	NA	Prot	pm+pt	NA	NA	Perm
Protected Phases	4	4	5	2	6	
Permitted Phases			2			6
Actuated Green, G (s)	11.2	11.2	28.8	28.8	16.4	16.4
Effective Green, g (s)	11.2	11.2	28.8	28.8	16.4	16.4
Actuated g/C Ratio	0.22	0.22	0.58	0.58	0.33	0.33
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.3	2.3	2.3
Lane Grp Cap (vph)	747	344	541	1980	1127	504
v/s Ratio Prot	c0.14	0.01	c0.03	0.12	0.18	
v/s Ratio Perm			0.09			c0.18
v/c Ratio	0.62	0.06	0.22	0.20	0.55	0.56
Uniform Delay, d1	17.5	15.2	6.6	5.1	13.8	13.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.0	0.1	0.0	0.4	1.0
Delay (s)	18.7	15.3	6.7	5.1	14.1	14.9
Level of Service	B	B	A	A	B	B
Approach Delay (s)	18.1			5.5	14.6	
Approach LOS	B			A	B	

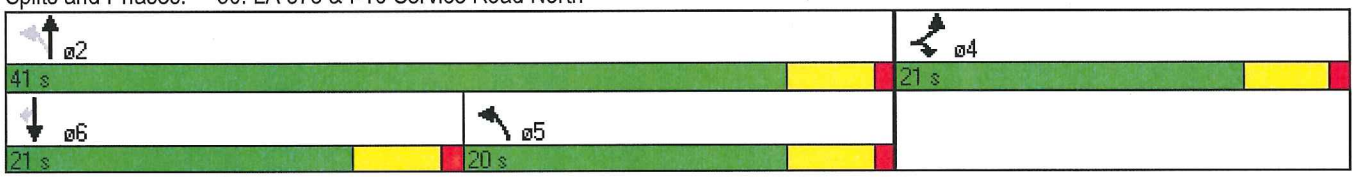
Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	5	6
Movement	NBTL	EBL	NBL	SBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	41	21	20	21
Maximum Split (%)	66.1%	33.9%	32.3%	33.9%
Minimum Split (s)	21	21	20	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	41	21	0
End Time (s)	41	0	41	21
Yield/Force Off (s)	36	57	36	16
Yield/Force Off 170(s)	36	46	36	16
Local Start Time (s)	0	41	21	0
Local Yield (s)	36	57	36	16
Local Yield 170(s)	36	46	36	16

Intersection Summary	
Cycle Length	62
Control Type	Actuated-Uncoordinated
Natural Cycle	65

Splits and Phases: 30: LA 378 & I-10 Service Road North



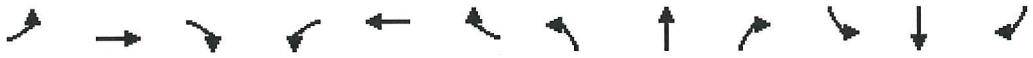
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	44	279	181	40	24	319	328	34	33	943	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1810	1538	1719	1726		1719	3479		1770	3483	
Flt Permitted	0.44	1.00	1.00	0.72	1.00		0.22	1.00		0.52	1.00	
Satd. Flow (perm)	828	1810	1538	1305	1726		391	3479		960	3483	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	49	55	349	226	50	30	354	364	38	37	1048	123
RTOR Reduction (vph)	0	0	288	0	24	0	0	9	0	0	10	0
Lane Group Flow (vph)	49	55	61	226	56	0	354	393	0	37	1161	0
Heavy Vehicles (%)	2%	5%	5%	5%	5%	2%	5%	2%	5%	2%	2%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	15.5	15.5	15.5	18.0	18.0		31.0	31.0		29.0	29.0	
Effective Green, g (s)	15.5	15.5	15.5	18.0	18.0		31.0	31.0		29.0	29.0	
Actuated g/C Ratio	0.18	0.18	0.18	0.20	0.20		0.35	0.35		0.33	0.33	
Clearance Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)	215	318	270	309	353		326	1225		413	1147	
v/s Ratio Prot	0.02	0.03		c0.07	0.03		c0.15	0.11		0.01	c0.33	
v/s Ratio Perm	0.02		c0.04	c0.07			c0.23			0.02		
v/c Ratio	0.23	0.17	0.23	0.73	0.16		1.09	0.32		0.09	1.01	
Uniform Delay, d1	30.9	30.8	31.1	32.1	28.8		25.0	20.8		20.6	29.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.5	1.2	2.0	14.2	1.0		74.7	0.7		0.4	29.6	
Delay (s)	33.3	32.0	33.1	46.3	29.7		99.7	21.5		21.0	59.1	
Level of Service	C	C	C	D	C		F	C		C	E	
Approach Delay (s)		33.0			42.0			58.1			57.9	
Approach LOS		C			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	52.0	HCM 2010 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	88.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
Maximum Split (s)	16	36.5	14.5	21	18	34.5	12	23.5
Maximum Split (%)	18.2%	41.5%	16.5%	23.9%	20.5%	39.2%	13.6%	26.7%
Minimum Split (s)	10.5	25.5	10.5	21.5	10.5	25.5	10.5	21.5
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	20	5	10	5	20	5	10
Vehicle Extension (s)	2	3	2	3	2	3	2	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		5		5		5		5
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	33	84.5	70	49	84.5	14.5	49	61
End Time (s)	49	33	84.5	70	14.5	49	61	84.5
Yield/Force Off (s)	43.5	27.5	79	64.5	9	43.5	55.5	79
Yield/Force Off 170(s)	43.5	16.5	79	53.5	9	32.5	55.5	68
Local Start Time (s)	18.5	70	55.5	34.5	70	0	34.5	46.5
Local Yield (s)	29	13	64.5	50	82.5	29	41	64.5
Local Yield 170(s)	29	2	64.5	39	82.5	18	41	53.5

Intersection Summary	
Cycle Length	88
Control Type	Pretimed
Natural Cycle	90
Offset: 14.5 (16%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 5: LA 378 & Sulphur Ave.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	39	16	105	39	48	43	331	23	24	1107	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.97			0.97		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1786			1752		1770	3504		1770	3498	
Flt Permitted		0.92			0.81		0.15	1.00		0.52	1.00	
Satd. Flow (perm)		1666			1464		275	3504		968	3498	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	20	49	20	131	49	60	48	368	26	27	1230	104
RTOR Reduction (vph)	0	15	0	0	17	0	0	7	0	0	9	0
Lane Group Flow (vph)	0	74	0	0	223	0	48	387	0	27	1325	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		17.5			17.5		44.1	44.1		44.1	44.1	
Effective Green, g (s)		17.5			17.5		44.1	44.1		44.1	44.1	
Actuated g/C Ratio		0.25			0.25		0.63	0.63		0.63	0.63	
Clearance Time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Grp Cap (vph)		416			366		173	2207		609	2203	
v/s Ratio Prot								0.11			c0.38	
v/s Ratio Perm		0.04			c0.15		0.17			0.03		
v/c Ratio		0.18			0.61		0.28	0.18		0.04	0.60	
Uniform Delay, d1		20.6			23.2		5.8	5.4		4.9	7.7	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.9			7.3		3.9	0.2		0.1	1.2	
Delay (s)		21.5			30.6		9.8	5.6		5.1	8.9	
Level of Service		C			C		A	A		A	A	
Approach Delay (s)		21.5			30.6			6.0			8.9	
Approach LOS		C			C			A			A	

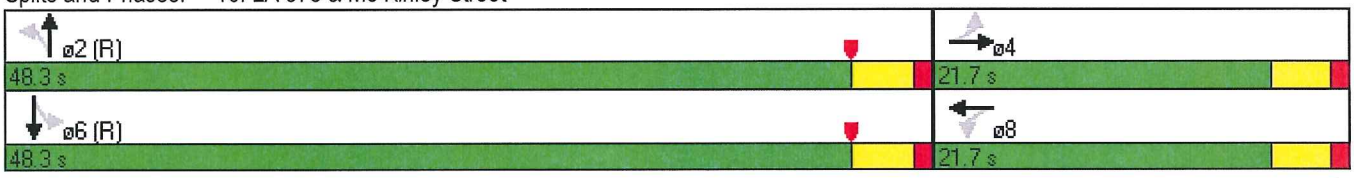
Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	48.3	21.7	48.3	21.7
Maximum Split (%)	69.0%	31.0%	69.0%	31.0%
Minimum Split (s)	20.5	20.5	20.5	20.5
Yellow Time (s)	3.2	3.2	3.2	3.2
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	61.7	40	61.7	40
End Time (s)	40	61.7	40	61.7
Yield/Force Off (s)	35.8	57.5	35.8	57.5
Yield/Force Off 170(s)	24.8	46.5	24.8	46.5
Local Start Time (s)	25.9	4.2	25.9	4.2
Local Yield (s)	0	21.7	0	21.7
Local Yield 170(s)	59	10.7	59	10.7

Intersection Summary	
Cycle Length	70
Control Type	Pretimed
Natural Cycle	55
Offset: 35.8 (51%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	

Splits and Phases: 16: LA 378 & Mc Kinley Street



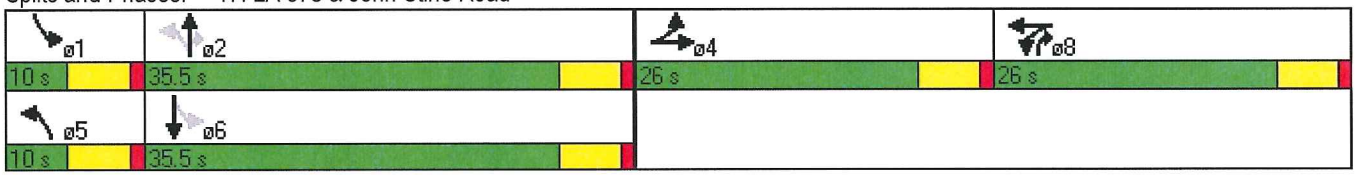
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	25	81	163	66	10	19	238	46	1	871	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5		5.5	5.5	5.5	5.5	5.5	
Lane Util. Factor		1.00			1.00		1.00	1.00	1.00	1.00	0.95	
Frt		0.94			0.99		1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1716			1791		1770	1863	1583	1770	3480	
Flt Permitted		0.98			0.97		0.12	1.00	1.00	0.54	1.00	
Satd. Flow (perm)		1716			1791		230	1863	1583	1002	3480	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	99	31	101	204	82	12	21	264	51	1	968	122
RTOR Reduction (vph)	0	30	0	0	2	0	0	0	22	0	9	0
Lane Group Flow (vph)	0	201	0	0	296	0	21	264	29	1	1081	0
Turn Type	Split	NA		Split	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	4	4		8	8		5	2	8	1	6	
Permitted Phases							2		2	6		
Actuated Green, G (s)		14.1			17.2		33.9	32.4	49.6	32.5	31.7	
Effective Green, g (s)		14.1			17.2		33.9	32.4	49.6	32.5	31.7	
Actuated g/C Ratio		0.16			0.20		0.39	0.37	0.57	0.38	0.37	
Clearance Time (s)		5.5			5.5		5.5	5.5	5.5	5.5	5.5	
Vehicle Extension (s)		2.5			2.5		2.3	5.0	2.5	2.3	5.0	
Lane Grp Cap (vph)		279			356		116	697	907	383	1275	
v/s Ratio Prot		c0.12			c0.17		c0.00	0.14	0.01	0.00	c0.31	
v/s Ratio Perm							0.07		0.01	0.00		
v/c Ratio		0.72			0.83		0.18	0.38	0.03	0.00	0.85	
Uniform Delay, d1		34.3			33.3		18.8	19.7	8.0	16.9	25.2	
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		8.0			15.0		0.4	0.7	0.0	0.0	6.0	
Delay (s)		42.4			48.2		19.2	20.4	8.0	16.9	31.2	
Level of Service		D			D		B	C	A	B	C	
Approach Delay (s)		42.4			48.2			18.5			31.2	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	32.9	HCM 2010 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	86.5	Sum of lost time (s)	22.0
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	10	35.5	26	10	35.5	26
Maximum Split (%)	10.3%	36.4%	26.7%	10.3%	36.4%	26.7%
Minimum Split (s)	9.5	21.5	21.5	9.5	21.5	21.5
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	15	6	4	15	6
Vehicle Extension (s)	2.3	5	2.5	2.3	5	2.5
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		5	5		5	5
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	10	45.5	0	10	71.5
End Time (s)	10	45.5	71.5	10	45.5	0
Yield/Force Off (s)	4.5	40	66	4.5	40	92
Yield/Force Off 170(s)	4.5	40	55	4.5	40	81
Local Start Time (s)	87.5	0	35.5	87.5	0	61.5
Local Yield (s)	92	30	56	92	30	82
Local Yield 170(s)	92	30	45	92	30	71

Intersection Summary	
Cycle Length	97.5
Control Type	Actuated-Uncoordinated
Natural Cycle	90

Splits and Phases: 17: LA 378 & John Stine Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	2	3	155	6	4	6	200	55	5	739	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	2	4	194	8	5	7	222	61	6	821	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1109	1131	823	1106	1103	253	826			283		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1109	1131	823	1106	1103	253	826			283		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	99	0	96	99	99			100		
cM capacity (veh/h)	179	201	373	183	209	786	805			1279		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	3	4	107	256	826
Volume Left	1	0	97	3	3
Volume Right	0	4	2	31	2
cSH	196	373	188	805	1279
Volume to Capacity	0.02	0.01	0.57	0.01	0.00
Queue Length 95th (ft)	1	1	76	1	0
Control Delay (s)	23.7	14.7	46.9	0.2	0.1
Lane LOS	C	B	E	A	A
Approach Delay (s)	18.8		46.9	0.2	0.1
Approach LOS	C		E		

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	64.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	689	11	9	168	26	31
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.80	0.80
Hourly flow rate (vph)	766	12	10	187	32	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	207	103			197	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	207	103			197	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	99			98	
cM capacity (veh/h)	763	951			1376	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	772	103	55
Volume Left	766	0	16
Volume Right	6	93	0
cSH	764	1700	1376
Volume to Capacity	1.01	0.06	0.02
Queue Length 95th (ft)	437	0	2
Control Delay (s)	58.3	0.0	2.4
Lane LOS	F		A
Approach Delay (s)	58.3	0.0	2.4
Approach LOS	F		

Intersection Summary			
Average Delay	48.5		
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

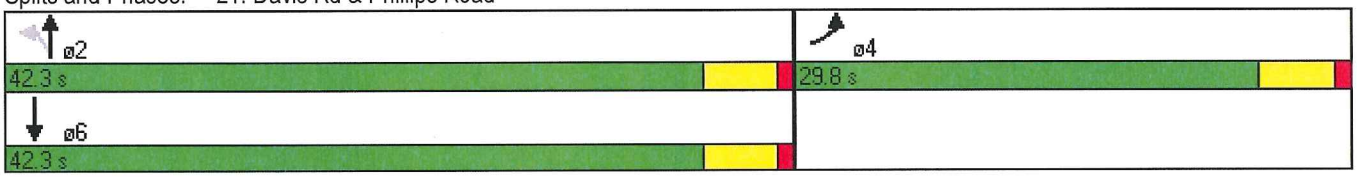
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	204	2	5	122	348	697
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	1.00			1.00	0.91	
Flt Protected	0.95			1.00	1.00	
Satd. Flow (prot)	1773			1859	1695	
Flt Permitted	0.95			0.83	1.00	
Satd. Flow (perm)	1773			1543	1695	
Peak-hour factor, PHF	0.90	0.90	0.80	0.80	0.90	0.90
Adj. Flow (vph)	227	2	6	152	387	774
RTOR Reduction (vph)	24	0	0	0	72	0
Lane Group Flow (vph)	205	0	0	158	1089	0
Turn Type	NA		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	11.8			41.0	41.0	
Effective Green, g (s)	11.8			41.0	41.0	
Actuated g/C Ratio	0.19			0.65	0.65	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	2.5			2.5	2.5	
Lane Grp Cap (vph)	333			1007	1106	
v/s Ratio Prot	c0.12				c0.64	
v/s Ratio Perm				0.10		
v/c Ratio	0.61			0.16	0.98	
Uniform Delay, d1	23.4			4.2	10.6	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	2.9			0.3	23.6	
Delay (s)	26.3			4.5	34.2	
Level of Service	C			A	C	
Approach Delay (s)	26.3			4.5	34.2	
Approach LOS	C			A	C	

Intersection Summary			
HCM 2000 Control Delay	30.0	HCM 2010 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	62.8	Sum of lost time (s)	10.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6
Movement	NBTL	EBL	SBT
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	Max	None	Max
Maximum Split (s)	42.3	29.8	42.3
Maximum Split (%)	58.7%	41.3%	58.7%
Minimum Split (s)	21	21	21
Yellow Time (s)	4	4	4
All-Red Time (s)	1	1	1
Minimum Initial (s)	10	5	10
Vehicle Extension (s)	2.5	2.5	2.5
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	5	5	5
Flash Dont Walk (s)	11	11	11
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	42.3	0
End Time (s)	42.3	0	42.3
Yield/Force Off (s)	37.3	67.1	37.3
Yield/Force Off 170(s)	26.3	56.1	26.3
Local Start Time (s)	0	42.3	0
Local Yield (s)	37.3	67.1	37.3
Local Yield 170(s)	26.3	56.1	26.3

Intersection Summary	
Cycle Length	72.1
Control Type	Actuated-Uncoordinated
Natural Cycle	80

Splits and Phases: 21: Davis Rd & Phillips Road



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	1	0	326	0	0	1044
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	0	362	0	0	1160
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			77			
pX, platoon unblocked	0.98	0.98			0.98	
vC, conflicting volume	1522	362			362	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1523	334			334	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	127	691			1196	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	1	181	580
Volume Left	1	0	0
Volume Right	0	0	0
cSH	127	1700	1196
Volume to Capacity	0.00	0.11	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	33.5	0.0	0.0
Lane LOS	D		
Approach Delay (s)	33.5	0.0	0.0
Approach LOS	D		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	29	289	1	1	877	79	2	0	3	194	0	158
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	314	1	1	953	86	2	0	3	211	0	172
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												5
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	953			315			1333	1333	315	1336	1334	953
vC1, stage 1 conf vol							378	378		955	955	
vC2, stage 2 conf vol							955	955		380	378	
vCu, unblocked vol	953			315			1333	1333	315	1336	1334	953
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			100			98	100	100	11	100	45
cM capacity (veh/h)	721			1245			95	240	726	236	255	314

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	32	315	1	953	86	3	191
Volume Left	32	0	1	0	0	1	105
Volume Right	0	1	0	0	86	2	86
cSH	721	1700	1245	1700	1700	199	429
Volume to Capacity	0.04	0.19	0.00	0.56	0.05	0.01	0.45
Queue Length 95th (ft)	3	0	0	0	0	1	56
Control Delay (s)	10.2	0.0	7.9	0.0	0.0	23.3	26.9
Lane LOS	B		A			C	D
Approach Delay (s)	0.9		0.0			23.3	26.9
Approach LOS						C	D

Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	70.2%	ICU Level of Service	C	
Analysis Period (min)	15			

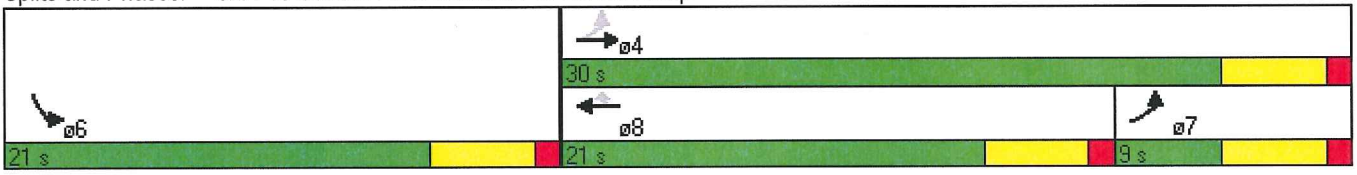
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	6	249	4	618	851	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95	1.00	1.00	0.97	
Frt		1.00	1.00	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3535	1863	1583	3441	
Flt Permitted		0.95	1.00	1.00	0.95	
Satd. Flow (perm)		3368	1863	1583	3441	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	8	311	5	772	1064	1
RTOR Reduction (vph)	0	0	0	394	103	0
Lane Group Flow (vph)	0	319	5	378	962	0
Turn Type	pm+pt	NA	NA	Perm	NA	
Protected Phases	7	4	8		6	
Permitted Phases	4			8		
Actuated Green, G (s)		25.0	25.0	25.0	16.0	
Effective Green, g (s)		25.0	25.0	25.0	16.0	
Actuated g/C Ratio		0.49	0.49	0.49	0.31	
Clearance Time (s)		5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1650	913	775	1079	
v/s Ratio Prot			0.00		c0.28	
v/s Ratio Perm		0.09		c0.24		
v/c Ratio		0.19	0.01	0.49	0.89	
Uniform Delay, d1		7.3	6.6	8.7	16.7	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1	0.0	2.2	9.5	
Delay (s)		7.4	6.7	10.9	26.1	
Level of Service		A	A	B	C	
Approach Delay (s)		7.4	10.9		26.1	
Approach LOS		A	B		C	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	51.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	4	6	7	8
Movement	EBTL	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Max	None	None	Max
Maximum Split (s)	30	21	9	21
Maximum Split (%)	58.8%	41.2%	17.6%	41.2%
Minimum Split (s)	21	21	9	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	7	4	15
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21	0	42	21
End Time (s)	0	21	0	42
Yield/Force Off (s)	46	16	46	37
Yield/Force Off 170(s)	35	5	46	26
Local Start Time (s)	21	0	42	21
Local Yield (s)	46	16	46	37
Local Yield 170(s)	35	5	46	26

Intersection Summary	
Cycle Length	51
Control Type	Semi Act-Uncoord
Natural Cycle	60

Splits and Phases: 32: I-10 Service Road South & I-10 EB Off Ramp



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	791	310	114	170	123	474
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	1863	1583	1770	1583
Flt Permitted	0.67	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1241	3539	1863	1583	1770	1583
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.90	0.90
Adj. Flow (vph)	989	388	142	212	137	527
RTOR Reduction (vph)	0	0	0	155	0	464
Lane Group Flow (vph)	989	388	142	57	137	63
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	39.4	39.4	15.0	15.0	6.7	6.7
Effective Green, g (s)	39.4	39.4	15.0	15.0	6.7	6.7
Actuated g/C Ratio	0.70	0.70	0.27	0.27	0.12	0.12
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.3	2.3	2.3	2.0	2.0
Lane Grp Cap (vph)	1054	2485	498	423	211	189
v/s Ratio Prot	c0.32	0.11	0.08		c0.08	
v/s Ratio Perm	c0.33			0.04		0.04
v/c Ratio	0.94	0.16	0.29	0.13	0.65	0.33
Uniform Delay, d1	7.2	2.8	16.3	15.6	23.6	22.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.8	0.0	0.2	0.1	5.1	0.4
Delay (s)	22.0	2.8	16.5	15.7	28.7	23.0
Level of Service	C	A	B	B	C	C
Approach Delay (s)		16.6	16.0		24.2	
Approach LOS		B	B		C	

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	56.1	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	4	6	7	8
Movement	EBTL	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	45	12	25	20
Maximum Split (%)	78.9%	21.1%	43.9%	35.1%
Minimum Split (s)	21	21	15	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	12	0	32	12
End Time (s)	0	12	0	32
Yield/Force Off (s)	52	7	52	27
Yield/Force Off 170(s)	52	53	52	27
Local Start Time (s)	12	0	32	12
Local Yield (s)	52	7	52	27
Local Yield 170(s)	52	53	52	27

Intersection Summary	
Cycle Length	57
Control Type	Actuated-Uncoordinated
Natural Cycle	80

Splits and Phases: 1: I-10 Service Road & LA 378

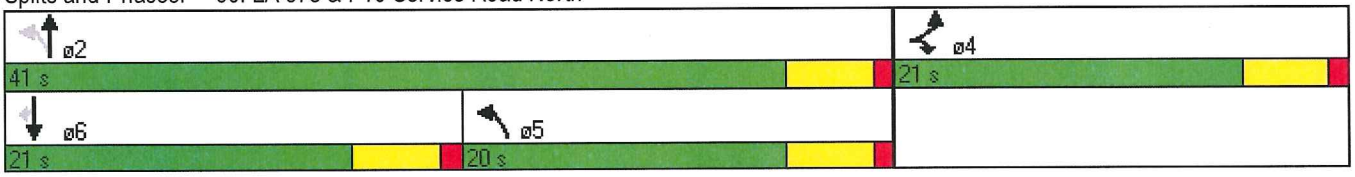
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	647	107	153	752	502	656
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.39	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	735	3539	3539	1583
Peak-hour factor, PHF	0.80	0.80	0.90	0.90	0.90	0.90
Adj. Flow (vph)	809	134	170	836	558	729
RTOR Reduction (vph)	0	96	0	0	0	510
Lane Group Flow (vph)	809	38	170	836	558	219
Turn Type	NA	Prot	pm+pt	NA	NA	Perm
Protected Phases	4	4	5	2	6	
Permitted Phases			2			6
Actuated Green, G (s)	15.1	15.1	28.5	28.5	16.1	16.1
Effective Green, g (s)	15.1	15.1	28.5	28.5	16.1	16.1
Actuated g/C Ratio	0.28	0.28	0.53	0.53	0.30	0.30
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.3	2.3	2.3
Lane Grp Cap (vph)	967	445	533	1881	1063	475
v/s Ratio Prot	c0.24	0.02	c0.04	0.24	c0.16	
v/s Ratio Perm			0.13			0.14
v/c Ratio	0.84	0.08	0.32	0.44	0.52	0.46
Uniform Delay, d1	18.1	14.2	8.8	7.7	15.6	15.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.1	0.0	0.1	0.1	0.3	0.4
Delay (s)	24.2	14.2	9.0	7.8	15.9	15.6
Level of Service	C	B	A	A	B	B
Approach Delay (s)	22.8			8.0	15.7	
Approach LOS	C			A	B	

Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	53.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	5	6
Movement	NBTL	EBL	NBL	SBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	41	21	20	21
Maximum Split (%)	66.1%	33.9%	32.3%	33.9%
Minimum Split (s)	21	21	20	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	41	21	0
End Time (s)	41	0	41	21
Yield/Force Off (s)	36	57	36	16
Yield/Force Off 170(s)	36	46	36	16
Local Start Time (s)	0	41	21	0
Local Yield (s)	36	57	36	16
Local Yield 170(s)	36	46	36	16

Intersection Summary	
Cycle Length	62
Control Type	Actuated-Uncoordinated
Natural Cycle	65

Splits and Phases: 30: LA 378 & I-10 Service Road North



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	222	53	579	89	40	47	171	916	83	36	546	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.92		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1712		1770	3495		1770	3479	
Flt Permitted	0.44	1.00	1.00	0.71	1.00		0.17	1.00		0.17	1.00	
Satd. Flow (perm)	828	1863	1583	1330	1712		310	3495		310	3479	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	278	66	724	111	50	59	190	1018	92	40	607	78
RTOR Reduction (vph)	0	0	263	0	47	0	0	7	0	0	11	0
Lane Group Flow (vph)	278	66	461	111	62	0	190	1103	0	40	674	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	23.0	23.0	23.0	18.0	18.0		31.0	31.0		30.0	30.0	
Effective Green, g (s)	23.0	23.0	23.0	18.0	18.0		31.0	31.0		30.0	30.0	
Actuated g/C Ratio	0.25	0.25	0.25	0.20	0.20		0.34	0.34		0.33	0.33	
Clearance Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)	354	470	400	306	338		217	1190		198	1146	
v/s Ratio Prot	0.12	0.04		c0.04	0.04		0.07	c0.32		0.01	c0.19	
v/s Ratio Perm	0.08		c0.29	0.04			0.23			0.05		
v/c Ratio	0.79	0.14	1.15	0.36	0.18		0.88	0.93		0.20	0.59	
Uniform Delay, d1	30.3	26.3	34.0	31.9	30.4		24.2	28.9		30.5	25.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	16.0	0.6	93.5	3.3	1.2		35.7	13.6		2.3	2.2	
Delay (s)	46.3	27.0	127.5	35.3	31.6		59.9	42.5		32.8	27.6	
Level of Service	D	C	F	D	C		E	D		C	C	
Approach Delay (s)		100.2			33.4			45.0			27.9	
Approach LOS		F			C			D			C	

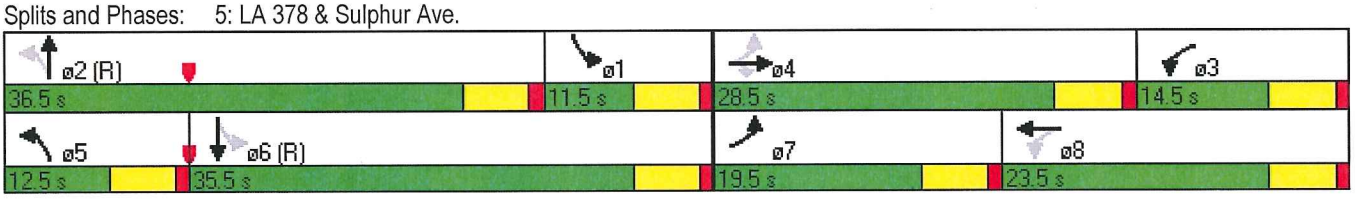
Intersection Summary			
HCM 2000 Control Delay	58.3	HCM 2010 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	91.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
Maximum Split (s)	11.5	36.5	14.5	28.5	12.5	35.5	19.5	23.5
Maximum Split (%)	12.6%	40.1%	15.9%	31.3%	13.7%	39.0%	21.4%	25.8%
Minimum Split (s)	10.5	25.5	10.5	21.5	10.5	25.5	10.5	21.5
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	20	5	10	5	20	5	10
Vehicle Extension (s)	2	3	2	3	2	3	2	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		5		5		5		5
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	38.5	2	78.5	50	2	14.5	50	69.5
End Time (s)	50	38.5	2	78.5	14.5	50	69.5	2
Yield/Force Off (s)	44.5	33	87.5	73	9	44.5	64	87.5
Yield/Force Off 170(s)	44.5	22	87.5	62	9	33.5	64	76.5
Local Start Time (s)	24	78.5	64	35.5	78.5	0	35.5	55
Local Yield (s)	30	18.5	73	58.5	85.5	30	49.5	73
Local Yield 170(s)	30	7.5	73	47.5	85.5	19	49.5	62

Intersection Summary	
Cycle Length	91
Control Type	Pretimed
Natural Cycle	90
Offset: 14.5 (16%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 5: LA 378 & Sulphur Ave.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	41	73	66	24	69	20	1239	112	31	504	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.96			0.94		1.00	0.99		1.00	0.99	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1742			1718		1770	3495		1770	3512	
Flt Permitted		0.71			0.76		0.42	1.00		0.11	1.00	
Satd. Flow (perm)		1264			1335		778	3495		205	3512	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	166	51	91	82	30	86	22	1377	124	34	560	30
RTOR Reduction (vph)	0	22	0	0	40	0	0	10	0	0	6	0
Lane Group Flow (vph)	0	286	0	0	158	0	22	1491	0	34	584	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		17.5			17.5		44.1	44.1		44.1	44.1	
Effective Green, g (s)		17.5			17.5		44.1	44.1		44.1	44.1	
Actuated g/C Ratio		0.25			0.25		0.63	0.63		0.63	0.63	
Clearance Time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Grp Cap (vph)		316			333		490	2201		129	2212	
v/s Ratio Prot								c0.43			0.17	
v/s Ratio Perm		c0.23			0.12		0.03			0.17		
v/c Ratio		0.91			0.48		0.04	0.68		0.26	0.26	
Uniform Delay, d1		25.5			22.3		4.9	8.4		5.7	5.7	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		31.5			4.8		0.2	1.7		4.9	0.3	
Delay (s)		56.9			27.1		5.1	10.1		10.7	6.0	
Level of Service		E			C		A	B		B	A	
Approach Delay (s)		56.9			27.1			10.0			6.3	
Approach LOS		E			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

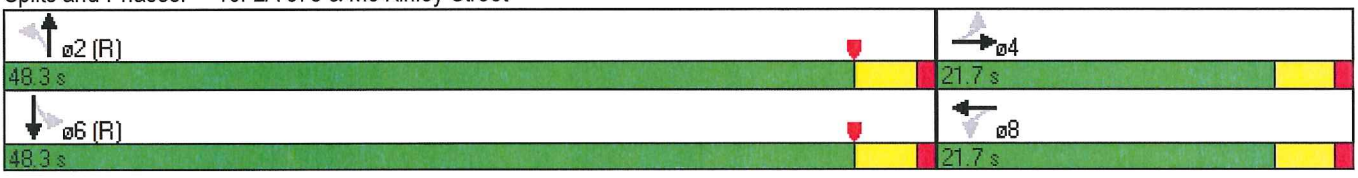
c Critical Lane Group

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	48.3	21.7	48.3	21.7
Maximum Split (%)	69.0%	31.0%	69.0%	31.0%
Minimum Split (s)	20.5	20.5	20.5	20.5
Yellow Time (s)	3.2	3.2	3.2	3.2
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	61.7	40	61.7	40
End Time (s)	40	61.7	40	61.7
Yield/Force Off (s)	35.8	57.5	35.8	57.5
Yield/Force Off 170(s)	24.8	46.5	24.8	46.5
Local Start Time (s)	25.9	4.2	25.9	4.2
Local Yield (s)	0	21.7	0	21.7
Local Yield 170(s)	59	10.7	59	10.7

Intersection Summary	
Cycle Length	70
Control Type	Pretimed
Natural Cycle	55

Offset: 35.8 (51%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Splits and Phases: 16: LA 378 & Mc Kinley Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	51	59	104	53	9	77	1003	195	5	379	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5		5.5	5.5	5.5	5.5	5.5	
Lane Util. Factor		1.00			1.00		1.00	1.00	1.00	1.00	0.95	
Frt		0.97			0.99		1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.97			0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1758			1793		1770	1863	1583	1770	3465	
Flt Permitted		0.97			0.97		0.40	1.00	1.00	0.08	1.00	
Satd. Flow (perm)		1758			1793		739	1863	1583	156	3465	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	244	64	74	130	66	11	86	1114	217	6	421	68
RTOR Reduction (vph)	0	7	0	0	2	0	0	0	63	0	11	0
Lane Group Flow (vph)	0	375	0	0	205	0	86	1114	154	6	478	0
Turn Type	Split	NA		Split	NA		pm+pt	NA	pm+ov	pm+pt	NA	
Protected Phases	4	4		8	8		5	2	8	1	6	
Permitted Phases							2		2	6		
Actuated Green, G (s)		25.1			16.5		53.4	50.2	66.7	48.4	47.7	
Effective Green, g (s)		25.1			16.5		53.4	50.2	66.7	48.4	47.7	
Actuated g/C Ratio		0.22			0.14		0.47	0.44	0.58	0.42	0.42	
Clearance Time (s)		5.5			5.5		5.5	5.5	5.5	5.5	5.5	
Vehicle Extension (s)		2.5			2.5		2.3	5.0	2.5	2.3	5.0	
Lane Grp Cap (vph)		385			258		373	816	922	75	1443	
v/s Ratio Prot		c0.21			c0.11		c0.01	c0.60	0.02	0.00	0.14	
v/s Ratio Perm							0.10		0.07	0.03		
v/c Ratio		0.97			0.80		0.23	1.37	0.17	0.08	0.33	
Uniform Delay, d1		44.4			47.4		17.5	32.2	11.1	27.5	22.6	
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		38.7			15.0		0.2	172.2	0.1	0.3	0.3	
Delay (s)		83.1			62.4		17.6	204.4	11.1	27.8	22.9	
Level of Service		F			E		B	F	B	C	C	
Approach Delay (s)		83.1			62.4			163.4			23.0	
Approach LOS		F			E			F			C	

Intersection Summary			
HCM 2000 Control Delay	115.0	HCM 2010 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	114.5	Sum of lost time (s)	22.0
Intersection Capacity Utilization	90.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	9.5	55.5	30.5	9.5	55.5	26.5
Maximum Split (%)	7.8%	45.5%	25.0%	7.8%	45.5%	21.7%
Minimum Split (s)	9.5	21.5	21.5	9.5	21.5	21.5
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	15	6	4	15	6
Vehicle Extension (s)	2.3	5	2.5	2.3	5	2.5
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		5	5		5	5
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	9.5	65	0	9.5	95.5
End Time (s)	9.5	65	95.5	9.5	65	0
Yield/Force Off (s)	4	59.5	90	4	59.5	116.5
Yield/Force Off 170(s)	4	59.5	79	4	59.5	105.5
Local Start Time (s)	112.5	0	55.5	112.5	0	86
Local Yield (s)	116.5	50	80.5	116.5	50	107
Local Yield 170(s)	116.5	50	69.5	116.5	50	96

Intersection Summary	
Cycle Length	122
Control Type	Actuated-Uncoordinated
Natural Cycle	150

Splits and Phases: 17: LA 378 & John Stine Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	3	10	50	10	10	2	871	275	8	356	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	4	12	62	12	12	2	968	306	9	396	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1560	1694	398	1555	1544	1121	401			1273		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1560	1694	398	1555	1544	1121	401			1273		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	89	96	98	27	89	95	100			98		
cM capacity (veh/h)	78	91	651	86	113	251	1158			545		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	8	12	50	1122	403
Volume Left	4	0	31	1	4
Volume Right	0	12	6	153	3
cSH	84	651	100	1158	545
Volume to Capacity	0.10	0.02	0.50	0.00	0.02
Queue Length 95th (ft)	8	1	55	0	1
Control Delay (s)	52.6	10.6	72.4	0.1	0.4
Lane LOS	F	B	F	A	A
Approach Delay (s)	27.2		72.4	0.1	0.4
Approach LOS	D		F		

Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	80.8%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	300	20	51	645	30	26
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.80	0.80
Hourly flow rate (vph)	333	22	57	717	38	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	522	415			773	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	522	415			773	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	32	97			96	
cM capacity (veh/h)	492	637			842	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	344	415	51
Volume Left	333	0	19
Volume Right	11	358	0
cSH	495	1700	842
Volume to Capacity	0.70	0.24	0.04
Queue Length 95th (ft)	133	0	3
Control Delay (s)	27.2	0.0	3.7
Lane LOS	D		A
Approach Delay (s)	27.2	0.0	3.7
Approach LOS	D		

Intersection Summary			
Average Delay	11.8		
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

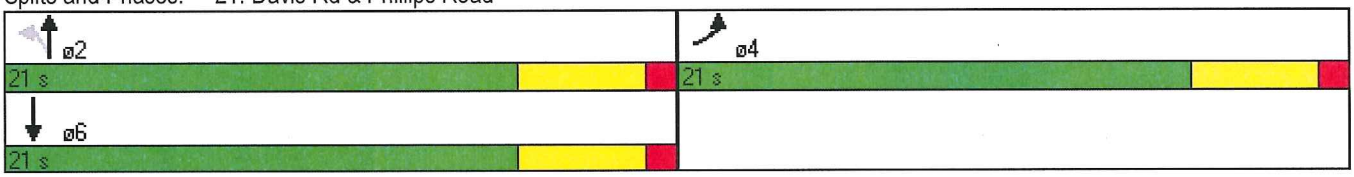
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	705	3	1	410	153	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	1.00			1.00	0.91	
Flt Protected	0.95			1.00	1.00	
Satd. Flow (prot)	1773			1863	1692	
Flt Permitted	0.95			1.00	1.00	
Satd. Flow (perm)	1773			1861	1692	
Peak-hour factor, PHF	0.90	0.90	0.80	0.80	0.90	0.90
Adj. Flow (vph)	783	3	1	512	170	359
RTOR Reduction (vph)	32	0	0	0	181	0
Lane Group Flow (vph)	754	0	0	513	348	0
Turn Type	NA		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	16.0			16.0	16.0	
Effective Green, g (s)	16.0			16.0	16.0	
Actuated g/C Ratio	0.38			0.38	0.38	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	2.5			2.5	2.5	
Lane Grp Cap (vph)	675			708	644	
v/s Ratio Prot	c0.43				0.21	
v/s Ratio Perm				c0.28		
v/c Ratio	1.12			0.72	0.54	
Uniform Delay, d1	13.0			11.1	10.1	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	71.3			6.4	3.2	
Delay (s)	84.3			17.5	13.4	
Level of Service	F			B	B	
Approach Delay (s)	84.3			17.5	13.4	
Approach LOS	F			B	B	

Intersection Summary			
HCM 2000 Control Delay	45.0	HCM 2010 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	42.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6
Movement	NBTL	EBL	SBT
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	Max	None	Max
Maximum Split (s)	21	21	21
Maximum Split (%)	50.0%	50.0%	50.0%
Minimum Split (s)	21	21	21
Yellow Time (s)	4	4	4
All-Red Time (s)	1	1	1
Minimum Initial (s)	10	5	10
Vehicle Extension (s)	2.5	2.5	2.5
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	5	5	5
Flash Dont Walk (s)	11	11	11
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	21	0
End Time (s)	21	0	21
Yield/Force Off (s)	16	37	16
Yield/Force Off 170(s)	5	26	5
Local Start Time (s)	0	21	0
Local Yield (s)	16	37	16
Local Yield 170(s)	5	26	5

Intersection Summary	
Cycle Length	42
Control Type	Actuated-Uncoordinated
Natural Cycle	60

Splits and Phases: 21: Davis Rd & Phillips Road



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	1	1	1108	7	1	475
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	1	1231	8	1	528
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			77			
pX, platoon unblocked	0.76	0.76			0.76	
vC, conflicting volume	1765	1235			1239	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1848	1152			1157	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	99			100	
cM capacity (veh/h)	62	183			460	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	2	1235	528
Volume Left	1	0	1
Volume Right	1	4	0
cSH	80	1700	460
Volume to Capacity	0.02	0.73	0.00
Queue Length 95th (ft)	2	0	0
Control Delay (s)	51.1	0.0	0.1
Lane LOS	F		A
Approach Delay (s)	51.1	0.0	0.1
Approach LOS	F		

Intersection Summary			
Average Delay		0.1	
Intersection Capacity Utilization		68.7%	ICU Level of Service C
Analysis Period (min)		15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	172	971	5	5	505	161	0	1	6	104	0	67
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	187	1055	5	5	549	175	0	1	7	113	0	73
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												5
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	549			1061			1992	1992	1058	1996	1995	549
vC1, stage 1 conf vol							1432	1432		560	560	
vC2, stage 2 conf vol							560	560		1436	1435	
vCu, unblocked vol	549			1061			1992	1992	1058	1996	1995	549
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	82			99			100	99	98	0	100	86
cM capacity (veh/h)	1021			657			94	118	273	102	125	536

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	187	1058	5	549	175	4	93
Volume Left	187	0	5	0	0	0	57
Volume Right	0	3	0	0	175	3	36
cSH	1021	1700	657	1700	1700	230	168
Volume to Capacity	0.18	0.62	0.01	0.32	0.10	0.02	0.55
Queue Length 95th (ft)	17	0	1	0	0	1	71
Control Delay (s)	9.3	0.0	10.5	0.0	0.0	20.9	51.8
Lane LOS	A		B			C	F
Approach Delay (s)	1.4		0.1			20.9	51.8
Approach LOS						C	F

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	2	58	12	840	423	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95	1.00	1.00	0.97	
Frt		1.00	1.00	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3433	1810	1538	3338	
Flt Permitted		0.95	1.00	1.00	0.95	
Satd. Flow (perm)		3274	1810	1538	3338	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	2	72	15	1050	529	9
RTOR Reduction (vph)	0	0	0	477	114	0
Lane Group Flow (vph)	0	74	15	573	424	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	pm+pt	NA	NA	Perm	NA	
Protected Phases	7	4	8		6	
Permitted Phases	4			8		
Actuated Green, G (s)		25.1	25.1	25.1	10.9	
Effective Green, g (s)		25.1	25.1	25.1	10.9	
Actuated g/C Ratio		0.55	0.55	0.55	0.24	
Clearance Time (s)		5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1786	987	839	790	
v/s Ratio Prot			0.01		c0.13	
v/s Ratio Perm		0.02		c0.37		
v/c Ratio		0.04	0.02	0.68	0.54	
Uniform Delay, d1		4.9	4.8	7.6	15.3	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0	0.0	4.5	0.7	
Delay (s)		4.9	4.8	12.0	16.0	
Level of Service		A	A	B	B	
Approach Delay (s)		4.9	11.9		16.0	
Approach LOS		A	B		B	

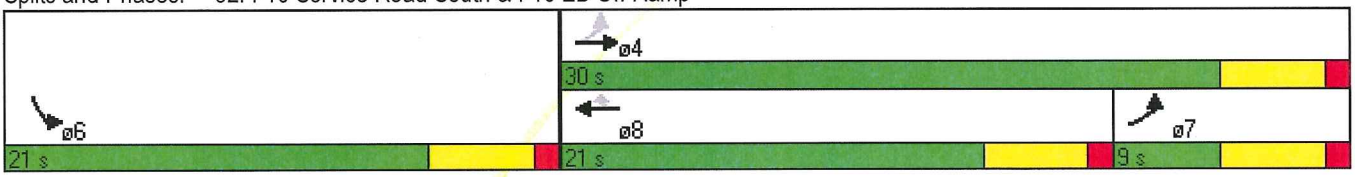
Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	4	6	7	8
Movement	EBTL	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Max	None	None	Max
Maximum Split (s)	30	21	9	21
Maximum Split (%)	58.8%	41.2%	17.6%	41.2%
Minimum Split (s)	21	21	9	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	7	4	15
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21	0	42	21
End Time (s)	0	21	0	42
Yield/Force Off (s)	46	16	46	37
Yield/Force Off 170(s)	35	5	46	26
Local Start Time (s)	21	0	42	21
Local Yield (s)	46	16	46	37
Local Yield 170(s)	35	5	46	26

Intersection Summary	
Cycle Length	51
Control Type	Semi Act-Uncoord
Natural Cycle	55

Splits and Phases: 32: I-10 Service Road South & I-10 EB Off Ramp



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	369	102	210	106	88	552
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	3438	1810	1538	1719	1538
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1719	3438	1810	1538	1719	1538
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.90	0.90
Adj. Flow (vph)	461	128	262	132	98	613
RTOR Reduction (vph)	0	0	0	100	0	508
Lane Group Flow (vph)	461	128	262	32	98	105
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	14.1	31.2	12.1	12.1	8.5	8.5
Effective Green, g (s)	14.1	31.2	12.1	12.1	8.5	8.5
Actuated g/C Ratio	0.28	0.63	0.24	0.24	0.17	0.17
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.3	2.3	2.3	2.0	2.0
Lane Grp Cap (vph)	487	2158	440	374	293	263
v/s Ratio Prot	c0.27	0.04	c0.14		0.06	
v/s Ratio Perm				0.02		c0.07
v/c Ratio	0.95	0.06	0.60	0.09	0.33	0.40
Uniform Delay, d1	17.4	3.6	16.6	14.5	18.1	18.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	27.3	0.0	1.7	0.1	0.2	0.4
Delay (s)	44.8	3.6	18.3	14.6	18.4	18.7
Level of Service	D	A	B	B	B	B
Approach Delay (s)		35.8	17.1		18.6	
Approach LOS		D	B		B	

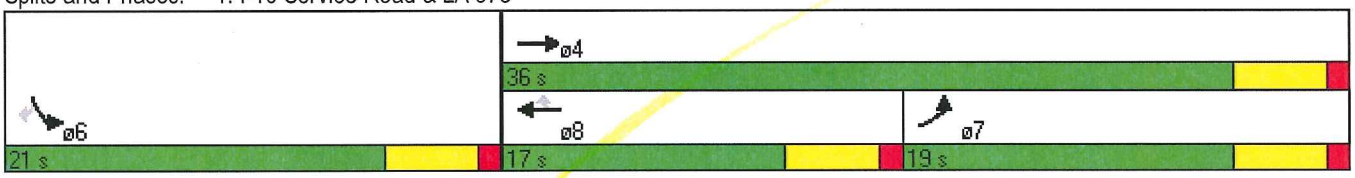
Intersection Summary			
HCM 2000 Control Delay	24.2	HCM 2010 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	49.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	4	6	7	8
Movement	EBT	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	36	21	19	17
Maximum Split (%)	63.2%	36.8%	33.3%	29.8%
Minimum Split (s)	21	21	15	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21	0	38	21
End Time (s)	0	21	0	38
Yield/Force Off (s)	52	16	52	33
Yield/Force Off 170(s)	52	5	52	33
Local Start Time (s)	21	0	38	21
Local Yield (s)	52	16	52	33
Local Yield 170(s)	52	5	52	33

Intersection Summary	
Cycle Length	57
Control Type	Actuated-Uncoordinated
Natural Cycle	65

Splits and Phases: 1: I-10 Service Road & LA 378



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	372	86	107	358	557	778
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3335	1538	1719	3438	3438	1538
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3335	1538	1719	3438	3438	1538
Peak-hour factor, PHF	0.80	0.80	0.90	0.90	0.90	0.90
Adj. Flow (vph)	465	108	119	398	619	864
RTOR Reduction (vph)	0	84	0	0	0	568
Lane Group Flow (vph)	465	24	119	398	619	296
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	NA	Prot	Prot	NA	NA	Perm
Protected Phases	4	4	5	2	6	
Permitted Phases						6
Actuated Green, G (s)	11.3	11.3	7.7	29.2	16.5	16.5
Effective Green, g (s)	11.3	11.3	7.7	29.2	16.5	16.5
Actuated g/C Ratio	0.22	0.22	0.15	0.58	0.33	0.33
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.3	2.3	2.3
Lane Grp Cap (vph)	746	344	262	1987	1123	502
v/s Ratio Prot	c0.14	0.02	c0.07	0.12	0.18	
v/s Ratio Perm						c0.19
v/c Ratio	0.62	0.07	0.45	0.20	0.55	0.59
Uniform Delay, d1	17.7	15.5	19.5	5.1	14.0	14.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.0	0.5	0.0	0.4	1.3
Delay (s)	18.9	15.5	19.9	5.1	14.4	15.5
Level of Service	B	B	B	A	B	B
Approach Delay (s)	18.2			8.5	15.0	
Approach LOS	B			A	B	

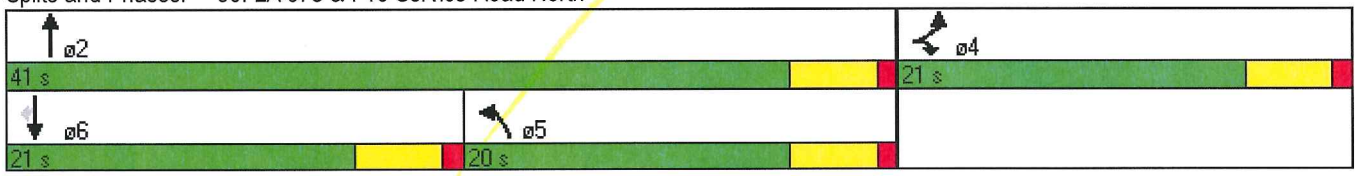
Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	50.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	5	6
Movement	NBT	EBL	NBL	SBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	41	21	20	21
Maximum Split (%)	66.1%	33.9%	32.3%	33.9%
Minimum Split (s)	21	21	20	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	41	21	0
End Time (s)	41	0	41	21
Yield/Force Off (s)	36	57	36	16
Yield/Force Off 170(s)	36	46	36	16
Local Start Time (s)	0	41	21	0
Local Yield (s)	36	57	36	16
Local Yield 170(s)	36	46	36	16

Intersection Summary	
Cycle Length	62
Control Type	Actuated-Uncoordinated
Natural Cycle	65

Splits and Phases: 30: LA 378 & I-10 Service Road North



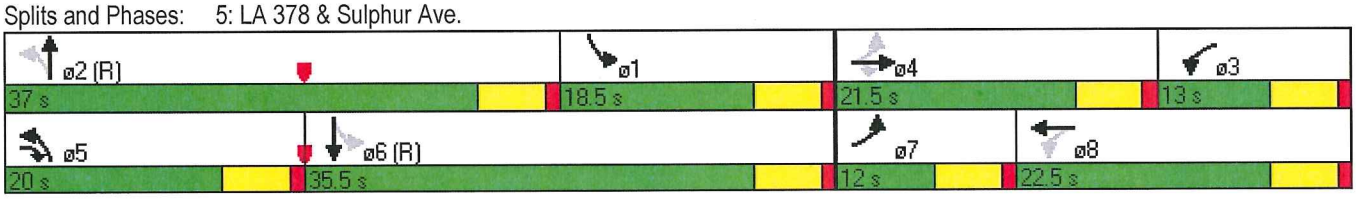
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	44	279	192	40	24	325	328	34	75	943	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1810	1538	1719	1726		1719	3479		1770	3483	
Flt Permitted	0.42	1.00	1.00	0.72	1.00		0.24	1.00		0.52	1.00	
Satd. Flow (perm)	784	1810	1538	1305	1726		426	3479		960	3483	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	75	55	349	240	50	30	361	364	38	83	1048	123
RTOR Reduction (vph)	0	0	108	0	24	0	0	8	0	0	10	0
Lane Group Flow (vph)	75	55	241	240	56	0	361	394	0	83	1161	0
Heavy Vehicles (%)	2%	5%	5%	5%	5%	2%	5%	2%	5%	2%	2%	2%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	16.0	16.0	30.5	17.0	17.0		31.5	31.5		30.0	30.0	
Effective Green, g (s)	16.0	16.0	30.5	17.0	17.0		31.5	31.5		30.0	30.0	
Actuated g/C Ratio	0.18	0.18	0.34	0.19	0.19		0.35	0.35		0.33	0.33	
Clearance Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)	210	321	521	281	326		357	1217		437	1161	
v/s Ratio Prot	0.03	0.03	c0.07	c0.07	0.03		c0.16	0.11		0.03	c0.33	
v/s Ratio Perm	0.04		0.08	c0.09			0.19			0.04		
v/c Ratio	0.36	0.17	0.46	0.85	0.17		1.01	0.32		0.19	1.00	
Uniform Delay, d1	31.9	31.4	23.3	34.4	30.6		25.7	21.4		21.9	30.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.7	1.2	2.9	26.7	1.1		50.5	0.7		1.0	26.4	
Delay (s)	36.6	32.5	26.2	61.0	31.7		76.2	22.1		22.9	56.4	
Level of Service	D	C	C	E	C		E	C		C	E	
Approach Delay (s)		28.6			53.7			47.7			54.2	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	48.0	HCM 2010 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
Maximum Split (s)	18.5	37	13	21.5	20	35.5	12	22.5
Maximum Split (%)	20.6%	41.1%	14.4%	23.9%	22.2%	39.4%	13.3%	25.0%
Minimum Split (s)	10.5	25.5	10.5	21.5	10.5	25.5	10.5	21.5
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	20	5	10	5	20	5	10
Vehicle Extension (s)	2	3	2	3	2	3	2	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		5		5		5		5
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	17	70	57	35.5	70	0	35.5	47.5
End Time (s)	35.5	17	70	57	0	35.5	47.5	70
Yield/Force Off (s)	30	11.5	64.5	51.5	84.5	30	42	64.5
Yield/Force Off 170(s)	30	0.5	64.5	40.5	84.5	19	42	53.5
Local Start Time (s)	17	70	57	35.5	70	0	35.5	47.5
Local Yield (s)	30	11.5	64.5	51.5	84.5	30	42	64.5
Local Yield 170(s)	30	0.5	64.5	40.5	84.5	19	42	53.5

Intersection Summary	
Cycle Length	90
Control Type	Pretimed
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 5: LA 378 & Sulphur Ave.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	39	16	105	39	48	43	331	23	24	1017	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.97			0.97		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1786			1752		1770	3504		1770	3494	
Flt Permitted		0.92			0.79		0.14	1.00		0.52	1.00	
Satd. Flow (perm)		1664			1431		259	3504		968	3494	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	20	49	20	131	49	60	48	368	26	27	1130	104
RTOR Reduction (vph)	0	12	0	0	20	0	0	9	0	0	11	0
Lane Group Flow (vph)	0	77	0	0	220	0	48	385	0	27	1223	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		22.8			22.8		28.8	28.8		28.8	28.8	
Effective Green, g (s)		22.8			22.8		28.8	28.8		28.8	28.8	
Actuated g/C Ratio		0.38			0.38		0.48	0.48		0.48	0.48	
Clearance Time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Grp Cap (vph)		632			543		124	1681		464	1677	
v/s Ratio Prot								0.11			c0.35	
v/s Ratio Perm		0.05			c0.15		0.19			0.03		
v/c Ratio		0.12			0.41		0.39	0.23		0.06	0.73	
Uniform Delay, d1		12.1			13.6		10.0	9.1		8.3	12.5	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4			2.2		8.9	0.3		0.2	2.8	
Delay (s)		12.5			15.9		18.8	9.4		8.6	15.3	
Level of Service		B			B		B	A		A	B	
Approach Delay (s)		12.5			15.9			10.5			15.2	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		

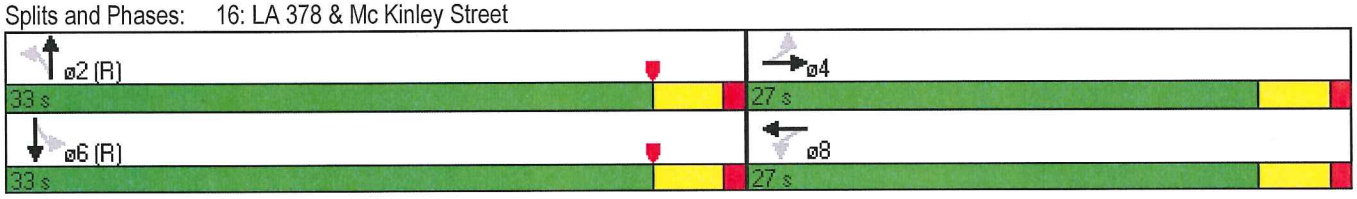
c Critical Lane Group

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	33	27	33	27
Maximum Split (%)	55.0%	45.0%	55.0%	45.0%
Minimum Split (s)	20.5	20.5	20.5	20.5
Yellow Time (s)	3.2	3.2	3.2	3.2
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	7	40	7	40
End Time (s)	40	7	40	7
Yield/Force Off (s)	35.8	2.8	35.8	2.8
Yield/Force Off 170(s)	24.8	51.8	24.8	51.8
Local Start Time (s)	31.2	4.2	31.2	4.2
Local Yield (s)	0	27	0	27
Local Yield 170(s)	49	16	49	16

Intersection Summary	
Cycle Length	60
Control Type	Pretimed
Natural Cycle	55

Offset: 35.8 (60%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Splits and Phases: 16: LA 378 & Mc Kinley Street



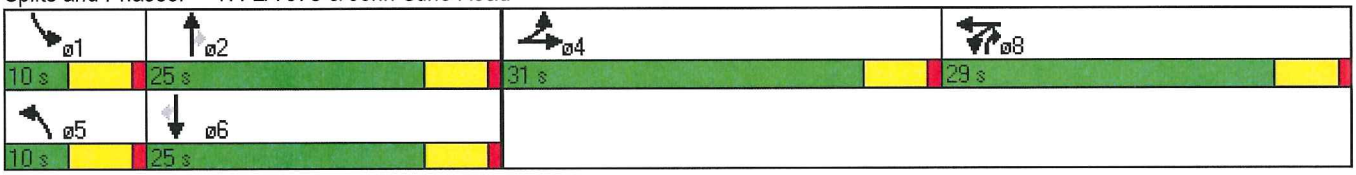
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	25	81	163	66	10	19	238	46	1	871	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.89			0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1649			1791		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1649			1791		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	99	31	101	204	82	12	21	264	51	1	968	122
RTOR Reduction (vph)	0	88	0	0	2	0	0	0	23	0	0	85
Lane Group Flow (vph)	99	44	0	0	296	0	21	264	28	1	968	37
Turn Type	Split	NA		Split	NA		Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2	8	1	6	
Permitted Phases									2			6
Actuated Green, G (s)	8.9	8.9			15.4		1.5	21.9	37.3	0.7	21.1	21.1
Effective Green, g (s)	8.9	8.9			15.4		1.5	21.9	37.3	0.7	21.1	21.1
Actuated g/C Ratio	0.13	0.13			0.22		0.02	0.32	0.54	0.01	0.31	0.31
Clearance Time (s)	5.5	5.5			5.5		5.5	5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	2.5	2.5			2.5		2.3	5.0	2.5	2.3	5.0	5.0
Lane Grp Cap (vph)	228	213			400		38	1124	856	17	1083	484
v/s Ratio Prot	c0.06	0.03			c0.17		c0.01	0.07	0.01	0.00	c0.27	
v/s Ratio Perm									0.01			0.02
v/c Ratio	0.43	0.21			0.74		0.55	0.23	0.03	0.06	0.89	0.08
Uniform Delay, d1	27.7	26.8			24.9		33.4	17.3	7.4	33.8	22.8	17.0
Progression Factor	1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.4			6.9		11.7	0.2	0.0	0.8	10.2	0.1
Delay (s)	28.6	27.2			31.8		45.1	17.5	7.4	34.6	33.1	17.1
Level of Service	C	C			C		D	B	A	C	C	B
Approach Delay (s)		27.8			31.8			17.7			31.3	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2010 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	68.9	Sum of lost time (s)	22.0
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	2	4	5	6	8
Movement	SBL	NBT	EBTL	NBL	SBT	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	10	25	31	10	25	29
Maximum Split (%)	10.5%	26.3%	32.6%	10.5%	26.3%	30.5%
Minimum Split (s)	9.5	21.5	21.5	9.5	21.5	21.5
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	15	6	4	15	6
Vehicle Extension (s)	2.3	5	2.5	2.3	5	2.5
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		5	5		5	5
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	10	35	0	10	66
End Time (s)	10	35	66	10	35	0
Yield/Force Off (s)	4.5	29.5	60.5	4.5	29.5	89.5
Yield/Force Off 170(s)	4.5	29.5	49.5	4.5	29.5	78.5
Local Start Time (s)	85	0	25	85	0	56
Local Yield (s)	89.5	19.5	50.5	89.5	19.5	79.5
Local Yield 170(s)	89.5	19.5	39.5	89.5	19.5	68.5

Intersection Summary	
Cycle Length	95
Control Type	Actuated-Uncoordinated
Natural Cycle	80

Splits and Phases: 17: LA 378 & John Stine Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	6	0	0	165	0	207	62	0	899	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	8	0	0	206	0	230	69	0	999	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1320	1298	499	771	1281	149	1017			299		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1320	1298	499	771	1281	149	1017			299		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	76	100			100		
cM capacity (veh/h)	88	161	517	285	164	870	678			1259		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	8	206	153	111	499	499	18
Volume Left	0	0	0	0	0	0	0
Volume Right	8	206	0	34	0	0	18
cSH	517	870	1700	1700	1700	1700	1700
Volume to Capacity	0.01	0.24	0.09	0.07	0.29	0.29	0.01
Queue Length 95th (ft)	1	23	0	0	0	0	0
Control Delay (s)	12.1	10.4	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B					
Approach Delay (s)	12.1	10.4	0.0		0.0		
Approach LOS	B	B					

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	34.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	235	1	0	680	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	756	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	758	378	0	756			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	758	378	0	756			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	100			
cM capacity (veh/h)	342	620	0	483			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	378	378
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	483	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.22	0.22
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	12.5	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	12.5			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	307	793	20	0	57
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	341	881	22	0	63
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	903				1063	452
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	903				1063	452
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	89
cM capacity (veh/h)	748				218	555

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	171	171	587	305	63
Volume Left	0	0	0	0	0
Volume Right	0	0	0	11	63
cSH	1700	1700	1700	1700	555
Volume to Capacity	0.10	0.10	0.35	0.18	0.11
Queue Length 95th (ft)	0	0	0	0	10
Control Delay (s)	0.0	0.0	0.0	0.0	12.3
Lane LOS					B
Approach Delay (s)	0.0		0.0		12.3
Approach LOS					B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	32.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	113	1	0	704	0	0	0
Sign Control			Free	Free		Stop	
Grade			0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	0	782	0	0	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None	None			
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked	0.00						
vC, conflicting volume	0	782				784	391
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	0	782				784	391
tC, single (s)	0.0	*6.4				6.8	6.9
tC, 2 stage (s)							
tF (s)	0.0	*2.5				3.5	3.3
p0 queue free %	0	100				100	100
cM capacity (veh/h)	0	465				329	608

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2
Volume Total	1	0	0	391	391
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	465	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.23	0.23
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	12.8	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	12.8			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	32.4%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

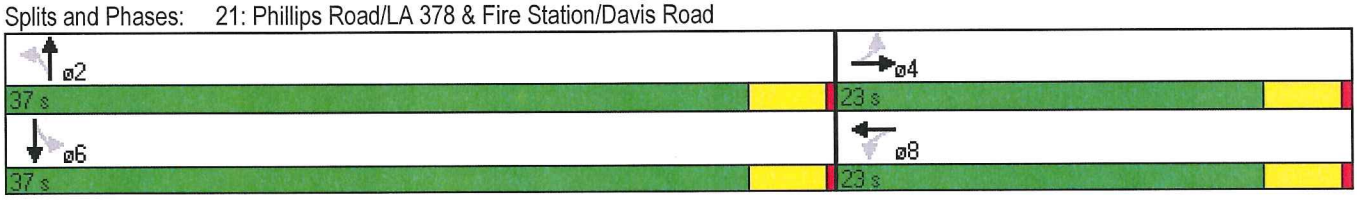
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	1	1	5	1	122	1	206	2	348	699	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.96			0.87			1.00			1.00	
Flt Protected		0.98			1.00			1.00			0.98	
Satd. Flow (prot)		1750			1619			3534			3481	
Flt Permitted		0.95			0.99			0.95			0.76	
Satd. Flow (perm)		1695			1613			3367			2694	
Peak-hour factor, PHF	0.90	0.90	0.90	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1	1	1	6	1	152	1	229	2	387	777	1
RTOR Reduction (vph)	0	1	0	0	104	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	2	0	0	55	0	0	231	0	0	1165	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		19.0			19.0			33.0			33.0	
Effective Green, g (s)		19.0			19.0			33.0			33.0	
Actuated g/C Ratio		0.32			0.32			0.55			0.55	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		536			510			1851			1481	
v/s Ratio Prot												
v/s Ratio Perm		0.00			c0.03			0.07			c0.43	
v/c Ratio		0.00			0.11			0.12			0.79	
Uniform Delay, d1		14.0			14.5			6.5			10.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.0			0.4			0.0			4.3	
Delay (s)		14.0			14.9			6.6			15.0	
Level of Service		B			B			A			B	
Approach Delay (s)		14.0			14.9			6.6			15.0	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	None	None	Max	Max
Maximum Split (s)	37	23	37	23
Maximum Split (%)	61.7%	38.3%	61.7%	38.3%
Minimum Split (s)	20	20	20	20
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	37	0	37
End Time (s)	37	0	37	0
Yield/Force Off (s)	33	56	33	56
Yield/Force Off 170(s)	22	45	22	45
Local Start Time (s)	0	37	0	37
Local Yield (s)	33	56	33	56
Local Yield 170(s)	22	45	22	45

Intersection Summary	
Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	55

Splits and Phases: 21: Phillips Road/LA 378 & Fire Station/Davis Road



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (veh/h)	314	0	195	1	0	0	0
Sign Control	Free				Free	Stop	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	349	0	0	1	0	0	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None				None		
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume			0	349		351	174
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			0	349		351	174
tC, single (s)			0.0	*6.4		6.8	6.9
tC, 2 stage (s)							
tF (s)			0.0	*2.5		3.5	3.3
p0 queue free %			0	100		100	100
cM capacity (veh/h)			0	872		619	839

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3
Volume Total	174	174	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	872	1700	1700
Volume to Capacity	0.10	0.10	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	9.1	0.0	0.0
Lane LOS			A		
Approach Delay (s)	0.0		9.1		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	26.1%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	29	479	1	0	865	79	0	0	5	0	0	352
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	32	532	1	0	961	88	0	0	6	0	0	440
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	961			533			1078	1558	267	1298	1559	481
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	961			533			1078	1558	267	1298	1559	481
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			100			100	100	99	100	100	17
cM capacity (veh/h)	712			1030			29	106	731	114	106	532

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	32	355	178	481	481	88	6	440
Volume Left	32	0	0	0	0	0	0	0
Volume Right	0	0	1	0	0	88	6	440
cSH	712	1700	1700	1700	1700	1700	731	532
Volume to Capacity	0.05	0.21	0.10	0.28	0.28	0.05	0.01	0.83
Queue Length 95th (ft)	4	0	0	0	0	0	1	209
Control Delay (s)	10.3	0.0	0.0	0.0	0.0	0.0	10.0	36.5
Lane LOS	B						A	E
Approach Delay (s)	0.6			0.0			10.0	36.5
Approach LOS							A	E

Intersection Summary			
Average Delay	8.0		
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

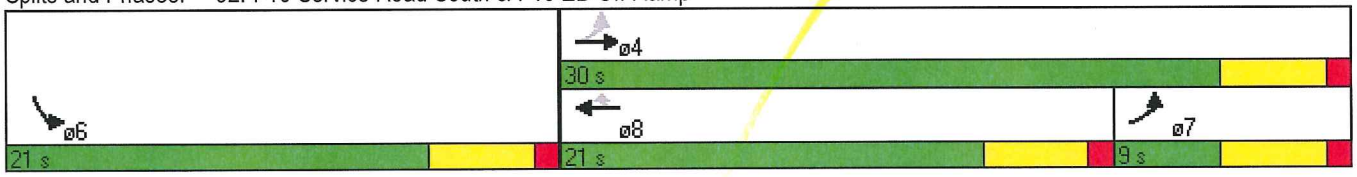
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	6	249	4	618	851	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95	1.00	1.00	0.97	
Frt		1.00	1.00	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3535	1863	1583	3441	
Flt Permitted		0.95	1.00	1.00	0.95	
Satd. Flow (perm)		3368	1863	1583	3441	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	8	311	5	772	1064	1
RTOR Reduction (vph)	0	0	0	394	103	0
Lane Group Flow (vph)	0	319	5	378	962	0
Turn Type	pm+pt	NA	NA	Perm	NA	
Protected Phases	7	4	8		6	
Permitted Phases	4			8		
Actuated Green, G (s)		25.0	25.0	25.0	16.0	
Effective Green, g (s)		25.0	25.0	25.0	16.0	
Actuated g/C Ratio		0.49	0.49	0.49	0.31	
Clearance Time (s)		5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1650	913	775	1079	
v/s Ratio Prot			0.00		c0.28	
v/s Ratio Perm		0.09		c0.24		
v/c Ratio		0.19	0.01	0.49	0.89	
Uniform Delay, d1		7.3	6.6	8.7	16.7	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1	0.0	2.2	9.5	
Delay (s)		7.4	6.7	10.9	26.1	
Level of Service		A	A	B	C	
Approach Delay (s)		7.4	10.9		26.1	
Approach LOS		A	B		C	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	51.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	4	6	7	8
Movement	EBTL	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Max	None	None	Max
Maximum Split (s)	30	21	9	21
Maximum Split (%)	58.8%	41.2%	17.6%	41.2%
Minimum Split (s)	21	21	9	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	7	4	15
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21	0	42	21
End Time (s)	0	21	0	42
Yield/Force Off (s)	46	16	46	37
Yield/Force Off 170(s)	35	5	46	26
Local Start Time (s)	21	0	42	21
Local Yield (s)	46	16	46	37
Local Yield 170(s)	35	5	46	26

Intersection Summary	
Cycle Length	51
Control Type	Semi Act-Uncoord
Natural Cycle	60

Splits and Phases: 32: I-10 Service Road South & I-10 EB Off Ramp



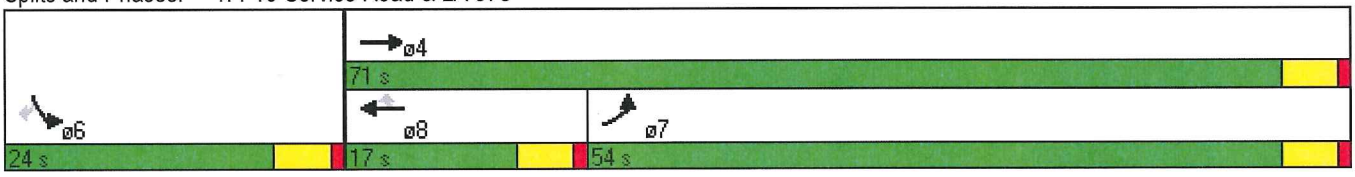
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	791	310	114	170	123	474
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	1863	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	1863	1583	1770	1583
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.90	0.90
Adj. Flow (vph)	989	388	142	212	137	527
RTOR Reduction (vph)	0	0	0	183	0	457
Lane Group Flow (vph)	989	388	142	29	137	70
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	49.1	66.1	12.0	12.0	11.6	11.6
Effective Green, g (s)	49.1	66.1	12.0	12.0	11.6	11.6
Actuated g/C Ratio	0.56	0.75	0.14	0.14	0.13	0.13
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.3	2.3	2.3	2.0	2.0
Lane Grp Cap (vph)	990	2667	254	216	234	209
v/s Ratio Prot	c0.56	0.11	c0.08		c0.08	
v/s Ratio Perm				0.02		0.04
v/c Ratio	1.00	0.15	0.56	0.13	0.59	0.33
Uniform Delay, d1	19.3	3.0	35.4	33.3	35.8	34.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	28.1	0.0	1.9	0.2	2.4	0.3
Delay (s)	47.4	3.0	37.3	33.4	38.2	34.9
Level of Service	D	A	D	C	D	C
Approach Delay (s)		34.9	35.0		35.6	
Approach LOS		C	C		D	

Intersection Summary			
HCM 2000 Control Delay	35.1	HCM 2010 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	87.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	4	6	7	8
Movement	EBT	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	71	24	54	17
Maximum Split (%)	74.7%	25.3%	56.8%	17.9%
Minimum Split (s)	21	21	15	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	24	0	41	24
End Time (s)	0	24	0	41
Yield/Force Off (s)	90	19	90	36
Yield/Force Off 170(s)	90	8	90	36
Local Start Time (s)	24	0	41	24
Local Yield (s)	90	19	90	36
Local Yield 170(s)	90	8	90	36

Intersection Summary	
Cycle Length	95
Control Type	Actuated-Uncoordinated
Natural Cycle	100

Splits and Phases: 1: I-10 Service Road & LA 378



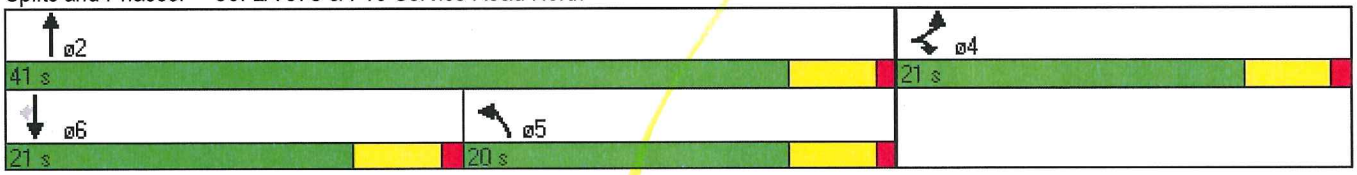
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	647	107	153	752	502	656
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	3539	3539	1583
Peak-hour factor, PHF	0.80	0.80	0.90	0.90	0.90	0.90
Adj. Flow (vph)	809	134	170	836	558	729
RTOR Reduction (vph)	0	97	0	0	0	514
Lane Group Flow (vph)	809	37	170	836	558	215
Turn Type	NA	Prot	Prot	NA	NA	Perm
Protected Phases	4	4	5	2	6	
Permitted Phases						6
Actuated Green, G (s)	15.2	15.2	8.5	29.7	16.2	16.2
Effective Green, g (s)	15.2	15.2	8.5	29.7	16.2	16.2
Actuated g/C Ratio	0.28	0.28	0.15	0.54	0.30	0.30
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.3	2.3	2.3
Lane Grp Cap (vph)	950	438	274	1914	1044	467
v/s Ratio Prot	c0.24	0.02	c0.10	0.24	c0.16	
v/s Ratio Perm						0.14
v/c Ratio	0.85	0.08	0.62	0.44	0.53	0.46
Uniform Delay, d1	18.8	14.7	21.7	7.6	16.2	15.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.2	0.0	3.1	0.1	0.4	0.4
Delay (s)	25.9	14.7	24.8	7.7	16.5	16.2
Level of Service	C	B	C	A	B	B
Approach Delay (s)	24.4			10.6	16.4	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	54.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	5	6
Movement	NBT	EBL	NBL	SBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	41	21	20	21
Maximum Split (%)	66.1%	33.9%	32.3%	33.9%
Minimum Split (s)	21	21	20	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	41	21	0
End Time (s)	41	0	41	21
Yield/Force Off (s)	36	57	36	16
Yield/Force Off 170(s)	36	46	36	16
Local Start Time (s)	0	41	21	0
Local Yield (s)	36	57	36	16
Local Yield 170(s)	36	46	36	16

Intersection Summary	
Cycle Length	62
Control Type	Actuated-Uncoordinated
Natural Cycle	65

Splits and Phases: 30: LA 378 & I-10 Service Road North



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	228	53	579	95	40	47	187	916	83	62	546	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.92		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1712		1770	3495		1770	3479	
Flt Permitted	0.57	1.00	1.00	0.71	1.00		0.27	1.00		0.27	1.00	
Satd. Flow (perm)	1064	1863	1583	1330	1712		497	3495		497	3479	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	285	66	724	119	50	59	208	1018	92	69	607	78
RTOR Reduction (vph)	0	0	93	0	47	0	0	7	0	0	11	0
Lane Group Flow (vph)	285	66	631	119	62	0	208	1103	0	69	674	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	18.5	18.5	39.0	15.5	15.5		35.5	35.5		20.5	20.5	
Effective Green, g (s)	18.5	18.5	39.0	15.5	15.5		35.5	35.5		20.5	20.5	
Actuated g/C Ratio	0.21	0.21	0.43	0.17	0.17		0.39	0.39		0.23	0.23	
Clearance Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)	308	382	685	270	294		486	1378		191	792	
v/s Ratio Prot	0.12	0.04	c0.21	c0.04	0.04		0.10	0.32		0.02	c0.19	
v/s Ratio Perm	c0.07		0.19	0.03			0.07			0.06		
v/c Ratio	0.93	0.17	0.92	0.44	0.21		0.43	0.80		0.36	0.85	
Uniform Delay, d1	34.4	29.4	24.1	33.8	32.0		19.5	24.1		31.2	33.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	35.3	1.0	19.7	5.1	1.6		2.7	5.0		5.2	11.1	
Delay (s)	69.7	30.4	43.8	38.9	33.6		22.2	29.1		36.4	44.4	
Level of Service	E	C	D	D	C		C	C		D	D	
Approach Delay (s)		49.8			36.4			28.0			43.7	
Approach LOS		D			D			C			D	

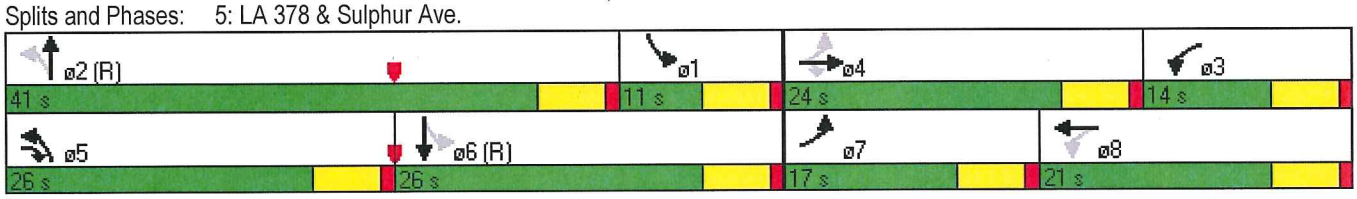
Intersection Summary			
HCM 2000 Control Delay	39.0	HCM 2010 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
Maximum Split (s)	11	41	14	24	26	26	17	21
Maximum Split (%)	12.2%	45.6%	15.6%	26.7%	28.9%	28.9%	18.9%	23.3%
Minimum Split (s)	10.5	25.5	10.5	21.5	10.5	25.5	10.5	21.5
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	20	5	10	5	20	5	10
Vehicle Extension (s)	2	3	2	3	2	3	2	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		5		5		5		5
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	15	64	50	26	64	0	26	43
End Time (s)	26	15	64	50	0	26	43	64
Yield/Force Off (s)	20.5	9.5	58.5	44.5	84.5	20.5	37.5	58.5
Yield/Force Off 170(s)	20.5	88.5	58.5	33.5	84.5	9.5	37.5	47.5
Local Start Time (s)	15	64	50	26	64	0	26	43
Local Yield (s)	20.5	9.5	58.5	44.5	84.5	20.5	37.5	58.5
Local Yield 170(s)	20.5	88.5	58.5	33.5	84.5	9.5	37.5	47.5

Intersection Summary	
Cycle Length	90
Control Type	Pretimed
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 5: LA 378 & Sulphur Ave.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	41	73	66	24	69	20	1239	112	31	504	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.96			0.94		1.00	0.99		1.00	0.99	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1742			1718		1770	3495		1770	3512	
Flt Permitted		0.75			0.80		0.39	1.00		0.14	1.00	
Satd. Flow (perm)		1336			1399		736	3495		259	3512	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	166	51	91	82	30	86	22	1377	124	34	560	30
RTOR Reduction (vph)	0	25	0	0	14	0	0	11	0	0	6	0
Lane Group Flow (vph)	0	283	0	0	184	0	22	1490	0	34	584	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		22.8			22.8		28.8	28.8		28.8	28.8	
Effective Green, g (s)		22.8			22.8		28.8	28.8		28.8	28.8	
Actuated g/C Ratio		0.38			0.38		0.48	0.48		0.48	0.48	
Clearance Time (s)		4.2			4.2		4.2	4.2		4.2	4.2	
Lane Grp Cap (vph)		507			531		353	1677		124	1685	
v/s Ratio Prot								c0.43			0.17	
v/s Ratio Perm		c0.21			0.13		0.03			0.13		
v/c Ratio		0.56			0.35		0.06	0.89		0.27	0.35	
Uniform Delay, d1		14.6			13.3		8.4	14.1		9.3	9.7	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		4.4			1.8		0.3	7.4		5.4	0.6	
Delay (s)		19.0			15.1		8.7	21.6		14.7	10.3	
Level of Service		B			B		A	C		B	B	
Approach Delay (s)		19.0			15.1			21.4			10.5	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.4
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

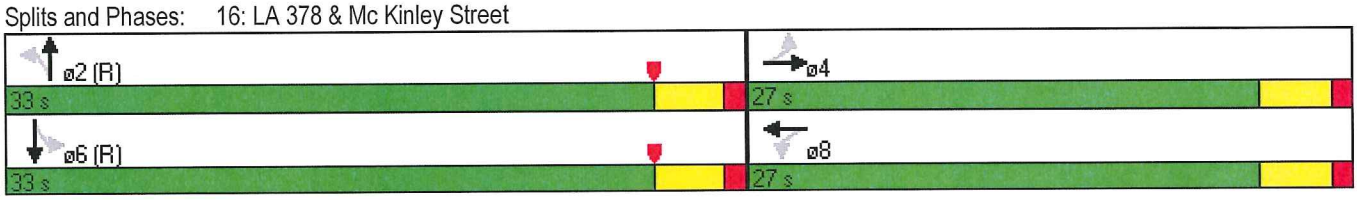
c Critical Lane Group

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	33	27	33	27
Maximum Split (%)	55.0%	45.0%	55.0%	45.0%
Minimum Split (s)	20.5	20.5	20.5	20.5
Yellow Time (s)	3.2	3.2	3.2	3.2
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	7	40	7	40
End Time (s)	40	7	40	7
Yield/Force Off (s)	35.8	2.8	35.8	2.8
Yield/Force Off 170(s)	24.8	51.8	24.8	51.8
Local Start Time (s)	31.2	4.2	31.2	4.2
Local Yield (s)	0	27	0	27
Local Yield 170(s)	49	16	49	16

Intersection Summary	
Cycle Length	60
Control Type	Pretimed
Natural Cycle	55

Offset: 35.8 (60%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Splits and Phases: 16: LA 378 & Mc Kinley Street



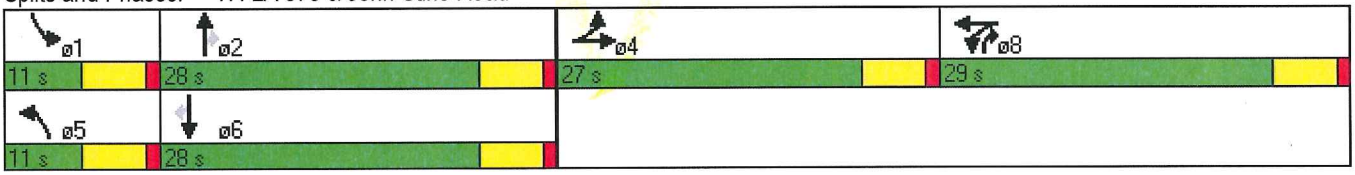
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	51	59	104	53	9	77	1003	195	5	379	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.92			0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1713			1793		1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1713			1793		1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	244	64	74	130	66	11	86	1114	217	6	421	68
RTOR Reduction (vph)	0	46	0	0	2	0	0	0	90	0	0	48
Lane Group Flow (vph)	244	92	0	0	205	0	86	1114	127	6	421	20
Turn Type	Split	NA		Split	NA		Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2	8	1	6	
Permitted Phases									2			6
Actuated Green, G (s)	15.0	15.0			14.0		5.7	27.8	41.8	0.9	23.0	23.0
Effective Green, g (s)	15.0	15.0			14.0		5.7	27.8	41.8	0.9	23.0	23.0
Actuated g/C Ratio	0.19	0.19			0.18		0.07	0.35	0.52	0.01	0.29	0.29
Clearance Time (s)	5.5	5.5			5.5		5.5	5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	2.5	2.5			2.5		2.3	5.0	2.5	2.3	5.0	5.0
Lane Grp Cap (vph)	333	322			314		126	1234	830	19	1021	456
v/s Ratio Prot	c0.14	0.05			c0.11		c0.05	c0.31	0.03	0.00	0.12	
v/s Ratio Perm									0.05			0.01
v/c Ratio	0.73	0.28			0.65		0.68	0.90	0.15	0.32	0.41	0.04
Uniform Delay, d1	30.5	27.7			30.6		36.1	24.7	9.8	39.1	22.9	20.4
Progression Factor	1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.6	0.4			4.3		12.4	9.9	0.1	5.5	0.6	0.1
Delay (s)	38.1	28.1			34.9		48.5	34.6	9.9	44.6	23.5	20.5
Level of Service	D	C			C		D	C	A	D	C	C
Approach Delay (s)		34.5			34.9			31.7			23.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.7	HCM 2010 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	79.7	Sum of lost time (s)	22.0
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	2	4	5	6	8
Movement	SBL	NBT	EBTL	NBL	SBT	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	Min	None	None	Min	None
Maximum Split (s)	11	28	27	11	28	29
Maximum Split (%)	11.6%	29.5%	28.4%	11.6%	29.5%	30.5%
Minimum Split (s)	9.5	21.5	21.5	9.5	21.5	21.5
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	4	15	6	4	15	6
Vehicle Extension (s)	2.3	5	2.5	2.3	5	2.5
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		5	5		5	5
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	11	39	0	11	66
End Time (s)	11	39	66	11	39	0
Yield/Force Off (s)	5.5	33.5	60.5	5.5	33.5	89.5
Yield/Force Off 170(s)	5.5	33.5	49.5	5.5	33.5	78.5
Local Start Time (s)	84	0	28	84	0	55
Local Yield (s)	89.5	22.5	49.5	89.5	22.5	78.5
Local Yield 170(s)	89.5	22.5	38.5	89.5	22.5	67.5

Intersection Summary	
Cycle Length	95
Control Type	Actuated-Uncoordinated
Natural Cycle	90

Splits and Phases: 17: LA 378 & John Stine Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	20	0	0	70	0	908	286	0	414	17
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	25	0	0	88	0	1009	318	0	460	19
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1052	1787	230	1423	1647	663	479			1327		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1052	1787	230	1423	1647	663	479			1327		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	97	100	100	78	100			100		
cM capacity (veh/h)	142	81	772	93	98	404	1080			516		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	25	88	673	495	230	230	19
Volume Left	0	0	0	0	0	0	0
Volume Right	25	88	0	159	0	0	19
cSH	772	404	1700	1700	1700	1700	1700
Volume to Capacity	0.03	0.22	0.40	0.29	0.14	0.14	0.01
Queue Length 95th (ft)	3	20	0	0	0	0	0
Control Delay (s)	9.8	16.4	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	C					
Approach Delay (s)	9.8	16.4	0.0		0.0		
Approach LOS	A	C					

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	94	1	0	337	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	374	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	377	187	0	374			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	377	187	0	374			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	100			
cM capacity (veh/h)	597	823	0	840			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	187	187
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	840	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.11	0.11
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	9.3	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	9.3			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	21.2%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑	↑↑			↱
Volume (veh/h)	0	768	342	71	0	56
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.80	0.80
Hourly flow rate (vph)	0	853	380	79	0	70
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	459				846	229
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	459				846	229
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	91
cM capacity (veh/h)	1098				301	773

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SE 1
Volume Total	427	427	253	166	70
Volume Left	0	0	0	0	0
Volume Right	0	0	0	39	70
cSH	1700	1700	1700	1700	773
Volume to Capacity	0.25	0.25	0.15	0.10	0.09
Queue Length 95th (ft)	0	0	0	0	7
Control Delay (s)	0.0	0.0	0.0	0.0	10.1
Lane LOS					B
Approach Delay (s)	0.0		0.0		10.1
Approach LOS					B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	24.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	93	1	0	327	0	0	0
Sign Control			Free	Free		Stop	
Grade			0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	0	363	0	0	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None	None			
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked	0.00						
vC, conflicting volume	0	363				366	182
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	0	363				366	182
tC, single (s)	0.0	*6.4				6.8	6.9
tC, 2 stage (s)							
tF (s)	0.0	*2.5				3.5	3.3
p0 queue free %	0	100				100	100
cM capacity (veh/h)	0	854				607	830

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2
Volume Total	1	0	0	182	182
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	854	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.11	0.11
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	9.2	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	9.2			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	20.9%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

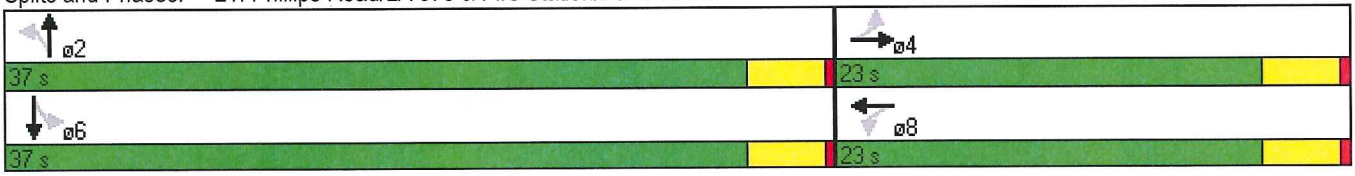
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑↑↑			↑↑↑	
Volume (vph)	1	1	1	1	1	410	1	708	3	153	326	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.96			0.87			1.00			1.00	
Flt Protected		0.98			1.00			1.00			0.98	
Satd. Flow (prot)		1750			1612			3537			3483	
Flt Permitted		0.90			1.00			0.95			0.60	
Satd. Flow (perm)		1607			1612			3376			2116	
Peak-hour factor, PHF	0.90	0.90	0.90	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1	1	1	1	1	512	1	787	3	170	362	1
RTOR Reduction (vph)	0	1	0	0	104	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	2	0	0	410	0	0	790	0	0	533	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		15.1			15.1			17.0			17.0	
Effective Green, g (s)		15.1			15.1			17.0			17.0	
Actuated g/C Ratio		0.38			0.38			0.42			0.42	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		605			607			1431			897	
v/s Ratio Prot												
v/s Ratio Perm		0.00			0.25			0.23			c0.25	
v/c Ratio		0.00			0.68			0.55			0.59	
Uniform Delay, d1		7.8			10.5			8.7			8.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.0			3.0			0.5			1.1	
Delay (s)		7.8			13.4			9.2			10.0	
Level of Service		A			B			A			A	
Approach Delay (s)		7.8			13.4			9.2			10.0	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	40.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	None	None	Min	Min
Maximum Split (s)	37	23	37	23
Maximum Split (%)	61.7%	38.3%	61.7%	38.3%
Minimum Split (s)	20	20	30	20
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	37	0	37
End Time (s)	37	0	37	0
Yield/Force Off (s)	33	56	33	56
Yield/Force Off 170(s)	22	45	33	56
Local Start Time (s)	0	37	0	37
Local Yield (s)	33	56	33	56
Local Yield 170(s)	22	45	33	56

Intersection Summary	
Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	50

Splits and Phases: 21: Phillips Road/LA 378 & Fire Station/Davis Road

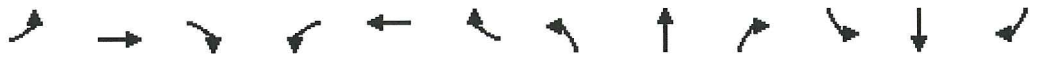


Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (veh/h)	1147	0	109	1	0	0	0
Sign Control	Free				Free	Stop	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1274	0	0	1	0	0	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None				None		
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume			0	1274		1277	637
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			0	1274		1277	637
tC, single (s)			0.0	*6.4		6.8	6.9
tC, 2 stage (s)							
tF (s)			0.0	*2.5		3.5	3.3
p0 queue free %			0	100		100	100
cM capacity (veh/h)			0	225		158	420

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3
Volume Total	637	637	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	225	1700	1700
Volume to Capacity	0.37	0.37	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	21.1	0.0	0.0
Lane LOS			C		
Approach Delay (s)	0.0		21.1		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	172	1079	5	0	491	162	0	0	7	0	0	171
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	191	1199	6	0	546	180	0	0	9	0	0	214
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	546			1204			1857	2129	602	1536	2132	273
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	546			1204			1857	2129	602	1536	2132	273
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	81			100			100	100	98	100	100	71
cM capacity (veh/h)	1020			575			27	40	443	66	40	725

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	191	799	402	273	273	180	9	214
Volume Left	191	0	0	0	0	0	0	0
Volume Right	0	0	3	0	0	180	9	214
cSH	1020	1700	1700	1700	1700	1700	443	725
Volume to Capacity	0.19	0.47	0.24	0.16	0.16	0.11	0.02	0.29
Queue Length 95th (ft)	17	0	0	0	0	0	2	31
Control Delay (s)	9.3	0.0	0.0	0.0	0.0	0.0	13.3	12.0
Lane LOS	A						B	B
Approach Delay (s)	1.3			0.0			13.3	12.0
Approach LOS							B	B

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	40.0%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	2	58	12	840	423	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95	1.00	1.00	0.97	
Frt		1.00	1.00	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3433	1810	1538	3338	
Flt Permitted		0.95	1.00	1.00	0.95	
Satd. Flow (perm)		3274	1810	1538	3338	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	2	72	15	1050	529	9
RTOR Reduction (vph)	0	0	0	477	114	0
Lane Group Flow (vph)	0	74	15	573	424	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	pm+pt	NA	NA	Perm	NA	
Protected Phases	7	4	8		6	
Permitted Phases	4			8		
Actuated Green, G (s)		25.1	25.1	25.1	10.9	
Effective Green, g (s)		25.1	25.1	25.1	10.9	
Actuated g/C Ratio		0.55	0.55	0.55	0.24	
Clearance Time (s)		5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1786	987	839	790	
v/s Ratio Prot			0.01		c0.13	
v/s Ratio Perm		0.02		c0.37		
v/c Ratio		0.04	0.02	0.68	0.54	
Uniform Delay, d1		4.9	4.8	7.6	15.3	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0	0.0	4.5	0.7	
Delay (s)		4.9	4.8	12.0	16.0	
Level of Service		A	A	B	B	
Approach Delay (s)		4.9	11.9		16.0	
Approach LOS		A	B		B	

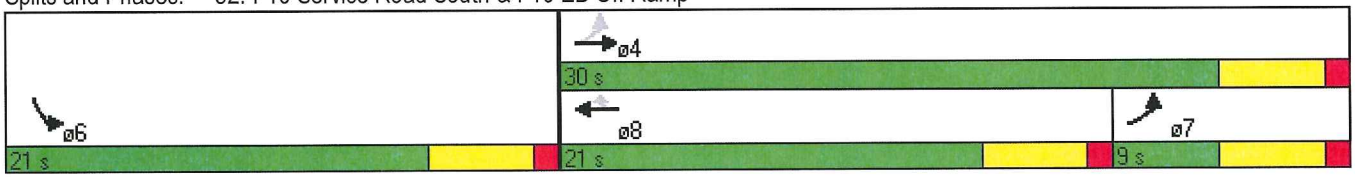
Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	4	6	7	8
Movement	EBTL	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Max	None	None	Max
Maximum Split (s)	30	21	9	21
Maximum Split (%)	58.8%	41.2%	17.6%	41.2%
Minimum Split (s)	21	21	9	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	7	4	15
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21	0	42	21
End Time (s)	0	21	0	42
Yield/Force Off (s)	46	16	46	37
Yield/Force Off 170(s)	35	5	46	26
Local Start Time (s)	21	0	42	21
Local Yield (s)	46	16	46	37
Local Yield 170(s)	35	5	46	26

Intersection Summary	
Cycle Length	51
Control Type	Semi Act-Uncoord
Natural Cycle	55

Splits and Phases: 32: I-10 Service Road South & I-10 EB Off Ramp



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	369	102	210	106	88	552
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	3438	1810	1538	1719	1538
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1719	3438	1810	1538	1719	1538
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.90	0.90
Adj. Flow (vph)	461	128	262	132	98	613
RTOR Reduction (vph)	0	0	0	101	0	512
Lane Group Flow (vph)	461	128	262	31	98	101
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	16.6	33.7	12.1	12.1	8.6	8.6
Effective Green, g (s)	16.6	33.7	12.1	12.1	8.6	8.6
Actuated g/C Ratio	0.32	0.64	0.23	0.23	0.16	0.16
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.3	2.3	2.3	2.0	2.0
Lane Grp Cap (vph)	545	2215	418	355	282	252
v/s Ratio Prot	c0.27	0.04	c0.14		0.06	
v/s Ratio Perm				0.02		c0.07
v/c Ratio	0.85	0.06	0.63	0.09	0.35	0.40
Uniform Delay, d1	16.7	3.4	18.1	15.8	19.4	19.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.1	0.0	2.4	0.1	0.3	0.4
Delay (s)	27.8	3.4	20.4	15.8	19.6	19.9
Level of Service	C	A	C	B	B	B
Approach Delay (s)		22.5	18.9		19.9	
Approach LOS		C	B		B	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2010 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	52.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	4	6	7	8
Movement	EBT	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	39	21	22	17
Maximum Split (%)	65.0%	35.0%	36.7%	28.3%
Minimum Split (s)	21	21	15	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21	0	38	21
End Time (s)	0	21	0	38
Yield/Force Off (s)	55	16	55	33
Yield/Force Off 170(s)	55	5	55	33
Local Start Time (s)	21	0	38	21
Local Yield (s)	55	16	55	33
Local Yield 170(s)	55	5	55	33

Intersection Summary	
Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	65

Splits and Phases: 1: I-10 Service Road & LA 378

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	372	86	107	358	557	778
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3335	1538	1719	3438	3438	1538
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3335	1538	1719	3438	3438	1538
Peak-hour factor, PHF	0.80	0.80	0.90	0.90	0.90	0.90
Adj. Flow (vph)	465	108	119	398	619	864
RTOR Reduction (vph)	0	84	0	0	0	568
Lane Group Flow (vph)	465	24	119	398	619	296
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	NA	Prot	Prot	NA	NA	Perm
Protected Phases	4	4	5	2	6	
Permitted Phases						6
Actuated Green, G (s)	11.3	11.3	7.7	29.2	16.5	16.5
Effective Green, g (s)	11.3	11.3	7.7	29.2	16.5	16.5
Actuated g/C Ratio	0.22	0.22	0.15	0.58	0.33	0.33
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.3	2.3	2.3
Lane Grp Cap (vph)	746	344	262	1987	1123	502
v/s Ratio Prot	c0.14	0.02	c0.07	0.12	0.18	
v/s Ratio Perm						c0.19
v/c Ratio	0.62	0.07	0.45	0.20	0.55	0.59
Uniform Delay, d1	17.7	15.5	19.5	5.1	14.0	14.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.0	0.5	0.0	0.4	1.3
Delay (s)	18.9	15.5	19.9	5.1	14.4	15.5
Level of Service	B	B	B	A	B	B
Approach Delay (s)	18.2			8.5	15.0	
Approach LOS	B			A	B	

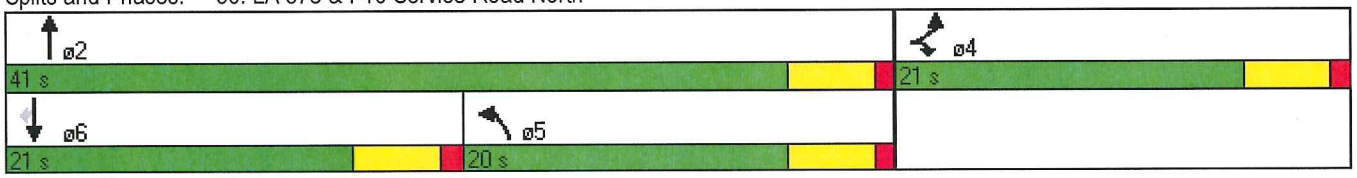
Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	50.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	5	6
Movement	NBT	EBL	NBL	SBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	41	21	20	21
Maximum Split (%)	66.1%	33.9%	32.3%	33.9%
Minimum Split (s)	21	21	20	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	41	21	0
End Time (s)	41	0	41	21
Yield/Force Off (s)	36	57	36	16
Yield/Force Off 170(s)	36	46	36	16
Local Start Time (s)	0	41	21	0
Local Yield (s)	36	57	36	16
Local Yield 170(s)	36	46	36	16

Intersection Summary	
Cycle Length	62
Control Type	Actuated-Uncoordinated
Natural Cycle	65

Splits and Phases: 30: LA 378 & I-10 Service Road North



Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations			↑↑		↱		↑↑
Volume (veh/h)	0	0	681	0	156	1	0
Sign Control	Stop		Free				Free
Grade	0%		0%				0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	757	0	0	1	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)			1218				498
pX, platoon unblocked					0.00		
vC, conflicting volume	759	378			0	757	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	759	378			0	757	
tC, single (s)	6.9	7.0			0.0	*6.4	
tC, 2 stage (s)							
tF (s)	3.6	3.4			0.0	*2.5	
p0 queue free %	100	100			0	100	
cM capacity (veh/h)	336	611			0	482	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	378	378	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	482	1700	1700
Volume to Capacity	0.22	0.22	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	12.5	0.0	0.0
Lane LOS			B		
Approach Delay (s)	0.0		12.5		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	34.1%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

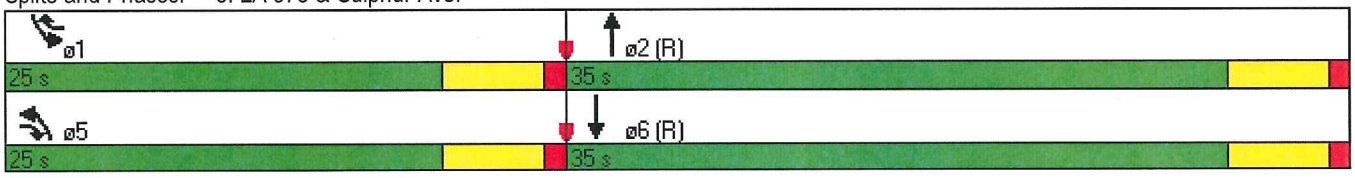
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	362	0	0	245	319	440	78	33	1197	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.5			5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor			0.88			1.00	1.00	0.95		1.00	0.95	
Frt			0.85			0.86	1.00	0.98		1.00	0.98	
Flt Protected			1.00			1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)			2707			1611	1719	3444		1770	3480	
Flt Permitted			1.00			1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)			2707			1611	1719	3444		1770	3480	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	452	0	0	306	354	489	87	37	1330	168
RTOR Reduction (vph)	0	0	33	0	0	203	0	24	0	0	16	0
Lane Group Flow (vph)	0	0	419	0	0	104	354	552	0	37	1482	0
Heavy Vehicles (%)	2%	5%	5%	5%	5%	2%	5%	2%	5%	2%	2%	2%
Turn Type			Over			Over	Prot	NA		Prot	NA	
Protected Phases			5			1	5	2		1	6	
Permitted Phases												
Actuated Green, G (s)			19.5			19.5	19.5	29.5		19.5	29.5	
Effective Green, g (s)			19.5			19.5	19.5	29.5		19.5	29.5	
Actuated g/C Ratio			0.32			0.32	0.32	0.49		0.32	0.49	
Clearance Time (s)			5.5			5.5	5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)			879			523	558	1693		575	1711	
v/s Ratio Prot			0.15			0.06	c0.21	0.16		0.02	c0.43	
v/s Ratio Perm												
v/c Ratio			0.48			0.20	0.63	0.33		0.06	0.87	
Uniform Delay, d1			16.2			14.6	17.2	9.2		14.0	13.5	
Progression Factor			1.00			1.00	0.97	1.09		0.99	0.94	
Incremental Delay, d2			1.9			0.8	5.4	0.5		0.2	6.2	
Delay (s)			18.0			15.5	22.1	10.5		14.1	18.9	
Level of Service			B			B	C	B		B	B	
Approach Delay (s)		18.0			15.5			14.9			18.8	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	2	5	6
Movement	SBL	NBT	NBL	SBT
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	25	35	25	35
Maximum Split (%)	41.7%	58.3%	41.7%	58.3%
Minimum Split (s)	10.5	25.5	10.5	25.5
Yellow Time (s)	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	20	5	20
Vehicle Extension (s)	2	3	2	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		5		5
Flash Dont Walk (s)		11		11
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	35	0	35	0
End Time (s)	0	35	0	35
Yield/Force Off (s)	54.5	29.5	54.5	29.5
Yield/Force Off 170(s)	54.5	18.5	54.5	18.5
Local Start Time (s)	35	0	35	0
Local Yield (s)	54.5	29.5	54.5	29.5
Local Yield 170(s)	54.5	18.5	54.5	18.5

Intersection Summary	
Cycle Length	60
Control Type	Pretimed
Natural Cycle	60
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Splits and Phases: 5: LA 378 & Sulphur Ave.



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	237	1	0	1190	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	1322	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)					516		
pX, platoon unblocked			0.00				
vC, conflicting volume	1324	661	0	1322			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1324	661	0	1322			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	99			
cM capacity (veh/h)	147	405	0	210			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	661	661
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	210	1700	1700	1700	1700
Volume to Capacity	0.01	0.00	0.00	0.39	0.39
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	22.3	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	22.3			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations			↑↑		↱		↑↑
Volume (veh/h)	0	0	433	0	165	1	0
Sign Control	Stop		Free				Free
Grade	0%		0%				0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	481	0	0	1	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)			1227				675
pX, platoon unblocked					0.00		
vC, conflicting volume	483	241			0	481	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	483	241			0	481	
tC, single (s)	6.8	6.9			0.0	*6.4	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	*2.5	
p0 queue free %	100	100			0	100	
cM capacity (veh/h)	512	760			0	720	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	241	241	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	720	1700	1700
Volume to Capacity	0.14	0.14	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	10.0	0.0	0.0
Lane LOS			B		
Approach Delay (s)	0.0		10.0		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	27.8%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	71	0	0	192	43	488	62	24	1263	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0			4.0		4.0			4.0	
Lane Util. Factor			1.00			1.00		0.95			0.95	
Frt			0.86			0.86		0.98			0.99	
Flt Protected			1.00			1.00		1.00			1.00	
Satd. Flow (prot)			1611			1611		3471			3486	
Flt Permitted			1.00			1.00		0.74			0.94	
Satd. Flow (perm)			1611			1611		2562			3275	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	89	0	0	240	48	542	69	27	1403	148
RTOR Reduction (vph)	0	0	27	0	0	168	0	15	0	0	13	0
Lane Group Flow (vph)	0	0	62	0	0	72	0	644	0	0	1565	0
Turn Type			custom			custom	Perm	NA		Perm	NA	
Protected Phases								2			6	
Permitted Phases			4			8	2			6		
Actuated Green, G (s)			18.0			18.0		34.0			34.0	
Effective Green, g (s)			18.0			18.0		34.0			34.0	
Actuated g/C Ratio			0.30			0.30		0.57			0.57	
Clearance Time (s)			4.0			4.0		4.0			4.0	
Lane Grp Cap (vph)			483			483		1451			1855	
v/s Ratio Prot												
v/s Ratio Perm			0.04			c0.04		0.25			c0.48	
v/c Ratio			0.13			0.15		0.44			0.84	
Uniform Delay, d1			15.3			15.4		7.5			10.8	
Progression Factor			1.00			1.00		1.31			1.13	
Incremental Delay, d2			0.5			0.7		1.0			4.9	
Delay (s)			15.8			16.0		10.8			17.1	
Level of Service			B			B		B			B	
Approach Delay (s)		15.8			16.0			10.8			17.1	
Approach LOS		B			B			B			B	

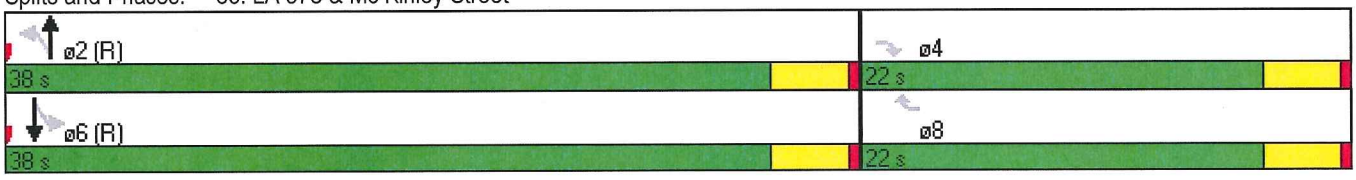
Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	6	8
Movement	NBTL	EBR	SBTL	WBR
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	38	22	38	22
Maximum Split (%)	63.3%	36.7%	63.3%	36.7%
Minimum Split (s)	20	20	20	20
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	38	0	38
End Time (s)	38	0	38	0
Yield/Force Off (s)	34	56	34	56
Yield/Force Off 170(s)	23	45	23	45
Local Start Time (s)	0	38	0	38
Local Yield (s)	34	56	34	56
Local Yield 170(s)	23	45	23	45

Intersection Summary	
Cycle Length	60
Control Type	Pretimed
Natural Cycle	60
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 83: LA 378 & Mc Kinley Street



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	222	1	0	1212	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	1347	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)					880		
pX, platoon unblocked			0.00				
vC, conflicting volume	1349	673	0	1347			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1349	673	0	1347			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	99			
cM capacity (veh/h)	141	397	0	202			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	673	673
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	202	1700	1700	1700	1700
Volume to Capacity	0.01	0.00	0.00	0.40	0.40
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	22.9	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	22.9			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	265	1	0	1212	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	1347	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	1349	673	0	1347			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1349	673	0	1347			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	99			
cM capacity (veh/h)	141	397	0	202			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	673	673
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	202	1700	1700	1700	1700
Volume to Capacity	0.01	0.00	0.00	0.40	0.40
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	22.9	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	22.9			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations			↑↑		↓		↑↑
Volume (veh/h)	0	0	619	0	312	1	0
Sign Control	Stop		Free				Free
Grade	0%		0%				0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	688	0	0	1	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked					0.00		
vC, conflicting volume	690	344			0	688	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	690	344			0	688	
tC, single (s)	6.8	6.9			0.0	*6.4	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	*2.5	
p0 queue free %	100	100			0	100	
cM capacity (veh/h)	378	652			0	533	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	344	344	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	533	1700	1700
Volume to Capacity	0.20	0.20	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	11.8	0.0	0.0
Lane LOS			B		
Approach Delay (s)	0.0		11.8		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	229	1	0	1307	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	1452	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	1454	726	0	1452			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1454	726	0	1452			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	99			
cM capacity (veh/h)	120	367	0	173			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	726	726
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	173	1700	1700	1700	1700
Volume to Capacity	0.01	0.00	0.00	0.43	0.43
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	26.0	0.0	0.0	0.0	0.0
Lane LOS	D				
Approach Delay (s)	26.0			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

* User Entered Value

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations			↑↑		⇂		↑↑
Volume (veh/h)	0	0	407	0	121	1	0
Sign Control	Stop		Free				Free
Grade	0%		0%				0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	452	0	0	1	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked					0.00		
vC, conflicting volume	454	226			0	452	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	454	226			0	452	
tC, single (s)	6.8	6.9			0.0	*6.4	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	*2.5	
p0 queue free %	100	100			0	100	
cM capacity (veh/h)	533	777			0	751	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	226	226	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	751	1700	1700
Volume to Capacity	0.13	0.13	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	9.8	0.0	0.0
Lane LOS			A		
Approach Delay (s)	0.0		9.8		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	24.6%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	185	0	0	239	0	456	72	0	1155	195
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	231	0	0	299	0	507	80	0	1283	217
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1944	1978	750	1380	2007	253	1500			587		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1944	1978	750	1380	2007	253	1500			587		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	35	100	100	60	100			100		
cM capacity (veh/h)	23	61	354	36	59	746	443			984		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	231	299	253	253	80	856	536
Volume Left	0	0	0	0	0	0	0
Volume Right	231	299	0	0	80	0	108
cSH	354	746	1700	1700	1700	1700	1700
Volume to Capacity	0.65	0.40	0.15	0.15	0.05	0.50	0.32
Queue Length 95th (ft)	110	48	0	0	0	0	0
Control Delay (s)	32.4	13.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	D	B					
Approach Delay (s)	32.4	13.0	0.0			0.0	
Approach LOS	D	B					

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	185	0	0	239	0	456	72	0	1155	195
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	231	0	0	299	0	507	80	0	1283	217
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1944	1978	750	1380	2007	253	1500			587		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1944	1978	750	1380	2007	253	1500			587		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	35	100	100	60	100			100		
cM capacity (veh/h)	23	61	354	36	59	746	443			984		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	231	299	253	253	80	856	536
Volume Left	0	0	0	0	0	0	0
Volume Right	231	299	0	0	80	0	108
cSH	354	746	1700	1700	1700	1700	1700
Volume to Capacity	0.65	0.40	0.15	0.15	0.05	0.50	0.32
Queue Length 95th (ft)	110	48	0	0	0	0	0
Control Delay (s)	32.4	13.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	D	B					
Approach Delay (s)	32.4	13.0	0.0			0.0	
Approach LOS	D	B					

Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	56.3%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	352	1	0	1001	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	1112	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	1114	556	0	1112			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1114	556	0	1112			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	100			
cM capacity (veh/h)	201	474	0	286			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	556	556
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	286	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.33	0.33
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	17.6	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	17.6			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	6	0	0	165	0	244	62	0	936	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	8	0	0	206	0	271	69	0	1040	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1391	1389	529	833	1363	170	1058			340		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1391	1389	529	833	1363	170	1058			340		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	100	100	76	100			100		
cM capacity (veh/h)	77	141	494	257	147	844	654			1216		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	8	206	181	125	693	356
Volume Left	0	0	0	0	0	0
Volume Right	8	206	0	34	0	9
cSH	494	844	1700	1700	1700	1700
Volume to Capacity	0.02	0.24	0.11	0.07	0.41	0.21
Queue Length 95th (ft)	1	24	0	0	0	0
Control Delay (s)	12.4	10.6	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	12.4	10.6	0.0		0.0	
Approach LOS	B	B				

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	36.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	266	1	0	788	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	876	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	878	438	0	876			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	878	438	0	876			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	100			
cM capacity (veh/h)	287	567	0	405			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	438	438
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	405	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.26	0.26
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	13.9	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	13.9			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (veh/h)	160	0	505	1	0	0	0
Sign Control	Free				Free	Stop	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	178	0	0	1	0	0	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None				None		
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume			0	178		180	89
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			0	178		180	89
tC, single (s)			0.0	*6.4		6.8	6.9
tC, 2 stage (s)							
tF (s)			0.0	*2.5		3.5	3.3
p0 queue free %			0	100		100	100
cM capacity (veh/h)			0	1116		792	952

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3
Volume Total	89	89	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1116	1700	1700
Volume to Capacity	0.05	0.05	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	8.2	0.0	0.0
Lane LOS			A		
Approach Delay (s)	0.0		8.2		
Approach LOS					

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	39.1%	ICU Level of Service		A
Analysis Period (min)	15			

* User Entered Value

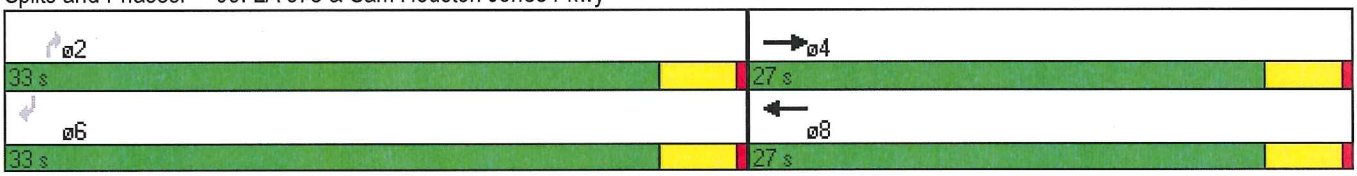
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	380	312	0	881	104	0	0	132	0	0	352
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0				4.0			4.0
Lane Util. Factor		0.95			0.95				1.00			1.00
Frt		0.93			0.98				0.86			0.86
Flt Protected		1.00			1.00				1.00			1.00
Satd. Flow (prot)		3300			3483				1611			1611
Flt Permitted		1.00			1.00				1.00			1.00
Satd. Flow (perm)		3300			3483				1611			1611
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	0	422	347	0	979	116	0	0	165	0	0	440
RTOR Reduction (vph)	0	191	0	0	14	0	0	0	103	0	0	22
Lane Group Flow (vph)	0	578	0	0	1081	0	0	0	62	0	0	418
Turn Type		NA			NA				custom			custom
Protected Phases		4			8							
Permitted Phases									2			6
Actuated Green, G (s)		20.4			20.4				17.1			17.1
Effective Green, g (s)		20.4			20.4				17.1			17.1
Actuated g/C Ratio		0.45			0.45				0.38			0.38
Clearance Time (s)		4.0			4.0				4.0			4.0
Vehicle Extension (s)		3.0			3.0				3.0			3.0
Lane Grp Cap (vph)		1479			1561				605			605
v/s Ratio Prot		0.18			c0.31							
v/s Ratio Perm									0.04			c0.26
v/c Ratio		0.39			0.69				0.10			0.69
Uniform Delay, d1		8.4			10.0				9.2			12.0
Progression Factor		0.93			1.00				1.00			1.00
Incremental Delay, d2		0.2			1.3				0.1			3.4
Delay (s)		7.9			11.4				9.3			15.4
Level of Service		A			B				A			B
Approach Delay (s)		7.9			11.4			9.3			15.4	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	45.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBR	EBT	SBR	WBT
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Min	None	Min	None
Maximum Split (s)	33	27	33	27
Maximum Split (%)	55.0%	45.0%	55.0%	45.0%
Minimum Split (s)	20	20	20	20
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	33	0	33
End Time (s)	33	0	33	0
Yield/Force Off (s)	29	56	29	56
Yield/Force Off 170(s)	29	45	29	45
Local Start Time (s)	0	33	0	33
Local Yield (s)	29	56	29	56
Local Yield 170(s)	29	45	29	45

Intersection Summary	
Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	40

Splits and Phases: 99: LA 378 & Sam Houston Jones Pkwy



Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	29	1	0	956	0	0	0
Sign Control			Free	Free		Stop	
Grade			0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	0	1062	0	0	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None	None			
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked	0.00						
vC, conflicting volume	0	1062				1064	531
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	0	1062				1064	531
tC, single (s)	0.0	*6.4				6.8	6.9
tC, 2 stage (s)							
tF (s)	0.0	*2.5				3.5	3.3
p0 queue free %	0	100				100	100
cM capacity (veh/h)	0	308				217	493

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2
Volume Total	1	0	0	531	531
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	308	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.31	0.31
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	16.7	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	16.7			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	29.8%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

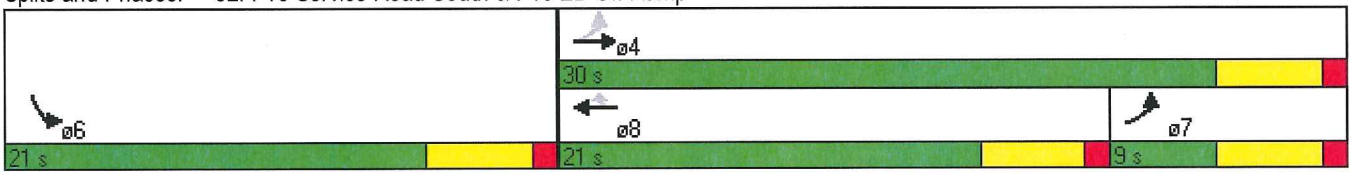
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	6	249	4	618	851	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	5.0	5.0	
Lane Util. Factor		0.95	1.00	1.00	0.97	
Frt		1.00	1.00	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3535	1863	1583	3441	
Flt Permitted		0.95	1.00	1.00	0.95	
Satd. Flow (perm)		3368	1863	1583	3441	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	8	311	5	772	1064	1
RTOR Reduction (vph)	0	0	0	394	103	0
Lane Group Flow (vph)	0	319	5	378	962	0
Turn Type	pm+pt	NA	NA	Perm	NA	
Protected Phases	7	4	8		6	
Permitted Phases	4			8		
Actuated Green, G (s)		25.0	25.0	25.0	16.0	
Effective Green, g (s)		25.0	25.0	25.0	16.0	
Actuated g/C Ratio		0.49	0.49	0.49	0.31	
Clearance Time (s)		5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1650	913	775	1079	
v/s Ratio Prot			0.00		c0.28	
v/s Ratio Perm		0.09		c0.24		
v/c Ratio		0.19	0.01	0.49	0.89	
Uniform Delay, d1		7.3	6.6	8.7	16.7	
Progression Factor		1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1	0.0	2.2	9.5	
Delay (s)		7.4	6.7	10.9	26.1	
Level of Service		A	A	B	C	
Approach Delay (s)		7.4	10.9		26.1	
Approach LOS		A	B		C	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	51.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	4	6	7	8
Movement	EBTL	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Max	None	None	Max
Maximum Split (s)	30	21	9	21
Maximum Split (%)	58.8%	41.2%	17.6%	41.2%
Minimum Split (s)	21	21	9	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	7	4	15
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21	0	42	21
End Time (s)	0	21	0	42
Yield/Force Off (s)	46	16	46	37
Yield/Force Off 170(s)	35	5	46	26
Local Start Time (s)	21	0	42	21
Local Yield (s)	46	16	46	37
Local Yield 170(s)	35	5	46	26

Intersection Summary	
Cycle Length	51
Control Type	Semi Act-Uncoord
Natural Cycle	60

Splits and Phases: 32: I-10 Service Road South & I-10 EB Off Ramp



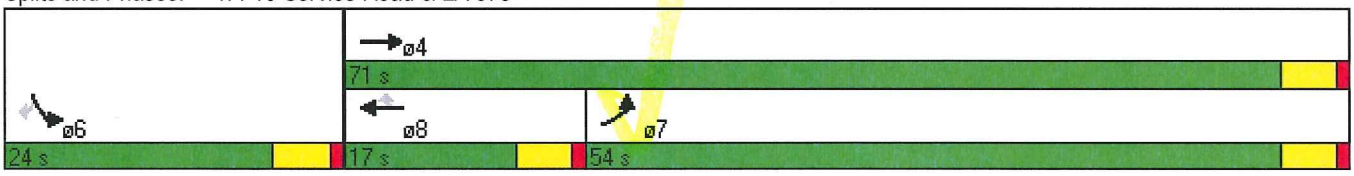
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	791	310	114	170	123	474
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	1863	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	1863	1583	1770	1583
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.90	0.90
Adj. Flow (vph)	989	388	142	212	137	527
RTOR Reduction (vph)	0	0	0	183	0	457
Lane Group Flow (vph)	989	388	142	29	137	70
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	49.1	66.1	12.0	12.0	11.6	11.6
Effective Green, g (s)	49.1	66.1	12.0	12.0	11.6	11.6
Actuated g/C Ratio	0.56	0.75	0.14	0.14	0.13	0.13
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.3	2.3	2.3	2.0	2.0
Lane Grp Cap (vph)	990	2667	254	216	234	209
v/s Ratio Prot	c0.56	0.11	c0.08		c0.08	
v/s Ratio Perm				0.02		0.04
v/c Ratio	1.00	0.15	0.56	0.13	0.59	0.33
Uniform Delay, d1	19.3	3.0	35.4	33.3	35.8	34.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	28.1	0.0	1.9	0.2	2.4	0.3
Delay (s)	47.4	3.0	37.3	33.4	38.2	34.9
Level of Service	D	A	D	C	D	C
Approach Delay (s)		34.9	35.0		35.6	
Approach LOS		C	C		D	

Intersection Summary			
HCM 2000 Control Delay	35.1	HCM 2010 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	87.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	4	6	7	8
Movement	EBT	SBL	EBL	WBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	71	24	54	17
Maximum Split (%)	74.7%	25.3%	56.8%	17.9%
Minimum Split (s)	21	21	15	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	24	0	41	24
End Time (s)	0	24	0	41
Yield/Force Off (s)	90	19	90	36
Yield/Force Off 170(s)	90	8	90	36
Local Start Time (s)	24	0	41	24
Local Yield (s)	90	19	90	36
Local Yield 170(s)	90	8	90	36

Intersection Summary	
Cycle Length	95
Control Type	Actuated-Uncoordinated
Natural Cycle	100

Splits and Phases: 1: I-10 Service Road & LA 378



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	647	107	153	752	502	656
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	3539	3539	1583
Peak-hour factor, PHF	0.80	0.80	0.90	0.90	0.90	0.90
Adj. Flow (vph)	809	134	170	836	558	729
RTOR Reduction (vph)	0	97	0	0	0	514
Lane Group Flow (vph)	809	37	170	836	558	215
Turn Type	NA	Prot	Prot	NA	NA	Perm
Protected Phases	4	4	5	2	6	
Permitted Phases						6
Actuated Green, G (s)	15.2	15.2	8.5	29.7	16.2	16.2
Effective Green, g (s)	15.2	15.2	8.5	29.7	16.2	16.2
Actuated g/C Ratio	0.28	0.28	0.15	0.54	0.30	0.30
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.3	2.3	2.3
Lane Grp Cap (vph)	950	438	274	1914	1044	467
v/s Ratio Prot	c0.24	0.02	c0.10	0.24	c0.16	
v/s Ratio Perm						0.14
v/c Ratio	0.85	0.08	0.62	0.44	0.53	0.46
Uniform Delay, d1	18.8	14.7	21.7	7.6	16.2	15.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.2	0.0	3.1	0.1	0.4	0.4
Delay (s)	25.9	14.7	24.8	7.7	16.5	16.2
Level of Service	C	B	C	A	B	B
Approach Delay (s)	24.4			10.6	16.4	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	54.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	5	6
Movement	NBT	EBL	NBL	SBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	Min	None	None	Min
Maximum Split (s)	41	21	20	21
Maximum Split (%)	66.1%	33.9%	32.3%	33.9%
Minimum Split (s)	21	21	20	21
Yellow Time (s)	4	4	4	4
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	15	5	10	15
Vehicle Extension (s)	2.3	2	2	2.3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5		5
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	41	21	0
End Time (s)	41	0	41	21
Yield/Force Off (s)	36	57	36	16
Yield/Force Off 170(s)	36	46	36	16
Local Start Time (s)	0	41	21	0
Local Yield (s)	36	57	36	16
Local Yield 170(s)	36	46	36	16

Intersection Summary	
Cycle Length	62
Control Type	Actuated-Uncoordinated
Natural Cycle	65

Splits and Phases: 30: LA 378 & I-10 Service Road North

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Volume (veh/h)	0	0	1492	0	332	1	0
Sign Control	Stop		Free				Free
Grade	0%		0%				0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	1658	0	0	1	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)			1218				498
pX, platoon unblocked					0.00		
vC, conflicting volume	1660	829			0	1658	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1660	829			0	1658	
tC, single (s)	6.8	6.9			0.0	*6.4	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	*2.5	
p0 queue free %	100	100			0	99	
cM capacity (veh/h)	87	314			0	127	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	829	829	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	127	1700	1700
Volume to Capacity	0.49	0.49	0.01	0.00	0.00
Queue Length 95th (ft)	0	0	1	0	0
Control Delay (s)	0.0	0.0	33.5	0.0	0.0
Lane LOS			D		
Approach Delay (s)	0.0		33.5		
Approach LOS					

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		66.3%	ICU Level of Service C
Analysis Period (min)		15	

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	854	0	0	176	171	1185	136	36	682	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.5			5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor			0.88			1.00	1.00	0.95		1.00	0.95	
Frt			0.85			0.86	1.00	0.98		1.00	0.98	
Flt Protected			1.00			1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)			2787			1611	1770	3485		1770	3466	
Flt Permitted			1.00			1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)			2787			1611	1770	3485		1770	3466	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	1068	0	0	220	190	1317	151	40	758	122
RTOR Reduction (vph)	0	0	139	0	0	29	0	15	0	0	22	0
Lane Group Flow (vph)	0	0	929	0	0	191	190	1453	0	40	858	0
Turn Type			Over			Over	Prot	NA		Prot	NA	
Protected Phases			5			1	5	2		1	6	
Permitted Phases												
Actuated Green, G (s)			21.5			21.5	21.5	27.5		21.5	27.5	
Effective Green, g (s)			21.5			21.5	21.5	27.5		21.5	27.5	
Actuated g/C Ratio			0.36			0.36	0.36	0.46		0.36	0.46	
Clearance Time (s)			5.5			5.5	5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)			998			577	634	1597		634	1588	
v/s Ratio Prot			c0.33			0.12	0.11	c0.42		0.02	0.25	
v/s Ratio Perm												
v/c Ratio			0.93			0.33	0.30	0.91		0.06	0.54	
Uniform Delay, d1			18.5			14.0	13.8	15.1		12.6	11.7	
Progression Factor			1.00			1.00	1.08	0.96		0.92	1.11	
Incremental Delay, d2			16.1			1.5	1.2	9.2		0.2	1.3	
Delay (s)			34.6			15.6	16.1	23.8		11.9	14.4	
Level of Service			C			B	B	C		B	B	
Approach Delay (s)		34.6			15.6			22.9			14.3	
Approach LOS		C			B			C			B	

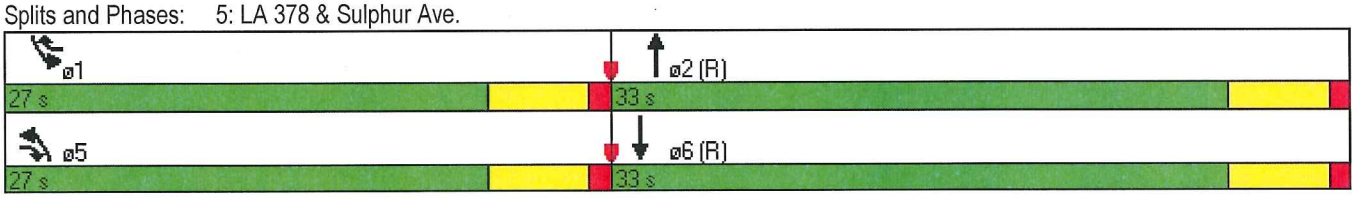
Intersection Summary			
HCM 2000 Control Delay	23.7	HCM 2010 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	5	6
Movement	SBL	NBT	NBL	SBT
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	27	33	27	33
Maximum Split (%)	45.0%	55.0%	45.0%	55.0%
Minimum Split (s)	10.5	25.5	10.5	25.5
Yellow Time (s)	4.5	4.5	4.5	4.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	20	5	20
Vehicle Extension (s)	2	3	2	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		5		5
Flash Dont Walk (s)		11		11
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	33	0	33	0
End Time (s)	0	33	0	33
Yield/Force Off (s)	54.5	27.5	54.5	27.5
Yield/Force Off 170(s)	54.5	16.5	54.5	16.5
Local Start Time (s)	33	0	33	0
Local Yield (s)	54.5	27.5	54.5	27.5
Local Yield 170(s)	54.5	16.5	54.5	16.5

Intersection Summary	
Cycle Length	60
Control Type	Pretimed
Natural Cycle	60
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Splits and Phases: 5: LA 378 & Sulphur Ave.



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	150	1	0	700	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	778	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)					516		
pX, platoon unblocked			0.00				
vC, conflicting volume	780	389	0	778			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	780	389	0	778			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	100			
cM capacity (veh/h)	331	610	0	468			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	389	389
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	468	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.23	0.23
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	12.7	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	12.7			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations			↑↑		↰		↑↑
Volume (veh/h)	0	0	1279	0	362	1	0
Sign Control	Stop		Free				Free
Grade	0%		0%				0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	1421	0	0	1	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)			1227				675
pX, platoon unblocked					0.00		
vC, conflicting volume	1423	711			0	1421	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1423	711			0	1421	
tC, single (s)	6.8	6.9			0.0	*6.4	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	*2.5	
p0 queue free %	100	100			0	99	
cM capacity (veh/h)	126	376			0	181	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	711	711	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	181	1700	1700
Volume to Capacity	0.42	0.42	0.01	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	25.0	0.0	0.0
Lane LOS			C		
Approach Delay (s)	0.0		25.0		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	247	0	0	159	20	1570	153	31	762	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0			4.0		4.0			4.0	
Lane Util. Factor			1.00			1.00		0.95			0.95	
Frt			0.86			0.86		0.99			0.99	
Flt Protected			1.00			1.00		1.00			1.00	
Satd. Flow (prot)			1611			1611		3491			3501	
Flt Permitted			1.00			1.00		0.94			0.76	
Satd. Flow (perm)			1611			1611		3282			2676	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	309	0	0	199	22	1744	170	34	847	57
RTOR Reduction (vph)	0	0	141	0	0	20	0	11	0	0	7	0
Lane Group Flow (vph)	0	0	168	0	0	179	0	1925	0	0	931	0
Turn Type			custom			custom	Perm	NA		Perm	NA	
Protected Phases								2			6	
Permitted Phases			4			8	2			6		
Actuated Green, G (s)			16.0			16.0		41.0			41.0	
Effective Green, g (s)			16.0			16.0		41.0			41.0	
Actuated g/C Ratio			0.25			0.25		0.63			0.63	
Clearance Time (s)			4.0			4.0		4.0			4.0	
Lane Grp Cap (vph)			396			396		2070			1687	
v/s Ratio Prot												
v/s Ratio Perm			0.10			c0.11		c0.59			0.35	
v/c Ratio			0.42			0.45		0.93			0.55	
Uniform Delay, d1			20.6			20.8		10.7			6.8	
Progression Factor			1.00			1.00		0.98			1.15	
Incremental Delay, d2			3.3			3.7		9.0			1.3	
Delay (s)			23.9			24.5		19.4			9.1	
Level of Service			C			C		B			A	
Approach Delay (s)		23.9			24.5			19.4			9.1	
Approach LOS		C			C			B			A	

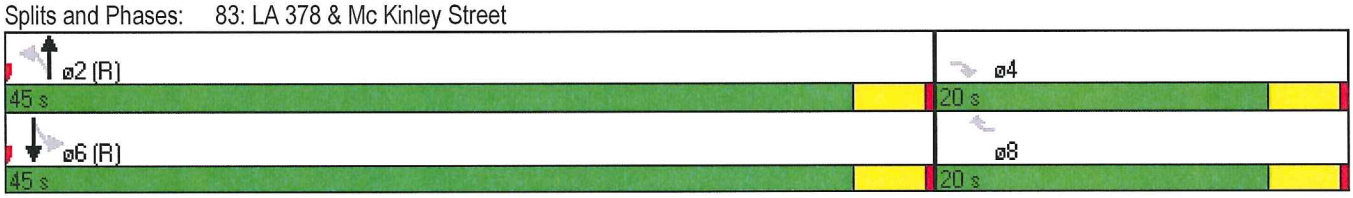
Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	6	8
Movement	NBTL	EBR	SBTL	WBR
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	45	20	45	20
Maximum Split (%)	69.2%	30.8%	69.2%	30.8%
Minimum Split (s)	20	20	20	20
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	45	0	45
End Time (s)	45	0	45	0
Yield/Force Off (s)	41	61	41	61
Yield/Force Off 170(s)	30	50	30	50
Local Start Time (s)	0	45	0	45
Local Yield (s)	41	61	41	61
Local Yield 170(s)	30	50	30	50

Intersection Summary	
Cycle Length	65
Control Type	Pretimed
Natural Cycle	65
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 83: LA 378 & Mc Kinley Street



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	137	1	0	745	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	828	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)					880		
pX, platoon unblocked			0.00				
vC, conflicting volume	830	414	0	828			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	830	414	0	828			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	100			
cM capacity (veh/h)	308	587	0	435			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	414	414
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	435	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.24	0.24
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	13.3	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	13.3			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations			↑↑		↓		↑↑
Volume (veh/h)	0	0	1665	0	302	1	0
Sign Control	Stop		Free				Free
Grade	0%		0%				0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	1850	0	0	1	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked					0.00		
vC, conflicting volume	1852	925			0	1850	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1852	925			0	1850	
tC, single (s)	6.8	6.9			0.0	*6.4	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	*2.5	
p0 queue free %	100	100			0	99	
cM capacity (veh/h)	65	271			0	95	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	925	925	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	95	1700	1700
Volume to Capacity	0.54	0.54	0.01	0.00	0.00
Queue Length 95th (ft)	0	0	1	0	0
Control Delay (s)	0.0	0.0	43.2	0.0	0.0
Lane LOS			E		
Approach Delay (s)	0.0		43.2		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	245	1	0	786	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	873	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	876	437	0	873			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	876	437	0	873			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	100			
cM capacity (veh/h)	288	568	0	407			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	437	437
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	407	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.26	0.26
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	13.9	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	13.9			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations			↑↑		↓		↑↑
Volume (veh/h)	0	0	1399	0	284	1	0
Sign Control	Stop		Free				Free
Grade	0%		0%				0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	1554	0	0	1	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked					0.00		
vC, conflicting volume	1557	777			0	1554	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1557	777			0	1554	
tC, single (s)	6.8	6.9			0.0	*6.4	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	*2.5	
p0 queue free %	100	100			0	99	
cM capacity (veh/h)	103	340			0	149	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	777	777	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	149	1700	1700
Volume to Capacity	0.46	0.46	0.01	0.00	0.00
Queue Length 95th (ft)	0	0	1	0	0
Control Delay (s)	0.0	0.0	29.4	0.0	0.0
Lane LOS			D		
Approach Delay (s)	0.0		29.4		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	305	0	0	166	0	1432	251	0	645	191
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	381	0	0	208	0	1591	279	0	717	212
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1826	2693	464	2331	2520	796	929			1870		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1826	2693	464	2331	2520	796	929			1870		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	30	100	100	37	100			100		
cM capacity (veh/h)	18	21	545	6	28	330	732			318		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	381	208	796	796	279	478	345
Volume Left	0	0	0	0	0	0	0
Volume Right	381	208	0	0	279	0	106
cSH	545	330	1700	1700	1700	1700	1700
Volume to Capacity	0.70	0.63	0.47	0.47	0.16	0.28	0.20
Queue Length 95th (ft)	138	101	0	0	0	0	0
Control Delay (s)	25.6	32.7	0.0	0.0	0.0	0.0	0.0
Lane LOS	D	D					
Approach Delay (s)	25.6	32.7	0.0			0.0	
Approach LOS	D	D					

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	305	0	0	166	0	1432	251	0	645	191
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	381	0	0	208	0	1591	279	0	717	212
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1720	2587	358	2331	2520	796	929			1870		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1720	2587	358	2331	2520	796	929			1870		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	40	100	100	37	100			100		
cM capacity (veh/h)	21	25	638	8	28	330	732			318		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	381	208	796	796	279	358	358	212
Volume Left	0	0	0	0	0	0	0	0
Volume Right	381	208	0	0	279	0	0	212
cSH	638	330	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.60	0.63	0.47	0.47	0.16	0.21	0.21	0.12
Queue Length 95th (ft)	99	101	0	0	0	0	0	0
Control Delay (s)	18.7	32.7	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	D						
Approach Delay (s)	18.7	32.7	0.0			0.0		
Approach LOS	C	D						

Intersection Summary				
Average Delay	4.1			
Intersection Capacity Utilization	56.5%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	359	1	0	520	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	578	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	580	289	0	578			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	580	289	0	578			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	100			
cM capacity (veh/h)	444	708	0	626			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	289	289
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	626	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.17	0.17
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	10.8	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	10.8			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	40.9%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	20	0	0	70	0	896	286	0	430	17
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	25	0	0	88	0	996	318	0	478	19
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1063	1791	239	1418	1651	657	497			1313		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1063	1791	239	1418	1651	657	497			1313		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	97	100	100	79	100			100		
cM capacity (veh/h)	139	80	762	94	98	408	1063			522		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	25	88	664	491	239	239	19
Volume Left	0	0	0	0	0	0	0
Volume Right	25	88	0	159	0	0	19
cSH	762	408	1700	1700	1700	1700	1700
Volume to Capacity	0.03	0.21	0.39	0.29	0.14	0.14	0.01
Queue Length 95th (ft)	3	20	0	0	0	0	0
Control Delay (s)	9.9	16.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	C					
Approach Delay (s)	9.9	16.2	0.0		0.0		
Approach LOS	A	C					

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (veh/h)	0	0	99	1	0	381	0
Sign Control	Stop				Free	Free	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1	0	423	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume	426	212	0	423			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	426	212	0	423			
tC, single (s)	6.8	6.9	0.0	*6.4			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	*2.5			
p0 queue free %	100	100	0	100			
cM capacity (veh/h)	556	794	0	783			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	1	0	0	212	212
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	783	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.12	0.12
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	9.6	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	9.6			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	22.7%	ICU Level of Service	A
Analysis Period (min)	15		

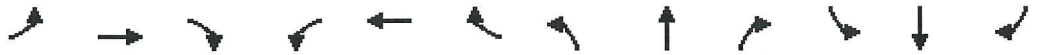
* User Entered Value

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (veh/h)	613	0	331	1	0	0	0
Sign Control	Free				Free	Stop	
Grade	0%				0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	681	0	0	1	0	0	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None				None		
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			0.00				
vC, conflicting volume			0	681		683	341
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			0	681		683	341
tC, single (s)			0.0	*6.4		6.8	6.9
tC, 2 stage (s)							
tF (s)			0.0	*2.5		3.5	3.3
p0 queue free %			0	100		100	100
cM capacity (veh/h)			0	538		382	655

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3
Volume Total	341	341	1	0	0
Volume Left	0	0	1	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	538	1700	1700
Volume to Capacity	0.20	0.20	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	11.7	0.0	0.0
Lane LOS			B		
Approach Delay (s)	0.0		11.7		
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value



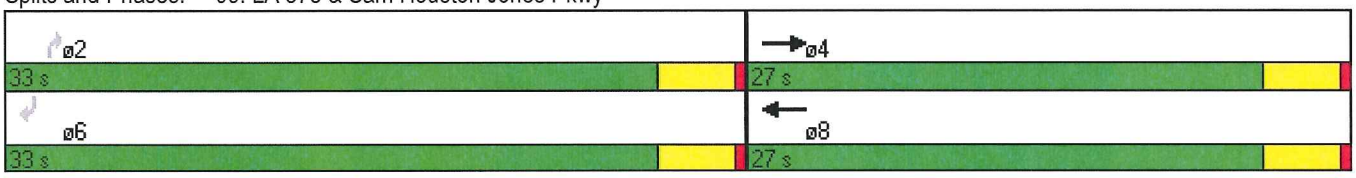
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	743	231	0	512	326	0	0	493	0	0	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0				4.0			4.0
Lane Util. Factor		0.95			0.95				1.00			1.00
Frt		0.96			0.94				0.86			0.86
Flt Protected		1.00			1.00				1.00			1.00
Satd. Flow (prot)		3413			3333				1611			1611
Flt Permitted		1.00			1.00				1.00			1.00
Satd. Flow (perm)		3413			3333				1611			1611
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	0	826	257	0	569	362	0	0	616	0	0	214
RTOR Reduction (vph)	0	48	0	0	164	0	0	0	34	0	0	87
Lane Group Flow (vph)	0	1035	0	0	767	0	0	0	582	0	0	127
Turn Type		NA			NA				custom			custom
Protected Phases		4			8							
Permitted Phases									2			6
Actuated Green, G (s)		20.8			20.8				22.8			22.8
Effective Green, g (s)		20.8			20.8				22.8			22.8
Actuated g/C Ratio		0.40			0.40				0.44			0.44
Clearance Time (s)		4.0			4.0				4.0			4.0
Vehicle Extension (s)		3.0			3.0				3.0			3.0
Lane Grp Cap (vph)		1375			1343				711			711
v/s Ratio Prot		c0.30			0.23							
v/s Ratio Perm									c0.36			0.08
v/c Ratio		0.75			0.57				0.82			0.18
Uniform Delay, d1		13.2			11.9				12.6			8.7
Progression Factor		1.03			1.00				1.00			1.00
Incremental Delay, d2		2.4			0.6				7.3			0.1
Delay (s)		15.9			12.5				19.9			8.9
Level of Service		B			B				B			A
Approach Delay (s)		15.9			12.5			19.9			8.9	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2010 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	51.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBR	EBT	SBR	WBT
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Min	None	Min	None
Maximum Split (s)	33	27	33	27
Maximum Split (%)	55.0%	45.0%	55.0%	45.0%
Minimum Split (s)	20	20	20	20
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	5	5	5	5
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	33	0	33
End Time (s)	33	0	33	0
Yield/Force Off (s)	29	56	29	56
Yield/Force Off 170(s)	29	45	29	45
Local Start Time (s)	0	33	0	33
Local Yield (s)	29	56	29	56
Local Yield 170(s)	29	45	29	45

Intersection Summary	
Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	40

Splits and Phases: 99: LA 378 & Sam Houston Jones Pkwy

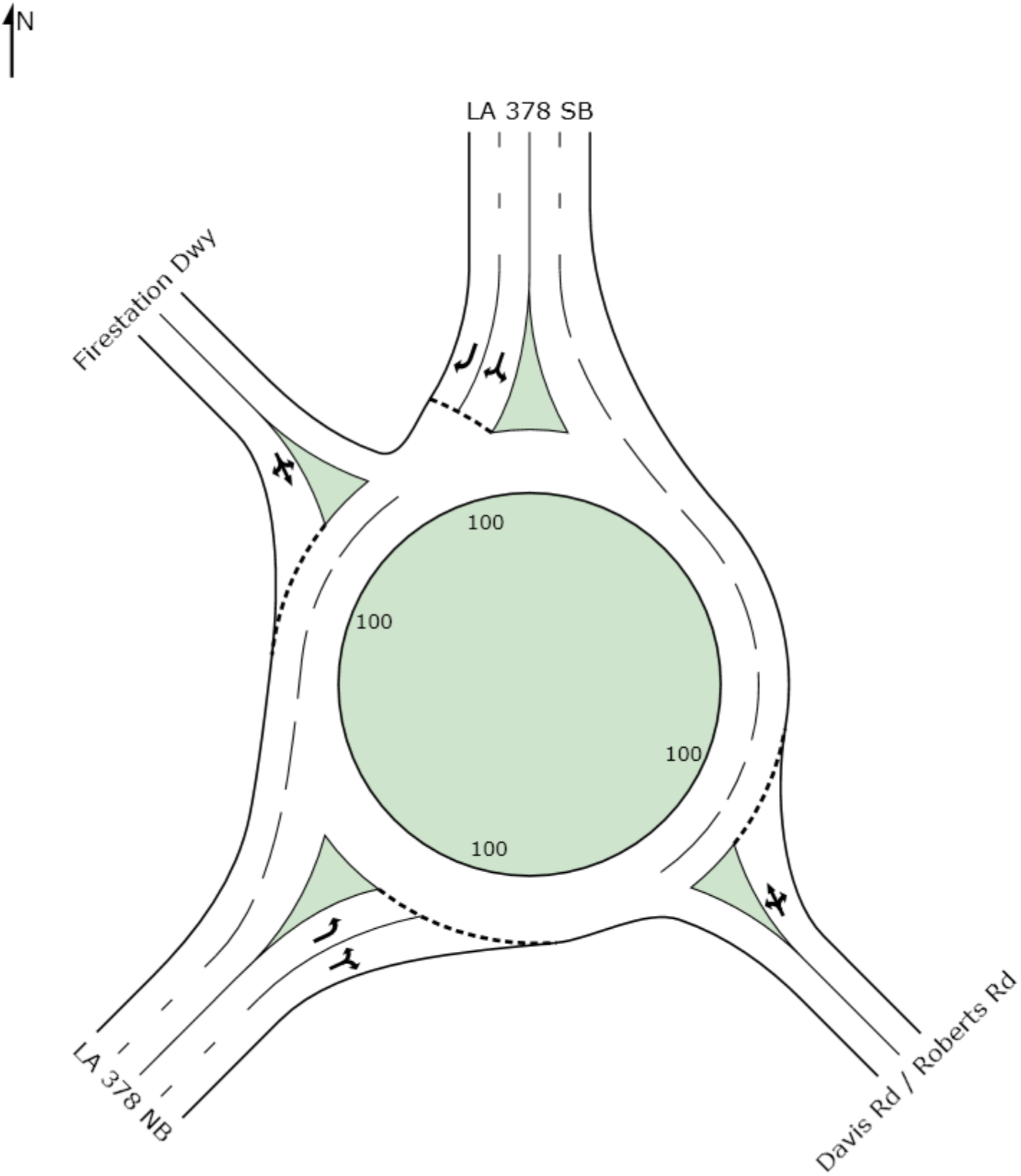


Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (veh/h)	172	1	0	666	0	0	0
Sign Control			Free	Free		Stop	
Grade			0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	0	740	0	0	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None	None			
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked	0.00						
vC, conflicting volume	0	740				742	370
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	0	740				742	370
tC, single (s)	0.0	*6.4				6.8	6.9
tC, 2 stage (s)							
tF (s)	0.0	*2.5				3.5	3.3
p0 queue free %	0	100				100	100
cM capacity (veh/h)	0	494				350	627

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2
Volume Total	1	0	0	370	370
Volume Left	1	0	0	0	0
Volume Right	0	0	0	0	0
cSH	494	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.22	0.22
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	12.3	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	12.3			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value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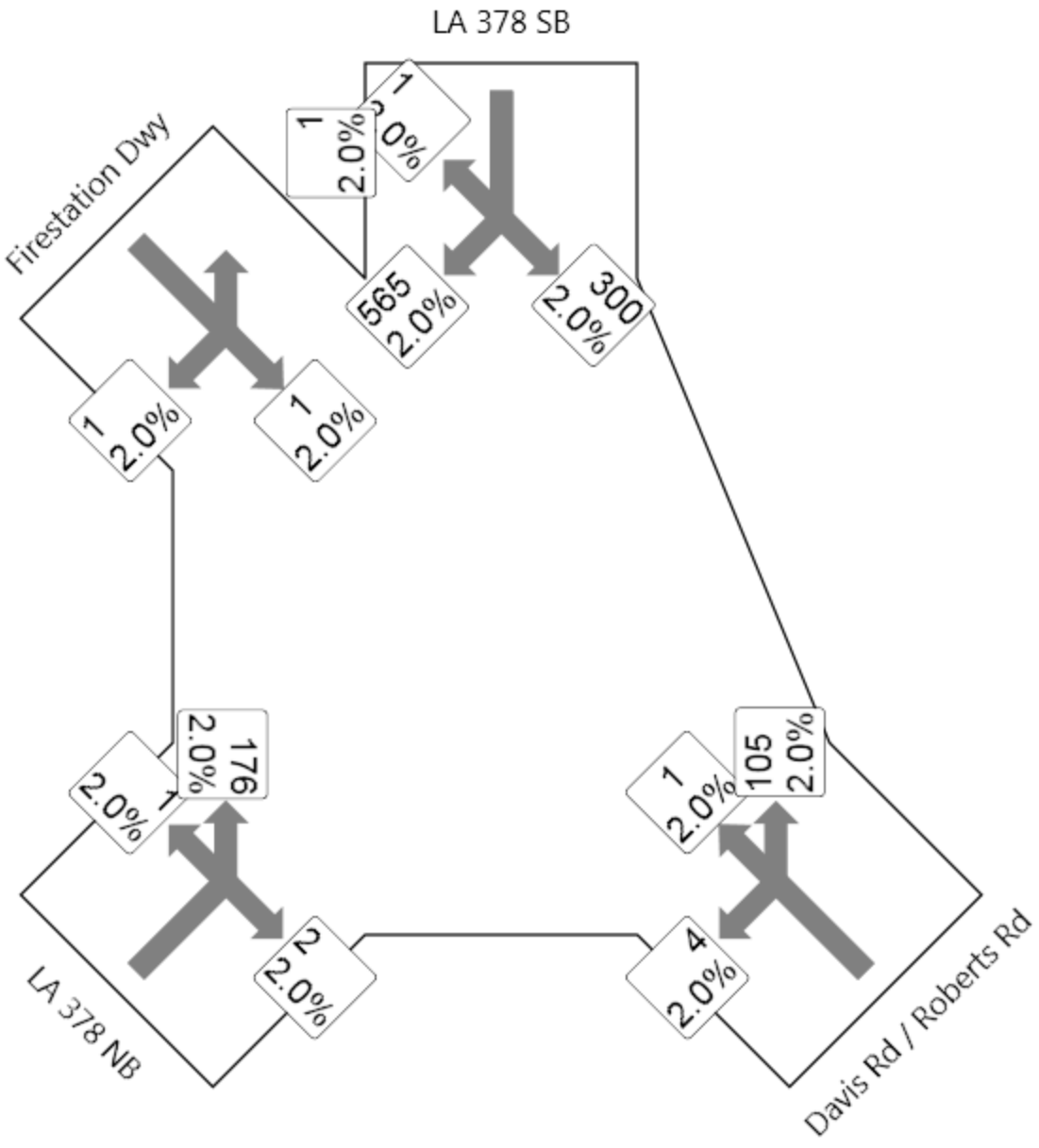
LA 378 SB
Firestation Dwy
100
100
100
100
LA 378 NB
Davis Rd / Roberts Rd


LA 378 SB
Firestation Dwy
1
2.0%
1
2.0%
565
2.0%
300
2.0%
1
2.0%
1
2.0%
1
2.0%
176
2.0%
2
2.0%
LA 378 NB
1
2.0%
105
2.0%
4
2.0%
Davis Rd / Roberts Rd

MOVEMENT SUMMARY

Site: 2013 LA 378 at Davis Rd AM

LA 378 at Davis Rd
11-100 LA 378 Improvements
2028 AM Peak Alt A
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South East: Davis Rd / Roberts Rd											
3X	L	5	2.0	0.158	13.4	LOS B	0.7	17.5	0.38	0.88	29.9
8X	T	1	2.0	0.158	6.3	LOS A	0.7	17.5	0.38	0.53	32.7
18X	R	131	2.0	0.158	6.3	LOS A	0.7	17.5	0.38	0.53	32.7
Approach		138	2.0	0.158	6.6	LOS A	0.7	17.5	0.38	0.54	32.6
North: LA 378 SB											
7	L	333	2.0	0.302	11.0	LOS B	2.0	50.7	0.07	0.71	30.5
14	R	629	2.0	0.302	5.2	LOS A	2.0	51.0	0.07	0.41	34.4
Approach		962	2.0	0.302	7.2	LOS A	2.0	51.0	0.07	0.51	32.9
North West: Firestation Dwy											
7X	L	1	2.0	0.006	17.2	LOS B	0.0	0.5	0.55	0.82	27.8
4X	T	1	2.0	0.006	8.9	LOS A	0.0	0.5	0.55	0.60	31.3
14X	R	1	2.0	0.006	9.9	LOS A	0.0	0.5	0.55	0.64	31.0
Approach		4	2.0	0.006	12.0	LOS B	0.0	0.5	0.55	0.69	29.9
South West: LA 378 NB											
5X	L	197	2.0	0.093	12.7	LOS B	0.5	12.1	0.46	0.68	29.3
12X	R	2	2.0	0.093	7.9	LOS A	0.5	12.1	0.46	0.56	31.3
Approach		199	2.0	0.093	12.6	LOS B	0.5	12.1	0.46	0.68	29.3
All Vehicles		1302	2.0	0.302	8.0	LOS A	2.0	51.0	0.16	0.54	32.3

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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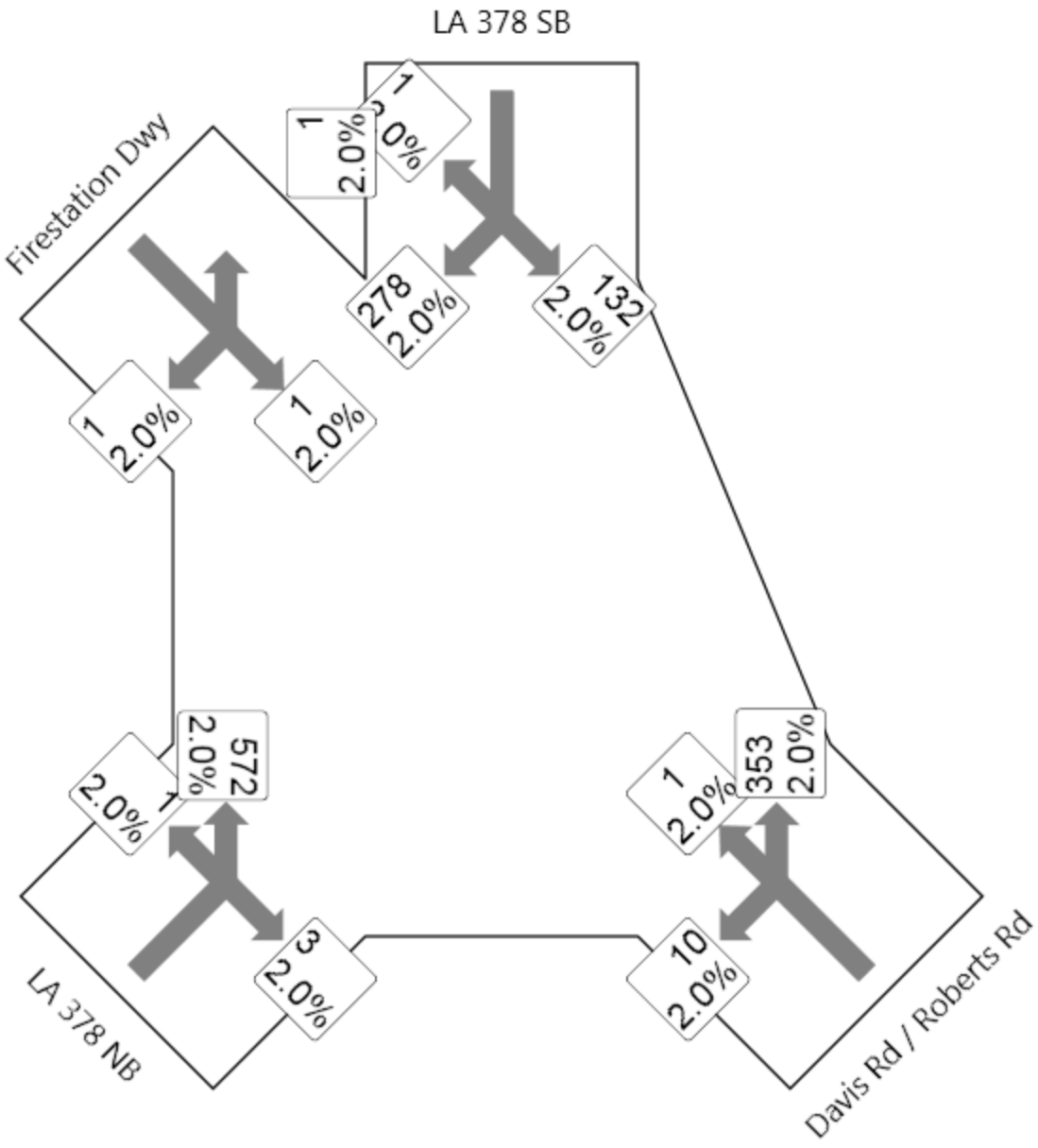
LA 378 SB
Firestation Dwy
1
2.0%
1
2.0%
278
2.0%
132
2.0%
1
2.0%
1
2.0%
572
2.0%
1
2.0%
353
2.0%
1
2.0%
3
2.0%
10
2.0%
LA 378 NB
Davis Rd / Roberts Rd

MOVEMENT SUMMARY

Site: 2013 LA 378 at Davis Rd PM

LA 378 at Davis Rd
11-100 LA 378 Improvements
2028 PM Peak Alt A
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South East: Davis Rd / Roberts Rd											
3X	L	13	2.0	0.712	20.5	LOS C	5.4	138.1	0.80	1.12	26.6
8X	T	1	2.0	0.712	13.3	LOS B	5.4	138.1	0.80	1.01	28.8
18X	R	441	2.0	0.712	13.4	LOS B	5.4	138.1	0.80	1.01	28.8
Approach		455	2.0	0.712	13.5	LOS B	5.4	138.1	0.80	1.01	28.7
North: LA 378 SB											
7	L	147	2.0	0.151	11.1	LOS B	0.9	23.7	0.10	0.71	30.5
14	R	310	2.0	0.151	5.2	LOS A	1.0	24.2	0.10	0.40	34.2
Approach		457	2.0	0.151	7.1	LOS A	1.0	24.2	0.10	0.50	32.9
North West: Firestation Dwy											
7X	L	1	2.0	0.005	15.4	LOS B	0.0	0.4	0.44	0.78	28.7
4X	T	1	2.0	0.005	7.1	LOS A	0.0	0.4	0.44	0.50	32.1
14X	R	1	2.0	0.005	8.1	LOS A	0.0	0.4	0.44	0.55	31.8
Approach		4	2.0	0.005	10.2	LOS B	0.0	0.4	0.44	0.61	30.7
South West: LA 378 NB											
5X	L	637	2.0	0.259	11.9	LOS B	1.5	37.9	0.36	0.65	29.6
12X	R	3	2.0	0.259	7.2	LOS A	1.5	37.9	0.35	0.51	31.8
Approach		640	2.0	0.259	11.8	LOS B	1.5	37.9	0.36	0.65	29.6
All Vehicles		1555	2.0	0.712	10.9	LOS B	5.4	138.1	0.41	0.71	30.2

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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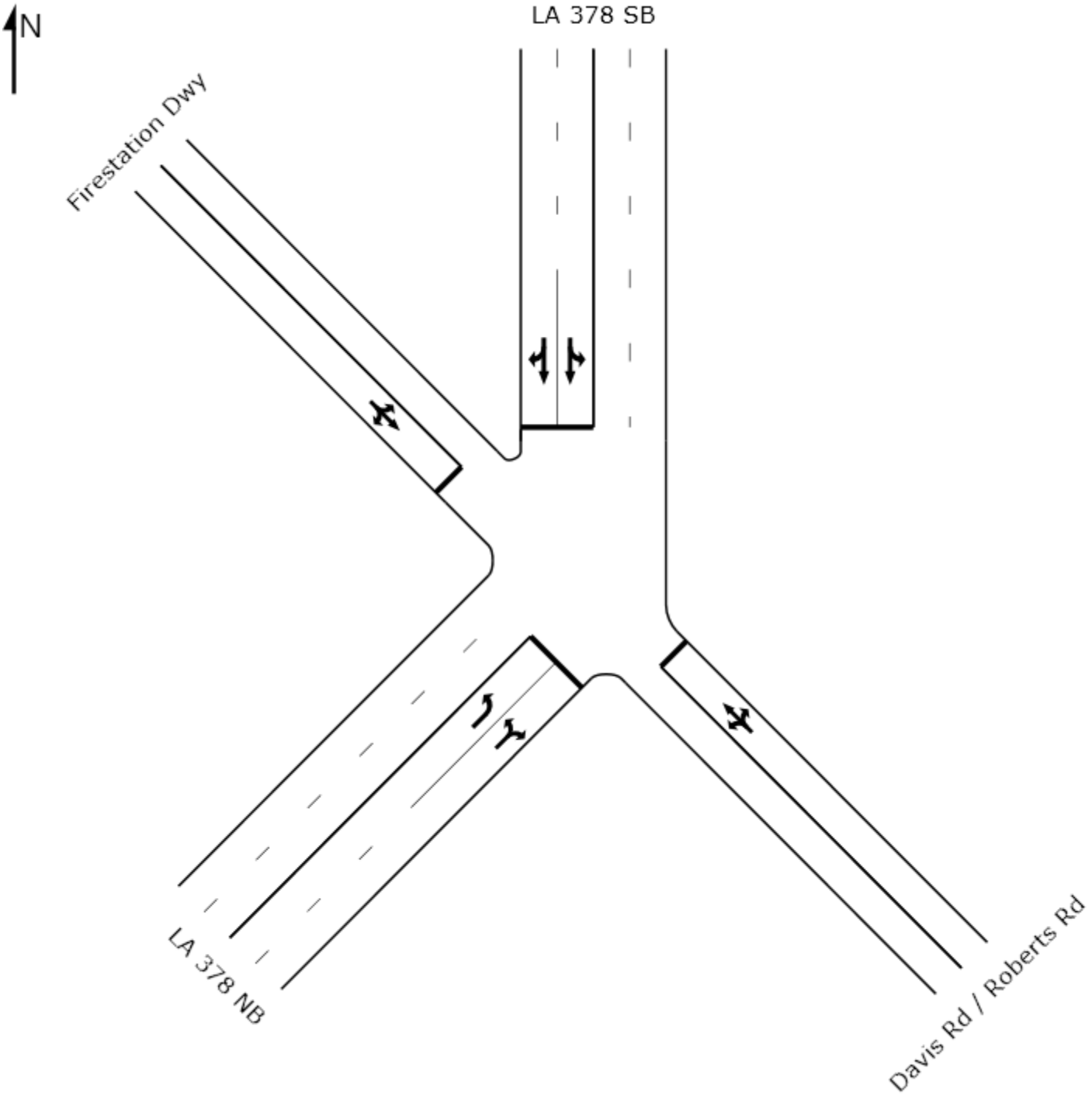
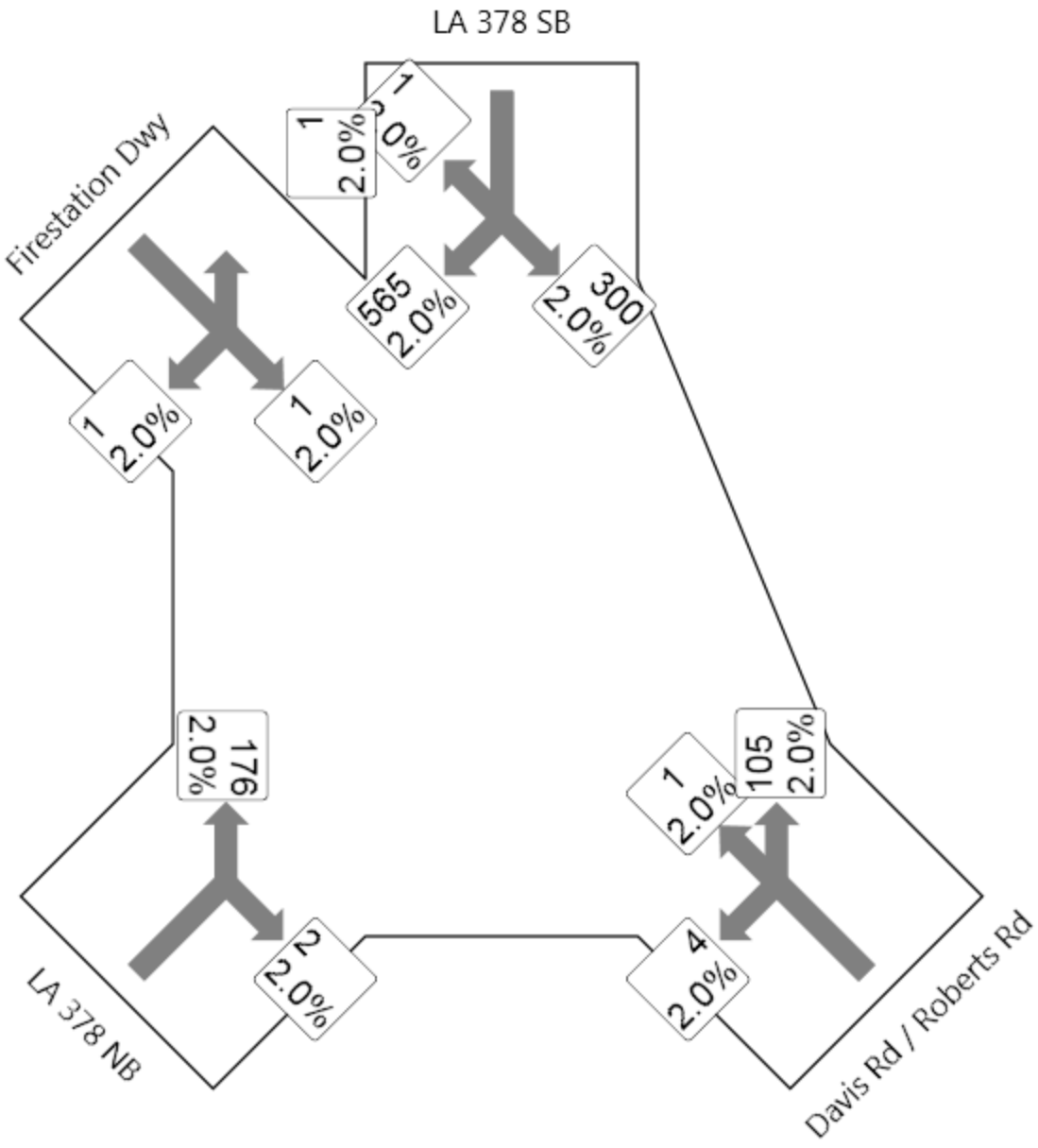

N
LA 378 SB
Firestation Dwy
LA 378 NB
Davis Rd / Roberts Rd


LA 378 SB
Firestation Dwy
1
2.0%
1
2.0%
565
2.0%
300
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1
2.0%
1
2.0%
176
2.0%
2
2.0%
1
2.0%
105
2.0%
4
2.0%
LA 378 NB
Davis Rd / Roberts Rd

MOVEMENT SUMMARY

Site: 2013 LA 378 at Davis Rd AM - Conversion

LA 378 at Davis Rd
11-100 LA 378 Improvements
2028 AM Peak Alt A
Signals - Actuated Cycle Time = 60 seconds

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South East: Davis Rd / Roberts Rd											
3X	L	5	2.0	0.158	29.9	LOS C	3.5	88.3	0.83	0.79	21.5
8X	T	1	2.0	0.158	21.0	LOS C	3.5	88.3	0.83	0.67	22.1
18X	R	131	2.0	0.158	28.8	LOS C	3.5	88.3	0.83	0.77	21.7
Approach		138	2.0	0.158	28.7	LOS C	3.5	88.3	0.83	0.77	21.6
North: LA 378 SB											
7	L	333	2.0	0.454	15.5	LOS B	8.2	208.7	0.59	0.76	27.5
4	T	628	2.0	0.454	16.1	LOS B	9.2	234.1	0.59	0.79	27.1
14	R	1	2.0	0.454	17.8	LOS B	9.2	234.1	0.59	0.83	26.4
Approach		962	2.0	0.454	15.9	LOS B	9.2	234.1	0.59	0.78	27.3
North West: Firestation Dwy											
7X	L	1	2.0	0.007	31.6	LOS C	0.1	2.5	0.78	0.73	21.2
4X	T	1	2.0	0.007	21.7	LOS C	0.1	2.5	0.78	0.54	22.2
14X	R	1	2.0	0.007	30.6	LOS C	0.1	2.5	0.78	0.71	21.4
Approach		4	2.0	0.007	27.9	LOS C	0.1	2.5	0.78	0.66	21.6
South West: LA 378 NB											
5X	L	196	2.0	0.246	19.6	LOS B	2.1	52.4	0.64	0.76	25.3
12X	R	2	2.0	0.246	19.1	LOS B	1.9	47.9	0.63	0.78	25.7
Approach		198	2.0	0.246	19.6	LOS B	2.1	52.4	0.64	0.76	25.4
All Vehicles		1301	2.0	0.454	17.8	LOS B	9.2	234.1	0.63	0.78	26.2

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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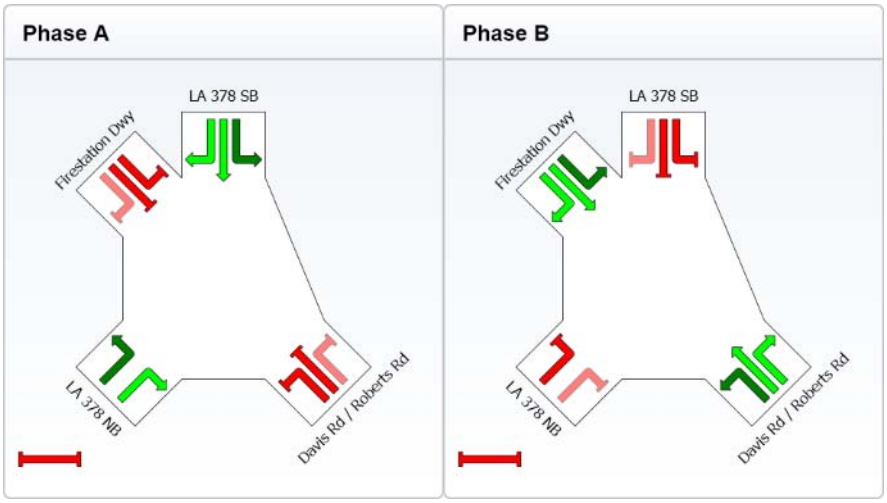
PHASING SUMMARY

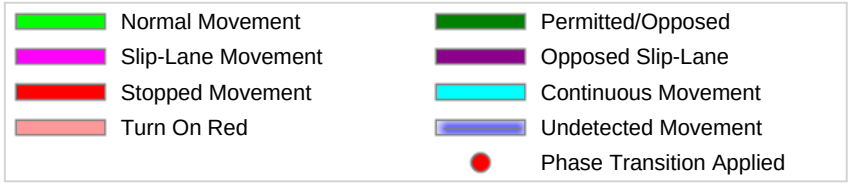
LA 378 at Davis Rd
11-100 LA 378 Improvements
2028 AM Peak Alt A
Signals - Actuated Cycle Time = 60 seconds

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	35	15
Yellow Time (sec)	4	4
All-Red Time (sec)	1	1
Phase Time (sec)	40	20
Phase Split	67 %	33 %





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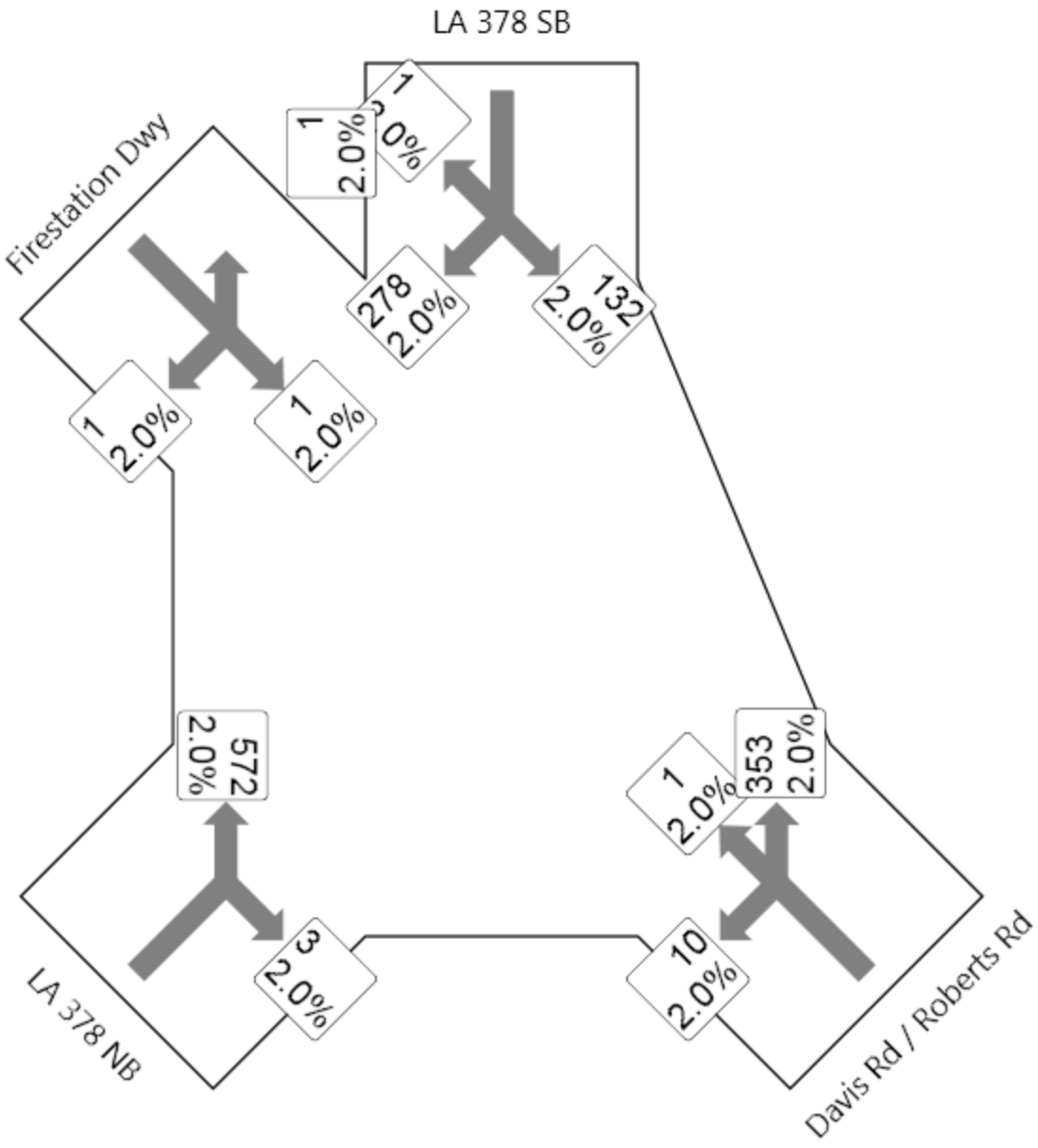
LA 378 SB
Firestation Dwy
1
2.0%
1
2.0%
278
2.0%
132
2.0%
1
2.0%
1
2.0%
572
2.0%
3
2.0%
1
2.0%
353
2.0%
10
2.0%
LA 378 NB
Davis Rd / Roberts Rd

MOVEMENT SUMMARY

Site: 2013 LA 378 at Davis Rd PM - Conversion

LA 378 at Davis Rd
11-100 LA 378 Improvements
2028 PM Peak Alt A
Signals - Actuated Cycle Time = 60 seconds

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South East: Davis Rd / Roberts Rd											
3X	L	13	2.0	0.657	43.6	LOS D	15.2	387.3	1.00	0.88	17.7
8X	T	1	2.0	0.657	34.6	LOS C	15.2	387.3	1.00	0.88	17.8
18X	R	441	2.0	0.657	42.3	LOS D	15.2	387.3	1.00	0.88	17.8
Approach		455	2.0	0.657	42.4	LOS D	15.2	387.3	1.00	0.88	17.8
North: LA 378 SB											
7	L	147	2.0	0.219	14.1	LOS B	3.2	80.6	0.49	0.71	28.2
4	T	309	2.0	0.219	14.7	LOS B	3.6	91.3	0.49	0.75	28.0
14	R	1	2.0	0.219	16.3	LOS B	3.6	91.3	0.49	0.80	27.2
Approach		457	2.0	0.219	14.5	LOS B	3.6	91.3	0.49	0.74	28.0
North West: Firestation Dwy											
7X	L	1	2.0	0.011	38.2	LOS D	0.1	2.7	0.91	0.66	19.3
4X	T	1	2.0	0.011	28.3	LOS C	0.1	2.7	0.91	0.58	19.8
14X	R	1	2.0	0.011	37.2	LOS D	0.1	2.7	0.91	0.65	19.4
Approach		4	2.0	0.011	34.6	LOS C	0.1	2.7	0.91	0.63	19.5
South West: LA 378 NB											
5X	L	636	2.0	0.511	18.1	LOS B	6.8	173.7	0.66	0.80	26.1
12X	R	3	2.0	0.511	18.4	LOS B	6.6	167.3	0.65	0.82	26.0
Approach		639	2.0	0.511	18.1	LOS B	6.8	173.7	0.66	0.80	26.1
All Vehicles		1554	2.0	0.657	24.2	LOS C	15.2	387.3	0.71	0.80	23.3

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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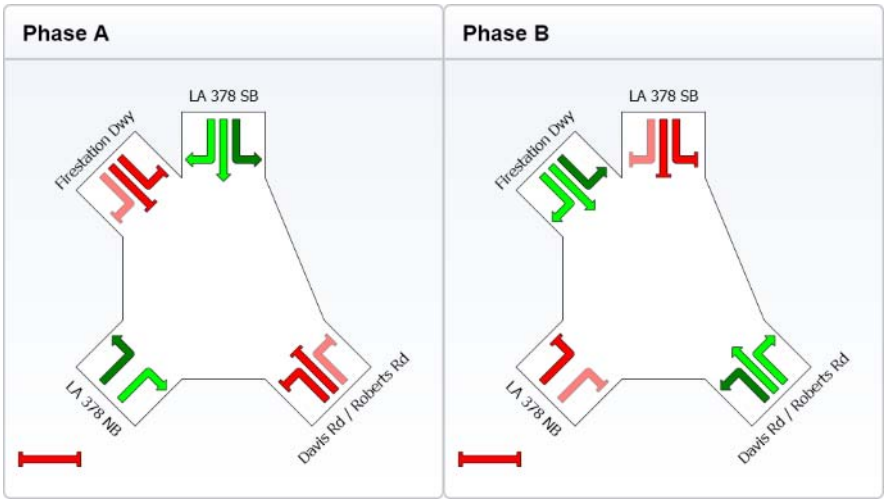
PHASING SUMMARY

LA 378 at Davis Rd
11-100 LA 378 Improvements
2028 PM Peak Alt A
Signals - Actuated Cycle Time = 60 seconds

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	35	15
Yellow Time (sec)	4	4
All-Red Time (sec)	1	1
Phase Time (sec)	40	20
Phase Split	67 %	33 %



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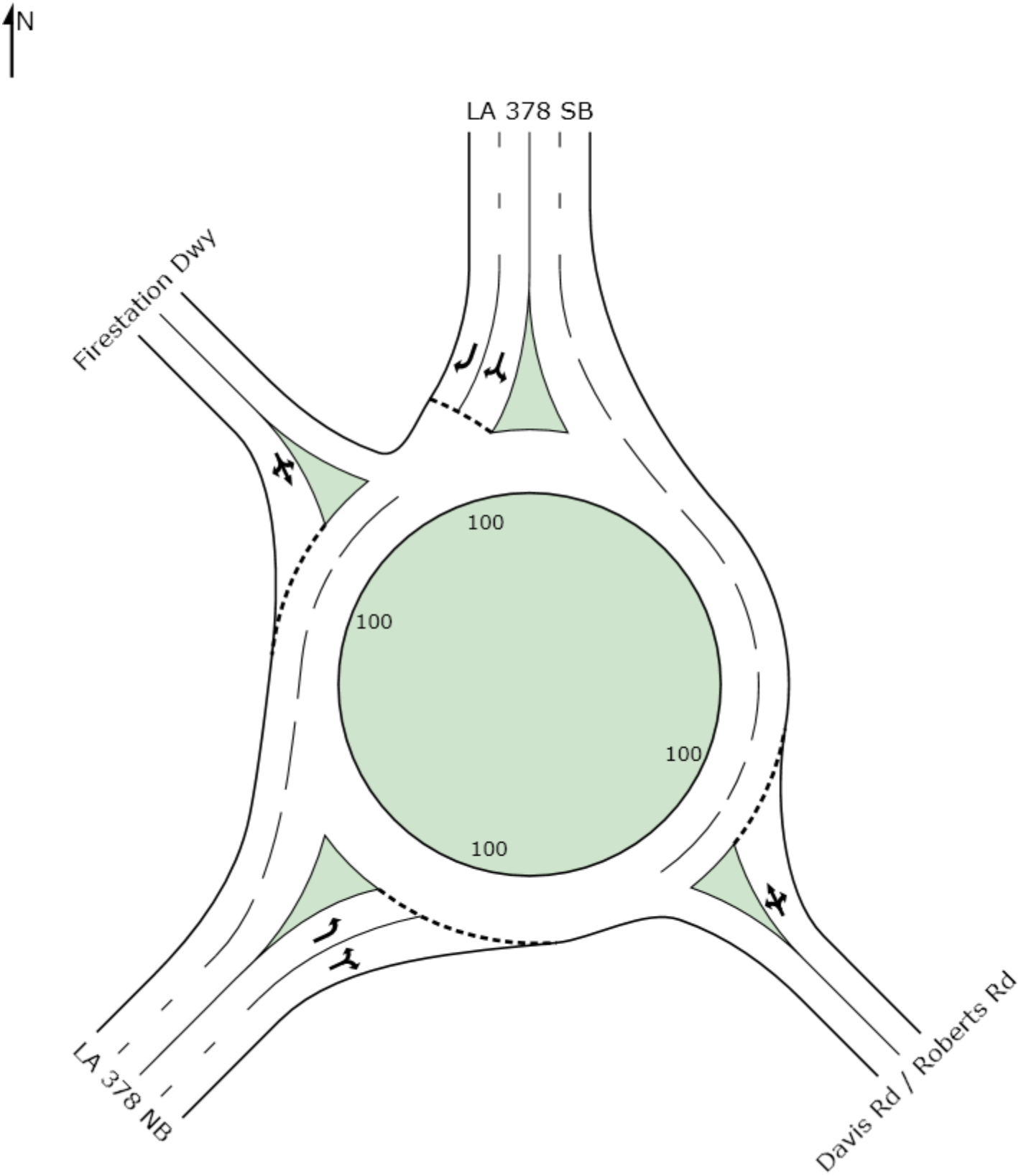
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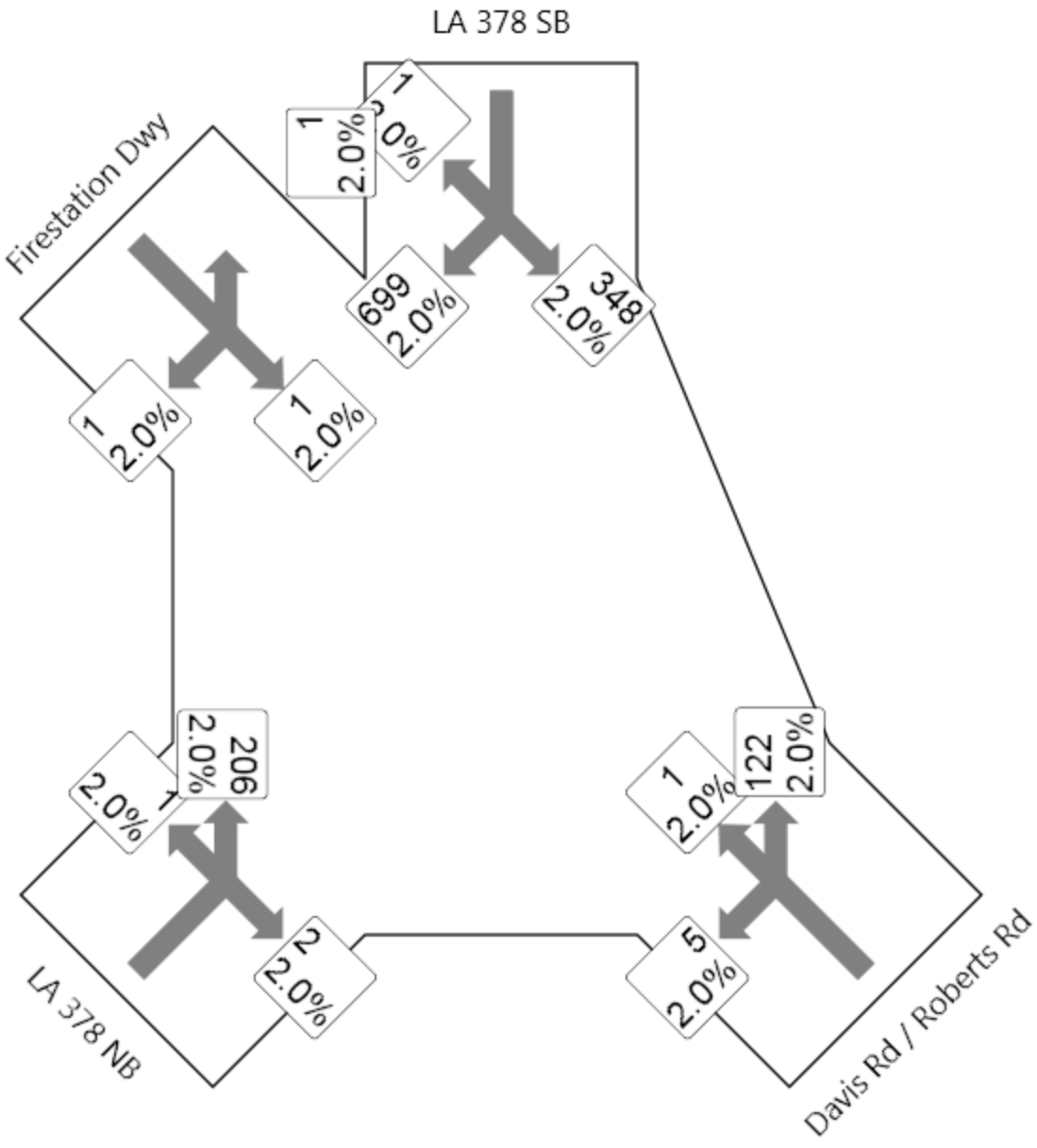
LA 378 SB
Firestation Dwy
100
100
100
100
LA 378 NB
Davis Rd / Roberts Rd


LA 378 SB
Firestation Dwy
1
2.0%
1
2.0%
699
2.0%
348
2.0%
1
2.0%
1
2.0%
1
2.0%
206
2.0%
2
2.0%
1
2.0%
122
2.0%
5
2.0%
LA 378 NB
Davis Rd / Roberts Rd

MOVEMENT SUMMARY

Site: 2028 LA 378 at Davis Rd AM

LA 378 at Davis Rd
11-100 LA 378 Improvements
2028 AM Peak Alt A
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South East: Davis Rd / Roberts Rd											
3X	L	6	2.0	0.190	13.7	LOS B	0.8	21.5	0.42	0.88	29.8
8X	T	1	2.0	0.190	6.5	LOS A	0.8	21.5	0.42	0.55	32.5
18X	R	153	2.0	0.190	6.5	LOS A	0.8	21.5	0.42	0.55	32.5
Approach		160	2.0	0.190	6.8	LOS A	0.8	21.5	0.42	0.57	32.4
North: LA 378 SB											
7	L	387	2.0	0.366	11.1	LOS B	2.7	67.5	0.09	0.71	30.5
14	R	778	2.0	0.366	5.2	LOS A	2.7	67.8	0.08	0.40	34.3
Approach		1164	2.0	0.366	7.1	LOS A	2.7	67.8	0.08	0.50	32.9
North West: Firestation Dwy											
7X	L	1	2.0	0.007	17.9	LOS B	0.0	0.6	0.59	0.84	27.5
4X	T	1	2.0	0.007	9.6	LOS A	0.0	0.6	0.59	0.63	30.8
14X	R	1	2.0	0.007	10.6	LOS B	0.0	0.6	0.59	0.67	30.4
Approach		4	2.0	0.007	12.7	LOS B	0.0	0.6	0.59	0.71	29.4
South West: LA 378 NB											
5X	L	230	2.0	0.114	13.0	LOS B	0.6	15.2	0.50	0.70	29.2
12X	R	2	2.0	0.114	8.2	LOS A	0.6	15.2	0.50	0.59	31.1
Approach		232	2.0	0.114	13.0	LOS B	0.6	15.2	0.50	0.70	29.2
All Vehicles		1560	2.0	0.366	8.0	LOS A	2.7	67.8	0.18	0.54	32.2

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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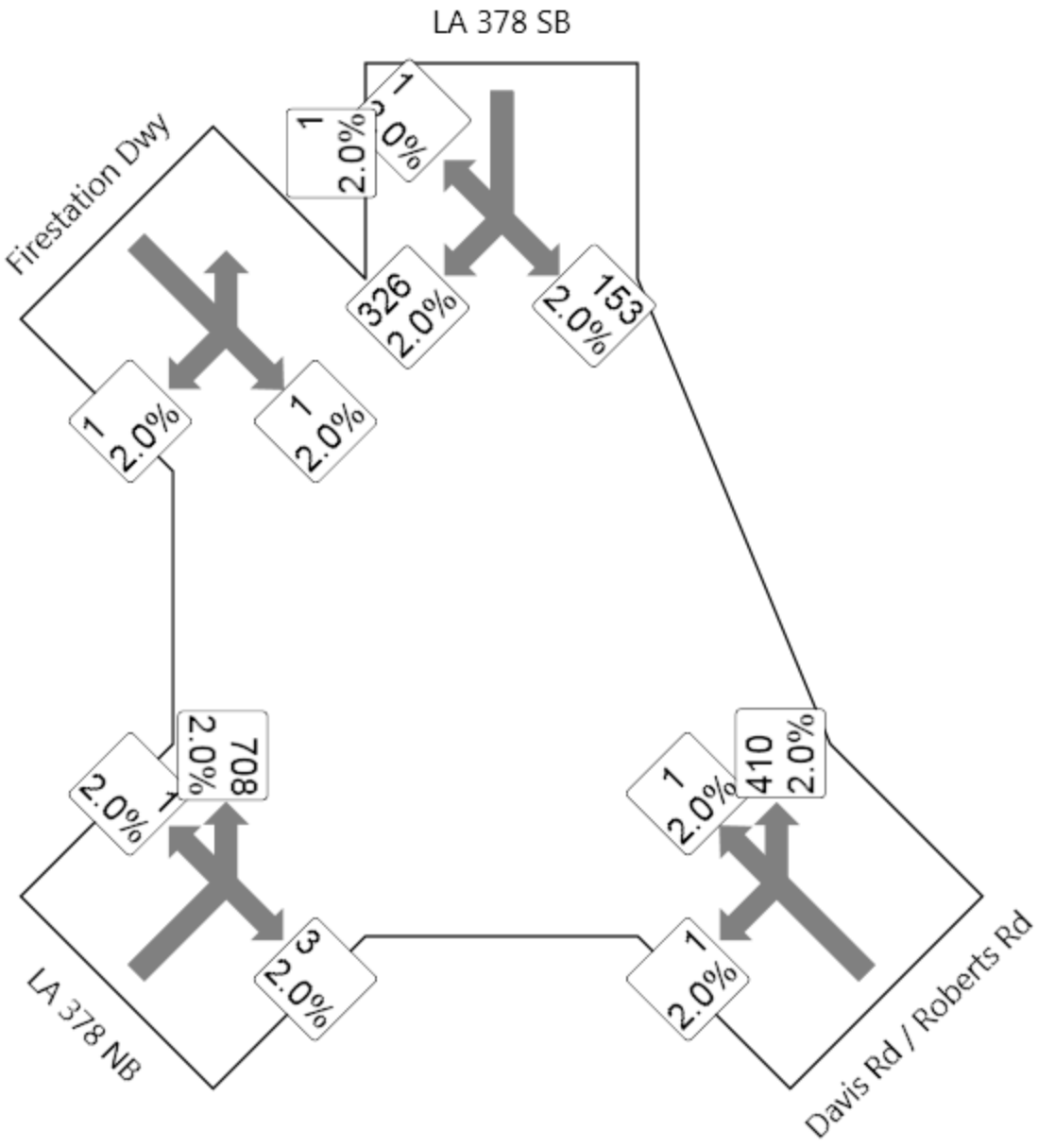
LA 378 SB
Firestation Dwy
1
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1
2.0%
326
2.0%
153
2.0%
1
2.0%
1
2.0%
1
2.0%
708
2.0%
3
2.0%
LA 378 NB
1
2.0%
410
2.0%
1
2.0%
Davis Rd / Roberts Rd

MOVEMENT SUMMARY

Site: 2028 LA 378 at Davis Rd PM

LA 378 at Davis Rd
11-100 LA 378 Improvements
2028 PM Peak Alt A
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South East: Davis Rd / Roberts Rd											
3X	L	1	2.0	0.889	29.0	LOS C	9.9	251.0	0.93	1.31	23.2
8X	T	1	2.0	0.889	21.9	LOS C	9.9	251.0	0.93	1.27	24.4
18X	R	513	2.0	0.889	21.9	LOS C	9.9	251.0	0.93	1.27	24.4
Approach		515	2.0	0.889	22.0	LOS C	9.9	251.0	0.93	1.27	24.4
North: LA 378 SB											
7	L	170	2.0	0.167	11.0	LOS B	1.0	26.2	0.04	0.73	30.6
14	R	363	2.0	0.167	5.2	LOS A	1.1	26.8	0.04	0.41	34.6
Approach		533	2.0	0.167	7.0	LOS A	1.1	26.8	0.04	0.51	33.1
North West: Firestation Dwy											
7X	L	1	2.0	0.005	15.7	LOS B	0.0	0.4	0.45	0.79	28.6
4X	T	1	2.0	0.005	7.3	LOS A	0.0	0.4	0.45	0.51	32.0
14X	R	1	2.0	0.005	8.3	LOS A	0.0	0.4	0.45	0.57	31.7
Approach		4	2.0	0.005	10.5	LOS B	0.0	0.4	0.45	0.62	30.6
South West: LA 378 NB											
5X	L	788	2.0	0.326	12.1	LOS B	2.0	50.2	0.40	0.66	29.5
12X	R	3	2.0	0.326	7.4	LOS A	2.0	50.2	0.40	0.53	31.6
Approach		791	2.0	0.326	12.1	LOS B	2.0	50.2	0.40	0.66	29.5
All Vehicles		1843	2.0	0.889	13.4	LOS B	9.9	251.0	0.44	0.79	28.8

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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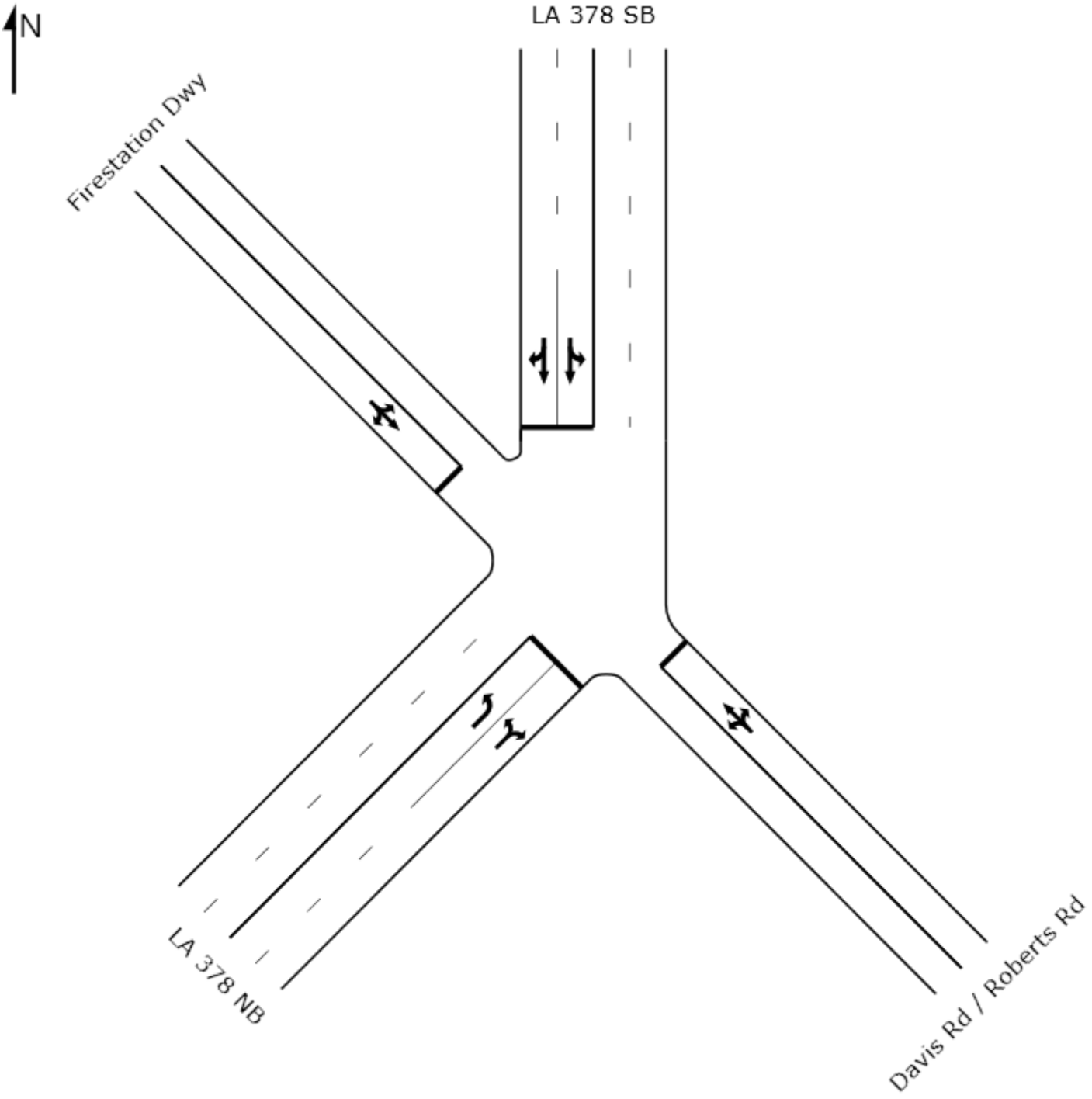
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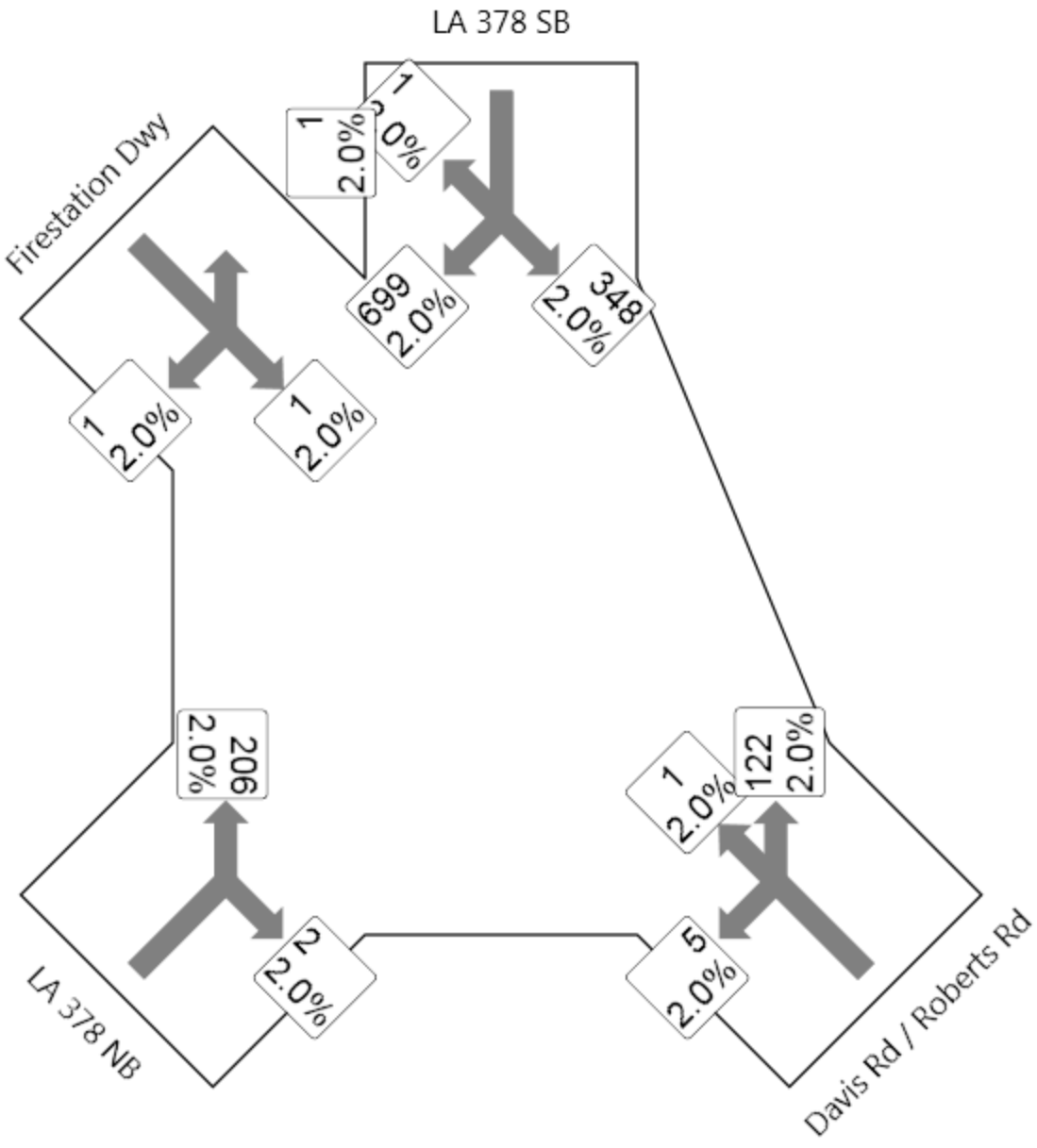
LA 378 SB
Firestation Dwy
LA 378 NB
Davis Rd / Roberts Rd


LA 378 SB
Firestation Dwy
1
2.0%
1
2.0%
699
2.0%
348
2.0%
1
2.0%
1
2.0%
206
2.0%
2
2.0%
1
2.0%
122
2.0%
5
2.0%
LA 378 NB
Davis Rd / Roberts Rd

MOVEMENT SUMMARY

Site: 2028 LA 378 at Davis Rd AM - Conversion

LA 378 at Davis Rd
11-100 LA 378 Improvements
2028 AM Peak Alt A
Signals - Actuated Cycle Time = 60 seconds

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South East: Davis Rd / Roberts Rd											
3X	L	6	2.0	0.185	30.4	LOS C	4.1	104.6	0.84	0.80	21.3
8X	T	1	2.0	0.185	21.4	LOS C	4.1	104.6	0.84	0.68	21.9
18X	R	153	2.0	0.185	29.1	LOS C	4.1	104.6	0.84	0.78	21.5
Approach		160	2.0	0.185	29.1	LOS C	4.1	104.6	0.84	0.78	21.5
North: LA 378 SB											
7	L	387	2.0	0.545	16.1	LOS B	10.9	277.4	0.64	0.78	27.1
4	T	777	2.0	0.545	16.8	LOS B	12.1	307.1	0.64	0.81	26.8
14	R	1	2.0	0.545	18.5	LOS B	12.1	307.1	0.64	0.84	26.1
Approach		1164	2.0	0.545	16.5	LOS B	12.1	307.1	0.64	0.80	26.9
North West: Firestation Dwy											
7X	L	1	2.0	0.007	31.4	LOS C	0.1	2.4	0.78	0.72	21.2
4X	T	1	2.0	0.007	21.4	LOS C	0.1	2.4	0.78	0.53	22.3
14X	R	1	2.0	0.007	30.4	LOS C	0.1	2.4	0.78	0.71	21.4
Approach		4	2.0	0.007	27.7	LOS C	0.1	2.4	0.78	0.65	21.7
South West: LA 378 NB											
5X	L	229	2.0	0.357	22.0	LOS C	2.7	69.3	0.71	0.78	24.3
12X	R	2	2.0	0.357	21.5	LOS C	2.6	65.2	0.70	0.80	24.6
Approach		231	2.0	0.357	22.0	LOS C	2.7	69.3	0.71	0.78	24.3
All Vehicles		1559	2.0	0.545	18.7	LOS B	12.1	307.1	0.67	0.79	25.8

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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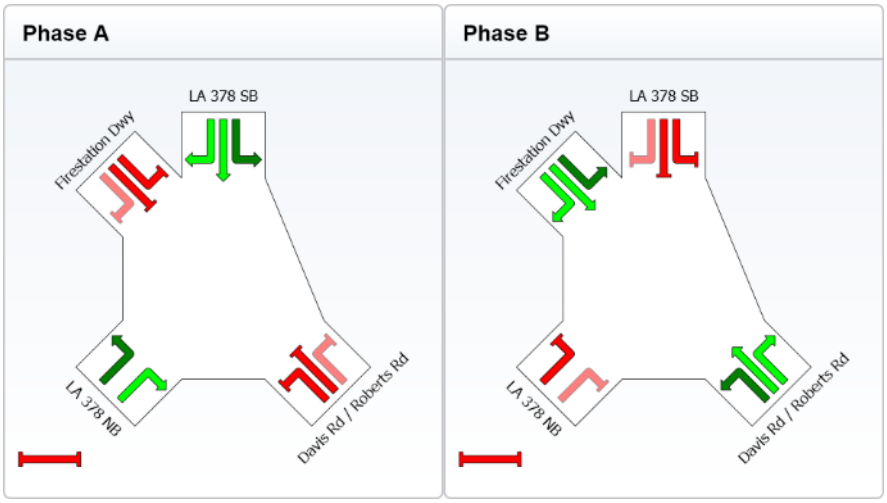
PHASING SUMMARY

LA 378 at Davis Rd
11-100 LA 378 Improvements
2028 AM Peak Alt A
Signals - Actuated Cycle Time = 60 seconds

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	35	15
Yellow Time (sec)	4	4
All-Red Time (sec)	1	1
Phase Time (sec)	40	20
Phase Split	67 %	33 %



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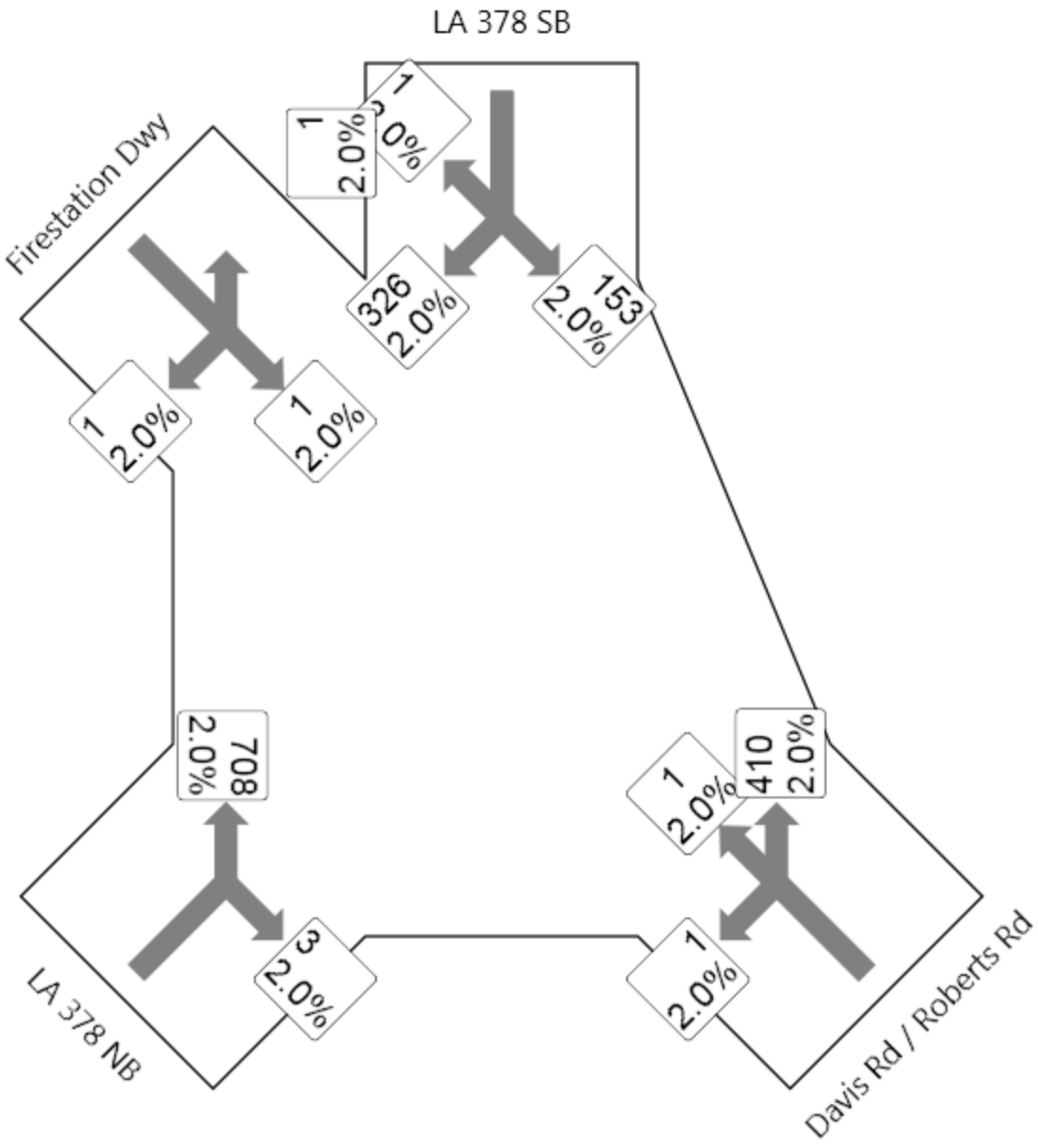
LA 378 SB
Firestation Dwy
1
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1
2.0%
326
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153
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1
2.0%
1
2.0%
708
2.0%
3
2.0%
LA 378 NB
1
2.0%
410
2.0%
1
2.0%
Davis Rd / Roberts Rd

MOVEMENT SUMMARY

Site: 2028 LA 378 at Davis Rd PM - Conversion - Copy

LA 378 at Davis Rd
11-100 LA 378 Improvements
2028 PM Peak Alt A
Signals - Actuated Cycle Time = 60 seconds

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South East: Davis Rd / Roberts Rd											
3X	L	1	2.0	0.689	41.9	LOS D	17.2	435.9	1.00	0.88	18.1
8X	T	1	2.0	0.689	32.9	LOS C	17.2	435.9	1.00	0.88	18.2
18X	R	513	2.0	0.689	40.7	LOS D	17.2	435.9	1.00	0.88	18.2
Approach		515	2.0	0.689	40.7	LOS D	17.2	435.9	1.00	0.88	18.2
North: LA 378 SB											
7	L	170	2.0	0.254	14.3	LOS B	3.8	97.1	0.51	0.72	28.1
4	T	362	2.0	0.254	14.9	LOS B	4.3	109.7	0.51	0.76	27.8
14	R	1	2.0	0.254	16.5	LOS B	4.3	109.7	0.51	0.80	27.1
Approach		533	2.0	0.254	14.7	LOS B	4.3	109.7	0.51	0.74	27.9
North West: Firestation Dwy											
7X	L	1	2.0	0.011	38.2	LOS D	0.1	2.7	0.91	0.66	19.3
4X	T	1	2.0	0.011	28.3	LOS C	0.1	2.7	0.91	0.58	19.8
14X	R	1	2.0	0.011	37.2	LOS D	0.1	2.7	0.91	0.65	19.4
Approach		4	2.0	0.011	34.6	LOS C	0.1	2.7	0.91	0.63	19.5
South West: LA 378 NB											
5X	L	787	2.0	0.677	20.3	LOS C	10.2	257.9	0.77	0.83	25.0
12X	R	3	2.0	0.677	20.5	LOS C	9.9	252.2	0.77	0.85	25.0
Approach		790	2.0	0.677	20.3	LOS C	10.2	257.9	0.77	0.83	25.0
All Vehicles		1842	2.0	0.689	24.4	LOS C	17.2	435.9	0.76	0.82	23.3

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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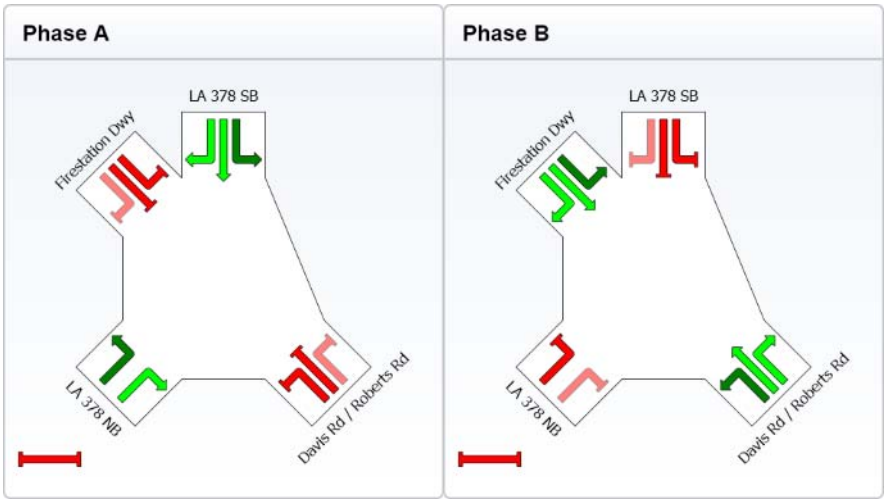
PHASING SUMMARY

LA 378 at Davis Rd
11-100 LA 378 Improvements
2028 PM Peak Alt A
Signals - Actuated Cycle Time = 60 seconds

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	35	15
Yellow Time (sec)	4	4
All-Red Time (sec)	1	1
Phase Time (sec)	40	20
Phase Split	67 %	33 %



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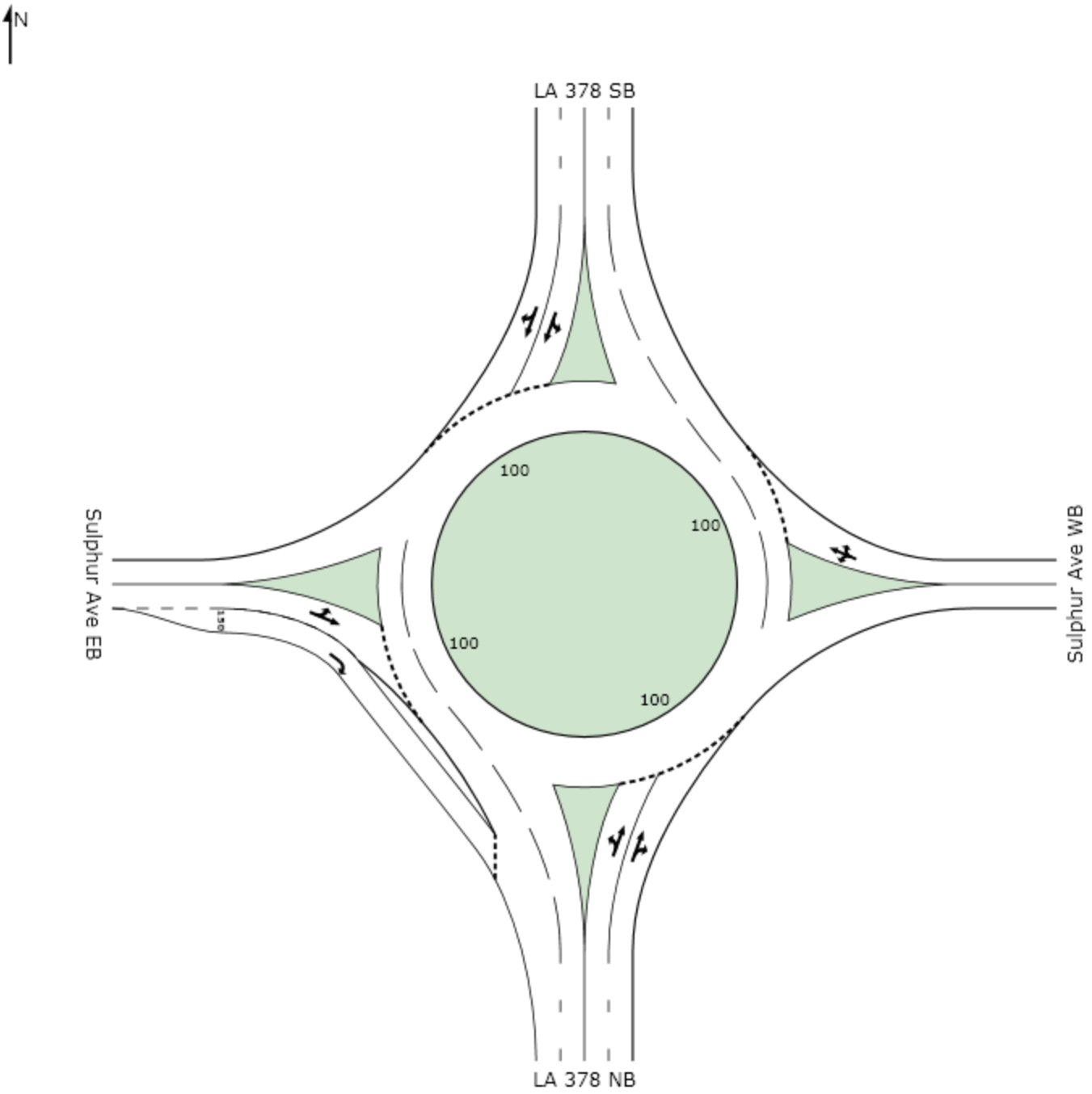
N
LA 378 SB
Sulphur Ave EB
Sulphur Ave WB
LA 378 NB
100
100
100
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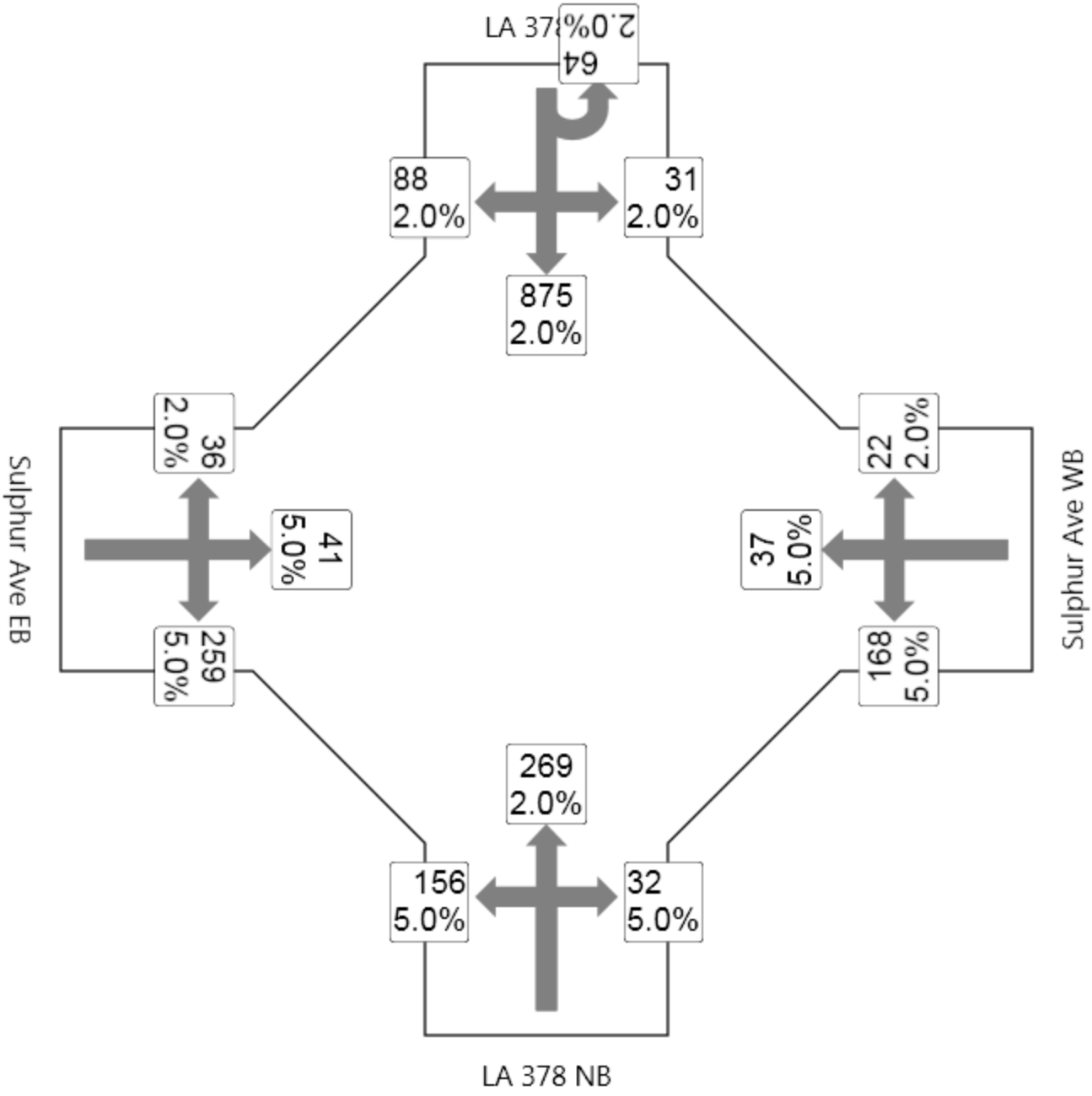
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MOVEMENT SUMMARY

Site: LA 378 at Sulphur Ave AM

LA 378 at Sulphur Ave
11-100 LA 378 Improvements
2013 AM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	173	5.0	0.222	13.6	LOS B	1.3	33.4	0.44	0.72	29.2
8	T	299	2.0	0.222	6.3	LOS A	1.3	33.6	0.43	0.51	32.3
18	R	36	5.0	0.222	7.6	LOS A	1.3	33.6	0.42	0.60	32.1
Approach		508	3.2	0.222	8.9	LOS A	1.3	33.6	0.43	0.59	31.1
East: Sulphur Ave WB											
1	L	210	5.0	0.451	17.2	LOS B	2.4	61.4	0.67	0.96	27.5
6	T	46	5.0	0.451	10.1	LOS B	2.4	61.4	0.67	0.82	30.2
16	R	28	2.0	0.451	11.0	LOS B	2.4	61.4	0.67	0.86	29.9
Approach		284	4.7	0.451	15.4	LOS B	2.4	61.4	0.67	0.93	28.1
North: LA 378 SB											
7	L	106	2.0	0.622	19.7	LOS B	6.1	155.3	0.82	0.98	27.1
4	T	972	2.0	0.622	10.5	LOS B	6.2	158.7	0.81	0.86	30.3
14	R	98	2.0	0.622	11.4	LOS B	6.2	158.7	0.81	0.87	30.6
Approach		1176	2.0	0.622	11.4	LOS B	6.2	158.7	0.81	0.87	30.0
West: Sulphur Ave EB											
5	L	45	2.0	0.360	23.1	LOS C	1.6	40.5	0.82	1.01	25.0
2	T	51	5.0	0.360	16.1	LOS B	1.6	40.5	0.82	0.92	26.8
12	R	324	5.0	0.660	16.0	LOS B	4.6	118.7	0.88	1.06	27.3
Approach		420	4.7	0.660	16.8	LOS B	4.6	118.7	0.87	1.03	27.0
All Vehicles		2387	3.1	0.660	12.3	LOS B	6.2	158.7	0.72	0.85	29.4

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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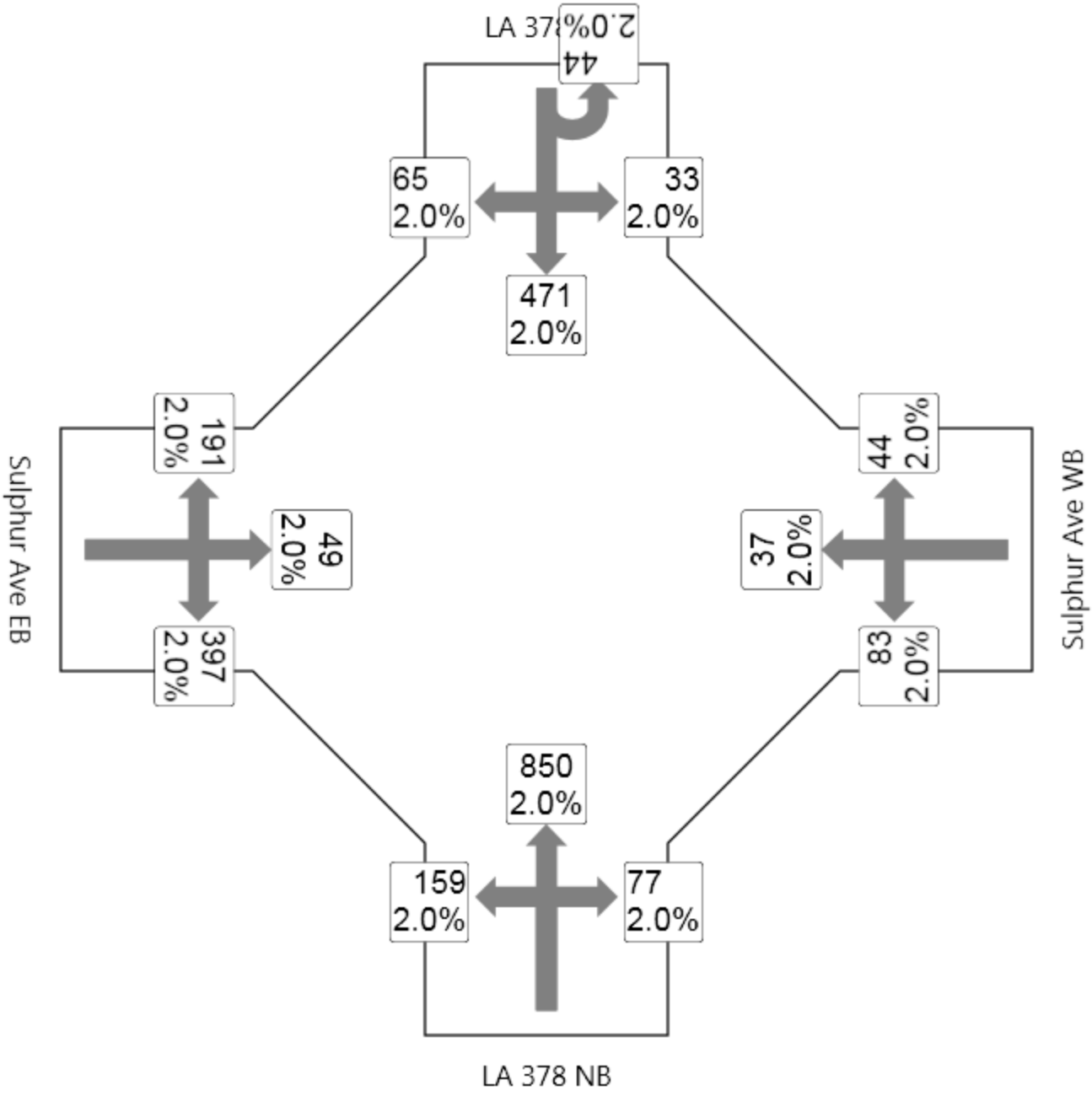
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LA 378 NB

MOVEMENT SUMMARY

Site: LA 378 at Sulphur Ave PM

LA 378 at Sulphur Ave
11-100 LA 378 Improvements
2013 PM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	177	2.0	0.613	17.0	LOS B	6.0	151.5	0.80	0.92	28.1
8	T	944	2.0	0.613	9.5	LOS A	6.1	153.9	0.79	0.80	30.5
18	R	86	2.0	0.613	10.4	LOS B	6.1	153.9	0.79	0.82	30.8
Approach		1207	2.0	0.613	10.6	LOS B	6.1	153.9	0.79	0.82	30.1
East: Sulphur Ave WB											
1	L	104	2.0	0.607	25.8	LOS C	3.5	89.5	0.88	1.08	23.9
6	T	46	2.0	0.607	18.7	LOS B	3.5	89.5	0.88	1.03	25.3
16	R	55	2.0	0.607	19.7	LOS B	3.5	89.5	0.88	1.04	25.2
Approach		205	2.0	0.607	22.6	LOS C	3.5	89.5	0.88	1.06	24.5
North: LA 378 SB											
7	L	86	2.0	0.327	15.8	LOS B	2.1	52.9	0.58	0.85	28.8
4	T	523	2.0	0.327	7.2	LOS A	2.1	54.1	0.58	0.61	31.6
14	R	72	2.0	0.327	8.4	LOS A	2.1	54.1	0.57	0.67	31.5
Approach		681	2.0	0.327	8.4	LOS A	2.1	54.1	0.58	0.64	31.1
West: Sulphur Ave EB											
5	L	239	2.0	0.477	17.3	LOS B	2.6	66.8	0.71	0.97	27.4
2	T	61	2.0	0.477	10.3	LOS B	2.6	66.8	0.71	0.86	29.9
12	R	496	2.0	0.634	11.2	LOS B	4.7	119.0	0.77	0.96	30.2
Approach		796	2.0	0.634	13.0	LOS B	4.7	119.0	0.75	0.95	29.2
All Vehicles		2889	2.0	0.634	11.6	LOS B	6.1	153.9	0.74	0.83	29.6

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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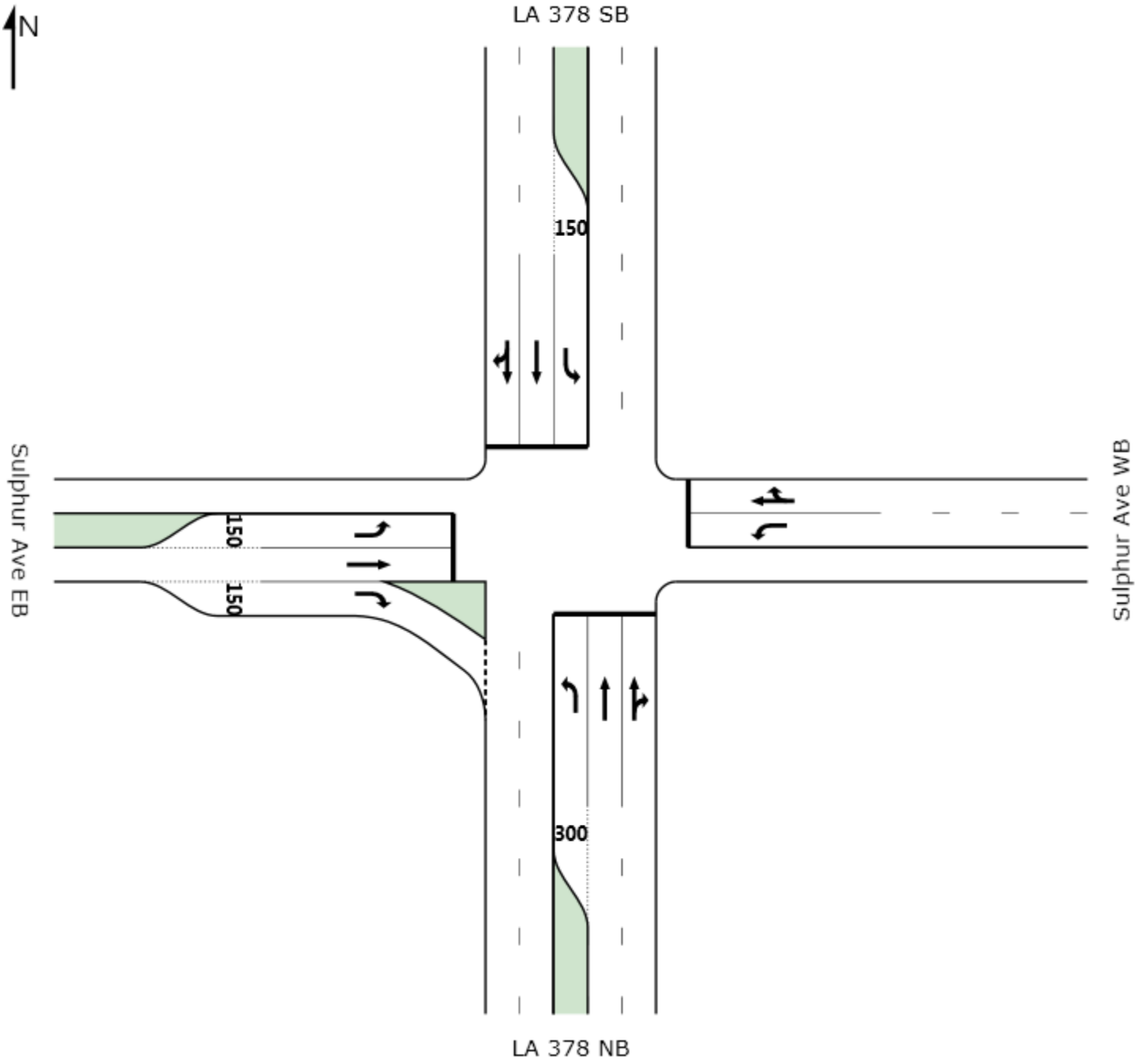
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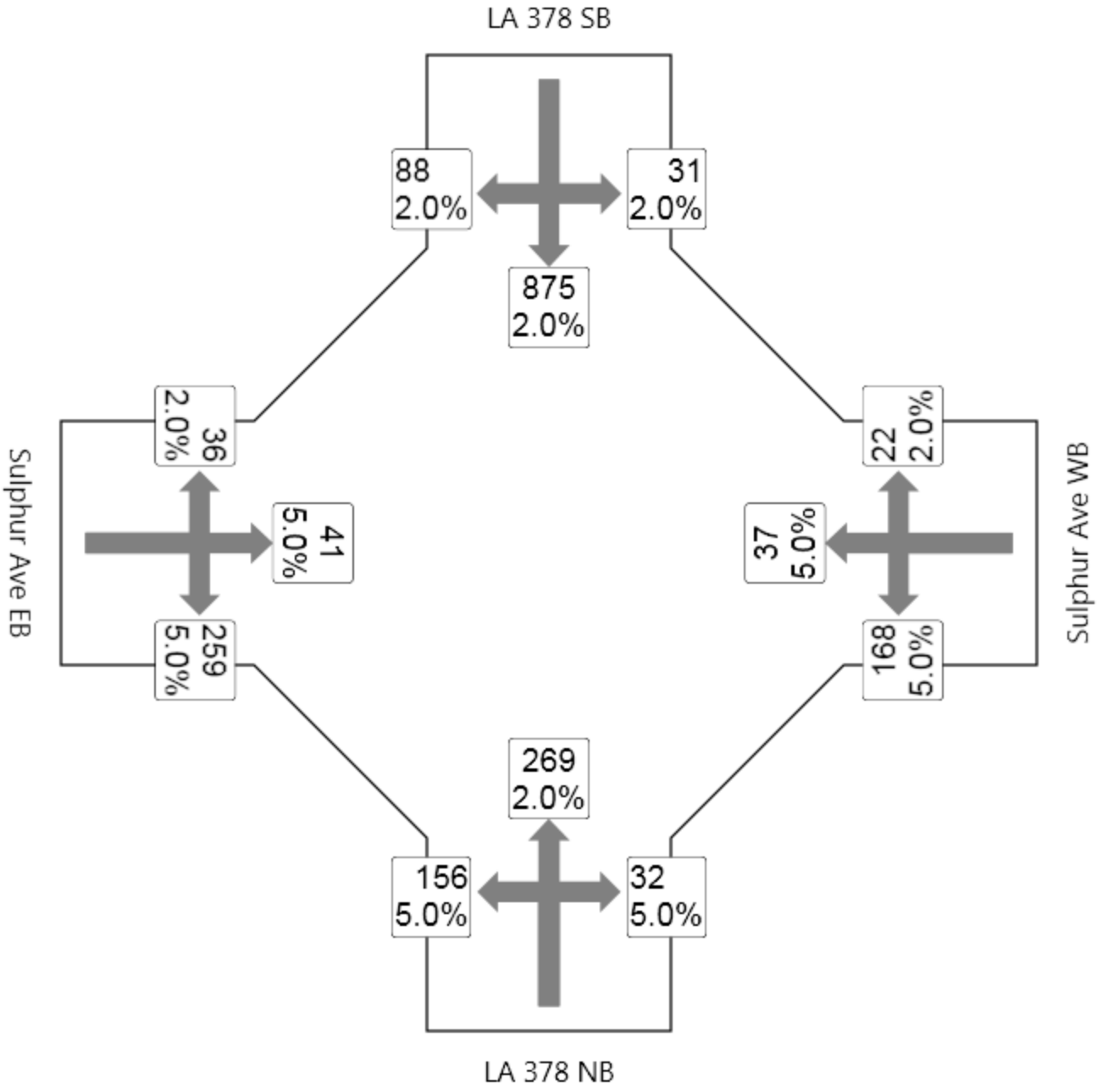
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LA 378 NB

MOVEMENT SUMMARY

Site: LA 378 at Sulphur Ave AM - Conversion

LA 378 at Sulphur Ave
11-100 LA 378 Improvements
2013 AM Peak Alt B
Signals - Actuated Cycle Time = 112 seconds

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	173	5.0	0.682	42.2	LOS D	8.1	210.7	0.98	0.79	17.9
8	T	299	2.0	0.239	25.5	LOS C	6.7	170.2	0.71	0.58	21.7
18	R	36	5.0	0.239	32.2	LOS C	6.0	153.8	0.71	0.88	21.4
Approach		508	3.2	0.682	31.7	LOS C	8.1	210.7	0.80	0.68	20.2
East: Sulphur Ave WB											
1	L	210	5.0	0.571	52.7	LOS D	11.1	289.2	0.93	0.87	15.7
6	T	46	5.0	0.157	28.8	LOS C	2.9	75.6	0.77	0.60	20.2
16	R	28	2.0	0.157	37.8	LOS D	2.9	75.6	0.77	0.81	19.5
Approach		284	4.7	0.571	47.3	LOS D	11.1	289.2	0.89	0.82	16.6
North: LA 378 SB											
7	L	34	2.0	0.157	36.0	LOS D	1.4	34.7	0.72	0.73	19.4
4	T	972	2.0	0.780	35.4	LOS D	29.6	751.1	0.93	0.83	18.6
14	R	98	2.0	0.780	43.8	LOS D	28.5	724.9	0.93	0.91	18.3
Approach		1104	2.0	0.780	36.2	LOS D	29.6	751.1	0.93	0.84	18.6
West: Sulphur Ave EB											
5	L	45	2.0	0.227	48.0	LOS D	2.1	54.4	0.87	0.73	16.6
2	T	51	5.0	0.117	37.7	LOS D	2.3	60.1	0.80	0.61	18.2
12	R	324	5.0	0.831	17.5	LOS B	9.4	244.8	0.52	0.75	26.6
Approach		420	4.7	0.831	23.3	LOS C	9.4	244.8	0.59	0.73	23.8
All Vehicles		2316	3.1	0.831	34.2	LOS C	29.6	751.1	0.83	0.78	19.4

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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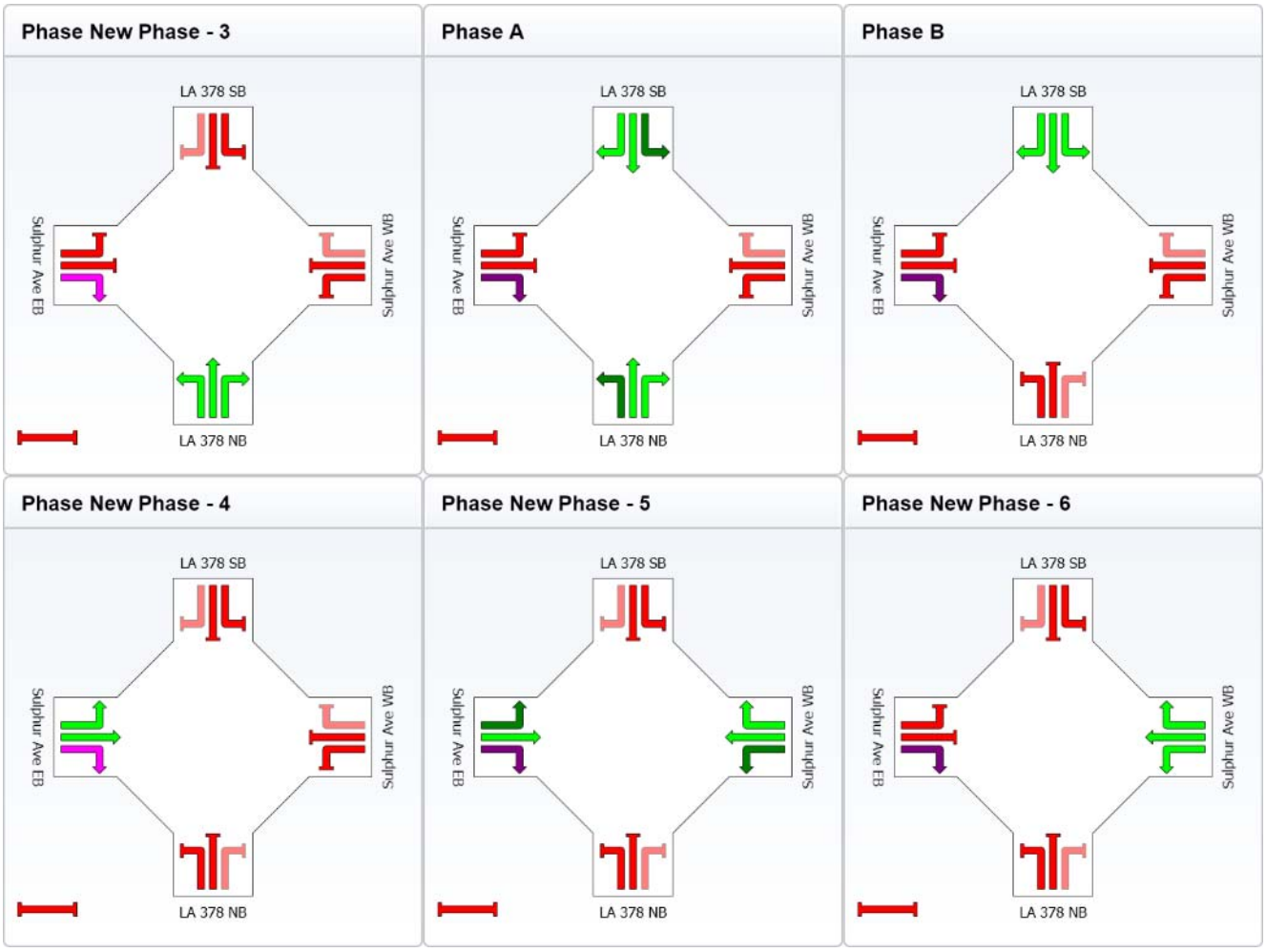
PHASING SUMMARY

LA 378 at Sulphur Ave
11-100 LA 378 Improvements
2013 AM Peak Alt B
Signals - Actuated Cycle Time = 112 seconds

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: New Phase - 3, A, B, New Phase - 4, New Phase - 5, New Phase - 6
Output Sequence: New Phase - 3, A, B, New Phase - 4, New Phase - 5, New Phase - 6

Phase Timing Results

Phase	New Phase - 3	A	B	New Phase - 4	New Phase - 5	New Phase - 6
Green Time (sec)	12	24	11	12	9	14
Yellow Time (sec)	4	4	4	4	4	4
All-Red Time (sec)	1	1	1	1	1	1
Phase Time (sec)	17	29	16	17	14	19
Phase Split	15 %	26 %	14 %	15 %	13 %	17 %



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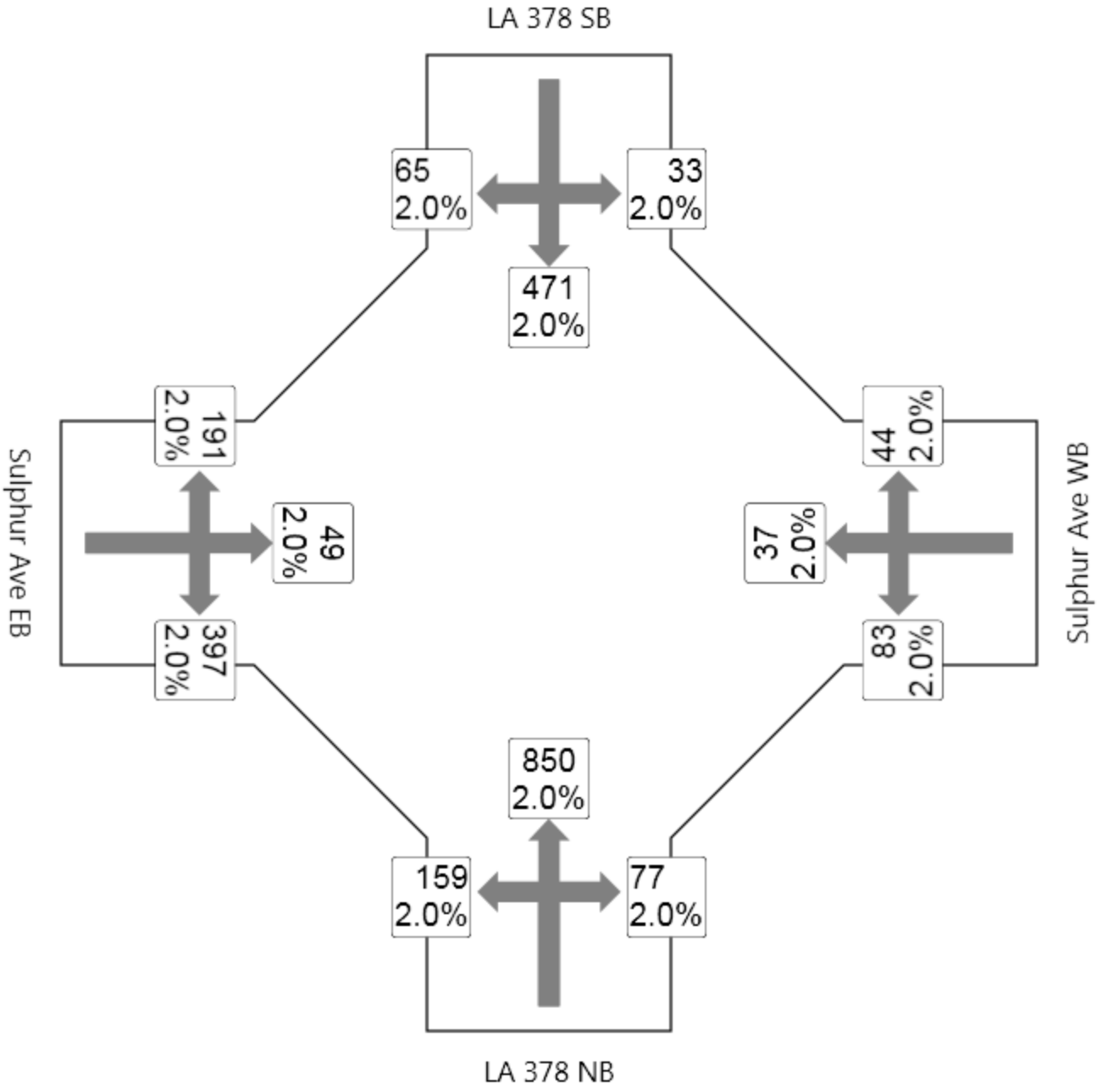
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LA 378 NB

MOVEMENT SUMMARY

Site: LA 378 at Sulphur Ave PM - Conversion

LA 378 at Sulphur Ave
11-100 LA 378 Improvements
2013 PM Peak Alt B
Signals - Actuated Cycle Time = 112 seconds

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	177	2.0	0.557	39.9	LOS D	7.9	200.1	0.91	0.80	18.5
8	T	944	2.0	0.732	33.7	LOS C	27.2	691.0	0.91	0.80	19.0
18	R	86	2.0	0.732	42.0	LOS D	26.3	667.5	0.91	0.90	18.8
Approach		1207	2.0	0.732	35.2	LOS D	27.2	691.0	0.91	0.81	18.9
East: Sulphur Ave WB											
1	L	104	2.0	0.275	48.3	LOS D	5.0	128.3	0.86	0.77	16.5
6	T	46	2.0	0.210	21.3	LOS C	3.4	87.1	0.76	0.61	22.6
16	R	55	2.0	0.210	30.3	LOS C	3.4	87.1	0.76	0.81	21.7
Approach		205	2.0	0.275	37.4	LOS D	5.0	128.3	0.81	0.74	18.9
North: LA 378 SB											
7	L	37	2.0	0.127	45.6	LOS D	1.7	43.8	0.82	0.75	17.1
4	T	523	2.0	0.435	29.3	LOS C	13.3	336.8	0.79	0.68	20.4
14	R	72	2.0	0.435	36.6	LOS D	12.2	310.4	0.78	0.89	20.0
Approach		632	2.0	0.435	31.1	LOS C	13.3	336.8	0.79	0.71	20.2
West: Sulphur Ave EB											
5	L	239	2.0	0.808	55.8	LOS E	14.2	360.4	0.99	0.87	15.2
2	T	61	2.0	0.136	37.9	LOS D	2.8	70.6	0.81	0.62	18.2
12	R	496	2.0	0.590	11.3	LOS B	8.5	215.1	0.36	0.72	30.1
Approach		796	2.0	0.808	26.7	LOS C	14.2	360.4	0.58	0.76	22.4
All Vehicles		2840	2.0	0.808	32.1	LOS C	27.2	691.0	0.78	0.77	20.1

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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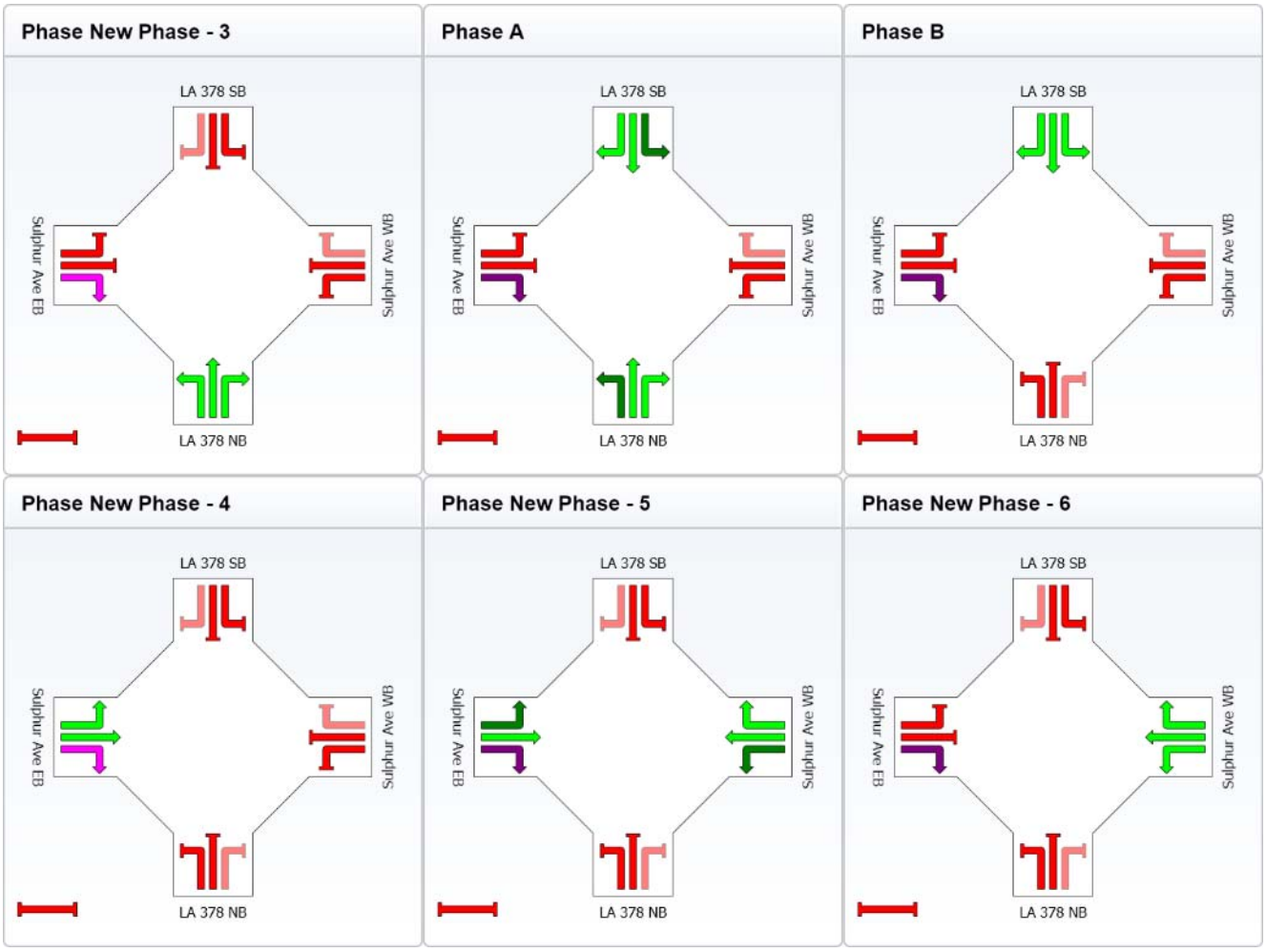
PHASING SUMMARY

LA 378 at Sulphur Ave
11-100 LA 378 Improvements
2013 PM Peak Alt B
Signals - Actuated Cycle Time = 112 seconds

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: New Phase - 3, A, B, New Phase - 4, New Phase - 5, New Phase - 6
Output Sequence: New Phase - 3, A, B, New Phase - 4, New Phase - 5, New Phase - 6

Phase Timing Results

Phase	New Phase - 3	A	B	New Phase - 4	New Phase - 5	New Phase - 6
Green Time (sec)	12	24	11	12	9	14
Yellow Time (sec)	4	4	4	4	4	4
All-Red Time (sec)	1	1	1	1	1	1
Phase Time (sec)	17	29	16	17	14	19
Phase Split	15 %	26 %	14 %	15 %	13 %	17 %



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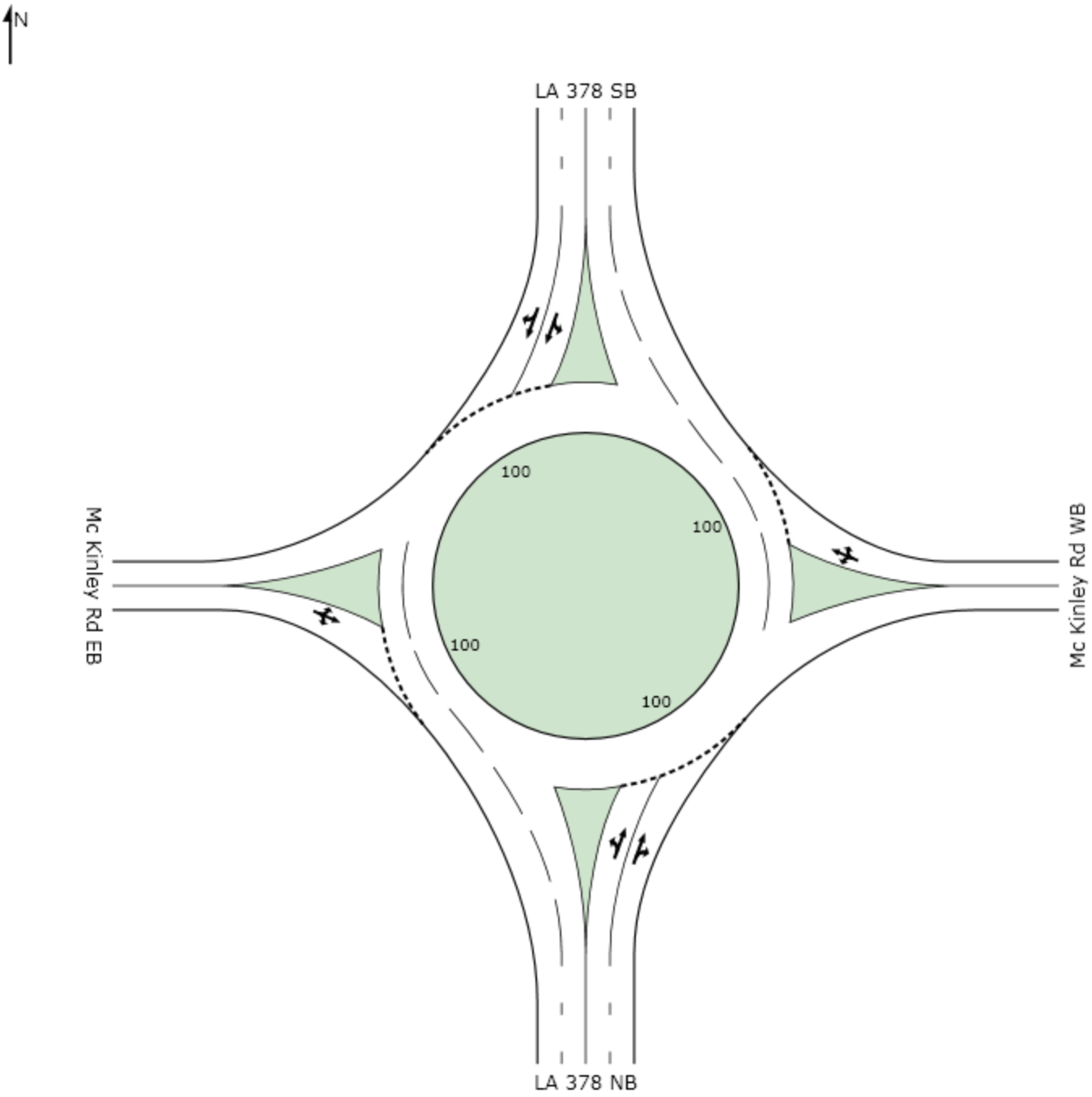
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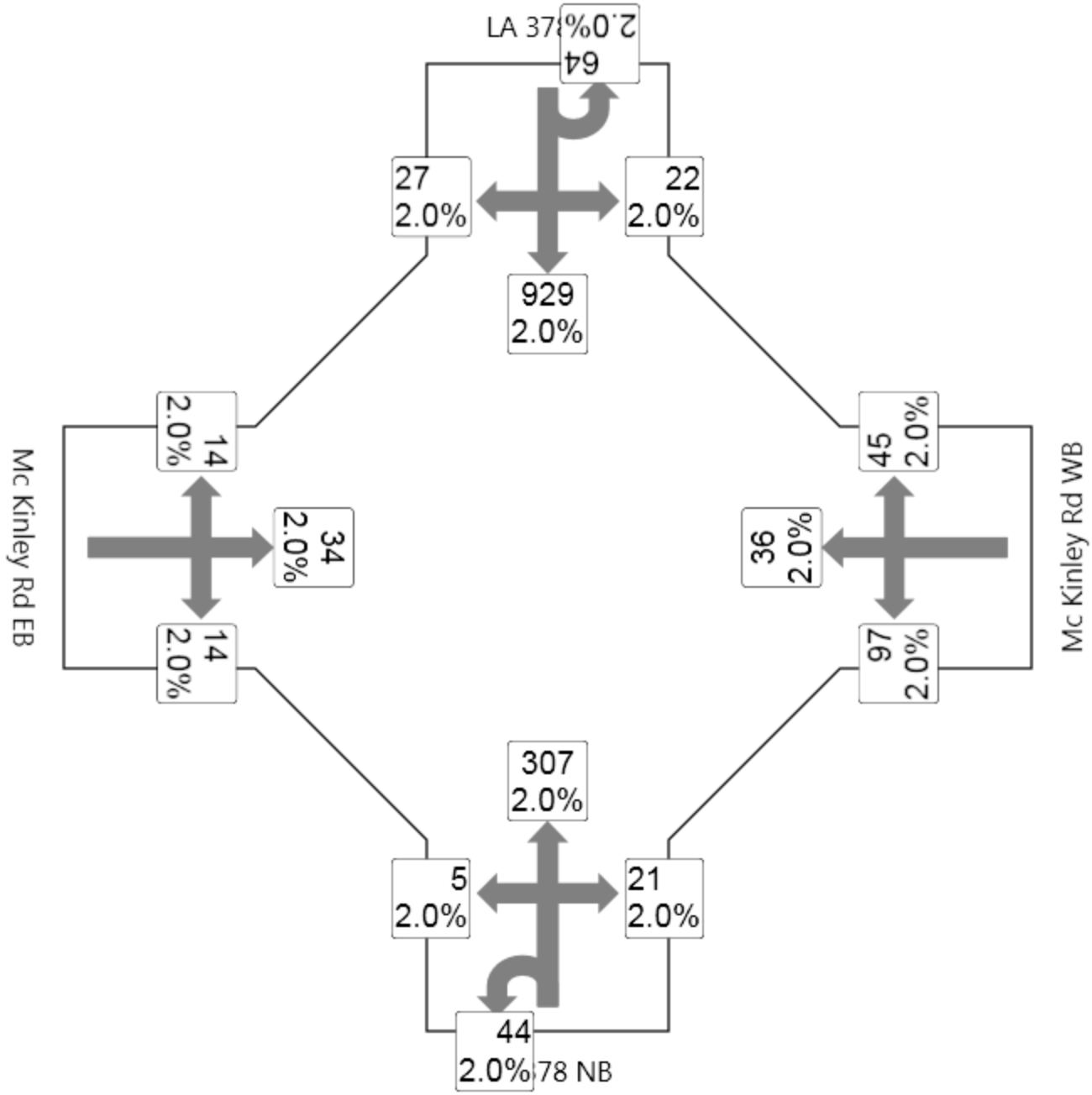
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MOVEMENT SUMMARY

Site: LA 378 at McKinley_AM

LA 378 at Mc Kinley Rd
11-100 LA 378 Improvements
2013 AM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	54	2.0	0.171	15.3	LOS B	1.0	24.2	0.36	0.84	28.9
8	T	341	2.0	0.171	6.0	LOS A	1.0	24.5	0.35	0.47	32.8
18	R	23	2.0	0.171	7.2	LOS A	1.0	24.5	0.35	0.57	32.4
Approach		419	2.0	0.171	7.3	LOS A	1.0	24.5	0.35	0.52	32.1
East: Mc Kinley Rd WB											
1	L	121	2.0	0.314	15.2	LOS B	1.4	35.2	0.57	0.89	28.6
6	T	45	2.0	0.314	8.2	LOS A	1.4	35.2	0.57	0.67	31.1
16	R	56	2.0	0.314	9.2	LOS A	1.4	35.2	0.57	0.74	31.0
Approach		223	2.0	0.314	12.3	LOS B	1.4	35.2	0.57	0.81	29.6
North: LA 378 SB											
7	L	96	2.0	0.493	15.9	LOS B	3.8	95.6	0.58	0.84	28.9
4	T	1032	2.0	0.493	6.8	LOS A	3.8	97.6	0.57	0.57	31.7
14	R	30	2.0	0.493	8.0	LOS A	3.8	97.6	0.56	0.64	31.6
Approach		1158	2.0	0.493	7.6	LOS A	3.8	97.6	0.57	0.60	31.4
West: Mc Kinley Rd EB											
5	L	18	2.0	0.192	18.6	LOS B	0.8	20.1	0.73	0.97	27.2
2	T	43	2.0	0.192	11.5	LOS B	0.8	20.1	0.73	0.84	29.6
12	R	18	2.0	0.192	12.6	LOS B	0.8	20.1	0.73	0.87	29.4
Approach		78	2.0	0.192	13.4	LOS B	0.8	20.1	0.73	0.88	28.9
All Vehicles		1877	2.0	0.493	8.3	LOS A	3.8	97.6	0.53	0.62	31.2

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: LA 378 at McKinley_PM

LA 378 at Mc Kinley Rd
11-100 LA 378 Improvements
2013 PM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	57	2.0	0.626	16.8	LOS B	5.8	148.1	0.70	0.87	28.5
8	T	1261	2.0	0.626	7.8	LOS A	5.8	148.1	0.69	0.66	31.1
18	R	116	2.0	0.626	8.8	LOS A	5.7	145.8	0.68	0.69	31.2
Approach		1433	2.0	0.626	8.3	LOS A	5.8	148.1	0.69	0.67	31.0
East: Mc Kinley Rd WB											
1	L	76	2.0	0.552	24.7	LOS C	3.0	75.1	0.87	1.06	24.3
6	T	28	2.0	0.552	17.6	LOS B	3.0	75.1	0.87	1.00	25.9
16	R	80	2.0	0.552	18.6	LOS B	3.0	75.1	0.87	1.01	25.7
Approach		184	2.0	0.552	21.0	LOS C	3.0	75.1	0.87	1.03	25.1
North: LA 378 SB											
7	L	143	2.0	0.282	15.2	LOS B	1.8	45.9	0.42	0.79	28.9
4	T	520	2.0	0.282	6.1	LOS A	1.8	46.6	0.41	0.49	32.4
14	R	28	2.0	0.282	7.3	LOS A	1.8	46.6	0.40	0.58	32.2
Approach		691	2.0	0.282	8.0	LOS A	1.8	46.6	0.41	0.56	31.6
West: Mc Kinley Rd EB											
5	L	74	2.0	0.265	16.4	LOS B	1.1	27.8	0.63	0.94	28.1
2	T	44	2.0	0.265	9.3	LOS A	1.1	27.8	0.63	0.77	30.8
12	R	38	2.0	0.265	10.3	LOS B	1.1	27.8	0.63	0.81	30.6
Approach		155	2.0	0.265	12.9	LOS B	1.1	27.8	0.63	0.86	29.3
All Vehicles		2463	2.0	0.626	9.4	LOS A	5.8	148.1	0.62	0.68	30.5

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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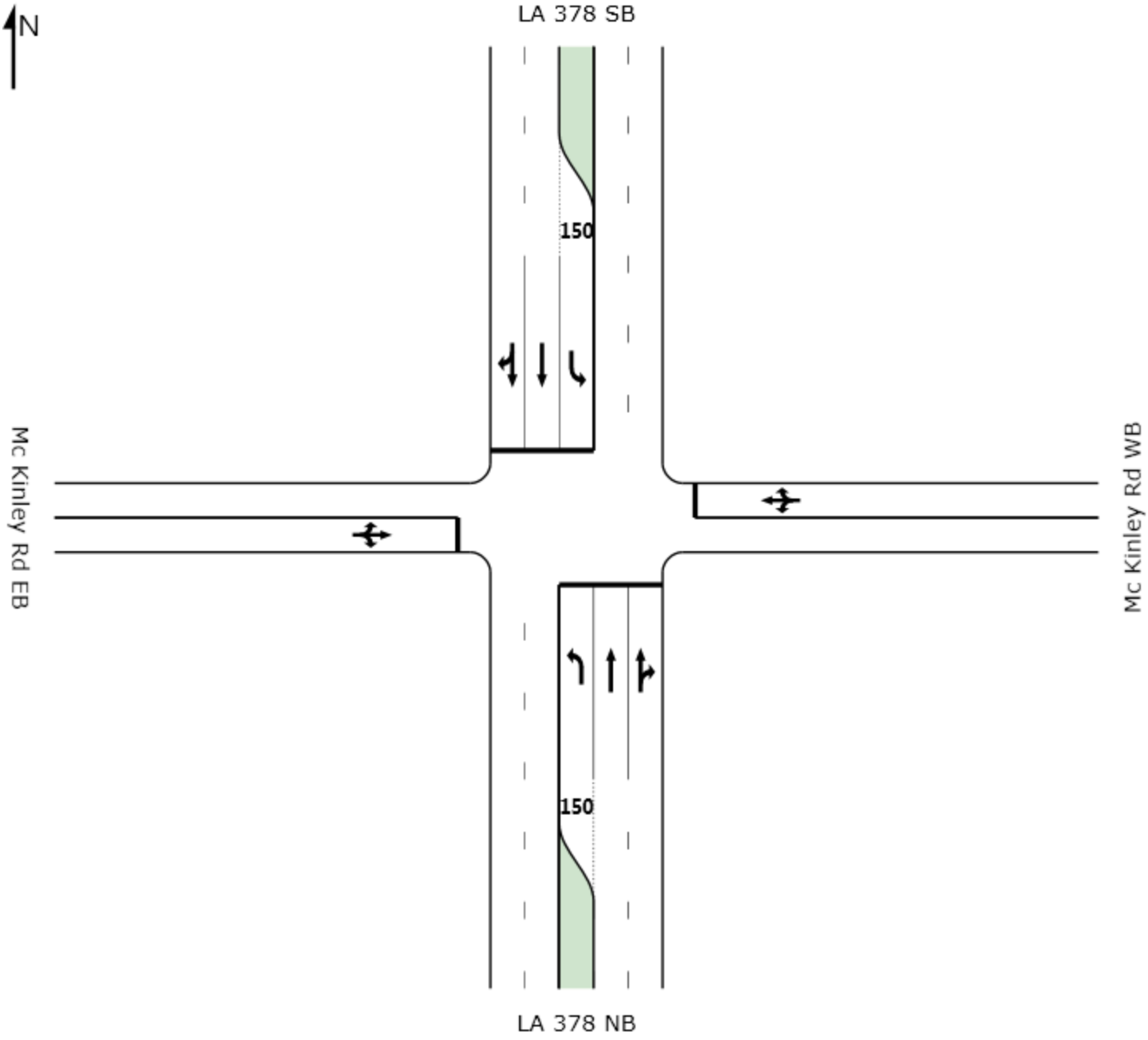
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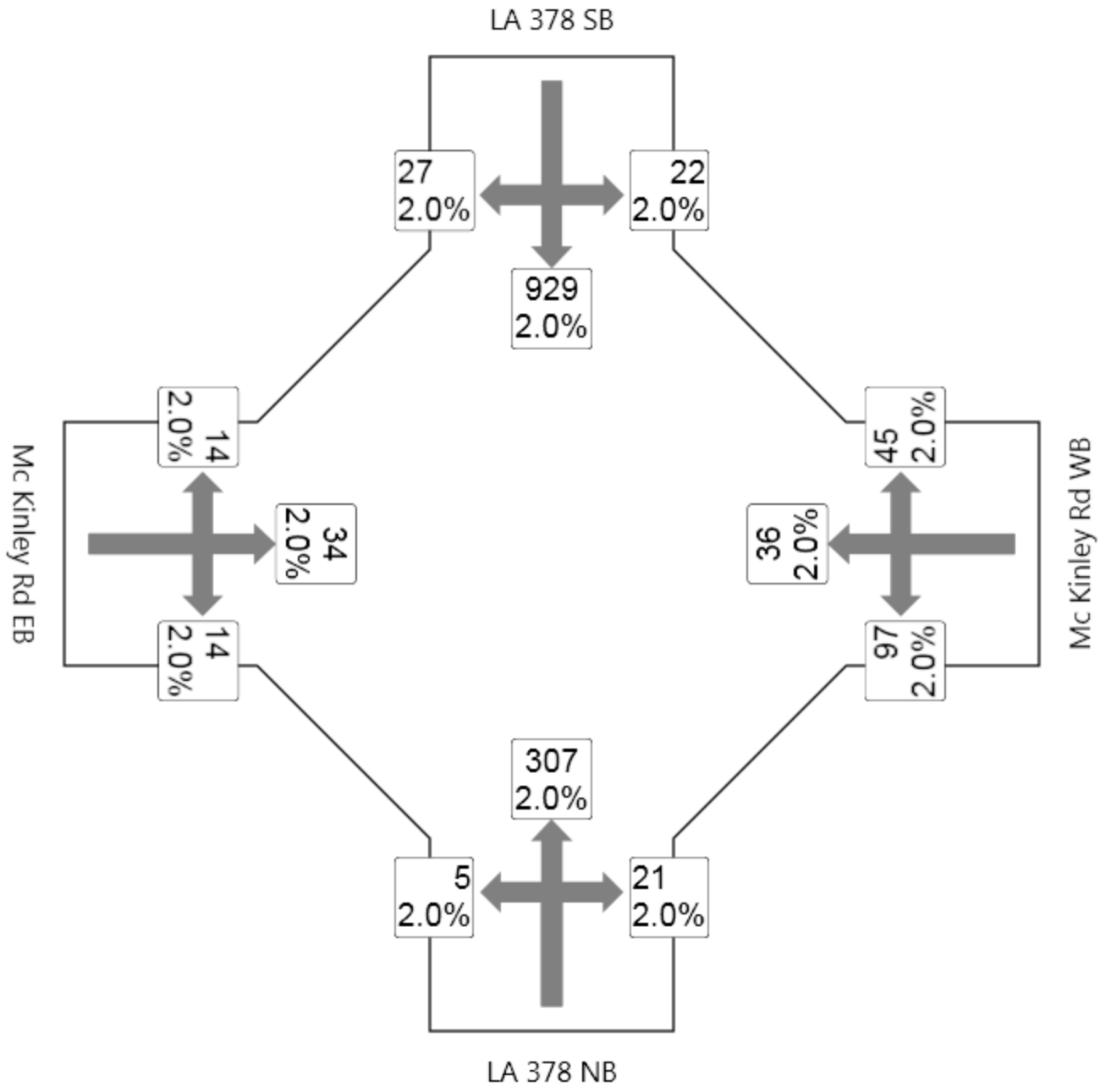
Mc Kinley Rd EB
Mc Kinley Rd WB
150
LA 378 NB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Mc Kinley Rd WB
45
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36
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97
2.0%
307
2.0%
5
2.0%
21
2.0%
LA 378 NB

MOVEMENT SUMMARY

Site: LA 378 at McKinley_AM - Conversion

LA 378 at Mc Kinley Rd
11-100 LA 378 Improvements
2013 AM Peak Alt B
Signals - Actuated Cycle Time = 70 seconds

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	6	2.0	0.027	28.1	LOS C	0.1	3.7	0.70	0.69	21.9
8	T	341	2.0	0.189	9.9	LOS A	3.7	93.1	0.57	0.47	29.5
18	R	23	2.0	0.189	17.8	LOS B	3.2	81.9	0.56	0.93	27.5
Approach		370	2.0	0.189	10.6	LOS B	3.7	93.1	0.57	0.50	29.2
East: Mc Kinley Rd WB											
1	L	121	2.0	0.374	53.2	LOS D	9.7	247.6	1.00	0.91	15.8
6	T	45	2.0	0.374	44.3	LOS D	9.7	247.6	1.00	0.91	15.9
16	R	56	2.0	0.374	53.3	LOS D	9.7	247.6	1.00	0.91	15.7
Approach		223	2.0	0.374	51.4	LOS D	9.7	247.6	1.00	0.91	15.8
North: LA 378 SB											
7	L	24	2.0	0.070	20.8	LOS C	0.5	12.9	0.56	0.72	24.8
4	T	1032	2.0	0.549	13.4	LOS B	13.7	348.5	0.72	0.64	27.1
14	R	30	2.0	0.549	22.2	LOS C	13.4	340.7	0.72	0.95	25.7
Approach		1087	2.0	0.549	13.8	LOS B	13.7	348.5	0.72	0.65	27.0
West: Mc Kinley Rd EB											
5	L	18	2.0	0.109	34.1	LOS C	2.5	63.6	0.86	0.83	20.6
2	T	43	2.0	0.109	25.3	LOS C	2.5	63.6	0.86	0.71	21.1
12	R	18	2.0	0.109	34.3	LOS C	2.5	63.6	0.86	0.83	20.6
Approach		78	2.0	0.109	29.3	LOS C	2.5	63.6	0.86	0.76	20.9
All Vehicles		1757	2.0	0.549	18.6	LOS B	13.7	348.5	0.73	0.66	24.8

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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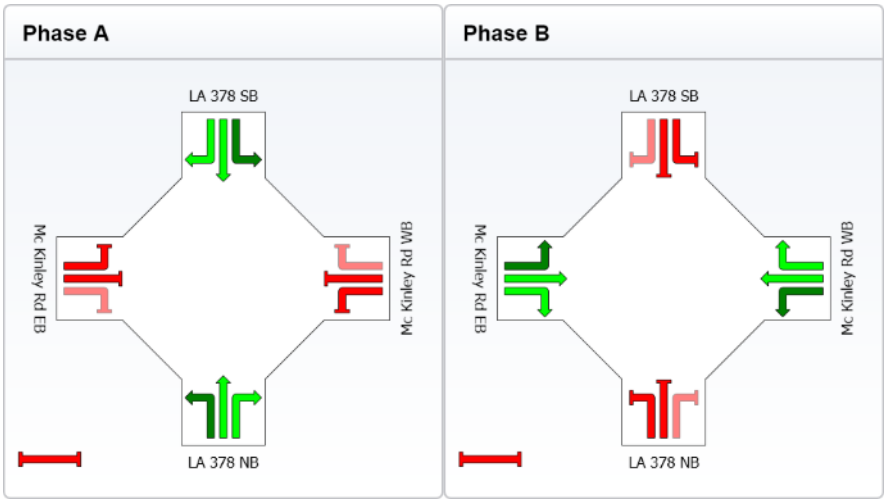
PHASING SUMMARY

LA 378 at Mc Kinley Rd
11-100 LA 378 Improvements
2013 AM Peak Alt B
Signals - Actuated Cycle Time = 70 seconds

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	35	25
Yellow Time (sec)	4	4
All-Red Time (sec)	1	1
Phase Time (sec)	40	30
Phase Split	57 %	43 %



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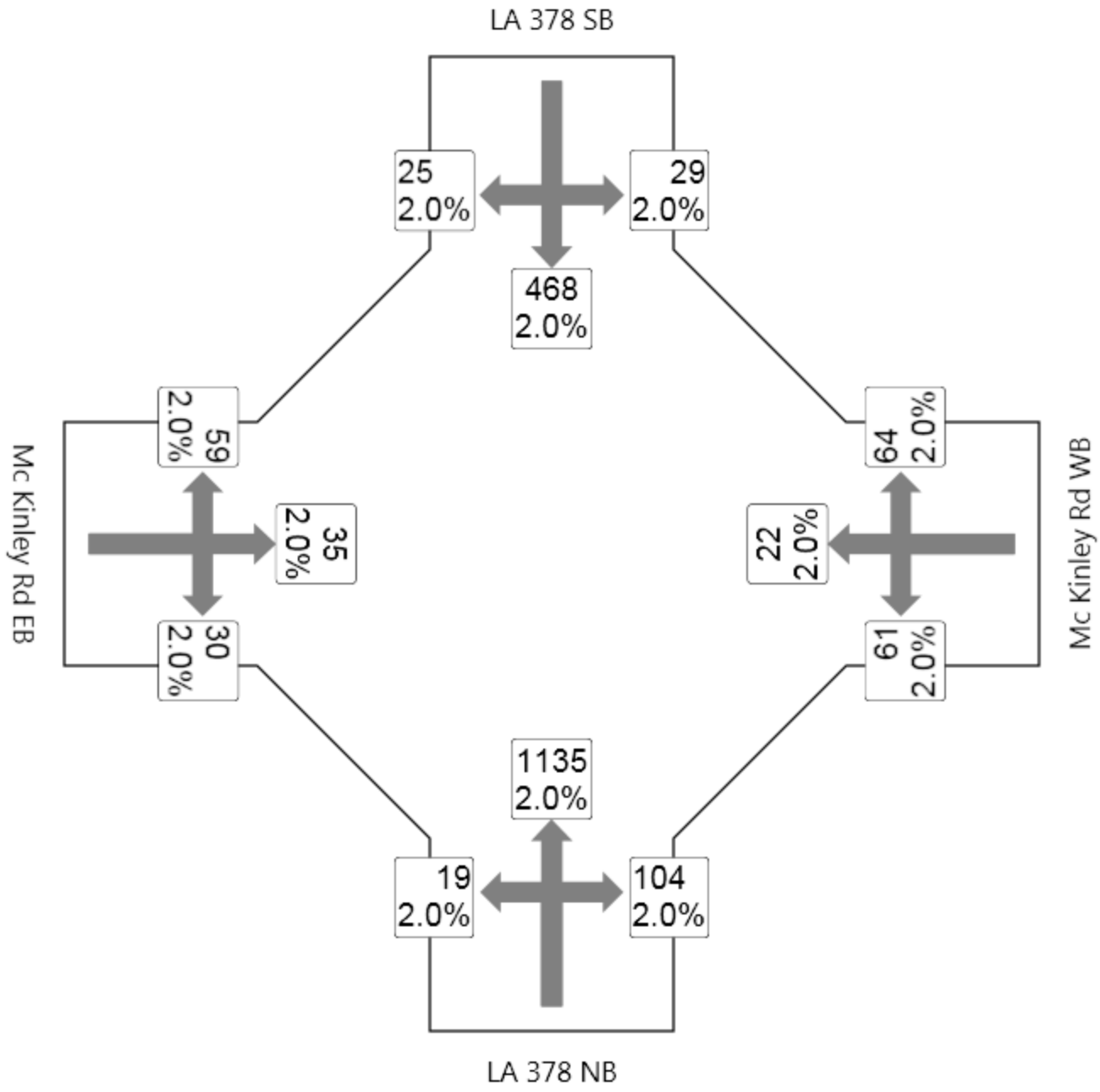
LA 378 SB
25
2.0%
29
2.0%
468
2.0%
Mc Kinley Rd EB
59
2.0%
35
2.0%
30
2.0%
64
2.0%
22
2.0%
61
2.0%
Mc Kinley Rd WB
1135
2.0%
19
2.0%
104
2.0%
LA 378 NB

MOVEMENT SUMMARY

Site: LA 378 at McKinley_PM - Conversion

LA 378 at Mc Kinley Rd
11-100 LA 378 Improvements
2013 PM Peak Alt B
Signals - Pretimed Cycle Time = 65 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	21	2.0	0.066	22.9	LOS C	0.4	11.1	0.65	0.72	23.9
8	T	1261	2.0	0.774	17.8	LOS B	21.4	542.7	0.90	0.86	24.5
18	R	116	2.0	0.774	26.4	LOS C	20.6	523.4	0.90	0.97	23.9
Approach		1398	2.0	0.774	18.6	LOS B	21.4	542.7	0.89	0.86	24.4
East: Mc Kinley Rd WB											
1	L	76	2.0	0.270	54.4	LOS D	5.5	140.3	1.00	0.88	15.5
6	T	28	2.0	0.270	45.6	LOS D	5.5	140.3	1.00	0.88	15.6
16	R	80	2.0	0.270	54.6	LOS D	5.5	140.3	1.00	0.88	15.5
Approach		184	2.0	0.270	53.2	LOS D	5.5	140.3	1.00	0.88	15.5
North: LA 378 SB											
7	L	32	2.0	0.237	36.7	LOS D	0.9	23.8	0.90	0.75	19.2
4	T	520	2.0	0.307	11.3	LOS B	5.7	144.4	0.66	0.56	28.3
14	R	28	2.0	0.307	19.7	LOS B	5.3	135.2	0.66	0.93	26.7
Approach		580	2.0	0.307	13.2	LOS B	5.7	144.4	0.68	0.59	27.5
West: Mc Kinley Rd EB											
5	L	74	2.0	0.270	55.4	LOS E	4.7	118.4	1.00	0.87	15.4
2	T	44	2.0	0.270	46.6	LOS D	4.7	118.4	1.00	0.87	15.5
12	R	38	2.0	0.270	55.6	LOS E	4.7	118.4	1.00	0.87	15.4
Approach		155	2.0	0.270	52.9	LOS D	4.7	118.4	1.00	0.87	15.4
All Vehicles		2317	2.0	0.774	22.3	LOS C	21.4	542.7	0.86	0.80	23.1

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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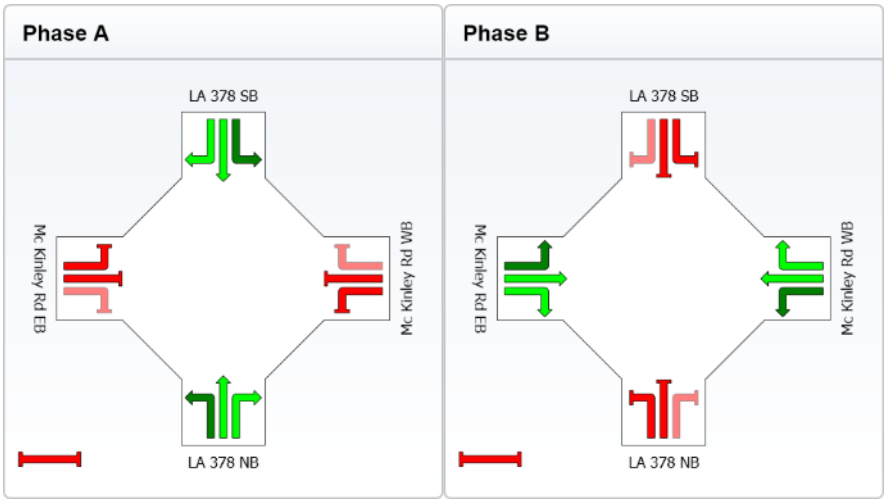
PHASING SUMMARY

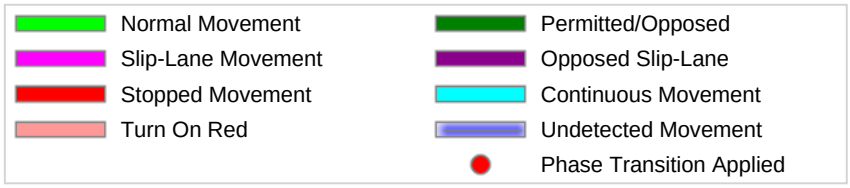
LA 378 at Mc Kinley Rd
11-100 LA 378 Improvements
2013 PM Peak Alt B
Signals - Pretimed Cycle Time = 65 seconds (User-Given Phase Times)

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	30	25
Yellow Time (sec)	4	4
All-Red Time (sec)	1	1
Phase Time (sec)	35	30
Phase Split	54 %	46 %





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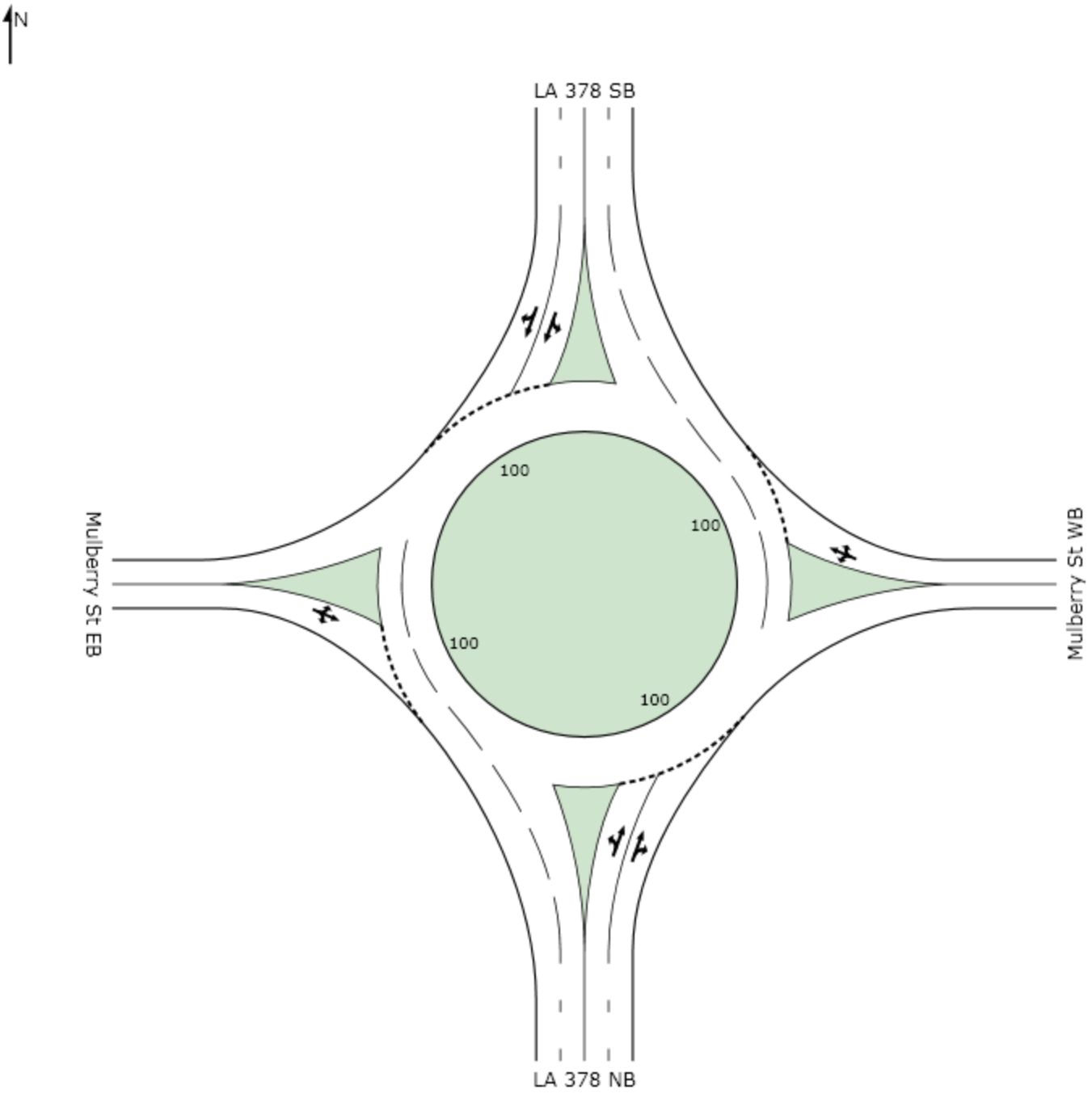
N
LA 378 SB
Mulberry St EB
Mulberry St WB
LA 378 NB
100
100
100
100

LA 378
240
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2.0%
1
2.0%
954
2.0%
12
2.0%
1
2.0%
44
2.0%
8
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2
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6
2.0%
Mulberry St EB
Mulberry St WB
466
2.0%
32
2.0%
1
2.0%
40
2.0%
78 NB

MOVEMENT SUMMARY

Site: LA 378 at Mulberry St AM

LA 378 at Mulberry St
11-100 LA 378 Improvements
2013 AM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	80	2.0	0.276	15.4	LOS B	1.7	42.4	0.52	0.84	28.9
8	T	518	2.0	0.276	6.8	LOS A	1.7	43.2	0.51	0.57	31.9
18	R	1	2.0	0.276	7.9	LOS A	1.7	43.2	0.51	0.64	31.8
Approach		599	2.0	0.276	8.0	LOS A	1.7	43.2	0.51	0.61	31.5
East: Mulberry St WB											
1	L	8	2.0	0.037	16.5	LOS B	0.1	3.7	0.61	0.86	28.0
6	T	3	2.0	0.037	9.3	LOS A	0.1	3.7	0.61	0.69	30.9
16	R	10	2.0	0.037	10.4	LOS B	0.1	3.7	0.61	0.73	30.5
Approach		20	2.0	0.037	12.5	LOS B	0.1	3.7	0.61	0.77	29.5
North: LA 378 SB											
7	L	268	2.0	0.494	15.5	LOS B	4.1	104.8	0.39	0.78	28.8
4	T	1060	2.0	0.494	5.8	LOS A	4.2	106.0	0.38	0.45	32.6
14	R	29	2.0	0.494	7.0	LOS A	4.2	106.0	0.37	0.55	32.3
Approach		1357	2.0	0.494	7.8	LOS A	4.2	106.0	0.38	0.52	31.7
West: Mulberry St EB											
5	L	15	2.0	0.169	18.6	LOS B	0.7	16.7	0.71	0.95	27.0
2	T	1	2.0	0.169	11.5	LOS B	0.7	16.7	0.71	0.82	29.4
12	R	55	2.0	0.169	12.5	LOS B	0.7	16.7	0.71	0.85	29.2
Approach		71	2.0	0.169	13.8	LOS B	0.7	16.7	0.71	0.87	28.7
All Vehicles		2047	2.0	0.494	8.1	LOS A	4.2	106.0	0.43	0.56	31.5

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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LA 378
232
2.0%
23
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12
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506
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18
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8
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Mulberry St EB
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2.0%
Mulberry St WB
56
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3
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1350
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24
2.0%
6
2.0%
40
2.0%
78 NB

MOVEMENT SUMMARY

Site: LA 378 at Mulberry St PM

LA 378 at Mulberry St
11-100 LA 378 Improvements
2013 PM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	71	2.0	0.711	18.7	LOS B	8.4	214.3	0.80	0.92	27.6
8	T	1500	2.0	0.711	9.6	LOS A	8.4	214.3	0.79	0.77	30.7
18	R	7	2.0	0.711	10.5	LOS B	8.4	214.3	0.78	0.79	30.9
Approach		1578	2.0	0.711	10.0	LOS B	8.4	214.3	0.79	0.78	30.5
East: Mulberry St WB											
1	L	4	2.0	0.063	23.1	LOS C	0.3	7.0	0.83	0.97	25.0
6	T	1	2.0	0.063	16.0	LOS B	0.3	7.0	0.83	0.90	26.7
16	R	10	2.0	0.063	17.1	LOS B	0.3	7.0	0.83	0.92	26.6
Approach		15	2.0	0.063	18.5	LOS B	0.3	7.0	0.83	0.93	26.1
North: LA 378 SB											
7	L	271	2.0	0.314	15.1	LOS B	2.2	56.7	0.31	0.74	28.6
4	T	562	2.0	0.314	5.6	LOS A	2.3	57.7	0.30	0.43	33.0
14	R	26	2.0	0.314	6.8	LOS A	2.3	57.7	0.30	0.54	32.6
Approach		859	2.0	0.314	8.6	LOS A	2.3	57.7	0.30	0.53	31.4
West: Mulberry St EB											
5	L	23	2.0	0.169	16.5	LOS B	0.6	16.2	0.61	0.94	28.0
2	T	3	2.0	0.169	9.3	LOS A	0.6	16.2	0.61	0.76	30.9
12	R	70	2.0	0.169	10.4	LOS B	0.6	16.2	0.61	0.80	30.6
Approach		95	2.0	0.169	11.8	LOS B	0.6	16.2	0.61	0.83	29.9
All Vehicles		2547	2.0	0.711	9.7	LOS A	8.4	214.3	0.62	0.70	30.7

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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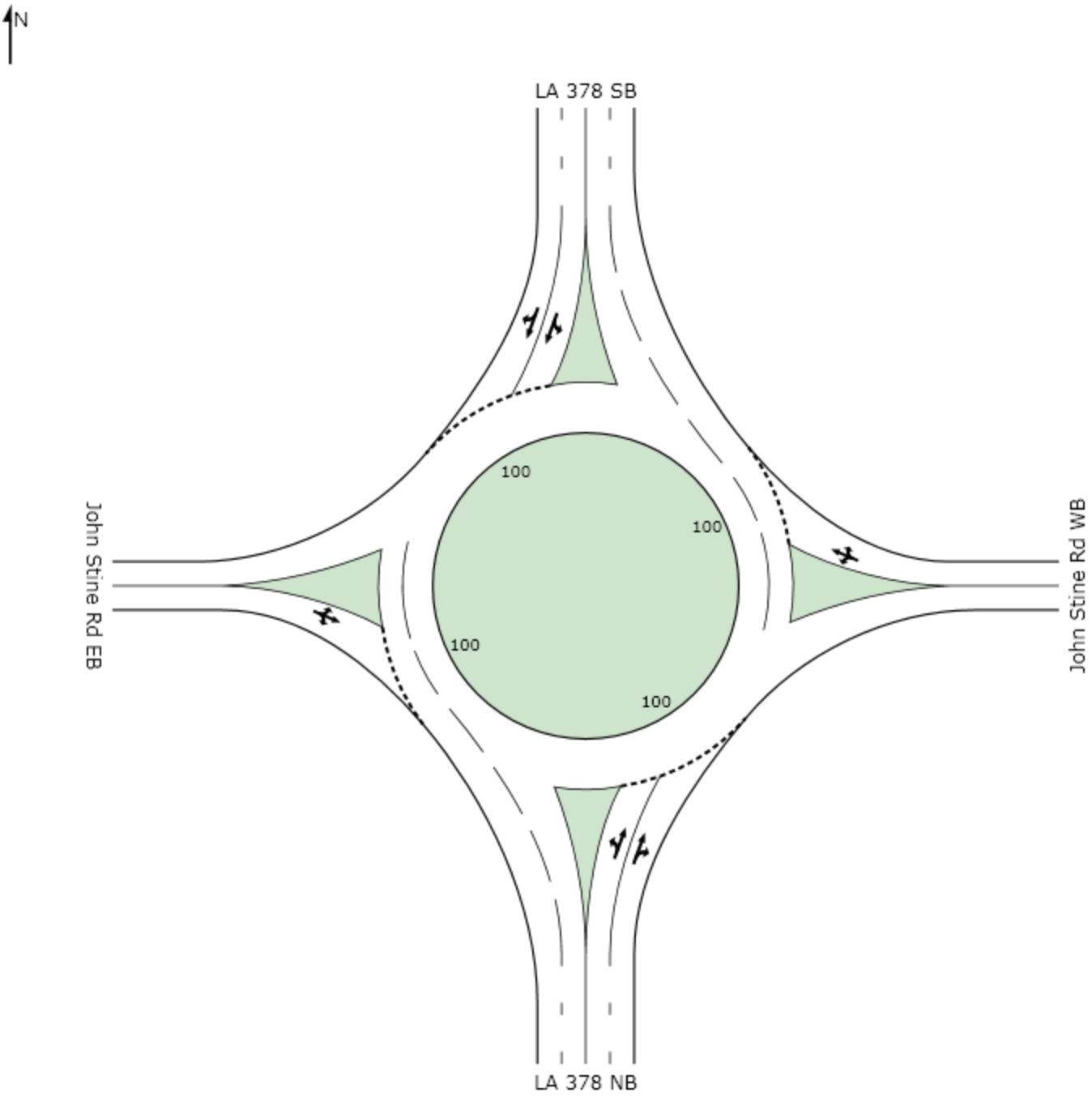
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LA 378 SB
John Stine Rd EB
John Stine Rd WB
LA 378 NB
100
100
100
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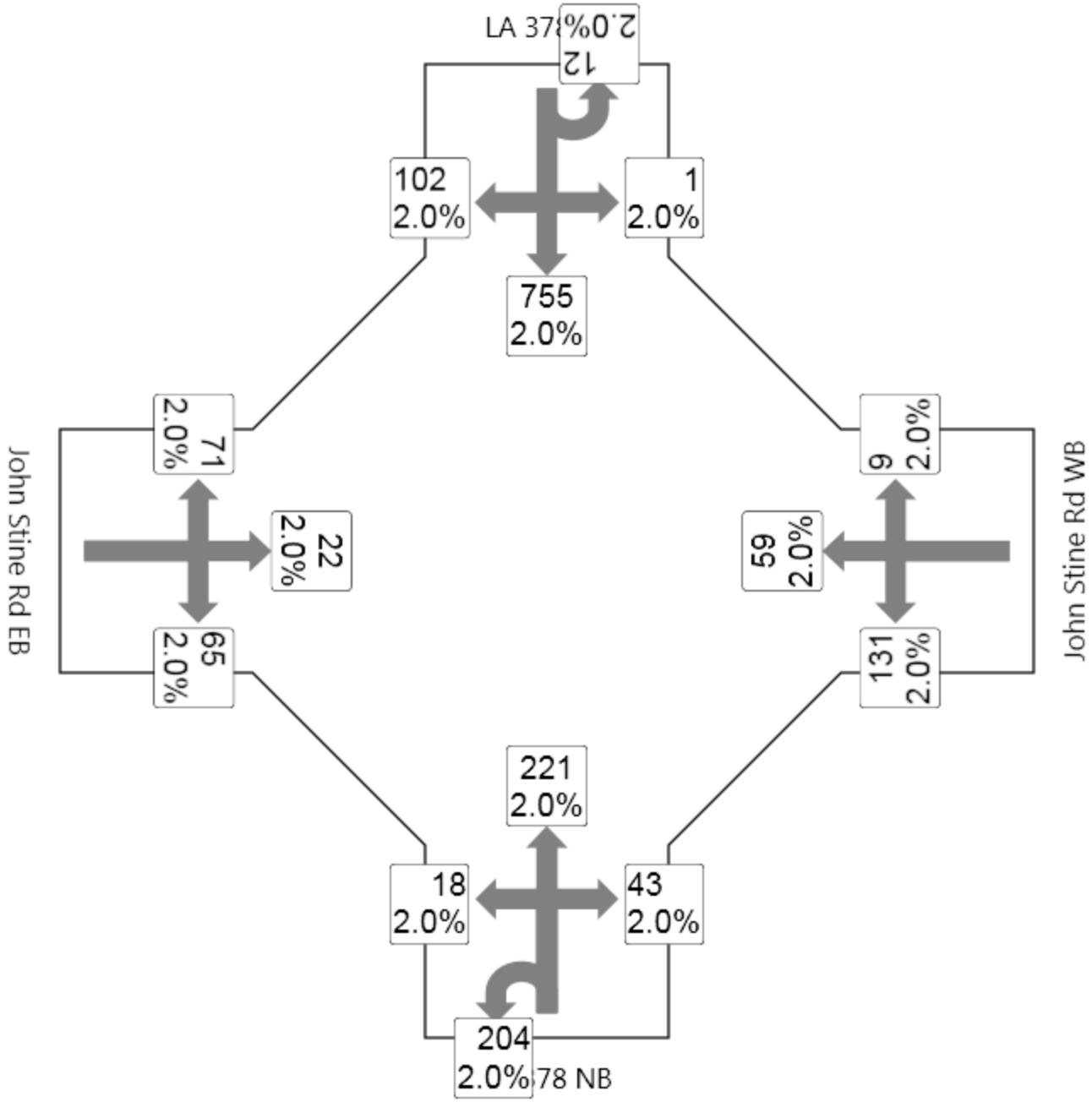
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65
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131
2.0%
221
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18
2.0%
43
2.0%
204
2.0%
78 NB
John Stine Rd EB
John Stine Rd WB

MOVEMENT SUMMARY

Site: LA 378 at John Stine_AM

LA 378 at John Stine Rd
11-100 LA 378 Improvements
2013 AM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	247	2.0	0.216	15.3	LOS B	1.4	34.4	0.37	0.68	28.2
8	T	246	2.0	0.216	5.8	LOS A	1.4	35.0	0.36	0.46	32.7
18	R	48	2.0	0.216	7.1	LOS A	1.4	35.0	0.36	0.56	32.3
Approach		540	2.0	0.216	10.3	LOS B	1.4	35.0	0.36	0.57	30.3
East: John Stine Rd WB											
1	L	164	2.0	0.378	16.2	LOS B	1.8	45.0	0.63	0.94	28.1
6	T	74	2.0	0.378	9.1	LOS A	1.8	45.0	0.63	0.76	30.8
16	R	11	2.0	0.378	10.1	LOS B	1.8	45.0	0.63	0.82	30.6
Approach		249	2.0	0.378	13.8	LOS B	1.8	45.0	0.63	0.88	28.9
North: LA 378 SB											
7	L	14	2.0	0.526	19.4	LOS B	4.2	107.9	0.77	0.98	27.4
4	T	839	2.0	0.526	9.7	LOS A	4.3	109.8	0.76	0.81	30.8
14	R	113	2.0	0.526	10.6	LOS B	4.3	109.8	0.76	0.83	30.9
Approach		967	2.0	0.526	9.9	LOS A	4.3	109.8	0.76	0.81	30.7
West: John Stine Rd EB											
5	L	89	2.0	0.516	23.4	LOS C	2.9	74.2	0.84	1.05	24.8
2	T	28	2.0	0.516	16.3	LOS B	2.9	74.2	0.84	0.98	26.5
12	R	81	2.0	0.516	17.4	LOS B	2.9	74.2	0.84	0.99	26.3
Approach		198	2.0	0.516	19.9	LOS B	2.9	74.2	0.84	1.02	25.6
All Vehicles		1953	2.0	0.526	11.5	LOS B	4.3	109.8	0.64	0.78	29.7

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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LA 378
24
2.0%
57
2.0%
5
2.0%
352
2.0%
John Stine Rd EB
174
2.0%
46
2.0%
53
2.0%
8
2.0%
47
2.0%
93
2.0%
John Stine Rd WB
878
2.0%
64
2.0%
166
2.0%
236
2.0%
78 NB

MOVEMENT SUMMARY

Site: LA 378 at John Stine_PM

LA 378 at John Stine Rd
11-100 LA 378 Improvements
2013 PM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	333	2.0	0.705	19.1	LOS B	8.5	217.0	0.85	0.89	27.2
8	T	976	2.0	0.705	9.6	LOS A	8.6	219.2	0.84	0.79	30.2
18	R	184	2.0	0.705	10.6	LOS B	8.6	219.2	0.83	0.80	30.6
Approach		1493	2.0	0.705	11.9	LOS B	8.6	219.2	0.84	0.82	29.4
East: John Stine Rd WB											
1	L	116	2.0	0.638	28.9	LOS C	3.7	95.1	0.91	1.10	22.7
6	T	59	2.0	0.638	21.8	LOS C	3.7	95.1	0.91	1.06	23.9
16	R	10	2.0	0.638	22.8	LOS C	3.7	95.1	0.91	1.06	23.8
Approach		185	2.0	0.638	26.3	LOS C	3.7	95.1	0.91	1.08	23.1
North: LA 378 SB											
7	L	32	2.0	0.281	17.7	LOS B	1.8	45.1	0.69	0.91	28.1
4	T	391	2.0	0.281	8.3	LOS A	1.9	47.0	0.69	0.70	31.0
14	R	63	2.0	0.281	9.4	LOS A	1.9	47.0	0.69	0.74	31.1
Approach		487	2.0	0.281	9.1	LOS A	1.9	47.0	0.69	0.72	30.8
West: John Stine Rd EB											
5	L	218	2.0	0.622	21.6	LOS C	4.4	110.6	0.82	1.07	25.5
2	T	58	2.0	0.622	14.5	LOS B	4.4	110.6	0.82	0.99	27.4
12	R	66	2.0	0.622	15.5	LOS B	4.4	110.6	0.82	1.01	27.2
Approach		341	2.0	0.622	19.2	LOS B	4.4	110.6	0.82	1.04	26.1
All Vehicles		2506	2.0	0.705	13.4	LOS B	8.6	219.2	0.81	0.85	28.6

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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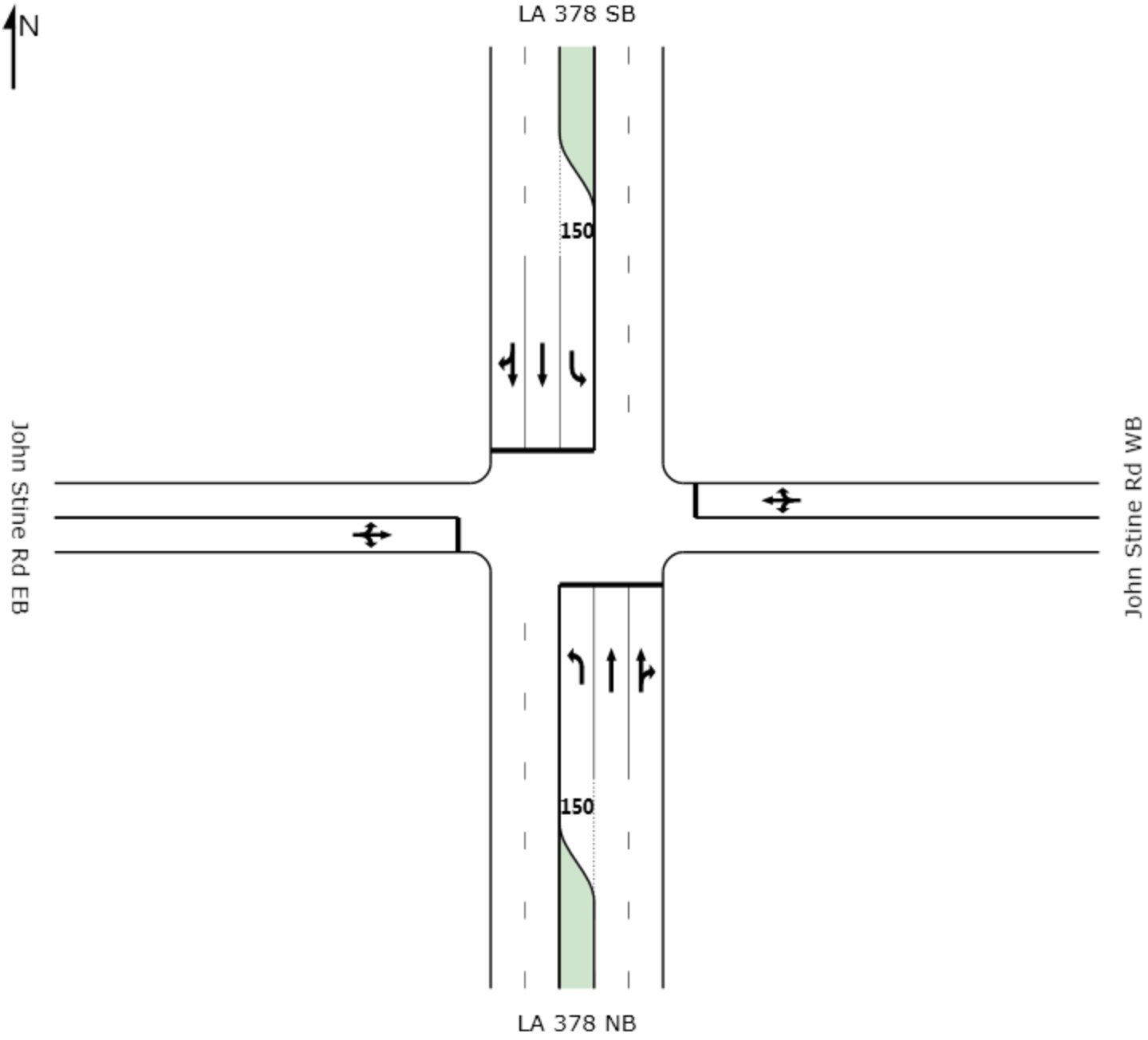
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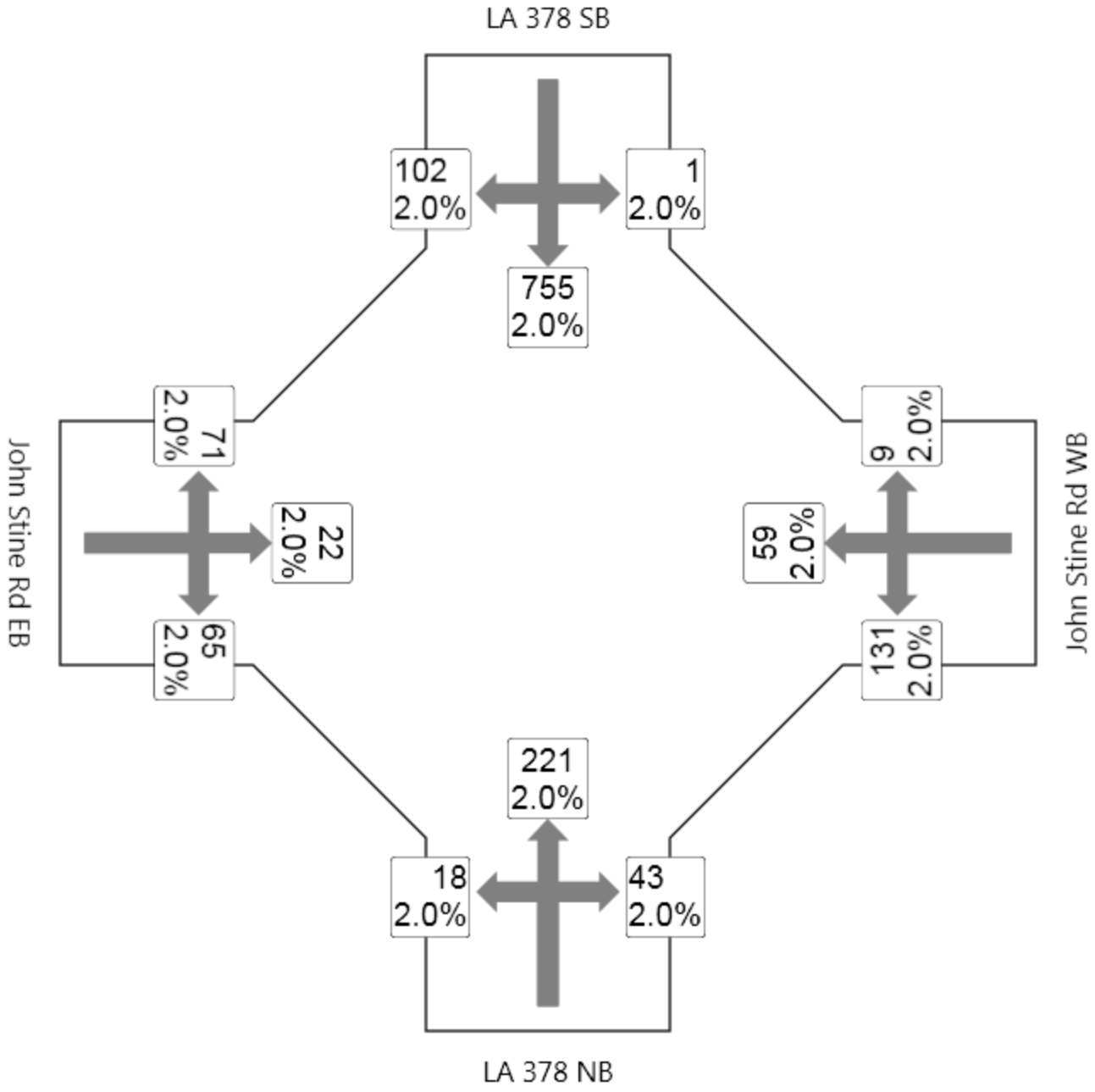
John Stine Rd EB
John Stine Rd WB
150
LA 378 NB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755
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John Stine Rd EB
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65
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9
2.0%
59
2.0%
131
2.0%
John Stine Rd WB
221
2.0%
18
2.0%
43
2.0%
LA 378 NB

MOVEMENT SUMMARY

LA 378 at John Stine Rd
11-100 LA 378 Improvements
2013 AM Peak Alt B
Signals - Actuated Cycle Time = 93 seconds

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	20	2.0	0.084	29.0	LOS C	0.6	14.5	0.83	0.71	21.6
8	T	246	2.0	0.222	22.2	LOS C	5.0	127.7	0.72	0.58	22.9
18	R	48	2.0	0.222	28.2	LOS C	4.4	111.9	0.71	0.85	22.6
Approach		313	2.0	0.222	23.5	LOS C	5.0	127.7	0.73	0.63	22.7
East: John Stine Rd WB											
1	L	164	2.0	0.533	75.6	LOS E	15.9	404.0	1.00	0.94	12.6
6	T	74	2.0	0.533	66.7	LOS E	15.9	404.0	1.00	0.94	12.6
16	R	11	2.0	0.533	75.7	LOS E	15.9	404.0	1.00	0.94	12.5
Approach		249	2.0	0.533	73.0	LOS E	15.9	404.0	1.00	0.94	12.6
North: LA 378 SB											
7	L	1	2.0	0.003	24.7	LOS C	0.0	0.8	0.65	0.63	23.1
4	T	839	2.0	0.721	29.0	LOS C	21.3	542.1	0.91	0.80	20.3
14	R	113	2.0	0.721	36.7	LOS D	20.3	514.4	0.91	0.89	20.1
Approach		953	2.0	0.721	29.9	LOS C	21.3	542.1	0.91	0.81	20.3
West: John Stine Rd EB											
5	L	89	2.0	0.253	61.7	LOS E	10.8	275.6	1.00	0.91	14.3
2	T	28	2.0	0.253	52.8	LOS D	10.8	275.6	1.00	0.91	14.4
12	R	81	2.0	0.253	61.8	LOS E	10.8	275.6	1.00	0.91	14.3
Approach		198	2.0	0.253	60.5	LOS E	10.8	275.6	1.00	0.91	14.3
All Vehicles		1713	2.0	0.721	38.5	LOS D	21.3	542.1	0.90	0.81	18.2

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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SIDRA INTERSECTION

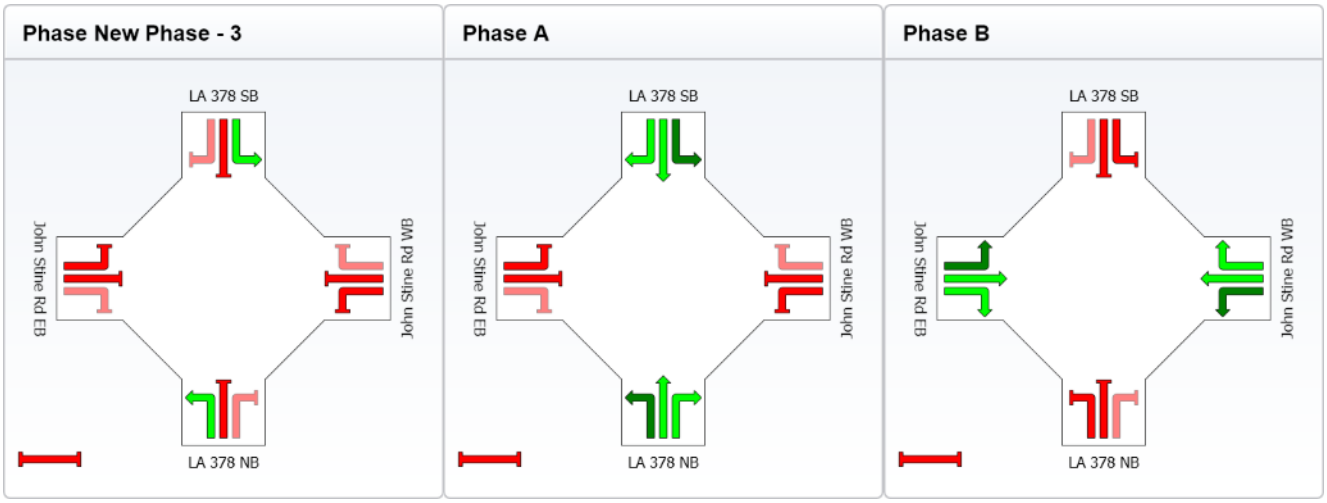
PHASING SUMMARY

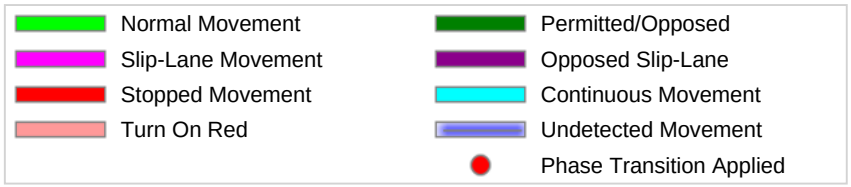
LA 378 at John Stine Rd
11-100 LA 378 Improvements
2013 AM Peak Alt B
Signals - Actuated Cycle Time = 93 seconds

Phase times determined by the program
Sequence: Opposed Turns
Input Sequence: New Phase - 3, A, B
Output Sequence: New Phase - 3, A, B

Phase Timing Results

Phase	New Phase - 3	A	B
Green Time (sec)	6	32	40
Yellow Time (sec)	4	4	4
All-Red Time (sec)	1	1	1
Phase Time (sec)	11	37	45
Phase Split	12 %	40 %	48 %





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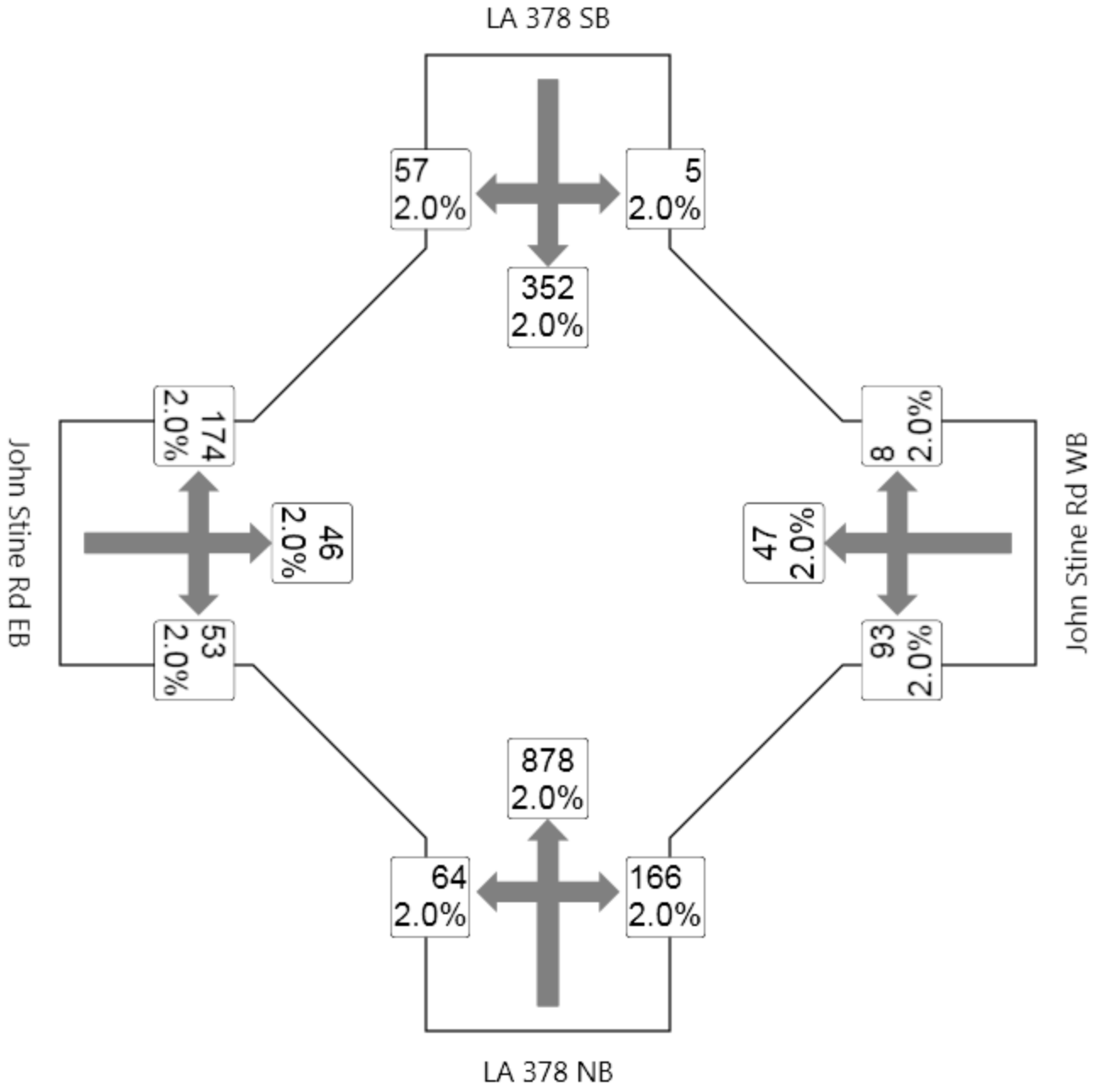
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352
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174
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46
2.0%
8
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47
2.0%
53
2.0%
93
2.0%
878
2.0%
64
2.0%
166
2.0%
John Stine Rd EB
John Stine Rd WB
LA 378 NB

MOVEMENT SUMMARY

LA 378 at John Stine Rd
11-100 LA 378 Improvements
2013 PM Peak Alt B
Signals - Actuated Cycle Time = 110 seconds

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	71	2.0	0.234	30.0	LOS C	2.5	62.4	0.73	0.75	21.2
8	T	976	2.0	0.952	50.9	LOS D	39.1	992.5	1.00	1.01	15.2
18	R	184	2.0	0.952	58.6	LOS E	37.3	946.5	1.00	1.00	15.2
Approach		1231	2.0	0.952	50.9	LOS D	39.1	992.5	0.98	0.99	15.5
East: John Stine Rd WB											
1	L	116	2.0	0.470	102.0	LOS F	17.5	444.5	1.00	0.99	10.1
6	T	59	2.0	0.470	93.1	LOS F	17.5	444.5	1.00	0.99	10.2
16	R	10	2.0	0.470	102.1	LOS F	17.5	444.5	1.00	0.99	10.1
Approach		185	2.0	0.470	99.2	LOS F	17.5	444.5	1.00	0.99	10.1
North: LA 378 SB											
7	L	6	2.0	0.024	35.1	LOS D	0.2	4.6	0.90	0.65	19.7
4	T	391	2.0	0.373	30.1	LOS C	10.1	256.2	0.80	0.67	20.1
14	R	63	2.0	0.373	35.9	LOS D	9.0	228.7	0.79	0.87	20.2
Approach		460	2.0	0.373	31.0	LOS C	10.1	256.2	0.80	0.70	20.1
West: John Stine Rd EB											
5	L	218	2.0	0.912	62.0	LOS E	22.8	579.5	1.00	0.90	14.3
2	T	58	2.0	0.912	53.2	LOS D	22.8	579.5	1.00	0.90	14.4
12	R	66	2.0	0.912	62.2	LOS E	22.8	579.5	1.00	0.90	14.3
Approach		341	2.0	0.912	60.5	LOS E	22.8	579.5	1.00	0.90	14.3
All Vehicles		2217	2.0	0.952	52.3	LOS D	39.1	992.5	0.95	0.91	15.3

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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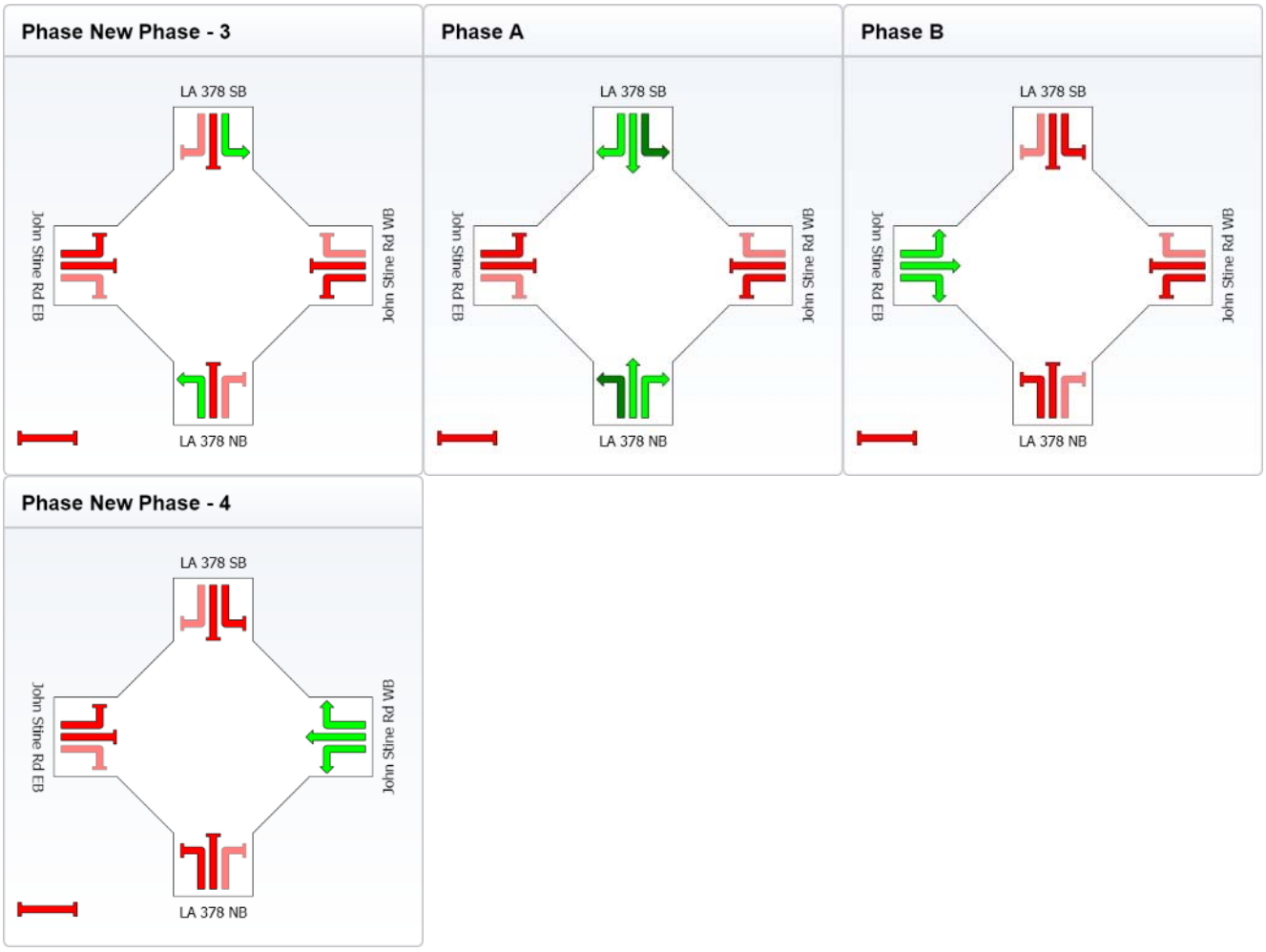
PHASING SUMMARY

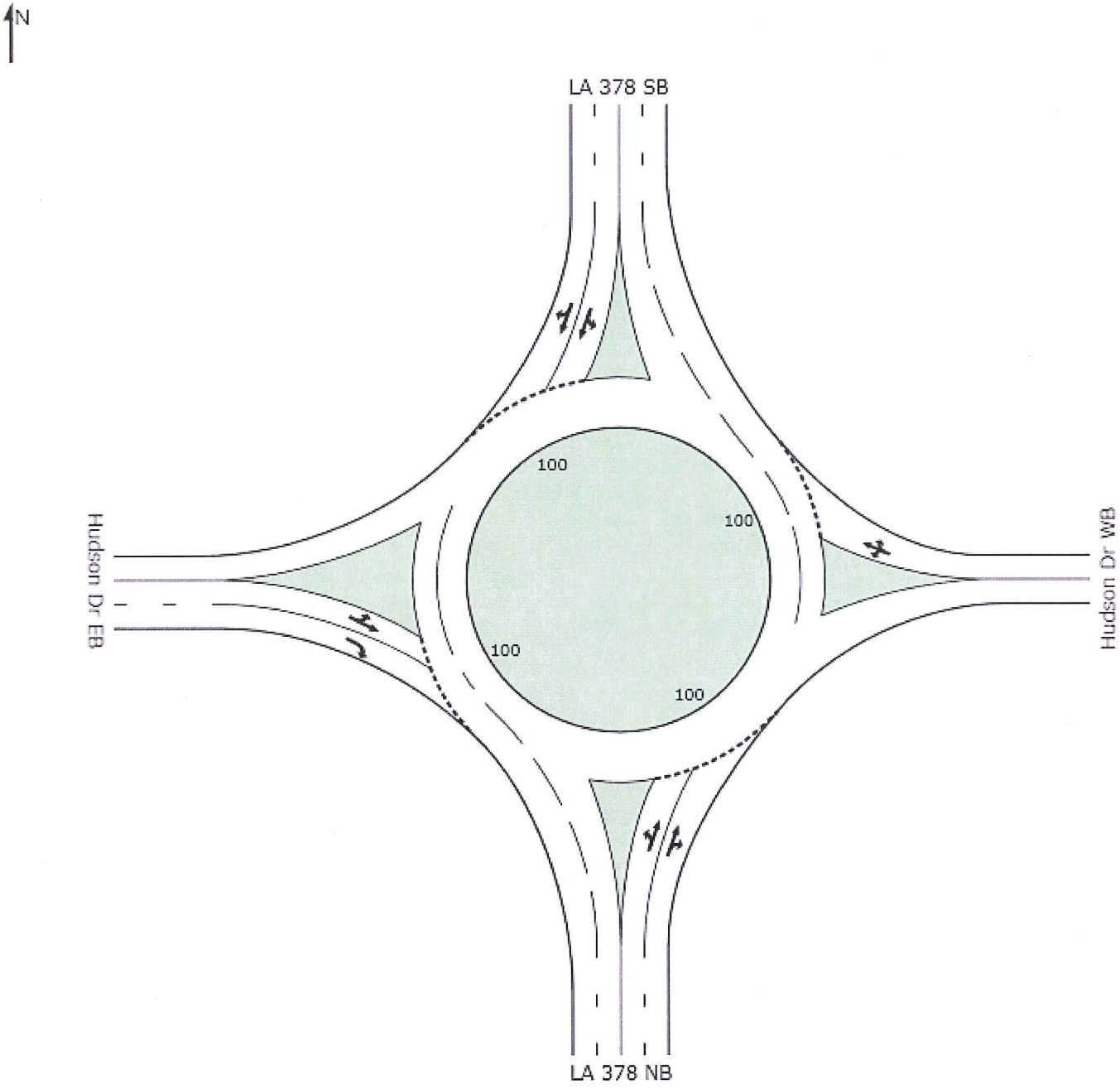
LA 378 at John Stine Rd
11-100 LA 378 Improvements
2013 PM Peak Alt B
Signals - Actuated Cycle Time = 110 seconds

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: New Phase - 3, A, B, New Phase - 4
Output Sequence: New Phase - 3, A, B, New Phase - 4

Phase Timing Results

Phase	New Phase - 3	A	B	New Phase - 4
Green Time (sec)	10	35	22	23
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	1	1	1	1
Phase Time (sec)	15	40	27	28
Phase Split	14 %	36 %	25 %	25 %




N
LA 378 SB
Hudson Dr EB
Hudson Dr WB
LA 378 NB
100
100
100
100

LA 37
28
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4
2.0%
5
2.0%
648
2.0%
1
2.0%
2
2.0%
3
2.0%
Hudson Dr EB
40
2.0%
5
2.0%
124
2.0%
Hudson Dr WB
186
2.0%
6
2.0%
51
2.0%
68
2.0%
78 NB

MOVEMENT SUMMARY

Site: LA 378 at Hudson AM

LA 378 at Hudson
11-100 LA 378 Improvements
2013 AM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
5	L	82	2.0	0.122	14.7	LOS B	0.7	17.2	0.17	0.81	28.9
2	T	207	2.0	0.122	5.3	LOS A	0.7	17.4	0.16	0.40	33.8
12	R	57	2.0	0.122	6.6	LOS A	0.7	17.4	0.16	0.52	33.0
Approach		346	2.0	0.122	7.8	LOS A	0.7	17.4	0.17	0.52	32.3
East: Hudson Dr WB											
3	L	155	2.0	0.263	14.3	LOS B	1.1	28.7	0.46	0.79	29.0
8	T	6	2.0	0.263	7.2	LOS A	1.1	28.7	0.46	0.59	31.6
18	R	50	2.0	0.263	8.2	LOS A	1.1	28.7	0.46	0.64	31.4
Approach		211	2.0	0.263	12.6	LOS B	1.1	28.7	0.46	0.75	29.5
North: LA 378 SB											
1	L	37	2.0	0.334	16.0	LOS B	2.1	53.6	0.50	0.88	28.8
6	T	720	2.0	0.334	6.7	LOS A	2.1	54.6	0.50	0.56	32.1
16	R	4	2.0	0.334	7.8	LOS A	2.1	54.6	0.49	0.63	31.9
Approach		761	2.0	0.334	7.1	LOS A	2.1	54.6	0.50	0.58	31.9
West: Hudson Dr EB											
7	L	1	2.0	0.006	15.5	LOS B	0.0	0.6	0.61	0.78	28.7
4	T	3	2.0	0.006	8.4	LOS A	0.0	0.6	0.61	0.60	31.2
14	R	4	2.0	0.006	9.5	LOS A	0.0	0.6	0.61	0.63	31.0
Approach		8	2.0	0.006	10.1	LOS B	0.0	0.6	0.61	0.65	30.6
All Vehicles		1325	2.0	0.334	8.2	LOS A	2.1	54.6	0.41	0.59	31.6

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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SIDRA INTERSECTION

LA 37
32
2.0%
5
2.0%
7
2.0%
330
2.0%
6
2.0%
50
2.0%
Hudson Dr EB
3
2.0%
9
2.0%
9
2.0%
45
2.0%
Hudson Dr WB
770
2.0%
2
2.0%
240
2.0%
48
2.0%
78 NB

MOVEMENT SUMMARY

Site: LA 378 at Hudson PM

LA 378 at Hudson
11-100 LA 378 Improvements
2013 PM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
5	L	56	2.0	0.408	15.0	LOS B	3.0	75.0	0.26	0.90	29.1
2	T	856	2.0	0.408	5.5	LOS A	3.0	75.3	0.25	0.42	33.3
12	R	267	2.0	0.408	6.8	LOS A	3.0	75.3	0.24	0.52	32.7
Approach		1178	2.0	0.408	6.3	LOS A	3.0	75.3	0.25	0.46	32.9
East: Hudson Dr WB											
3	L	56	2.0	0.240	17.2	LOS B	1.0	24.5	0.65	0.93	27.6
8	T	11	2.0	0.240	10.2	LOS B	1.0	24.5	0.65	0.78	30.2
18	R	63	2.0	0.240	11.2	LOS B	1.0	24.5	0.65	0.82	29.9
Approach		130	2.0	0.240	13.7	LOS B	1.0	24.5	0.65	0.87	28.8
North: LA 378 SB											
1	L	43	2.0	0.164	15.0	LOS B	0.9	23.1	0.32	0.85	29.1
6	T	367	2.0	0.164	5.8	LOS A	0.9	23.3	0.31	0.45	33.0
16	R	6	2.0	0.164	7.0	LOS A	0.9	23.3	0.31	0.56	32.5
Approach		416	2.0	0.164	6.8	LOS A	0.9	23.3	0.31	0.50	32.5
West: Hudson Dr EB											
7	L	8	2.0	0.013	14.0	LOS B	0.0	1.2	0.45	0.74	29.2
4	T	4	2.0	0.013	6.8	LOS A	0.0	1.2	0.45	0.51	31.8
14	R	11	2.0	0.013	8.2	LOS A	0.0	1.2	0.46	0.59	31.6
Approach		23	2.0	0.013	9.9	LOS A	0.0	1.2	0.46	0.63	30.8
All Vehicles		1746	2.0	0.408	7.0	LOS A	3.0	75.3	0.30	0.50	32.5

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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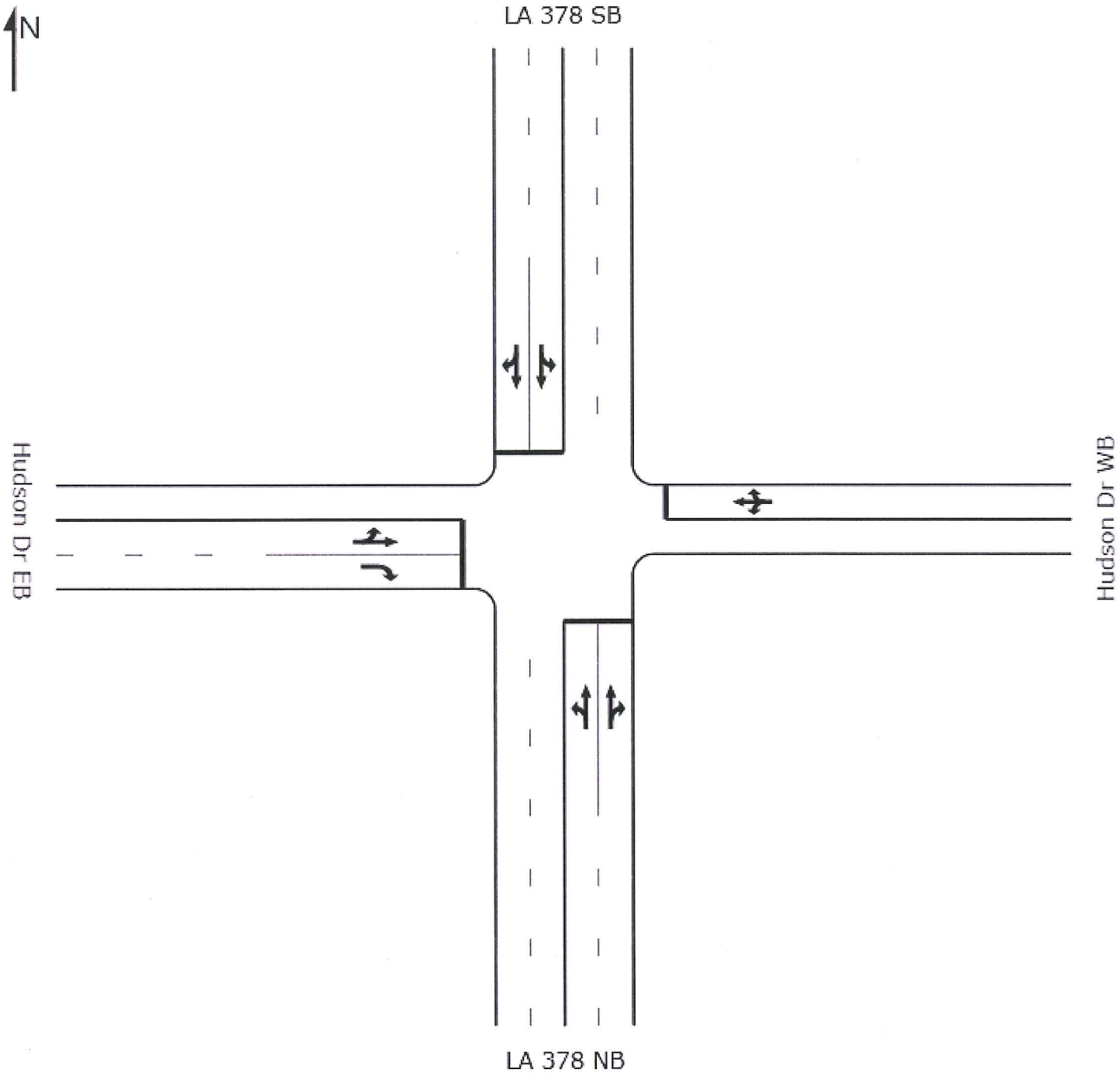
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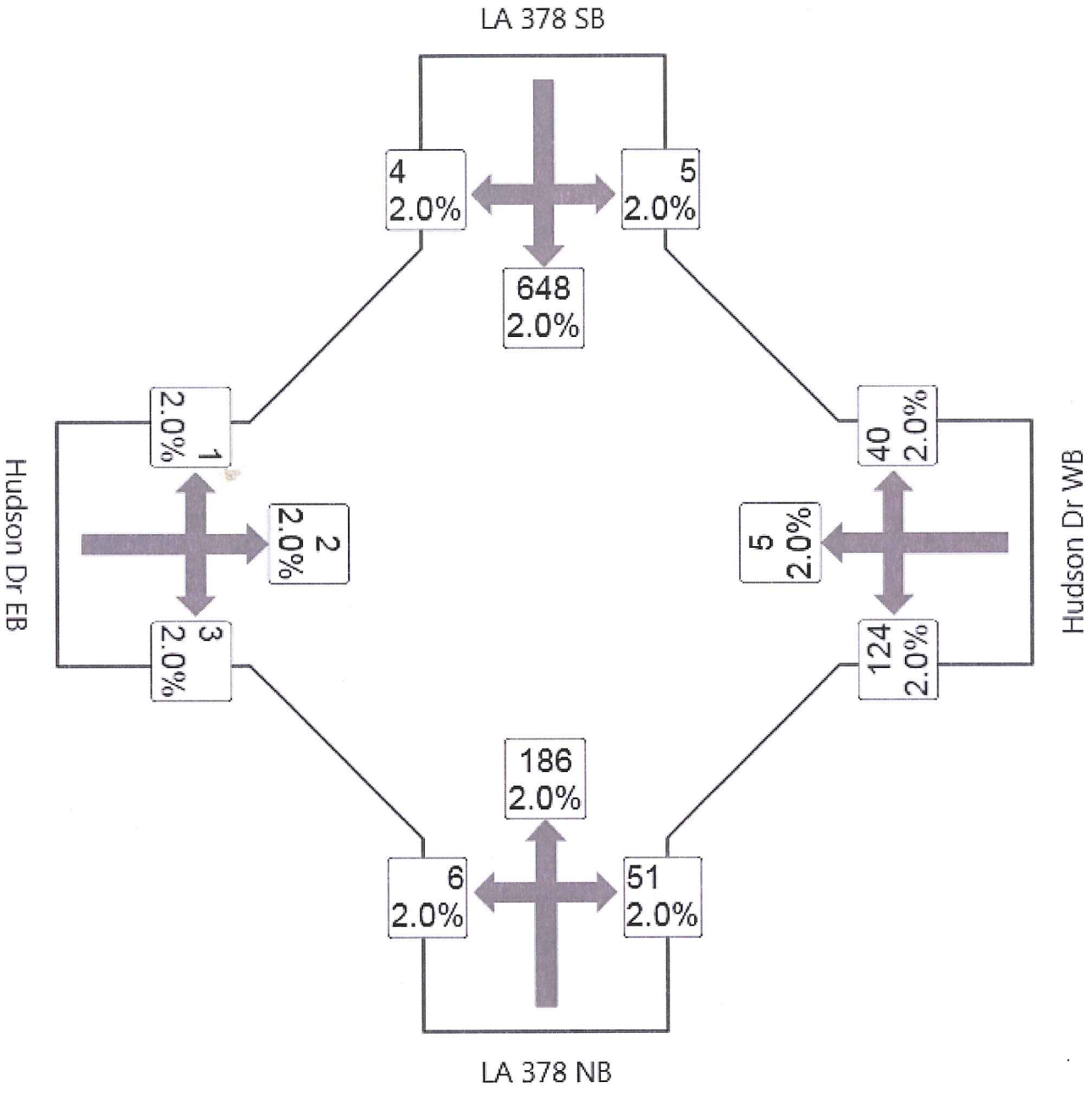
LA 378 SB
Hudson Dr EB
Hudson Dr WB
LA 378 NB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Hudson Dr EB
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Hudson Dr WB
40
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124
2.0%
186
2.0%
6
2.0%
51
2.0%
LA 378 NB

MOVEMENT SUMMARY

Site: LA 378 at Hudson AM - Conversion

LA 378 at Hudson
11-100 LA 378 Improvements
2013 AM Peak Alt B
Signals - Pretimed Cycle Time = 90 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
5	L	7	2.0	0.168	25.6	LOS C	3.5	90.0	0.65	0.91	24.0
2	T	207	2.0	0.168	14.6	LOS B	3.5	90.0	0.63	0.51	26.3
12	R	57	2.0	0.168	20.6	LOS C	3.2	82.1	0.60	0.85	25.7
Approach		270	2.0	0.168	16.1	LOS B	3.5	90.0	0.62	0.59	26.1
East: Hudson Dr WB											
3	L	155	2.0	0.278	42.0	LOS D	6.4	163.3	0.82	0.91	17.9
8	T	6	2.0	0.278	33.0	LOS C	6.4	163.3	0.82	0.79	17.9
18	R	50	2.0	0.278	42.0	LOS D	6.4	163.3	0.82	0.91	17.9
Approach		211	2.0	0.278	41.7	LOS D	6.4	163.3	0.82	0.91	17.9
North: LA 378 SB											
1	L	6	2.0	0.426	27.4	LOS C	11.4	288.5	0.73	0.94	23.5
6	T	720	2.0	0.426	18.2	LOS B	11.4	288.8	0.73	0.64	24.7
16	R	4	2.0	0.426	27.0	LOS C	11.4	288.8	0.73	0.95	23.6
Approach		730	2.0	0.426	18.4	LOS B	11.4	288.8	0.73	0.64	24.7
West: Hudson Dr EB											
7	L	1	2.0	0.020	48.1	LOS D	0.1	3.8	0.91	0.67	17.1
4	T	3	2.0	0.020	39.2	LOS D	0.1	3.8	0.91	0.59	17.4
14	R	4	2.0	0.005	9.5	LOS A	0.0	0.5	0.15	0.68	31.2
Approach		8	2.0	0.020	25.8	LOS C	0.1	3.8	0.53	0.65	22.3
All Vehicles		1219	2.0	0.426	22.0	LOS C	11.4	288.8	0.72	0.68	23.4

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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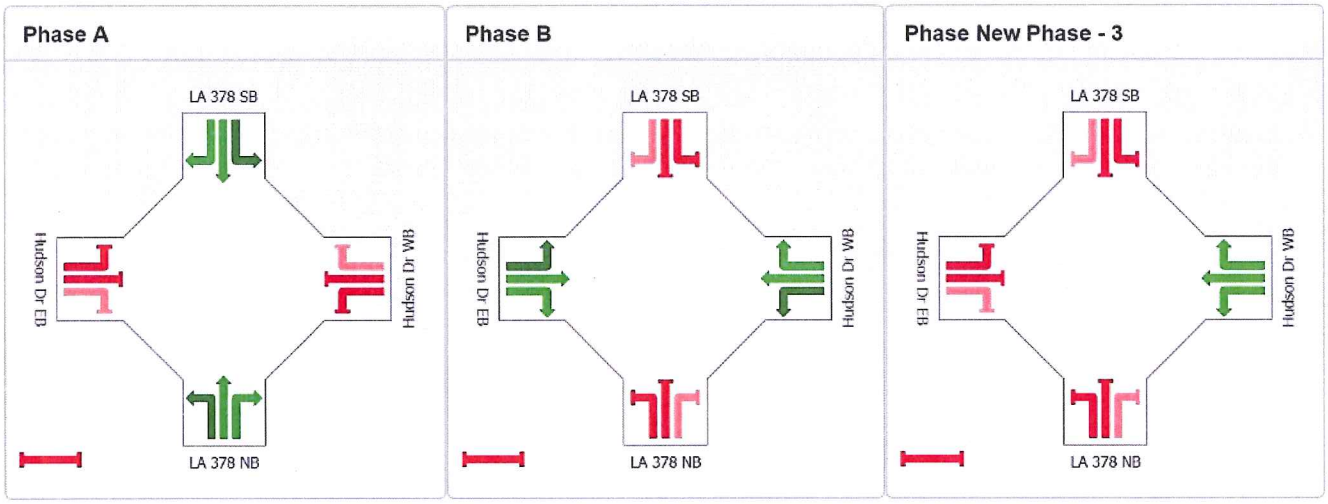
PHASING SUMMARY

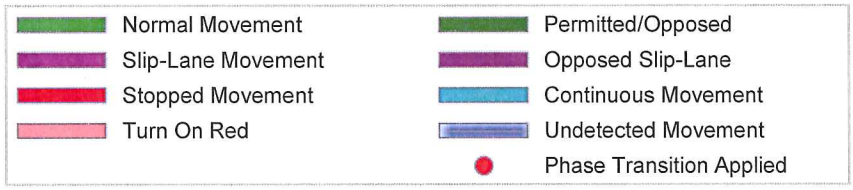
LA 378 at Hudson
11-100 LA 378 Improvements
2013 AM Peak Alt B
Signals - Pretimed Cycle Time = 90 seconds (User-Given Phase Times)

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: A, B, New Phase - 3
Output Sequence: A, B, New Phase - 3

Phase Timing Results

Phase	A	B	New Phase - 3
Green Time (sec)	40	10	25
Yellow Time (sec)	4	4	4
All-Red Time (sec)	1	1	1
Phase Time (sec)	45	15	30
Phase Split	50 %	17 %	33 %





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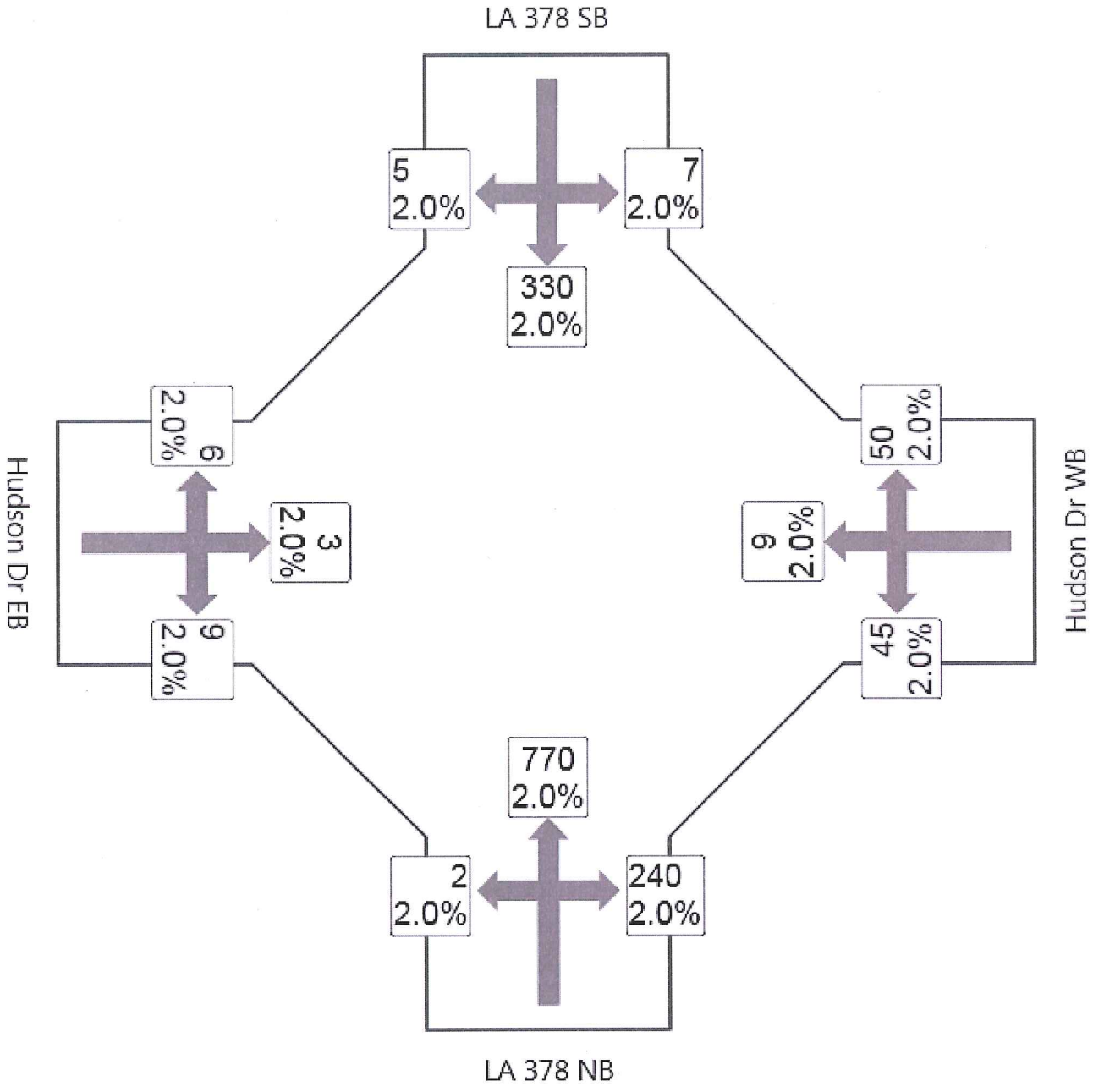
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Hudson Dr EB
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3
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9
2.0%
Hudson Dr WB
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45
2.0%
770
2.0%
2
2.0%
240
2.0%
LA 378 NB

MOVEMENT SUMMARY

Site: LA 378 at Hudson PM - Conversion

LA 378 at Hudson
11-100 LA 378 Improvements
2013 PM Peak Alt B
Signals - Pretimed Cycle Time = 90 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
5	L	2	2.0	0.665	30.0	LOS C	21.5	545.5	0.85	0.92	22.6
2	T	856	2.0	0.665	19.8	LOS B	21.5	545.5	0.84	0.75	23.6
12	R	267	2.0	0.665	25.9	LOS C	19.0	482.3	0.83	0.89	23.5
Approach		1124	2.0	0.665	21.2	LOS C	21.5	545.5	0.84	0.78	23.6
East: Hudson Dr WB											
3	L	56	2.0	0.159	32.0	LOS C	4.0	100.6	0.77	0.84	20.6
8	T	11	2.0	0.159	23.0	LOS C	4.0	100.6	0.77	0.65	21.1
18	R	63	2.0	0.159	32.0	LOS C	4.0	100.6	0.77	0.84	20.6
Approach		130	2.0	0.159	31.3	LOS C	4.0	100.6	0.77	0.82	20.7
North: LA 378 SB											
1	L	8	2.0	0.242	28.3	LOS C	5.1	130.0	0.70	0.91	23.0
6	T	367	2.0	0.242	17.4	LOS B	5.7	143.9	0.68	0.57	25.2
16	R	6	2.0	0.242	24.9	LOS C	5.7	143.9	0.66	0.94	24.4
Approach		380	2.0	0.242	17.7	LOS B	5.7	143.9	0.68	0.58	25.1
West: Hudson Dr EB											
7	L	8	2.0	0.103	55.2	LOS E	0.5	12.2	0.98	0.68	15.5
4	T	4	2.0	0.103	46.2	LOS D	0.5	12.2	0.98	0.66	15.6
14	R	11	2.0	0.013	9.3	LOS A	0.0	1.2	0.12	0.69	31.3
Approach		23	2.0	0.103	30.8	LOS C	0.5	12.2	0.55	0.68	20.8
All Vehicles		1657	2.0	0.665	21.3	LOS C	21.5	545.5	0.79	0.74	23.6

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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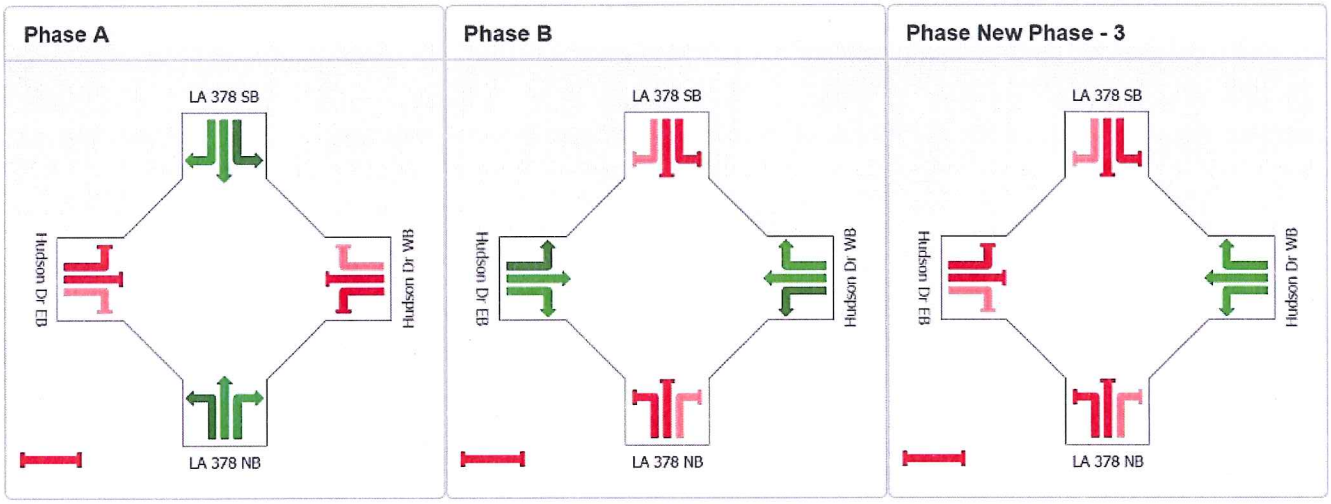
PHASING SUMMARY

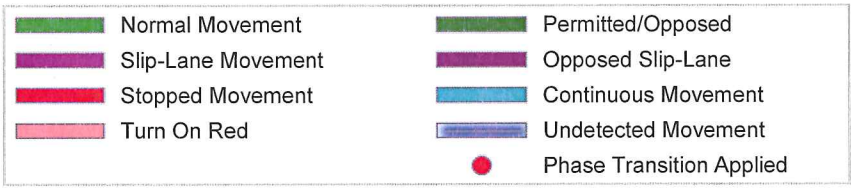
LA 378 at Hudson
11-100 LA 378 Improvements
2013 PM Peak Alt B
Signals - Pretimed Cycle Time = 90 seconds (User-Given Phase Times)

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: A, B, New Phase - 3
Output Sequence: A, B, New Phase - 3

Phase Timing Results

Phase	A	B	New Phase - 3
Green Time (sec)	40	10	25
Yellow Time (sec)	4	4	4
All-Red Time (sec)	1	1	1
Phase Time (sec)	45	15	30
Phase Split	50 %	17 %	33 %





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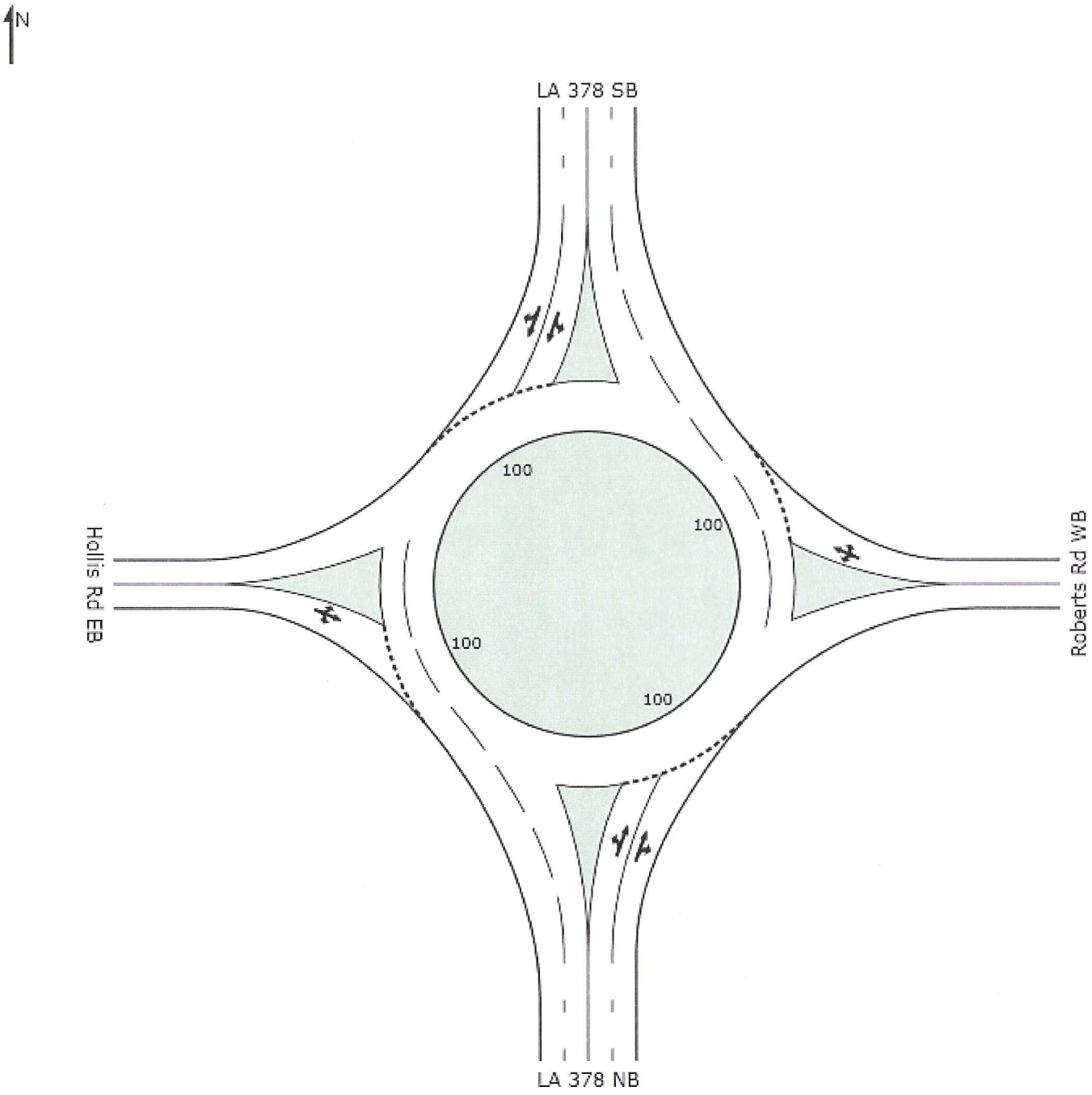
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LA 378 SB
Hollis Rd EB
Roberts Rd WB
LA 378 NB
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LA 378
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558
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19
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Hollis Rd EB
1
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3
2.0%
Roberts Rd WB
33
2.0%
4
2.0%
277
2.0%
7
2.0%
1
2.0%
48
2.0%
78 NB

MOVEMENT SUMMARY

Site: LA 378 at Hollis Rd/Davis Rd AM

LA 378 at Hollis Rd / Davis Rd
11-100 LA 378 Improvements
2013 AM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
5	L	61	2.0	0.182	16.6	LOS B	1.0	25.7	0.54	0.85	28.4
2	T	308	2.0	0.182	7.2	LOS A	1.0	26.4	0.53	0.59	31.8
12	R	1	2.0	0.182	8.3	LOS A	1.0	26.4	0.53	0.66	31.8
Approach		370	2.0	0.182	8.7	LOS A	1.0	26.4	0.54	0.64	31.1
East: Roberts Rd WB											
3	L	5	2.0	0.018	14.0	LOS B	0.1	1.8	0.45	0.77	29.3
8	T	4	2.0	0.018	7.0	LOS A	0.1	1.8	0.45	0.53	31.9
18	R	5	2.0	0.018	8.0	LOS A	0.1	1.8	0.45	0.58	31.7
Approach		14	2.0	0.018	9.9	LOS A	0.1	1.8	0.45	0.64	30.8
North: LA 378 SB											
1	L	349	2.0	0.349	12.8	LOS B	2.4	62.2	0.29	0.69	29.4
6	T	620	2.0	0.349	5.6	LOS A	2.5	62.9	0.28	0.43	33.2
16	R	6	2.0	0.349	6.8	LOS A	2.5	62.9	0.27	0.54	32.7
Approach		974	2.0	0.349	8.2	LOS A	2.5	62.9	0.28	0.52	31.7
West: Hollis Rd EB											
7	L	24	2.0	0.126	17.0	LOS B	0.5	12.0	0.63	0.93	27.7
4	T	1	2.0	0.126	9.8	LOS A	0.5	12.0	0.63	0.77	30.5
14	R	41	2.0	0.126	10.9	LOS B	0.5	12.0	0.63	0.81	30.2
Approach		66	2.0	0.126	13.0	LOS B	0.5	12.0	0.63	0.85	29.2
All Vehicles		1424	2.0	0.349	8.6	LOS A	2.5	62.9	0.36	0.57	31.4

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: LA 378 at Hollis Rd/Davis Rd PM

LA 378 at Hollis Rd / Davis Rd
11-100 LA 378 Improvements
2013 PM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
5	L	71	2.0	0.445	14.7	LOS B	3.2	80.0	0.49	0.83	29.4
2	T	1022	2.0	0.445	6.5	LOS A	3.2	81.1	0.48	0.53	32.2
12	R	1	2.0	0.445	7.6	LOS A	3.2	81.1	0.47	0.61	32.0
Approach		1094	2.0	0.445	7.0	LOS A	3.2	81.1	0.48	0.55	31.9
East: Roberts Rd WB											
3	L	1	2.0	0.032	16.9	LOS B	0.1	3.1	0.65	0.92	28.0
8	T	8	2.0	0.032	9.9	LOS A	0.1	3.1	0.65	0.74	30.8
18	R	6	2.0	0.032	10.9	LOS B	0.1	3.1	0.65	0.78	30.5
Approach		15	2.0	0.032	10.9	LOS B	0.1	3.1	0.65	0.77	30.4
North: LA 378 SB											
1	L	156	2.0	0.168	12.8	LOS B	1.0	24.4	0.26	0.70	29.5
6	T	287	2.0	0.168	5.5	LOS A	1.0	24.7	0.25	0.43	33.3
16	R	10	2.0	0.168	6.8	LOS A	1.0	24.7	0.25	0.54	32.8
Approach		452	2.0	0.168	8.1	LOS A	1.0	24.7	0.25	0.52	31.8
West: Hollis Rd EB											
7	L	28	2.0	0.075	14.6	LOS B	0.3	7.0	0.47	0.81	28.9
4	T	3	2.0	0.075	7.4	LOS A	0.3	7.0	0.47	0.59	31.7
14	R	24	2.0	0.075	8.5	LOS A	0.3	7.0	0.47	0.64	31.5
Approach		54	2.0	0.075	11.6	LOS B	0.3	7.0	0.47	0.73	30.0
All Vehicles		1615	2.0	0.445	7.5	LOS A	3.2	81.1	0.42	0.55	31.8

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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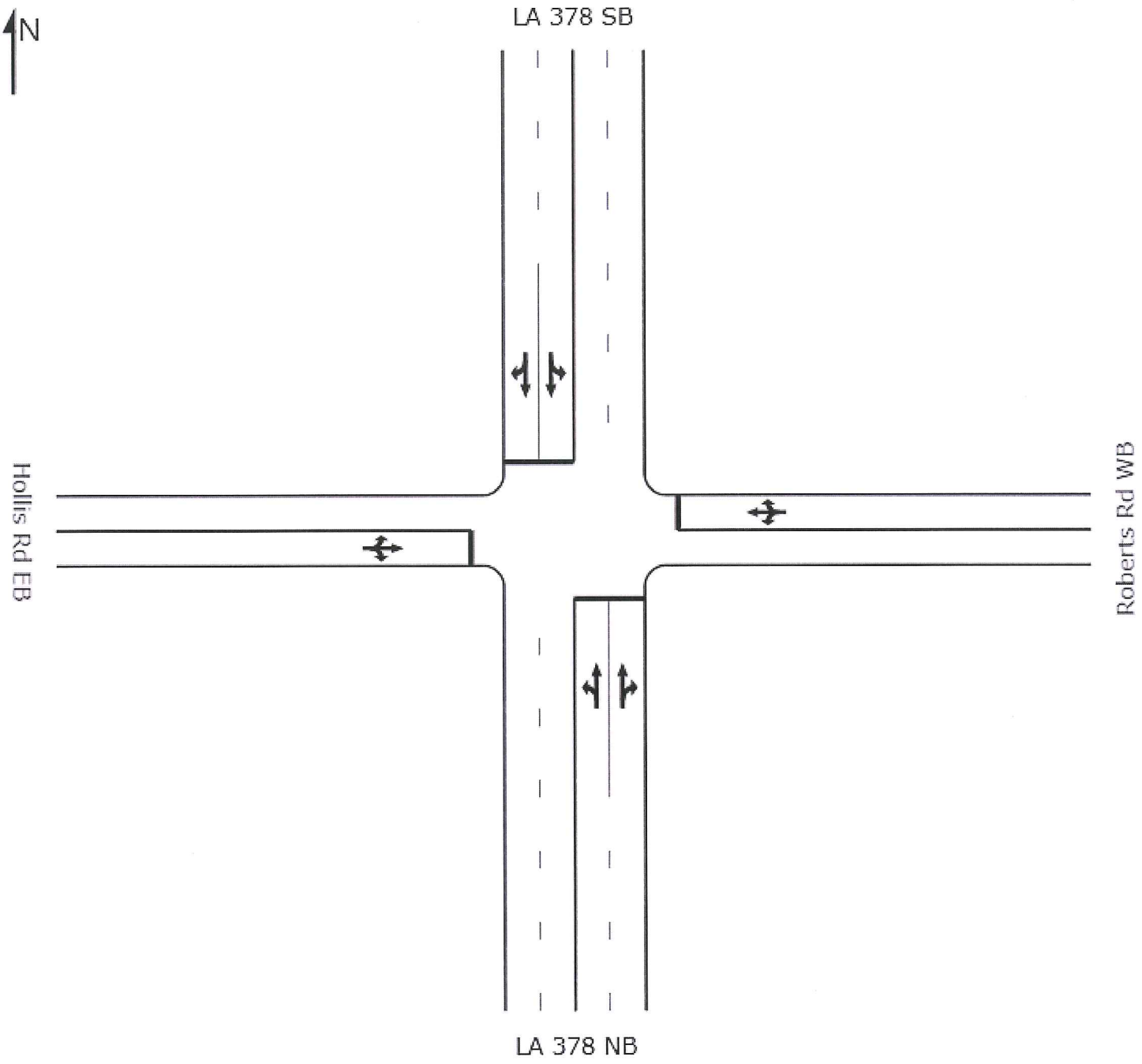
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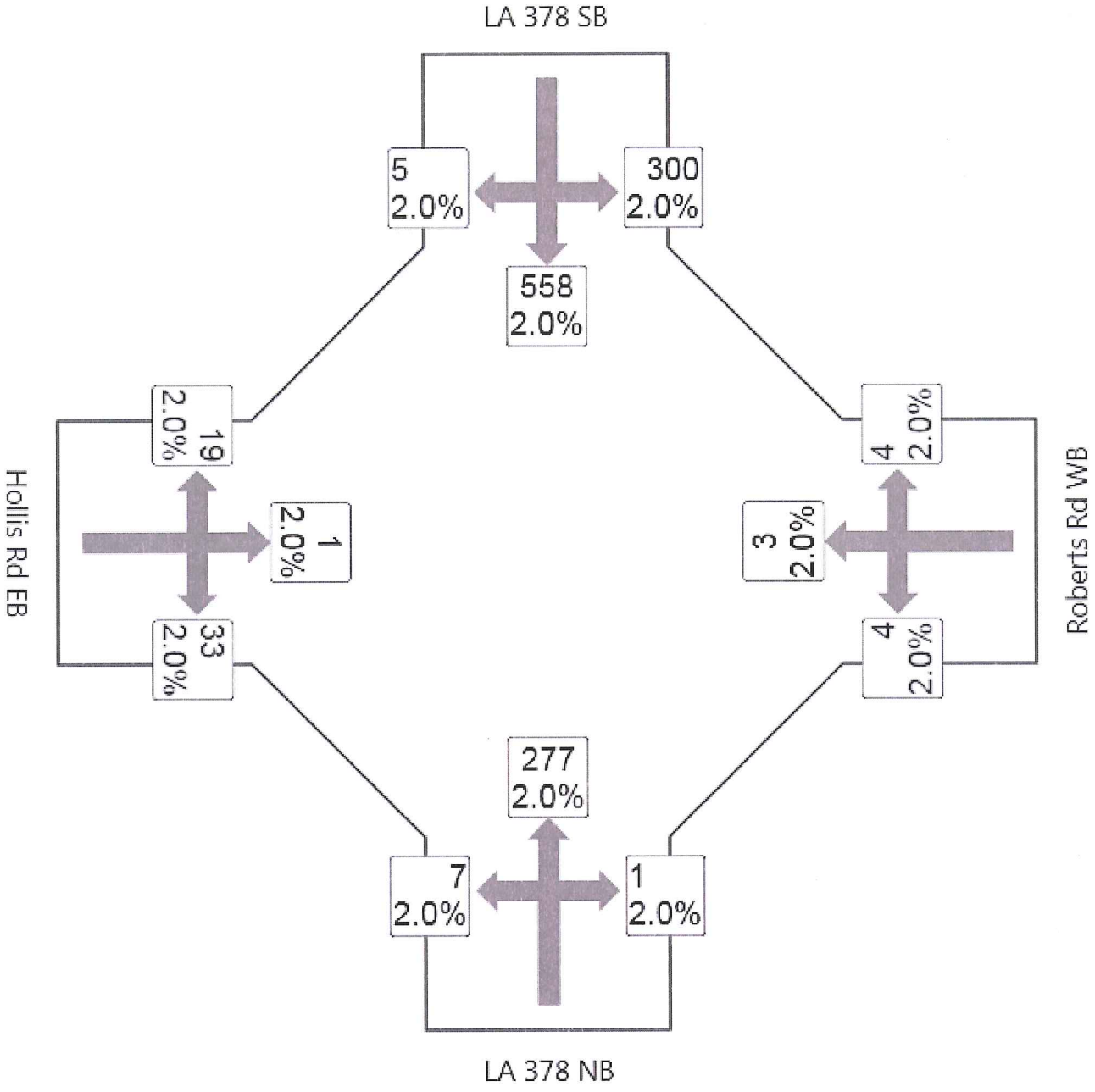
LA 378 SB
Hollis Rd EB
Roberts Rd WB
LA 378 NB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277
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LA 378 NB
Hollis Rd EB
Roberts Rd WB

MOVEMENT SUMMARY

Site: LA 378 at Hollis Rd/Davis Rd
AM - Conversion

LA 378 at Hollis Rd / Davis Rd
11-100 LA 378 Improvements
2013 AM Peak Alt B
Signals - Actuated Cycle Time = 60 seconds

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
5	L	8	2.0	0.147	15.9	LOS B	2.2	56.5	0.49	0.97	28.6
2	T	308	2.0	0.147	6.3	LOS A	2.3	57.2	0.48	0.39	32.2
12	R	1	2.0	0.147	14.8	LOS B	2.3	57.2	0.47	1.00	29.2
Approach		317	2.0	0.147	6.6	LOS A	2.3	57.2	0.48	0.41	32.1
East: Roberts Rd WB											
3	L	5	2.0	0.029	33.6	LOS C	0.4	9.6	0.84	0.73	20.4
8	T	4	2.0	0.029	24.7	LOS C	0.4	9.6	0.84	0.61	21.0
18	R	5	2.0	0.029	33.6	LOS C	0.4	9.6	0.84	0.73	20.4
Approach		14	2.0	0.029	31.2	LOS C	0.4	9.6	0.84	0.70	20.5
North: LA 378 SB											
1	L	333	2.0	0.541	19.0	LOS B	7.5	189.9	0.67	0.82	25.7
6	T	620	2.0	0.541	8.5	LOS A	11.9	302.6	0.64	0.58	30.2
16	R	6	2.0	0.541	17.5	LOS B	11.9	302.6	0.64	0.99	28.1
Approach		959	2.0	0.541	12.2	LOS B	11.9	302.6	0.65	0.66	28.5
West: Hollis Rd EB											
7	L	24	2.0	0.129	36.3	LOS D	2.2	55.6	0.96	0.82	19.4
4	T	1	2.0	0.129	27.3	LOS C	2.2	55.6	0.96	0.79	19.6
14	R	41	2.0	0.129	36.3	LOS D	2.2	55.6	0.96	0.82	19.4
Approach		66	2.0	0.129	36.1	LOS D	2.2	55.6	0.96	0.82	19.4
All Vehicles		1356	2.0	0.541	12.3	LOS B	11.9	302.6	0.63	0.61	28.5

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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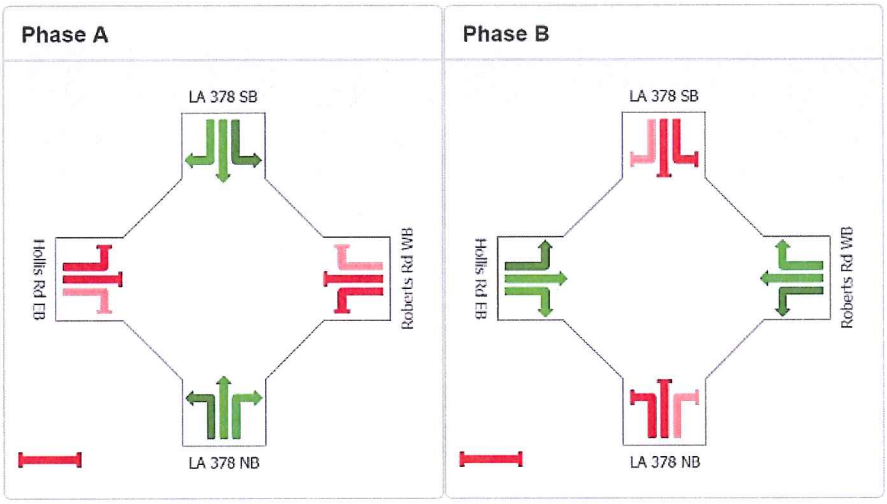
PHASING SUMMARY

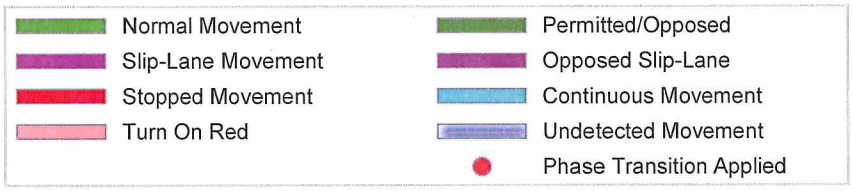
LA 378 at Hollis Rd / Davis Rd
11-100 LA 378 Improvements
2013 AM Peak Alt B
Signals - Actuated Cycle Time = 60 seconds

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	35	15
Yellow Time (sec)	4	4
All-Red Time (sec)	1	1
Phase Time (sec)	40	20
Phase Split	67 %	33 %





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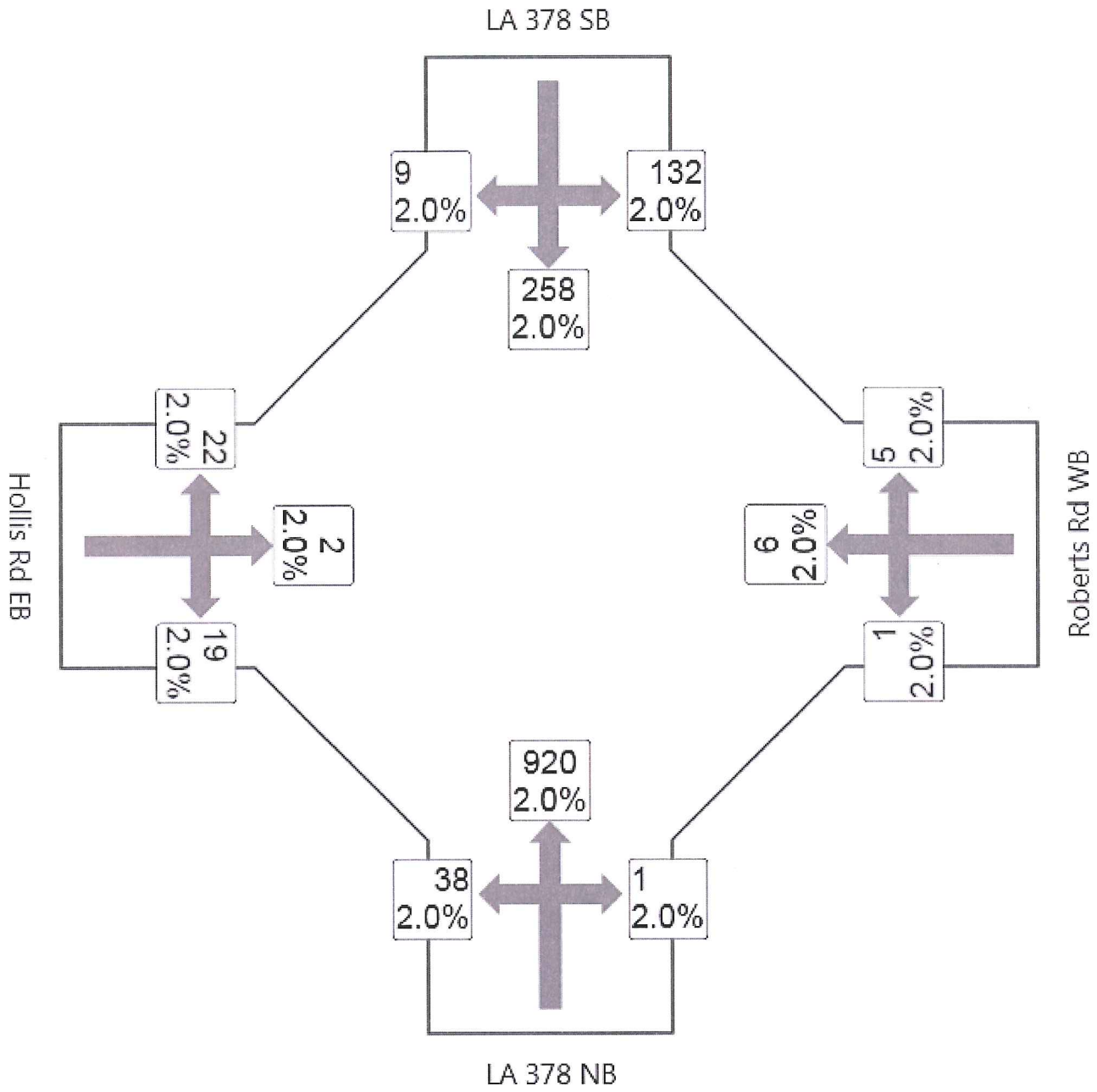
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1
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920
2.0%
38
2.0%
1
2.0%
LA 378 NB
Hollis Rd EB
Roberts Rd WB

MOVEMENT SUMMARY

Site: LA 378 at Hollis Rd/Davis Rd
PM - Conversion

LA 378 at Hollis Rd / Davis Rd
11-100 LA 378 Improvements
2013 PM Peak Alt B
Signals - Actuated Cycle Time = 60 seconds

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
5	L	42	2.0	0.487	17.2	LOS B	9.7	245.6	0.61	0.96	28.0
2	T	1022	2.0	0.487	8.2	LOS A	10.2	259.3	0.61	0.54	30.5
12	R	1	2.0	0.487	17.1	LOS B	10.2	259.3	0.61	1.00	28.2
Approach		1066	2.0	0.487	8.5	LOS A	10.2	259.3	0.61	0.56	30.4
East: Roberts Rd WB											
3	L	1	2.0	0.023	29.8	LOS C	0.4	9.4	0.79	0.75	21.9
8	T	8	2.0	0.023	20.9	LOS C	0.4	9.4	0.79	0.57	22.7
18	R	6	2.0	0.023	29.9	LOS C	0.4	9.4	0.79	0.75	21.9
Approach		15	2.0	0.023	25.4	LOS C	0.4	9.4	0.79	0.66	22.3
North: LA 378 SB											
1	L	147	2.0	0.546	24.9	LOS C	4.0	101.0	0.78	0.81	23.1
6	T	287	2.0	0.263	6.5	LOS A	4.4	112.1	0.51	0.44	32.0
16	R	10	2.0	0.263	15.5	LOS B	4.4	112.1	0.51	1.00	28.9
Approach		443	2.0	0.546	12.8	LOS B	4.4	112.1	0.60	0.58	28.3
West: Hollis Rd EB											
7	L	28	2.0	0.109	40.4	LOS D	2.0	51.7	1.00	0.83	18.3
4	T	3	2.0	0.109	31.4	LOS C	2.0	51.7	1.00	0.83	18.5
14	R	24	2.0	0.109	40.4	LOS D	2.0	51.7	1.00	0.83	18.3
Approach		54	2.0	0.109	39.9	LOS D	2.0	51.7	1.00	0.83	18.3
All Vehicles		1578	2.0	0.546	11.0	LOS B	10.2	259.3	0.62	0.57	29.1

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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LA 37
8
2.0%
9
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132
2.0%
258
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5
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6
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1
2.0%
920
2.0%
38
2.0%
1
2.0%
26
2.0%
78 NB
Hollis Rd EB
Roberts Rd WB

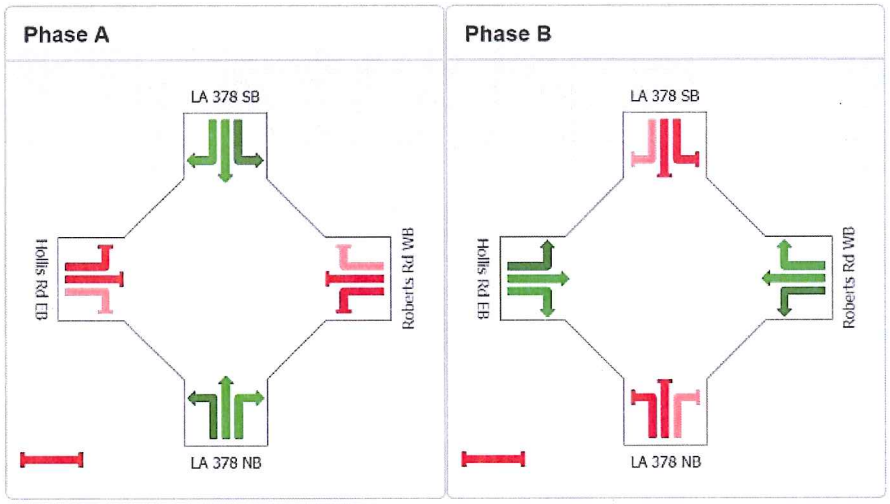
PHASING SUMMARY

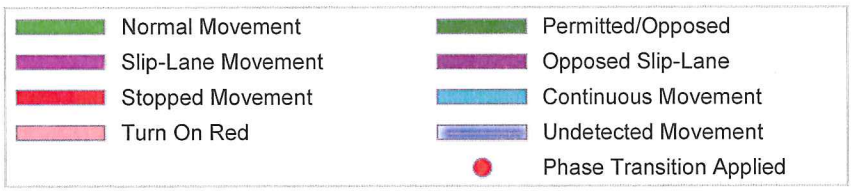
LA 378 at Hollis Rd / Davis Rd
11-100 LA 378 Improvements
2013 PM Peak Alt B
Signals - Actuated Cycle Time = 60 seconds

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	35	15
Yellow Time (sec)	4	4
All-Red Time (sec)	1	1
Phase Time (sec)	40	20
Phase Split	67 %	33 %





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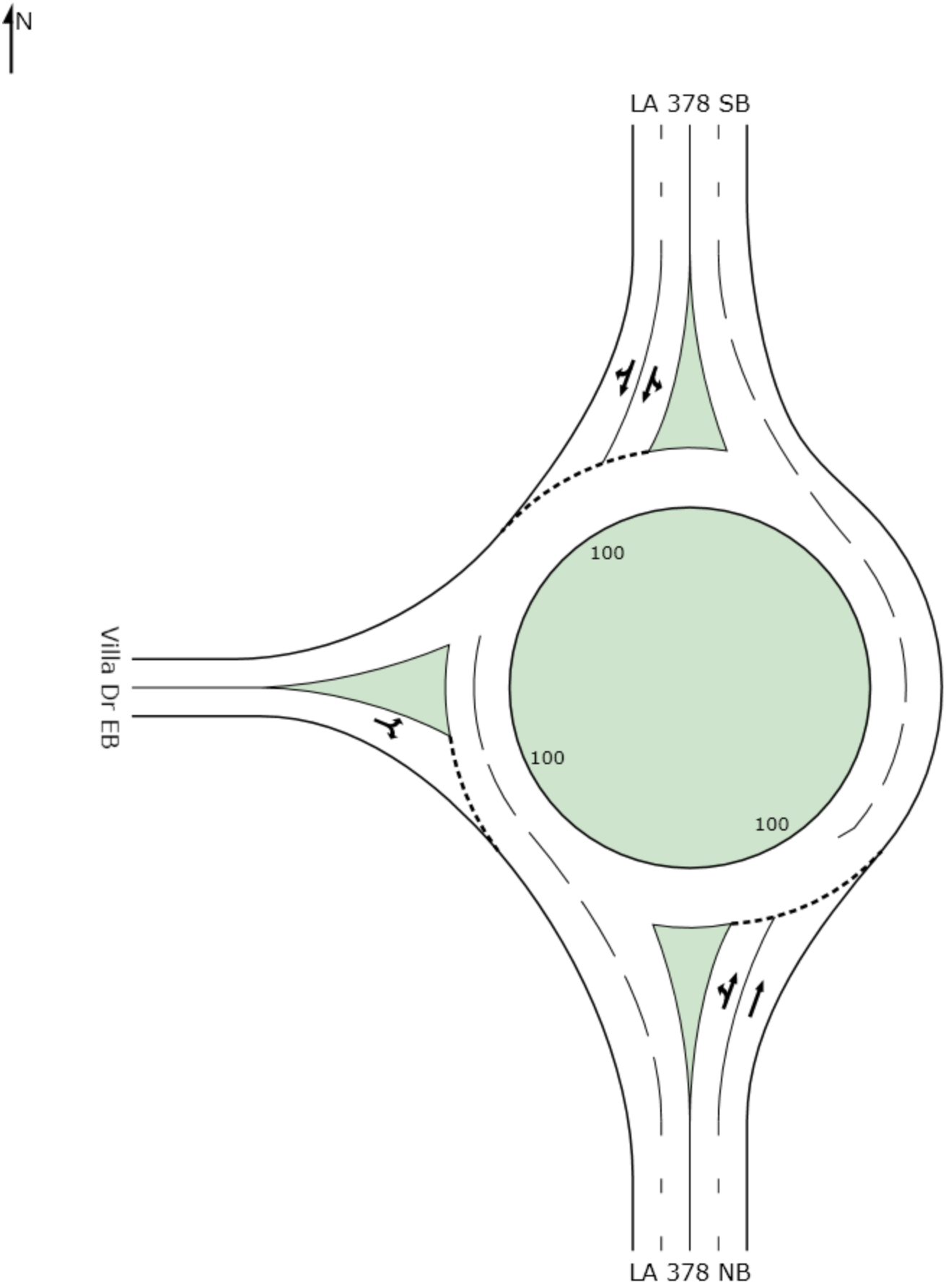
N
LA 378 SB
Villa Dr EB
LA 378 NB
100
100
100

LA 378
3
2.0%
4
2.0%
851
2.0%
4
2.0%
Villa Dr EB
9
2.0%
297
2.0%
1
2.0%
2
2.0%
78 NB

MOVEMENT SUMMARY

Site: LA 378 at Villa Dr AM

LA 378 at Villa Dr
11-100 LA 378 Improvements
2013 AM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	3	2.0	0.108	13.9	LOS B	0.6	14.7	0.06	1.01	29.3
8	T	330	2.0	0.108	5.2	LOS A	0.6	14.8	0.06	0.42	34.5
Approach		333	2.0	0.108	5.3	LOS A	0.6	14.8	0.06	0.42	34.4
North: LA 378 SB											
7	L	3	2.0	0.295	14.7	LOS B	1.8	45.5	0.04	1.07	29.0
4	T	946	2.0	0.295	5.2	LOS A	1.8	45.5	0.04	0.42	34.6
14	R	4	2.0	0.295	6.4	LOS A	1.8	45.3	0.04	0.56	33.6
Approach		953	2.0	0.295	5.2	LOS A	1.8	45.5	0.04	0.43	34.6
West: Villa Dr EB											
5	L	5	2.0	0.028	16.1	LOS B	0.1	2.4	0.55	0.85	28.1
12	R	11	2.0	0.028	10.1	LOS B	0.1	2.4	0.55	0.71	30.7
Approach		16	2.0	0.028	12.0	LOS B	0.1	2.4	0.55	0.75	29.8
All Vehicles		1303	2.0	0.295	5.3	LOS A	1.8	45.5	0.05	0.43	34.4

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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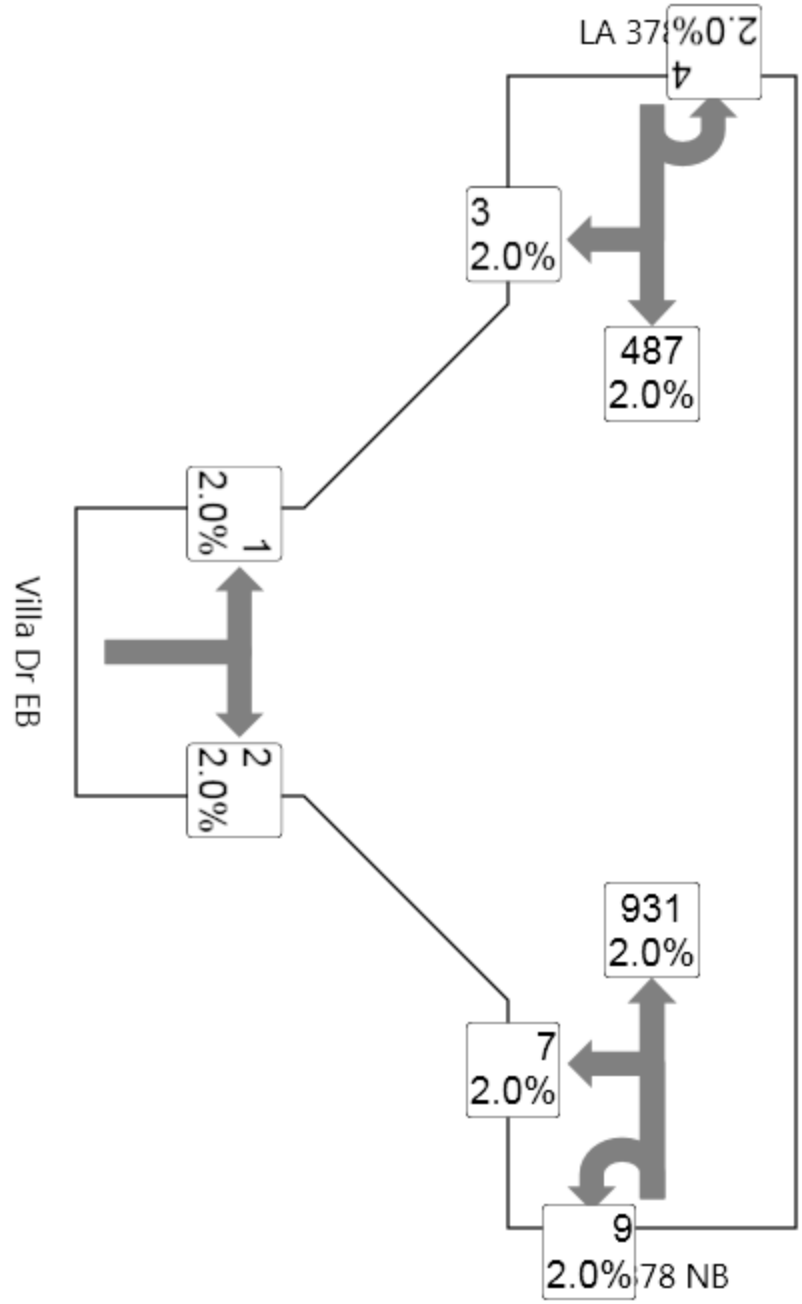
SIDRA INTERSECTION


LA 378
4
2.0%
3
2.0%
487
2.0%
1
2.0%
Villa Dr EB
2
2.0%
931
2.0%
7
2.0%
9
2.0%
78 NB

MOVEMENT SUMMARY

Site: LA 378 at Villa Dr PM

LA 378 at Villa Dr
11-100 LA 378 Improvements
2013 PM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	18	2.0	0.328	13.7	LOS B	2.1	53.4	0.06	1.00	29.5
8	T	1034	2.0	0.328	5.2	LOS A	2.1	53.4	0.06	0.42	34.5
Approach		1052	2.0	0.328	5.3	LOS A	2.1	53.4	0.06	0.43	34.4
North: LA 378 SB											
7	L	4	2.0	0.181	14.8	LOS B	1.0	24.5	0.10	1.02	29.0
4	T	541	2.0	0.181	5.3	LOS A	1.0	24.5	0.10	0.42	34.3
14	R	3	2.0	0.181	6.4	LOS A	1.0	24.5	0.09	0.55	33.3
Approach		549	2.0	0.181	5.3	LOS A	1.0	24.5	0.10	0.42	34.2
West: Villa Dr EB											
5	L	1	2.0	0.005	14.5	LOS B	0.0	0.5	0.46	0.75	29.0
12	R	3	2.0	0.005	8.4	LOS A	0.0	0.5	0.46	0.57	31.6
Approach		4	2.0	0.005	10.5	LOS B	0.0	0.5	0.46	0.63	30.6
All Vehicles		1605	2.0	0.328	5.4	LOS A	2.1	53.4	0.07	0.43	34.3

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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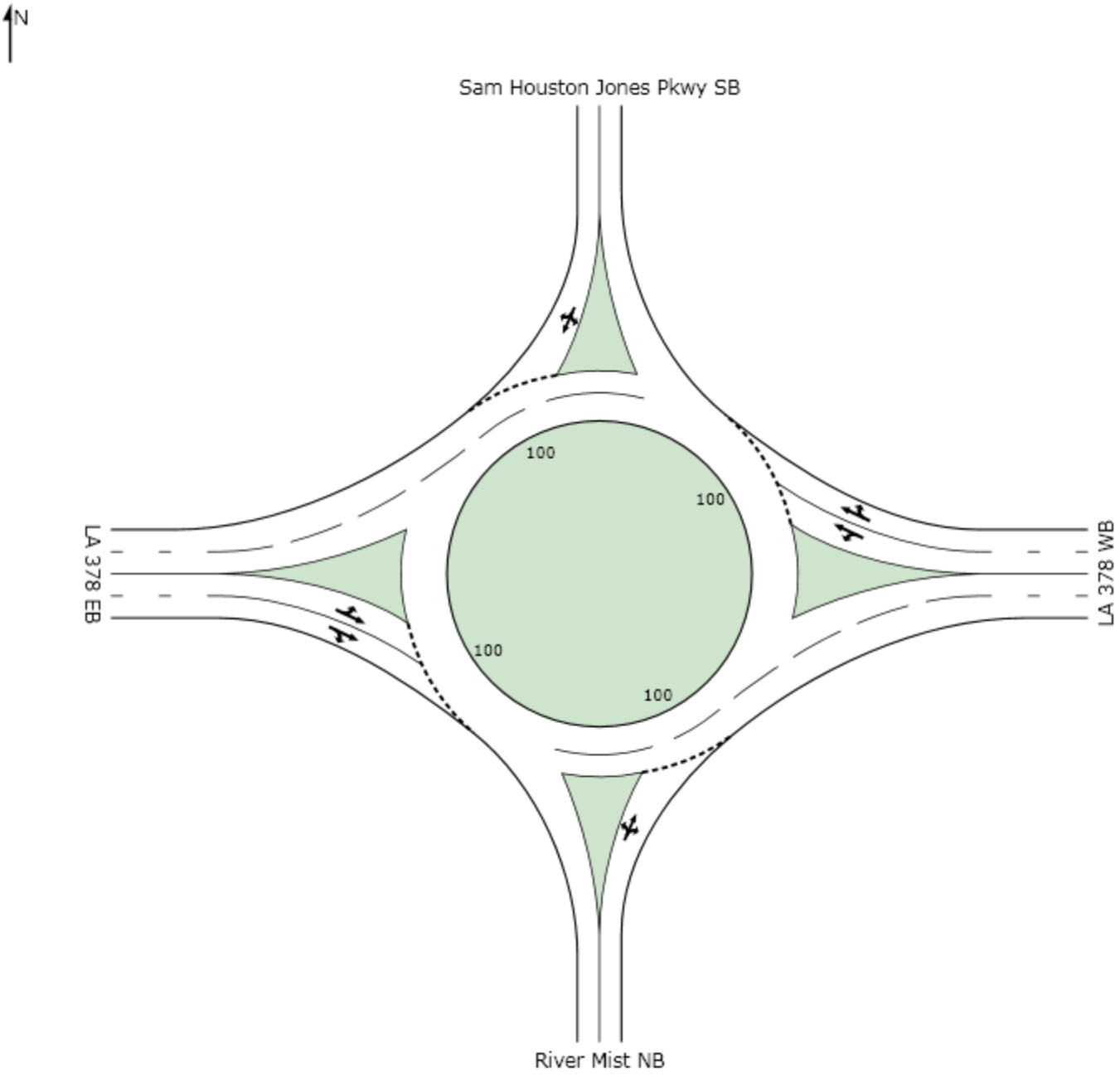
SIDRA INTERSECTION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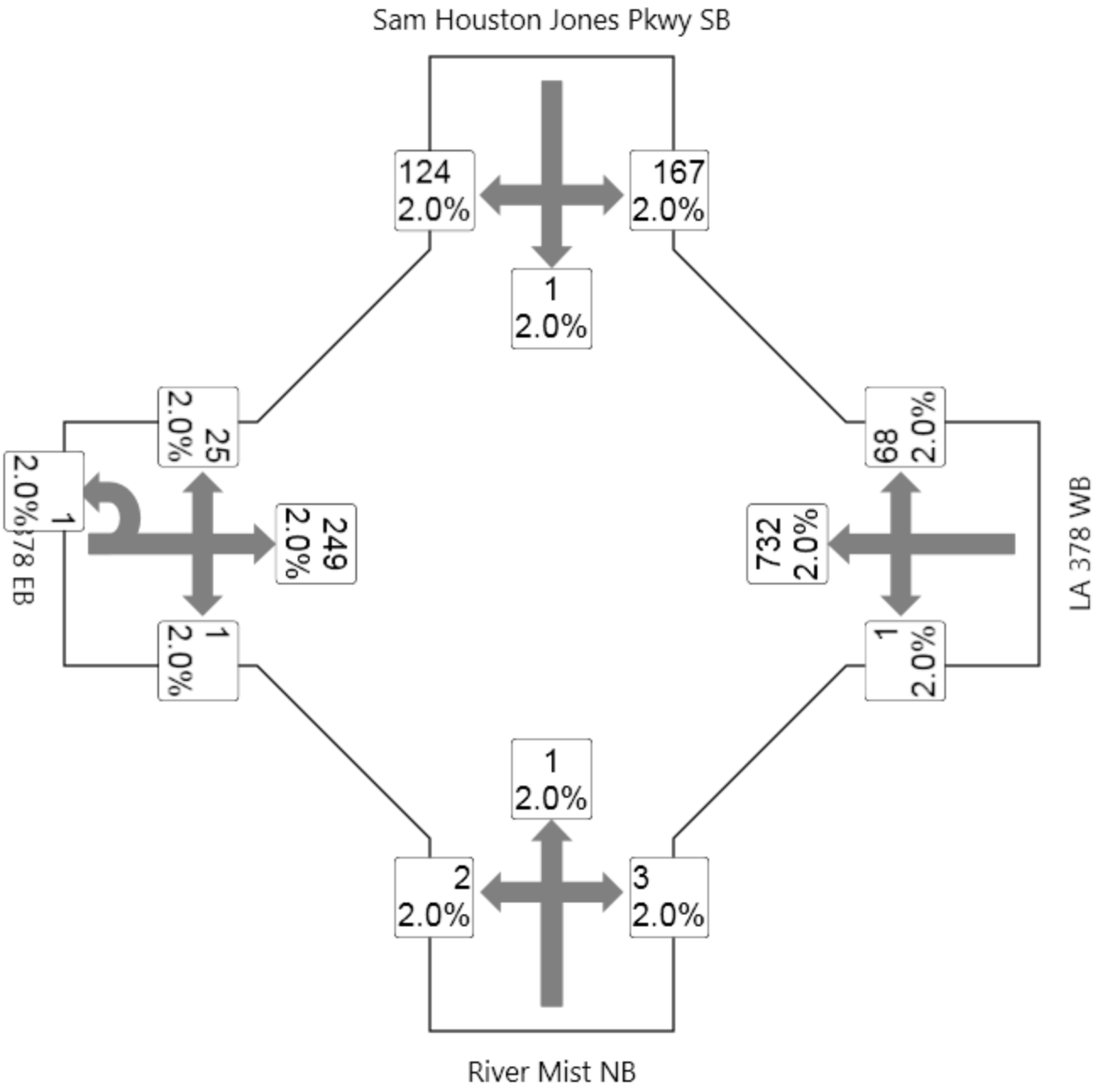
Sam Houston Jones Pkwy SB
LA 378 EB
LA 378 WB
River Mist NB
100
100
100
100


Sam Houston Jones Pkwy SB
124
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167
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25
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68
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732
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LA 378 WB
LA 378 EB
1
2.0%
2
2.0%
3
2.0%
River Mist NB

MOVEMENT SUMMARY

Site: LA 378 at Sam Houston Jones Pkwy AM

LA 378 at Sam Houston Jones Pkwy
11-100 LA 378 Improvements
2013 AM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: River Mist NB											
3	L	3	2.0	0.011	14.9	LOS B	0.0	1.1	0.52	0.76	28.8
8	T	1	2.0	0.011	7.8	LOS A	0.0	1.1	0.52	0.54	31.5
18	R	4	2.0	0.011	8.8	LOS A	0.0	1.1	0.52	0.59	31.4
Approach		8	2.0	0.011	10.6	LOS B	0.0	1.1	0.52	0.64	30.5
East: LA 378 WB											
1	L	1	2.0	0.300	12.4	LOS B	2.1	53.8	0.19	0.88	30.1
6	T	813	2.0	0.300	5.4	LOS A	2.1	54.3	0.18	0.41	33.8
16	R	76	2.0	0.300	6.6	LOS A	2.1	54.3	0.18	0.52	33.0
Approach		890	2.0	0.300	5.5	LOS A	2.1	54.3	0.18	0.42	33.7
North: Sam Houston Jones Pkwy SB											
7	L	209	2.0	0.646	21.6	LOS C	4.3	108.6	0.79	1.07	25.5
4	T	1	2.0	0.646	14.5	LOS B	4.3	108.6	0.79	0.98	27.4
14	R	155	2.0	0.646	15.5	LOS B	4.3	108.6	0.79	1.00	27.2
Approach		365	2.0	0.646	19.0	LOS B	4.3	108.6	0.79	1.04	26.1
West: LA 378 EB											
5	L	29	2.0	0.137	13.6	LOS B	0.8	21.3	0.46	0.79	29.8
2	T	277	2.0	0.137	6.3	LOS A	0.9	21.7	0.46	0.51	32.3
12	R	1	2.0	0.137	7.4	LOS A	0.9	21.7	0.45	0.58	32.0
Approach		307	2.0	0.137	7.0	LOS A	0.9	21.7	0.46	0.54	32.0
All Vehicles		1569	2.0	0.646	8.9	LOS A	4.3	108.6	0.38	0.59	31.2

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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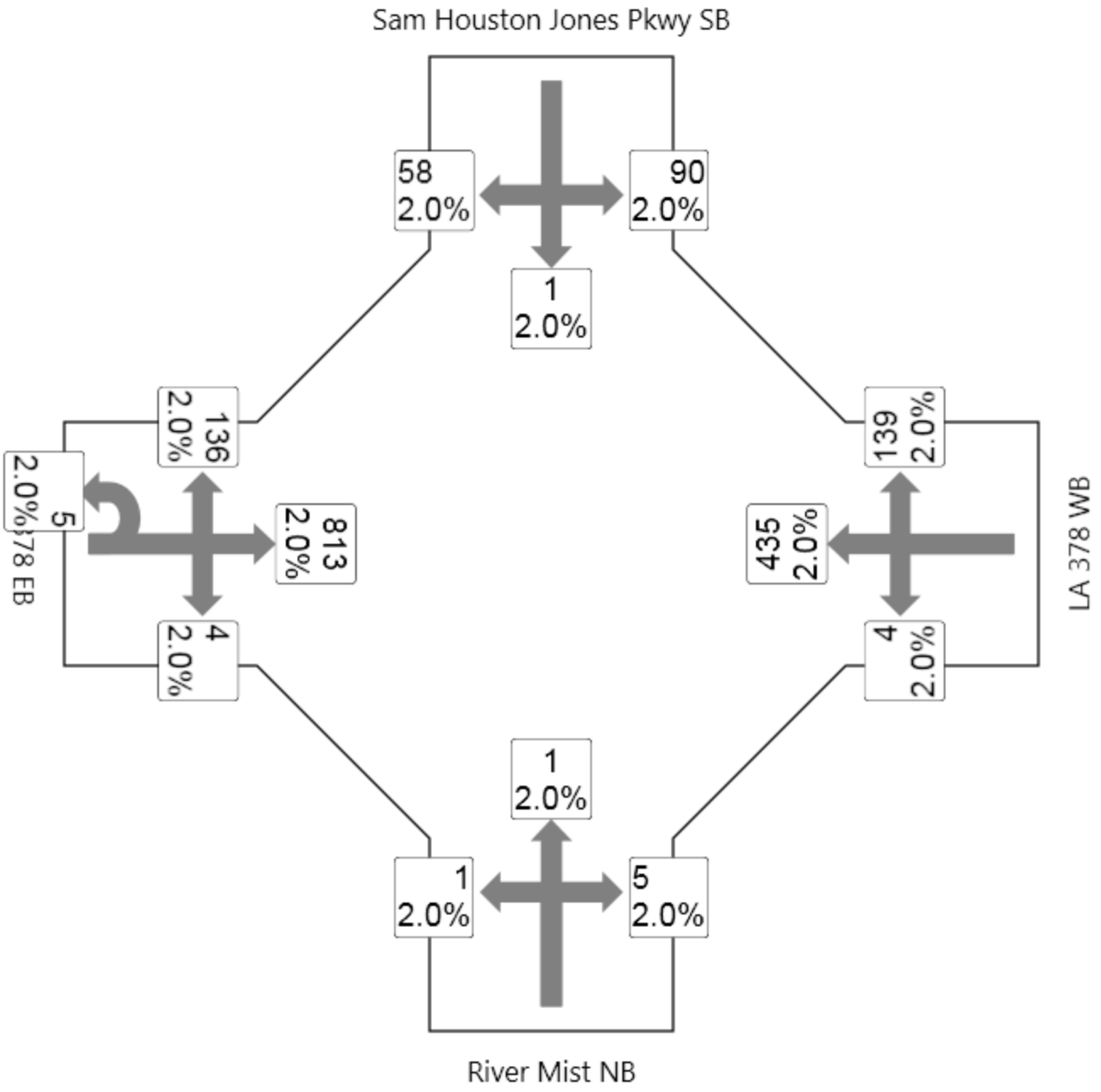
Sam Houston Jones Pkwy SB
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90
2.0%
1
2.0%
136
2.0%
139
2.0%
5
2.0%
813
2.0%
435
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4
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4
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LA 378 WB
378 EB
1
2.0%
1
2.0%
5
2.0%
River Mist NB

MOVEMENT SUMMARY

Site: LA 378 at Sam Houston Jones Pkwy PM

LA 378 at Sam Houston Jones Pkwy
11-100 LA 378 Improvements
2013 PM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: River Mist NB											
3	L	1	2.0	0.020	17.9	LOS B	0.1	2.0	0.67	0.88	27.4
8	T	1	2.0	0.020	10.8	LOS B	0.1	2.0	0.67	0.72	30.0
18	R	6	2.0	0.020	11.8	LOS B	0.1	2.0	0.67	0.76	29.7
Approach		9	2.0	0.020	12.6	LOS B	0.1	2.0	0.67	0.77	29.4
East: LA 378 WB											
1	L	4	2.0	0.263	13.2	LOS B	1.7	43.2	0.42	0.83	30.0
6	T	483	2.0	0.263	6.2	LOS A	1.7	43.8	0.41	0.49	32.5
16	R	154	2.0	0.263	7.3	LOS A	1.7	43.8	0.41	0.56	32.0
Approach		642	2.0	0.263	6.5	LOS A	1.7	43.8	0.41	0.51	32.4
North: Sam Houston Jones Pkwy SB											
7	L	113	2.0	0.279	15.6	LOS B	1.3	32.7	0.60	0.88	28.3
4	T	1	2.0	0.279	8.5	LOS A	1.3	32.7	0.60	0.70	30.9
14	R	73	2.0	0.279	9.5	LOS A	1.3	32.7	0.60	0.76	30.8
Approach		186	2.0	0.279	13.2	LOS B	1.3	32.7	0.60	0.83	29.2
West: LA 378 EB											
5	L	157	2.0	0.410	13.3	LOS B	3.2	82.1	0.43	0.76	29.7
2	T	903	2.0	0.410	6.0	LOS A	3.3	83.4	0.42	0.48	32.4
12	R	4	2.0	0.410	7.1	LOS A	3.3	83.4	0.42	0.56	32.2
Approach		1064	2.0	0.410	7.1	LOS A	3.3	83.4	0.42	0.52	31.9
All Vehicles		1902	2.0	0.410	7.5	LOS A	3.3	83.4	0.44	0.55	31.8

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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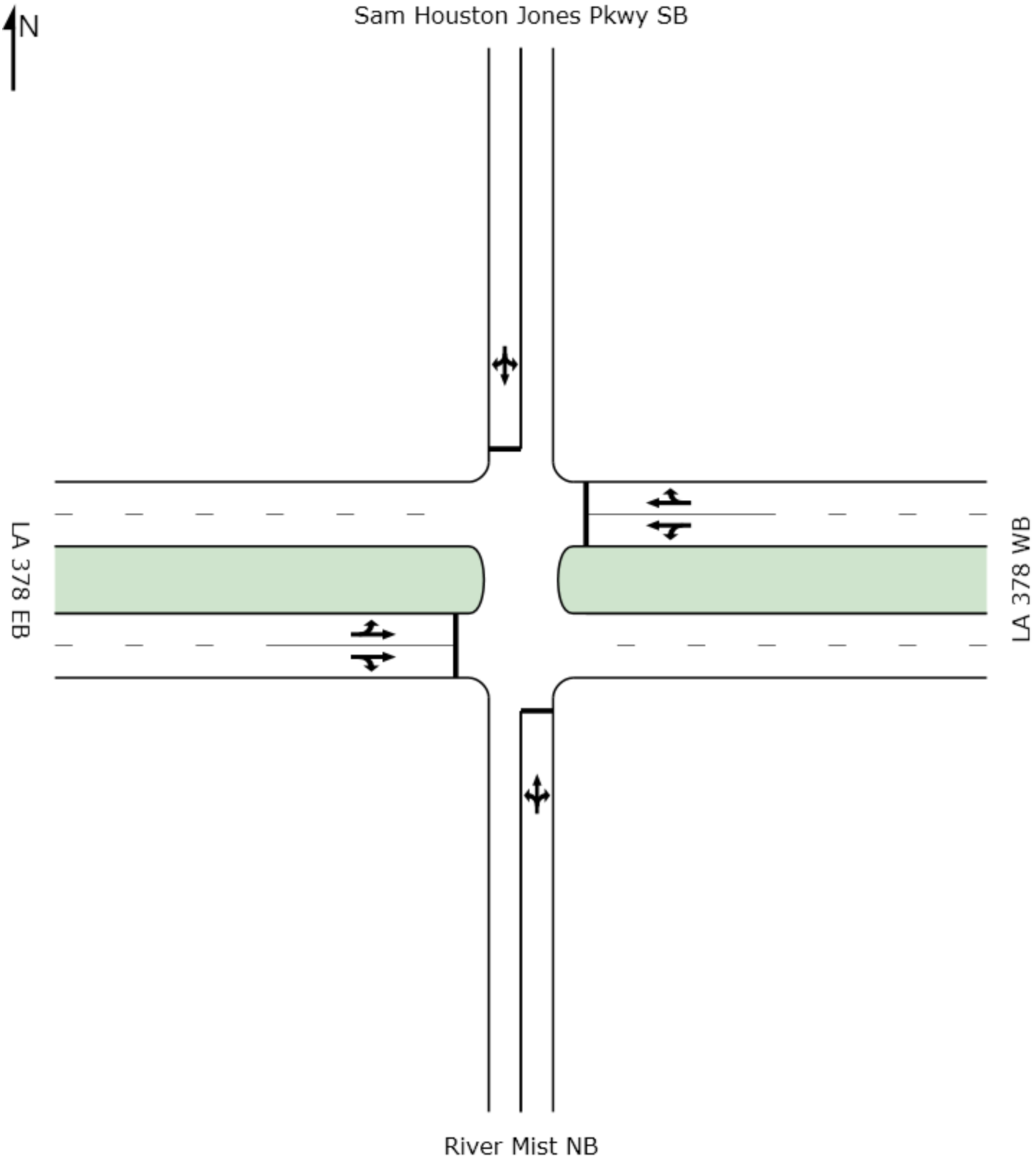
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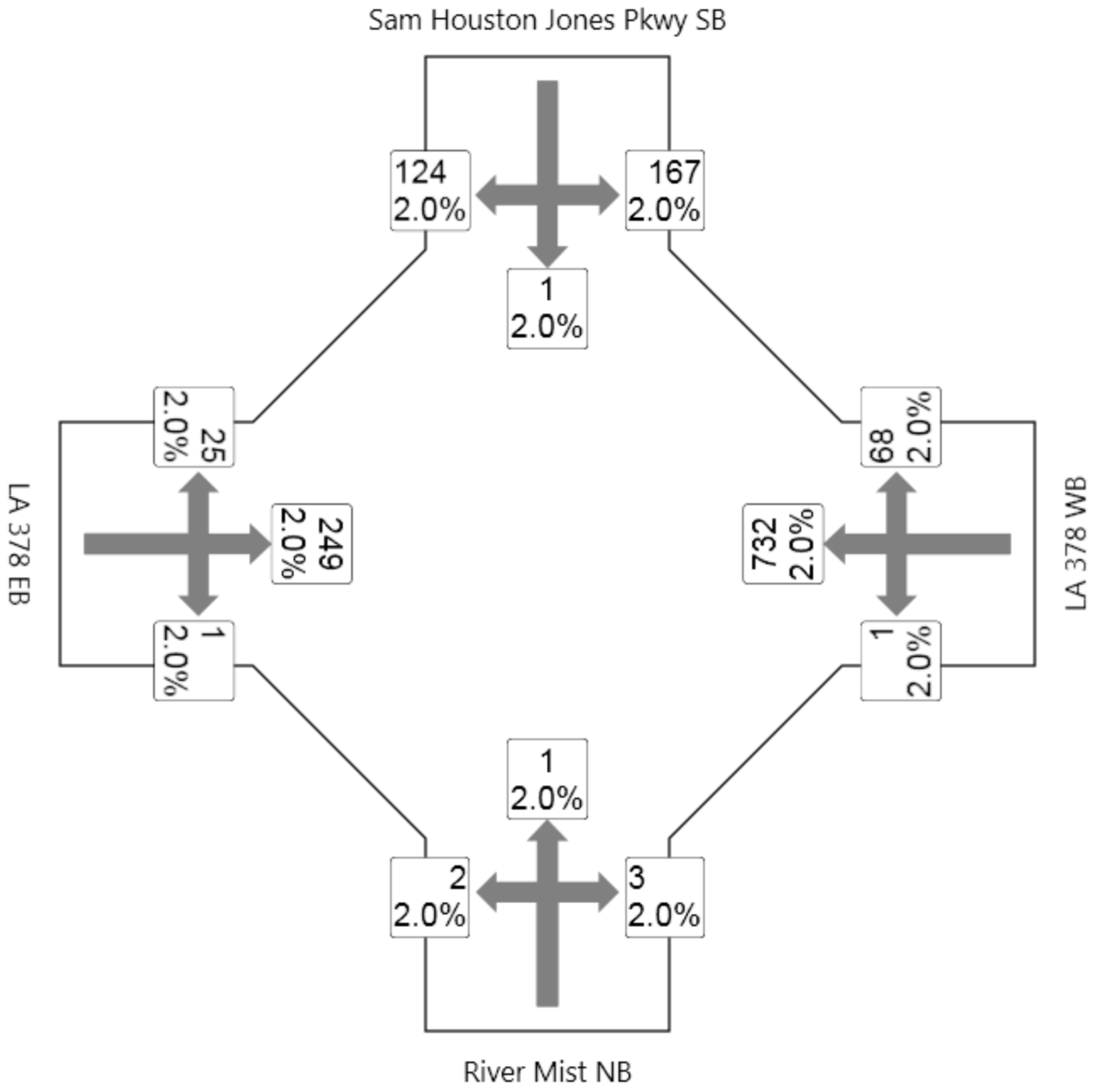
Sam Houston Jones Pkwy SB
LA 378 EB
LA 378 WB
River Mist NB


Sam Houston Jones Pkwy SB
124
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LA 378 EB
249
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732
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LA 378 WB
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1
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3
2.0%
River Mist NB

MOVEMENT SUMMARY

Site: LA 378 at Sam Houston Jones Pkwy AM - Conversion

LA 378 at Sam Houston Jones Pkwy
11-100 LA 378 Improvements
2013 AM Peak Alt B
Signals - Actuated Cycle Time = 60 seconds

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: River Mist NB											
3	L	3	2.0	0.015	29.2	LOS C	0.2	4.6	0.79	0.67	21.7
8	T	1	2.0	0.015	20.6	LOS C	0.2	4.6	0.79	0.53	22.4
18	R	4	2.0	0.015	29.5	LOS C	0.2	4.6	0.79	0.68	21.6
Approach		8	2.0	0.015	27.9	LOS C	0.2	4.6	0.79	0.65	21.8
East: LA 378 WB											
1	L	1	2.0	0.412	16.4	LOS B	7.9	199.8	0.57	0.95	28.4
6	T	813	2.0	0.412	7.2	LOS A	7.9	199.8	0.57	0.50	31.2
16	R	76	2.0	0.412	15.6	LOS B	7.1	181.0	0.56	0.95	28.7
Approach		890	2.0	0.412	8.0	LOS A	7.9	199.8	0.57	0.54	31.0
North: Sam Houston Jones Pkwy SB											
7	L	209	2.0	0.787	34.1	LOS C	12.6	318.9	1.00	0.85	20.0
4	T	1	2.0	0.787	25.4	LOS C	12.6	318.9	1.00	0.85	20.1
14	R	155	2.0	0.787	34.4	LOS C	12.6	318.9	1.00	0.85	20.0
Approach		365	2.0	0.787	34.2	LOS C	12.6	318.9	1.00	0.85	20.0
West: LA 378 EB											
5	L	28	2.0	0.171	16.9	LOS B	2.0	49.9	0.53	0.87	27.7
2	T	277	2.0	0.171	6.6	LOS A	2.5	63.7	0.49	0.41	31.9
12	R	1	2.0	0.171	14.7	LOS B	2.5	63.7	0.47	1.00	29.3
Approach		306	2.0	0.171	7.5	LOS A	2.5	63.7	0.49	0.45	31.5
All Vehicles		1568	2.0	0.787	14.1	LOS B	12.6	318.9	0.66	0.60	27.5

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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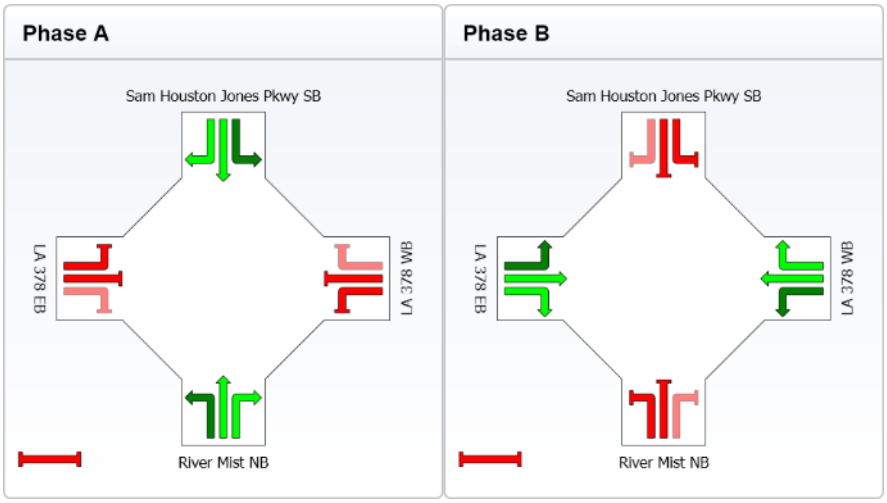
PHASING SUMMARY

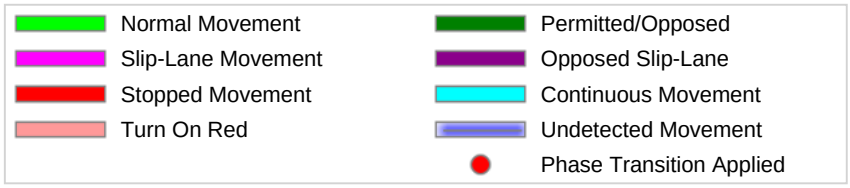
LA 378 at Sam Houston Jones Pkwy
11-100 LA 378 Improvements
2013 AM Peak Alt B
Signals - Actuated Cycle Time = 60 seconds

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	15	35
Yellow Time (sec)	4	4
All-Red Time (sec)	1	1
Phase Time (sec)	20	40
Phase Split	33 %	67 %





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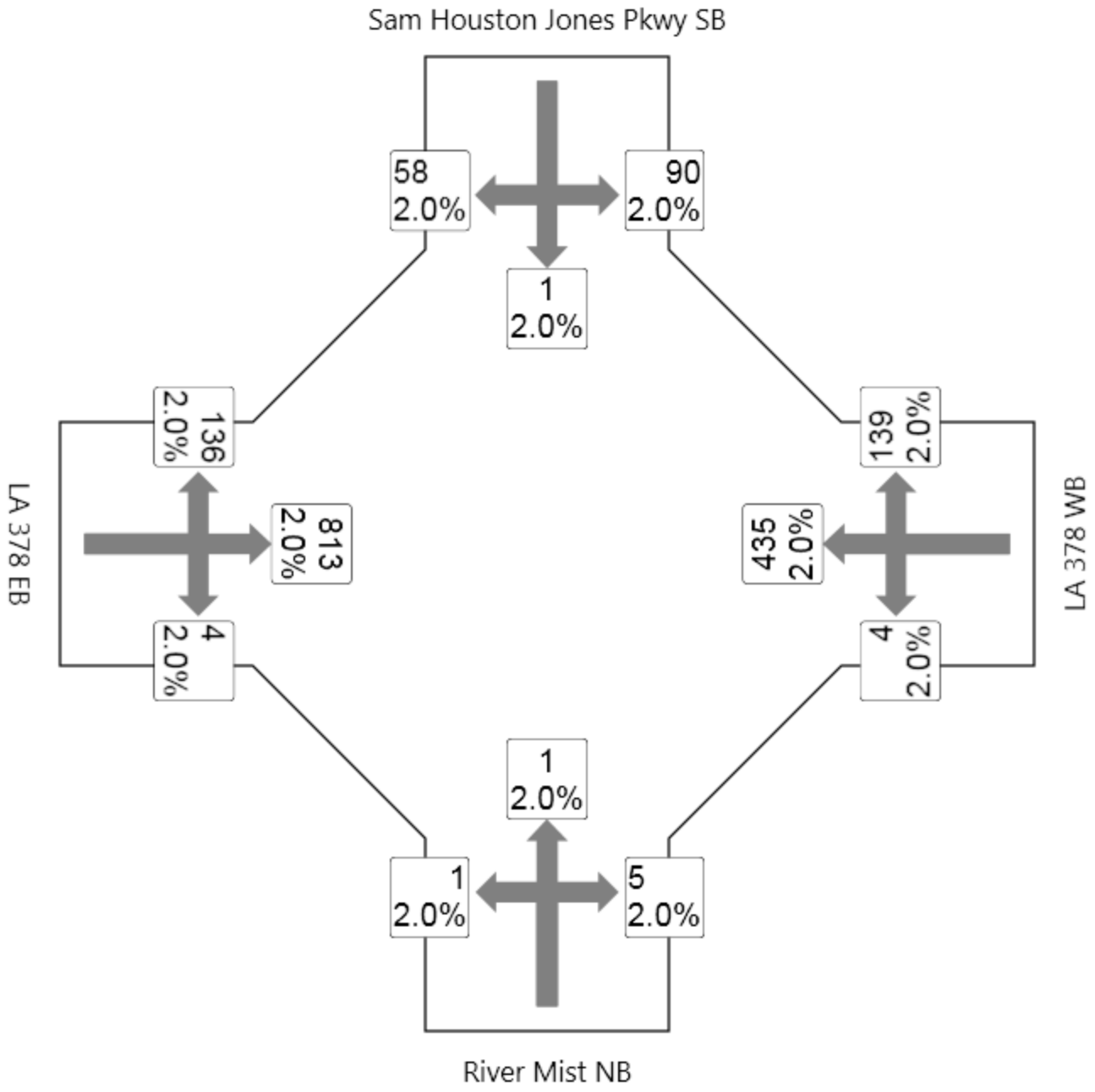
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2.0%
90
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136
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139
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LA 378 EB
813
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435
2.0%
LA 378 WB
4
2.0%
4
2.0%
1
2.0%
1
2.0%
5
2.0%
River Mist NB

MOVEMENT SUMMARY

Site: LA 378 at Sam Houston Jones Pkwy PM - Conversion

LA 378 at Sam Houston Jones Pkwy
11-100 LA 378 Improvements
2013 PM Peak Alt B
Signals - Actuated Cycle Time = 41 seconds

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: River Mist NB											
3	L	1	2.0	0.016	22.0	LOS C	0.1	3.7	0.76	0.67	24.4
8	T	1	2.0	0.016	13.4	LOS B	0.1	3.7	0.76	0.52	25.5
18	R	6	2.0	0.016	22.4	LOS C	0.1	3.7	0.76	0.69	24.4
Approach		9	2.0	0.016	21.0	LOS C	0.1	3.7	0.76	0.66	24.5
East: LA 378 WB											
1	L	4	2.0	0.340	15.5	LOS B	4.2	105.5	0.61	0.93	29.1
6	T	483	2.0	0.340	5.5	LOS A	4.2	105.5	0.59	0.49	31.7
16	R	154	2.0	0.340	12.1	LOS B	2.8	70.9	0.56	0.86	30.4
Approach		642	2.0	0.340	7.1	LOS A	4.2	105.5	0.58	0.58	31.4
North: Sam Houston Jones Pkwy SB											
7	L	113	2.0	0.387	24.3	LOS C	3.6	92.2	0.87	0.79	23.3
4	T	1	2.0	0.387	15.6	LOS B	3.6	92.2	0.87	0.71	23.9
14	R	73	2.0	0.387	24.6	LOS C	3.6	92.2	0.87	0.80	23.3
Approach		186	2.0	0.387	24.4	LOS C	3.6	92.2	0.87	0.79	23.3
West: LA 378 EB											
5	L	151	2.0	0.655	18.1	LOS B	7.8	198.0	0.79	0.87	27.3
2	T	903	2.0	0.655	8.6	LOS A	10.6	268.3	0.77	0.69	29.6
12	R	4	2.0	0.655	17.3	LOS B	10.6	268.3	0.77	0.96	28.6
Approach		1059	2.0	0.655	10.0	LOS B	10.6	268.3	0.78	0.72	29.2
All Vehicles		1896	2.0	0.655	10.5	LOS B	10.6	268.3	0.72	0.68	29.2

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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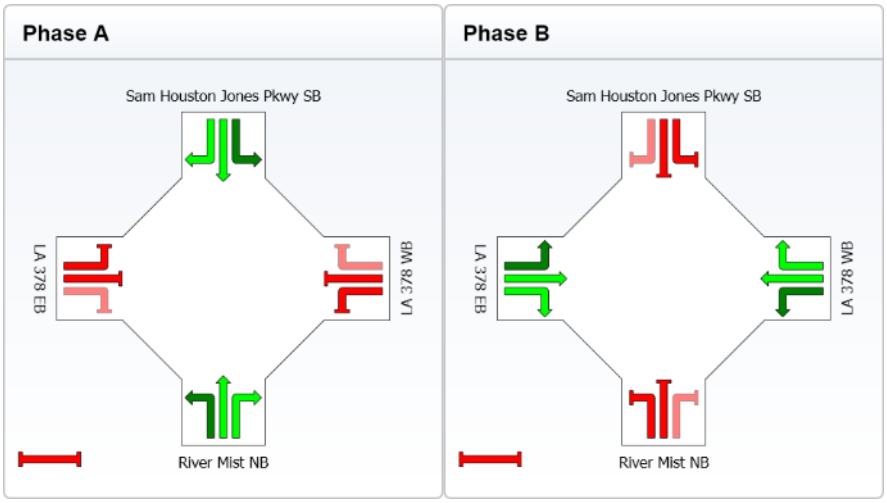
PHASING SUMMARY

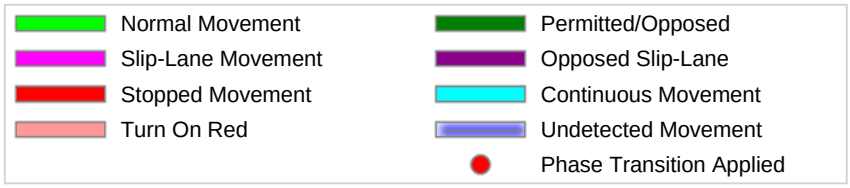
LA 378 at Sam Houston Jones Pkwy
11-100 LA 378 Improvements
2013 PM Peak Alt B
Signals - Actuated Cycle Time = 41 seconds

Phase times determined by the program
Sequence: Opposed Turns
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	10	21
Yellow Time (sec)	4	4
All-Red Time (sec)	1	1
Phase Time (sec)	15	26
Phase Split	37 %	63 %





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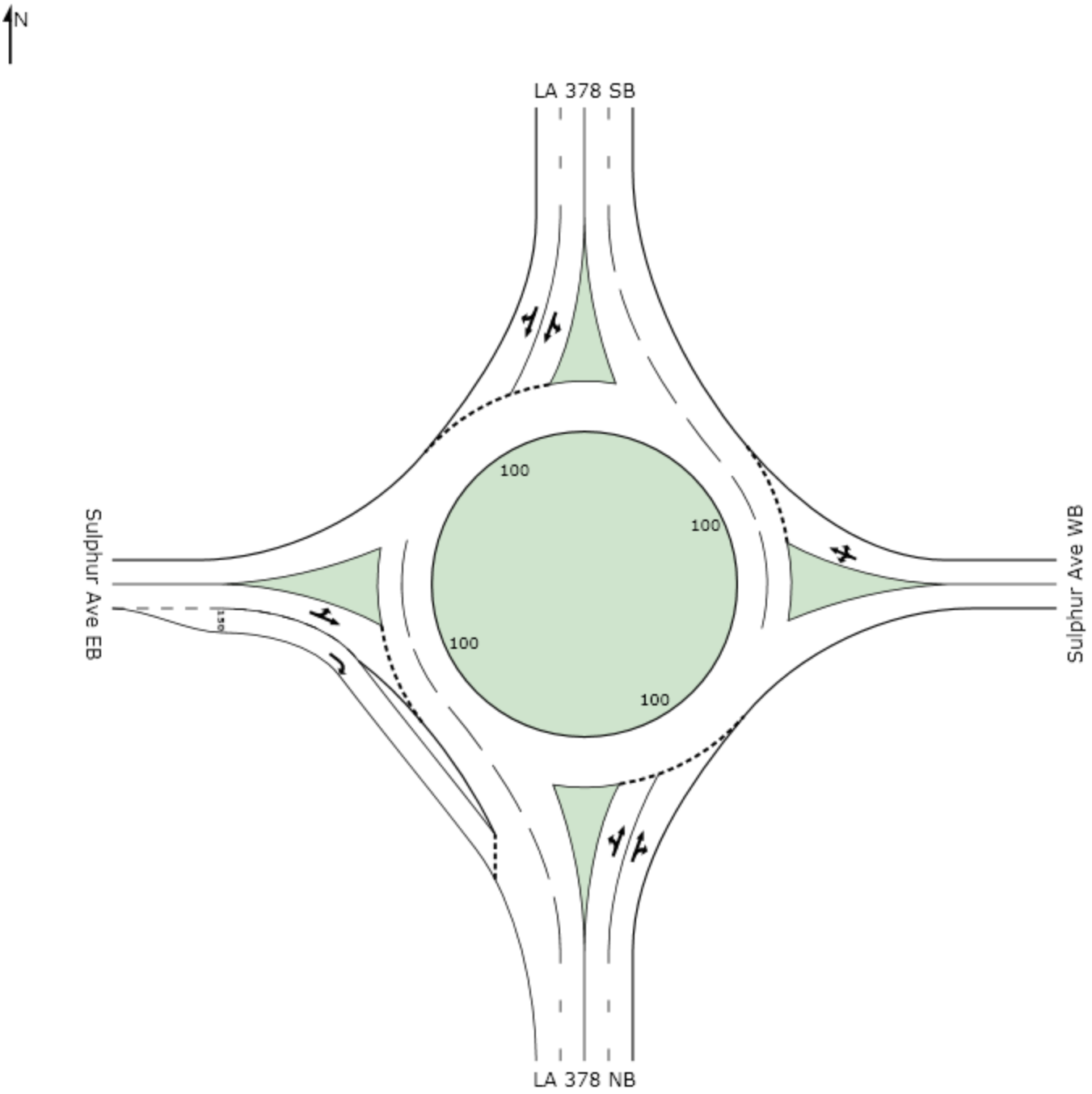
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Sulphur Ave EB
Sulphur Ave WB
LA 378 NB
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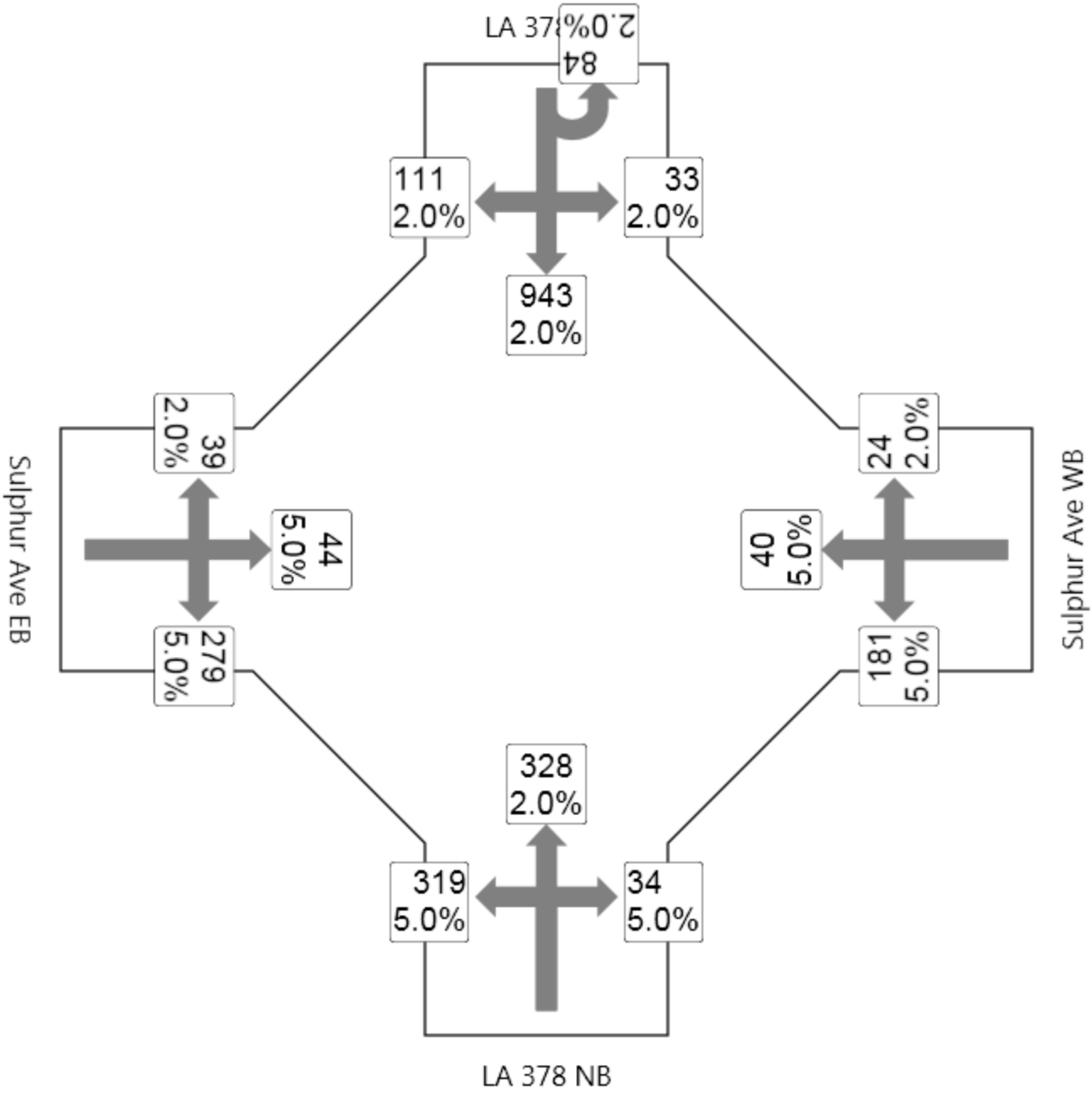
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Sulphur Ave EB
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Sulphur Ave WB
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319
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LA 378 NB

MOVEMENT SUMMARY

LA 378 at Sulphur Ave
11-100 LA 378 Improvements
2028 AM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	354	5.0	0.342	14.0	LOS B	2.3	58.6	0.53	0.71	28.6
8	T	364	2.0	0.341	6.5	LOS A	2.3	58.8	0.51	0.55	32.0
18	R	38	5.0	0.341	7.9	LOS A	2.3	58.8	0.51	0.63	31.8
Approach		757	3.6	0.342	10.1	LOS B	2.3	58.8	0.52	0.63	30.2
East: Sulphur Ave WB											
1	L	226	5.0	0.593	20.7	LOS C	3.6	92.2	0.78	1.04	25.9
6	T	50	5.0	0.593	13.6	LOS B	3.6	92.2	0.78	0.95	27.9
16	R	30	2.0	0.593	14.5	LOS B	3.6	92.2	0.78	0.97	27.7
Approach		306	4.7	0.593	18.9	LOS B	3.6	92.2	0.78	1.02	26.3
North: LA 378 SB											
7	L	130	2.0	0.830	31.9	LOS C	13.2	334.6	1.00	1.32	22.4
4	T	1048	2.0	0.830	22.0	LOS C	14.1	359.1	1.00	1.30	24.3
14	R	123	2.0	0.830	22.4	LOS C	14.1	359.1	1.00	1.28	24.6
Approach		1301	2.0	0.830	23.0	LOS C	14.1	359.1	1.00	1.30	24.1
West: Sulphur Ave EB											
5	L	49	2.0	0.461	25.9	LOS C	2.2	55.4	0.88	1.03	23.9
2	T	55	5.0	0.461	18.9	LOS B	2.2	55.4	0.88	0.98	25.4
12	R	349	5.0	0.828	23.9	LOS C	7.2	188.0	0.96	1.21	23.6
Approach		453	4.7	0.828	23.5	LOS C	7.2	188.0	0.94	1.16	23.8
All Vehicles		2817	3.1	0.830	19.2	LOS B	14.1	359.1	0.84	1.07	25.7

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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SIDRA INTERSECTION

LA 378
58
2.0%
70
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546
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83
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Sulphur Ave EB
Sulphur Ave WB
LA 378 NB

MOVEMENT SUMMARY

LA 378 at Sulphur Ave
11-100 LA 378 Improvements
2028 PM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	190	2.0	0.710	19.9	LOS B	8.5	217.1	0.91	1.02	26.7
8	T	1018	2.0	0.710	12.2	LOS B	8.8	224.3	0.91	0.96	29.3
18	R	92	2.0	0.710	13.1	LOS B	8.8	224.3	0.91	0.96	29.5
Approach		1300	2.0	0.710	13.4	LOS B	8.8	224.3	0.91	0.97	28.9
East: Sulphur Ave WB											
1	L	111	2.0	0.769	35.3	LOS D	5.3	133.5	0.94	1.17	20.7
6	T	50	2.0	0.769	28.2	LOS C	5.3	133.5	0.94	1.15	21.5
16	R	59	2.0	0.769	29.3	LOS C	5.3	133.5	0.94	1.15	21.4
Approach		220	2.0	0.769	32.1	LOS C	5.3	133.5	0.94	1.16	21.0
North: LA 378 SB											
7	L	104	2.0	0.389	16.3	LOS B	2.6	66.7	0.64	0.86	28.6
4	T	607	2.0	0.389	7.5	LOS A	2.7	68.5	0.63	0.63	31.3
14	R	78	2.0	0.389	8.6	LOS A	2.7	68.5	0.63	0.70	31.3
Approach		789	2.0	0.389	8.8	LOS A	2.7	68.5	0.63	0.67	30.9
West: Sulphur Ave EB											
5	L	278	2.0	0.659	21.4	LOS C	4.4	112.1	0.82	1.06	25.5
2	T	66	2.0	0.659	14.3	LOS B	4.4	112.1	0.82	0.99	27.4
12	R	724	2.0	0.986	23.1	LOS C	14.7	372.8	1.00	1.34	23.9
Approach		1068	2.0	0.986	22.1	LOS C	14.7	372.8	0.94	1.25	24.5
All Vehicles		3376	2.0	0.986	16.3	LOS B	14.7	372.8	0.86	1.00	27.1

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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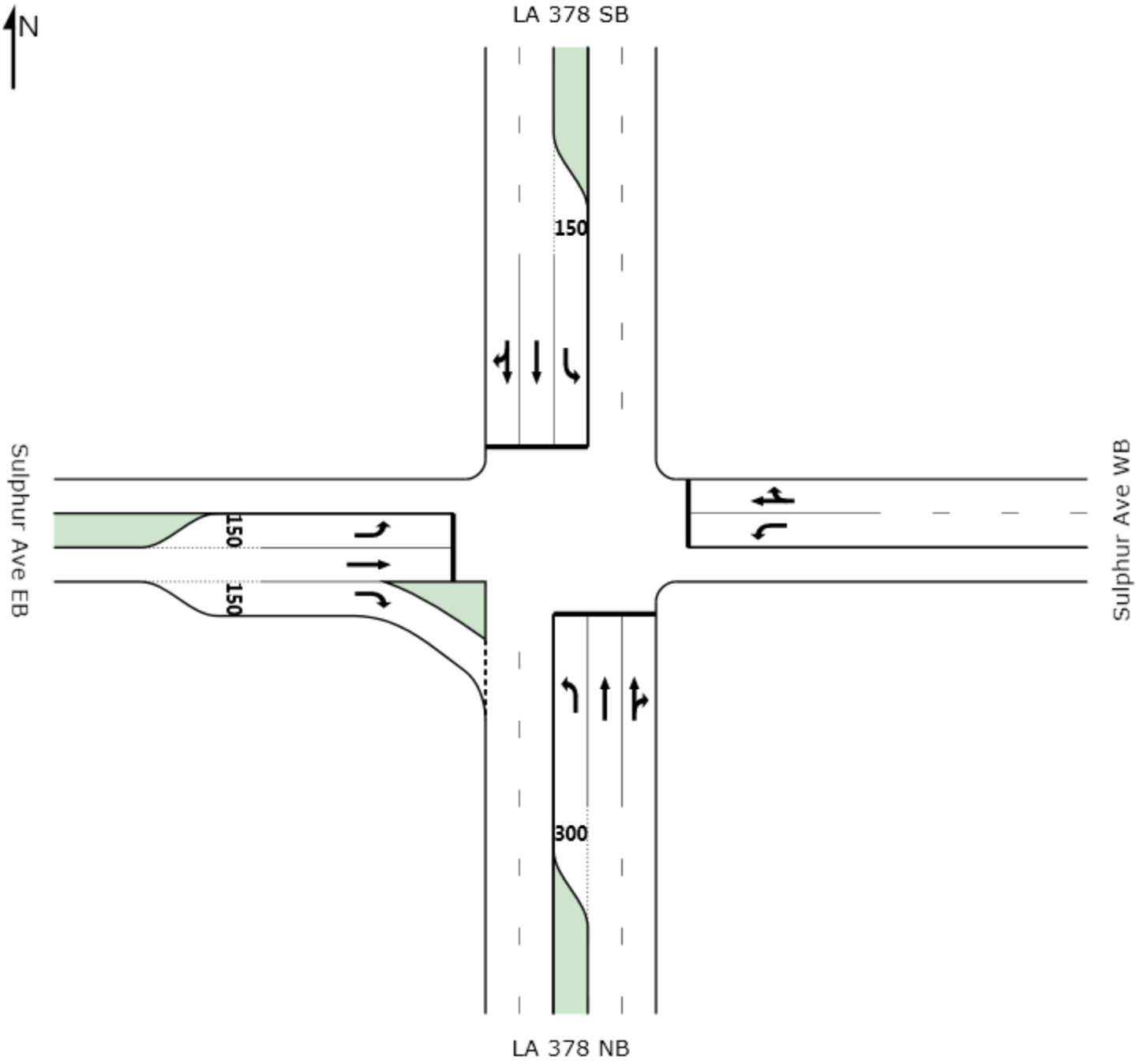
SIDRA INTERSECTION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Sulphur Ave WB
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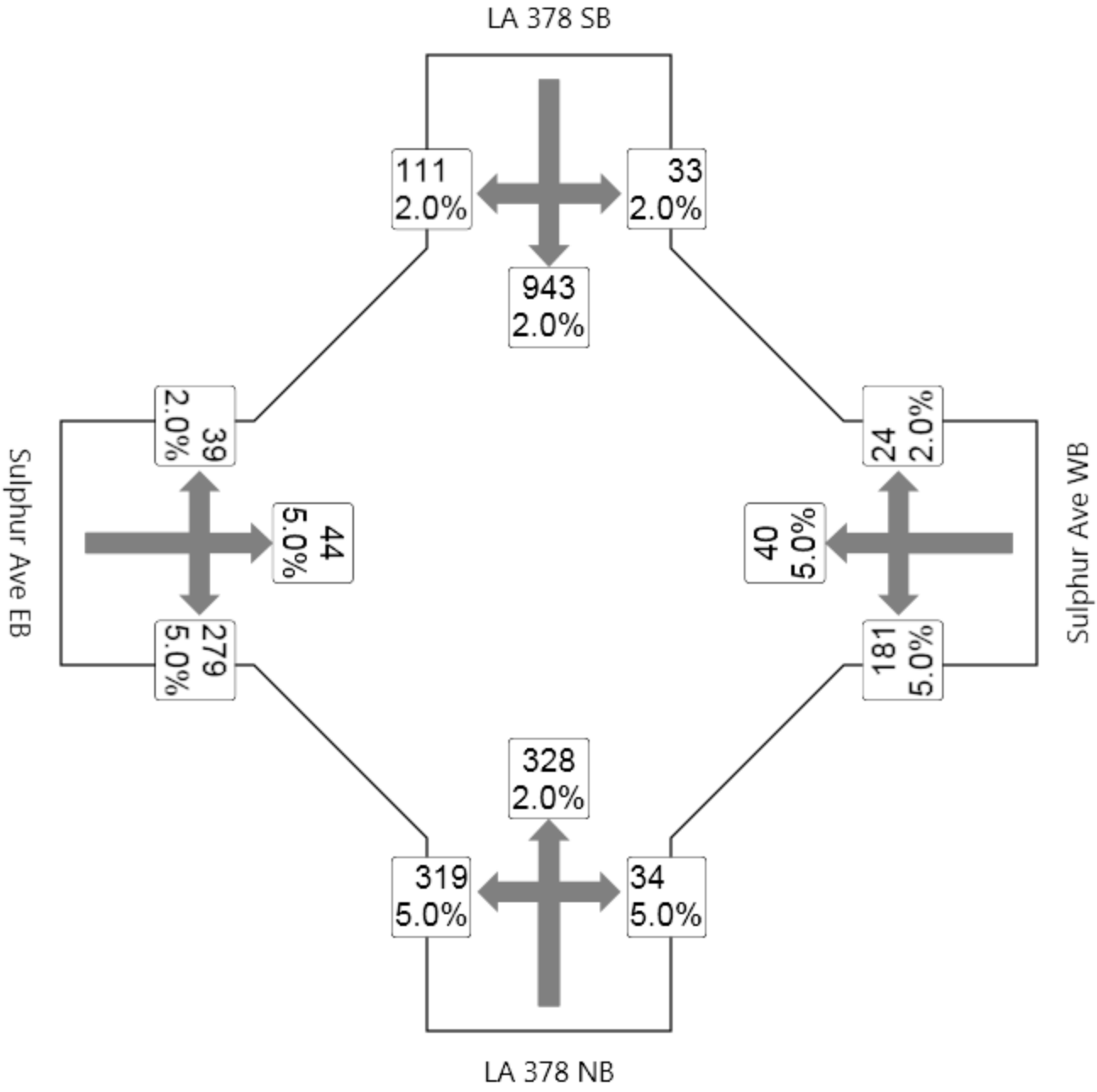
LA 378 NB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328
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LA 378 NB

MOVEMENT SUMMARY

Site: LA 378 at Sulphur Ave AM - Conversion

LA 378 at Sulphur Ave
11-100 LA 378 Improvements
2028 AM Peak Alt B
Signals - Actuated Cycle Time = 112 seconds

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	269	5.0	1.059	82.9	LOS F	18.7	487.1	1.00	1.01	11.7
8	T	450	2.0	0.348	27.2	LOS C	10.3	263.3	0.75	0.63	20.9
18	R	38	5.0	0.348	34.7	LOS C	9.5	242.3	0.75	0.90	20.7
Approach		757	3.6	1.059	47.4	LOS D	18.7	487.1	0.84	0.78	16.3
East: Sulphur Ave WB											
1	L	226	5.0	0.616	53.5	LOS D	12.1	314.7	0.94	0.90	15.6
6	T	50	5.0	0.171	28.9	LOS C	3.2	82.4	0.78	0.61	20.1
16	R	30	2.0	0.171	37.9	LOS D	3.2	82.4	0.78	0.81	19.5
Approach		306	4.7	0.616	48.0	LOS D	12.1	314.7	0.90	0.84	16.5
North: LA 378 SB											
7	L	37	2.0	0.169	36.3	LOS D	1.5	37.3	0.72	0.73	19.4
4	T	1048	2.0	0.855	38.2	LOS D	34.8	884.2	0.97	0.89	17.8
14	R	123	2.0	0.855	46.6	LOS D	33.5	852.1	0.97	0.93	17.6
Approach		1208	2.0	0.855	39.0	LOS D	34.8	884.2	0.97	0.89	17.9
West: Sulphur Ave EB											
5	L	49	2.0	0.246	48.1	LOS D	2.3	59.1	0.87	0.74	16.6
2	T	55	5.0	0.126	37.8	LOS D	2.5	64.7	0.80	0.62	18.2
12	R	349	5.0	0.986	20.8	LOS C	9.4	244.8	0.60	0.77	25.0
Approach		453	4.7	0.986	25.8	LOS C	9.4	244.8	0.65	0.75	22.8
All Vehicles		2723	3.2	1.059	40.2	LOS D	34.8	884.2	0.87	0.83	17.9

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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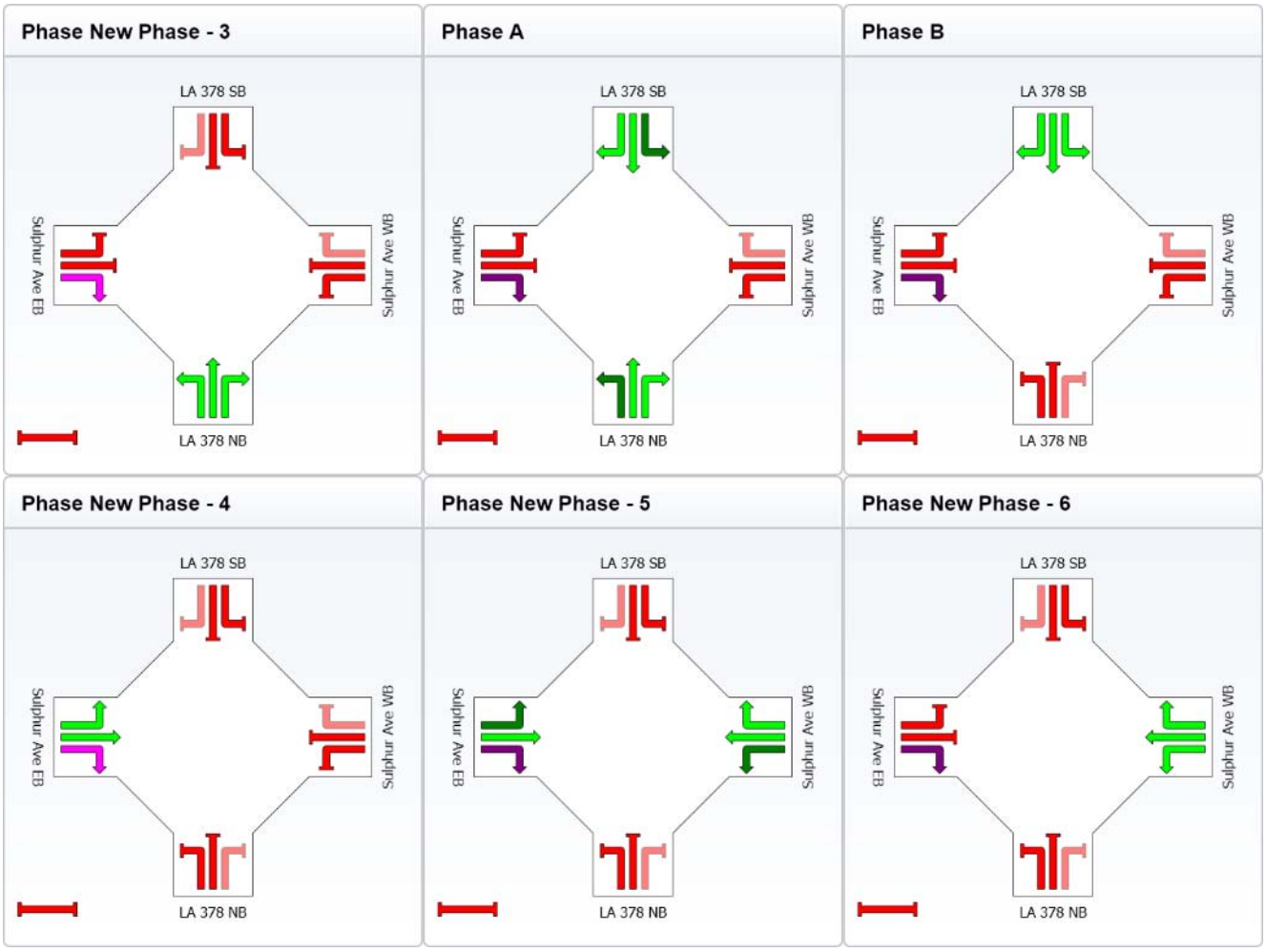
PHASING SUMMARY

LA 378 at Sulphur Ave
11-100 LA 378 Improvements
2028 AM Peak Alt B
Signals - Actuated Cycle Time = 112 seconds

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: New Phase - 3, A, B, New Phase - 4, New Phase - 5, New Phase - 6
Output Sequence: New Phase - 3, A, B, New Phase - 4, New Phase - 5, New Phase - 6

Phase Timing Results

Phase	New Phase - 3	A	B	New Phase - 4	New Phase - 5	New Phase - 6
Green Time (sec)	12	24	11	12	9	14
Yellow Time (sec)	4	4	4	4	4	4
All-Red Time (sec)	1	1	1	1	1	1
Phase Time (sec)	17	29	16	17	14	19
Phase Split	15 %	26 %	14 %	15 %	13 %	17 %



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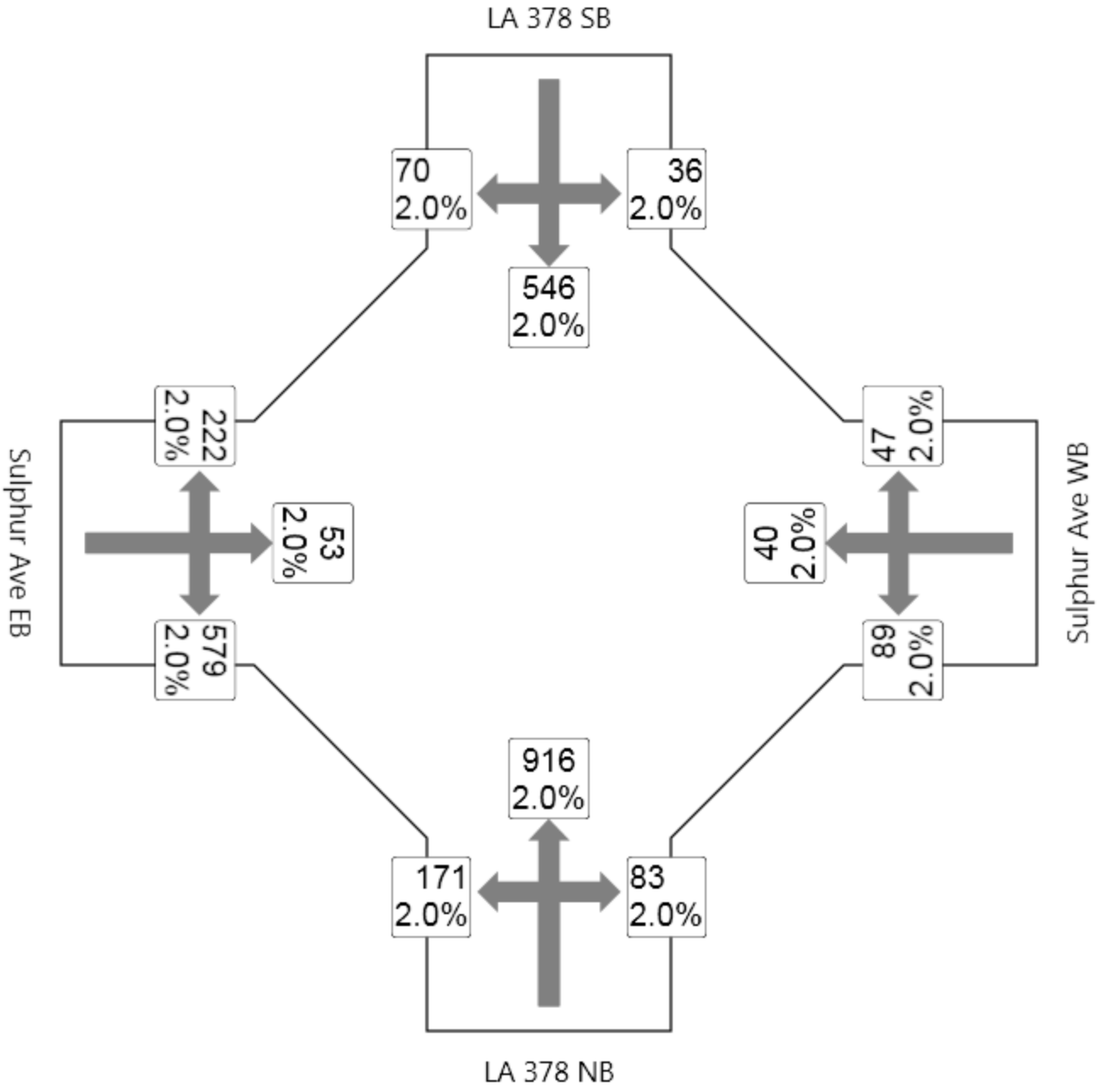
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171
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Sulphur Ave EB
Sulphur Ave WB
LA 378 NB

MOVEMENT SUMMARY

Site: LA 378 at Sulphur Ave PM - Conversion

LA 378 at Sulphur Ave
11-100 LA 378 Improvements
2028 PM Peak Alt B
Signals - Actuated Cycle Time = 112 seconds

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	190	2.0	0.641	40.7	LOS D	8.7	222.1	0.94	0.81	18.3
8	T	1018	2.0	0.789	34.8	LOS C	30.7	780.6	0.94	0.83	18.7
18	R	92	2.0	0.789	43.1	LOS D	29.8	756.0	0.94	0.90	18.5
Approach		1300	2.0	0.789	36.3	LOS D	30.7	780.6	0.94	0.83	18.6
East: Sulphur Ave WB											
1	L	111	2.0	0.295	48.5	LOS D	5.5	138.5	0.86	0.77	16.5
6	T	50	2.0	0.225	21.5	LOS C	3.7	94.1	0.77	0.62	22.5
16	R	59	2.0	0.225	30.5	LOS C	3.7	94.1	0.77	0.81	21.6
Approach		220	2.0	0.295	37.6	LOS D	5.5	138.5	0.81	0.75	18.8
North: LA 378 SB											
7	L	40	2.0	0.146	48.7	LOS D	2.0	50.1	0.85	0.75	16.4
4	T	607	2.0	0.500	30.4	LOS C	15.8	400.2	0.81	0.71	20.1
14	R	78	2.0	0.500	38.1	LOS D	14.7	374.1	0.81	0.90	19.7
Approach		724	2.0	0.500	32.2	LOS C	15.8	400.2	0.81	0.73	19.8
West: Sulphur Ave EB											
5	L	278	2.0	0.952	67.9	LOS E	18.6	472.4	1.00	0.99	13.4
2	T	66	2.0	0.147	38.1	LOS D	3.0	76.6	0.81	0.63	18.1
12	R	724	2.0	0.916	18.7	LOS B	19.3	489.6	0.54	0.80	26.0
Approach		1068	2.0	0.952	32.7	LOS C	19.3	489.6	0.68	0.84	20.5
All Vehicles		3312	2.0	0.952	34.3	LOS C	30.7	780.6	0.82	0.81	19.5

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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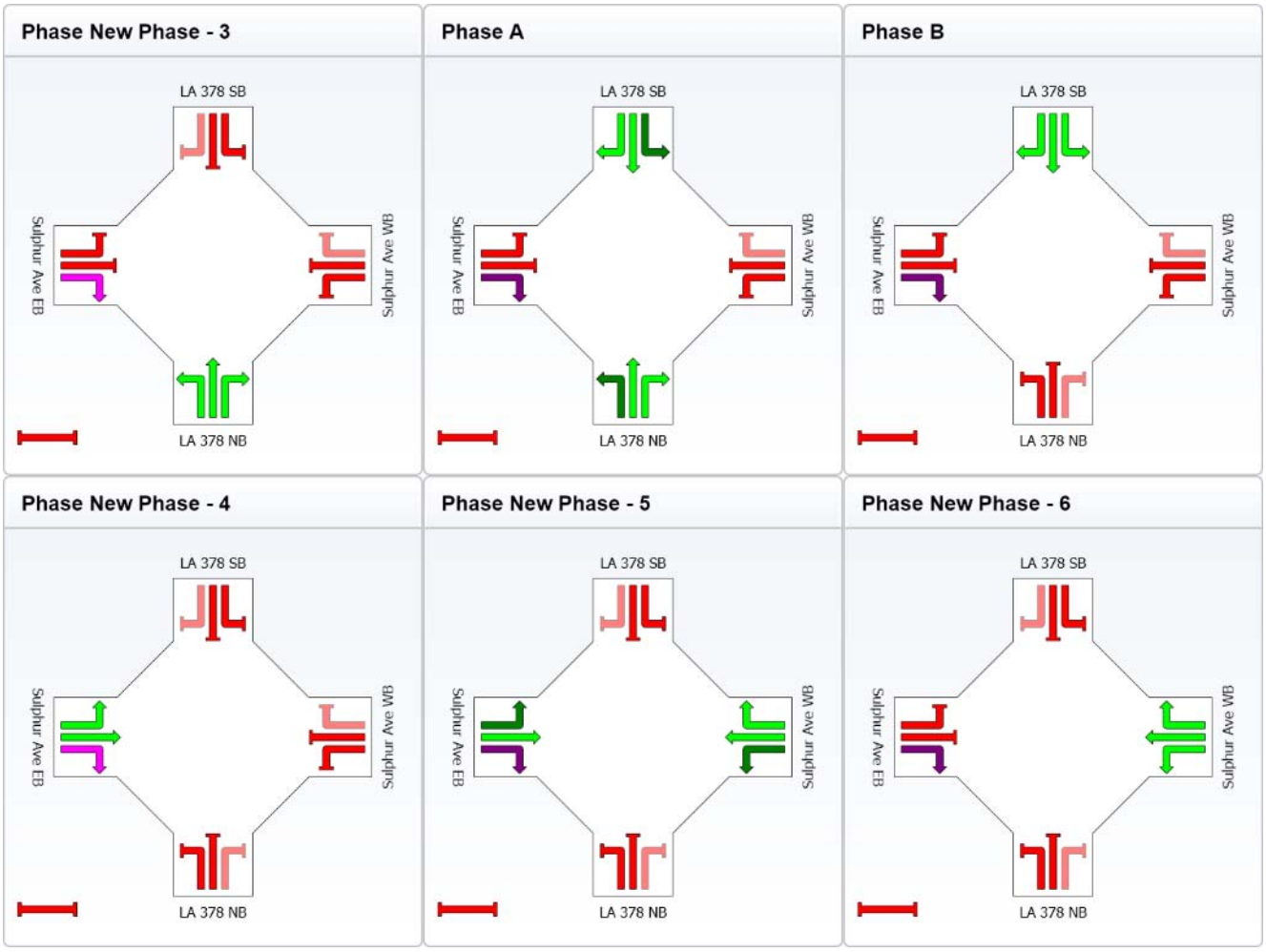
PHASING SUMMARY

LA 378 at Sulphur Ave
11-100 LA 378 Improvements
2028 PM Peak Alt B
Signals - Actuated Cycle Time = 112 seconds

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: New Phase - 3, A, B, New Phase - 4, New Phase - 5, New Phase - 6
Output Sequence: New Phase - 3, A, B, New Phase - 4, New Phase - 5, New Phase - 6

Phase Timing Results

Phase	New Phase - 3	A	B	New Phase - 4	New Phase - 5	New Phase - 6
Green Time (sec)	12	24	11	12	9	14
Yellow Time (sec)	4	4	4	4	4	4
All-Red Time (sec)	1	1	1	1	1	1
Phase Time (sec)	17	29	16	17	14	19
Phase Split	15 %	26 %	14 %	15 %	13 %	17 %



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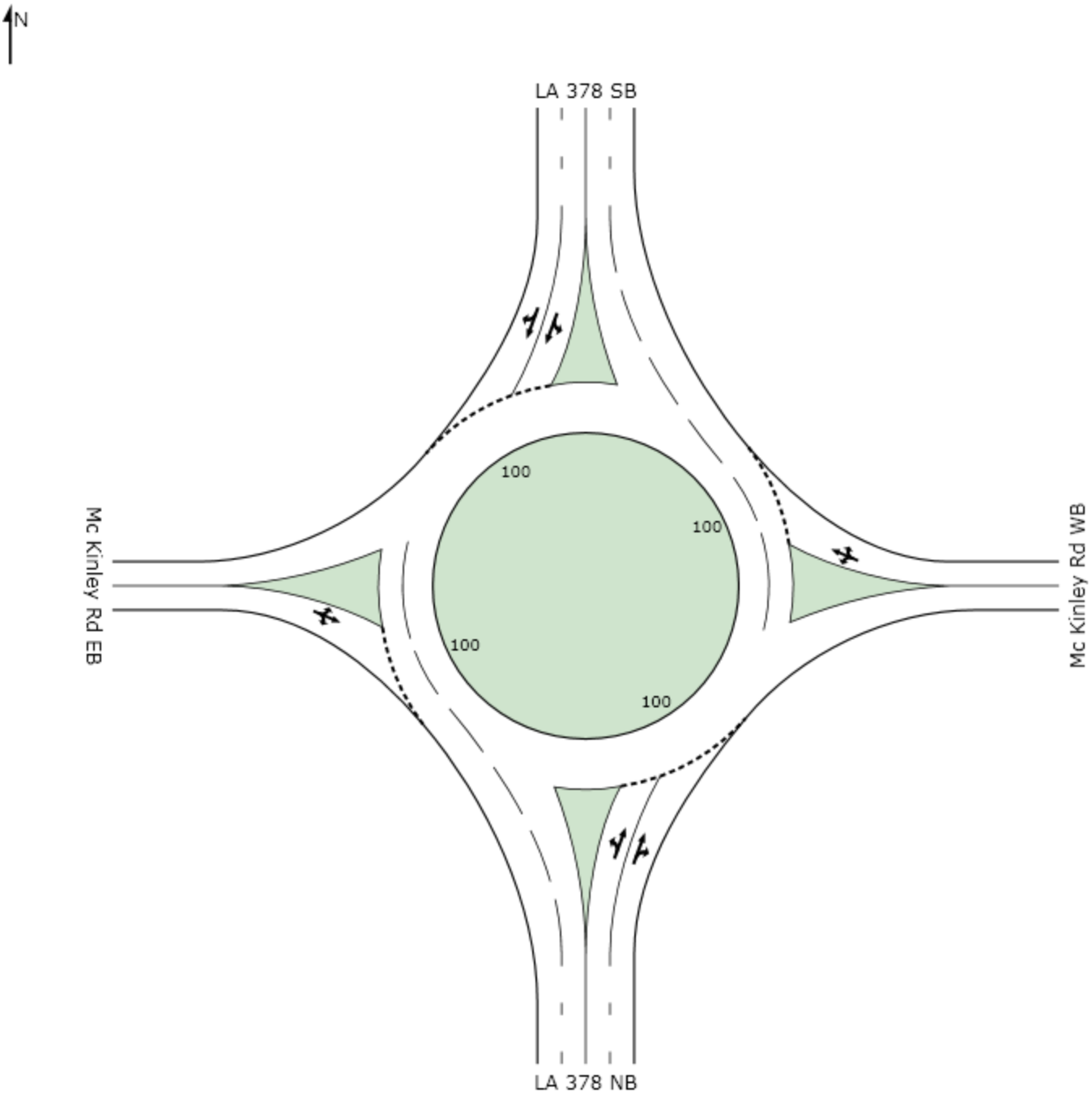
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LA 378 SB
Mc Kinley Rd EB
Mc Kinley Rd WB
LA 378 NB
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LA 378
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1017
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Mc Kinley Rd EB
39
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39
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Mc Kinley Rd WB
16
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105
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331
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43
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23
2.0%
58
2.0%
78 NB

MOVEMENT SUMMARY

Site: LA 378 at McKinley_AM

LA 378 at Mc Kinley Rd
11-100 LA 378 Improvements
2028 AM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	112	2.0	0.214	14.8	LOS B	1.3	32.0	0.42	0.78	29.1
8	T	368	2.0	0.214	6.2	LOS A	1.3	32.4	0.41	0.50	32.4
18	R	26	2.0	0.214	7.4	LOS A	1.3	32.4	0.41	0.59	32.2
Approach		506	2.0	0.214	8.1	LOS A	1.3	32.4	0.41	0.57	31.5
East: Mc Kinley Rd WB											
1	L	131	2.0	0.366	16.1	LOS B	1.7	43.1	0.63	0.94	28.2
6	T	49	2.0	0.366	9.0	LOS A	1.7	43.1	0.63	0.75	30.8
16	R	60	2.0	0.366	10.0	LOS B	1.7	43.1	0.63	0.81	30.7
Approach		240	2.0	0.366	13.1	LOS B	1.7	43.1	0.63	0.87	29.2
North: LA 378 SB											
7	L	120	2.0	0.615	17.5	LOS B	5.8	146.3	0.72	0.88	28.1
4	T	1130	2.0	0.615	8.2	LOS A	5.8	146.3	0.71	0.70	30.9
14	R	104	2.0	0.615	9.2	LOS A	5.7	145.4	0.71	0.72	31.1
Approach		1354	2.0	0.615	9.1	LOS A	5.8	146.3	0.71	0.71	30.6
West: Mc Kinley Rd EB											
5	L	20	2.0	0.260	19.7	LOS B	1.1	28.6	0.79	0.98	26.7
2	T	49	2.0	0.260	12.6	LOS B	1.1	28.6	0.79	0.87	28.9
12	R	20	2.0	0.260	13.7	LOS B	1.1	28.6	0.79	0.90	28.7
Approach		89	2.0	0.260	14.5	LOS B	1.1	28.6	0.79	0.90	28.3
All Vehicles		2189	2.0	0.615	9.5	LOS A	5.8	146.3	0.64	0.70	30.6

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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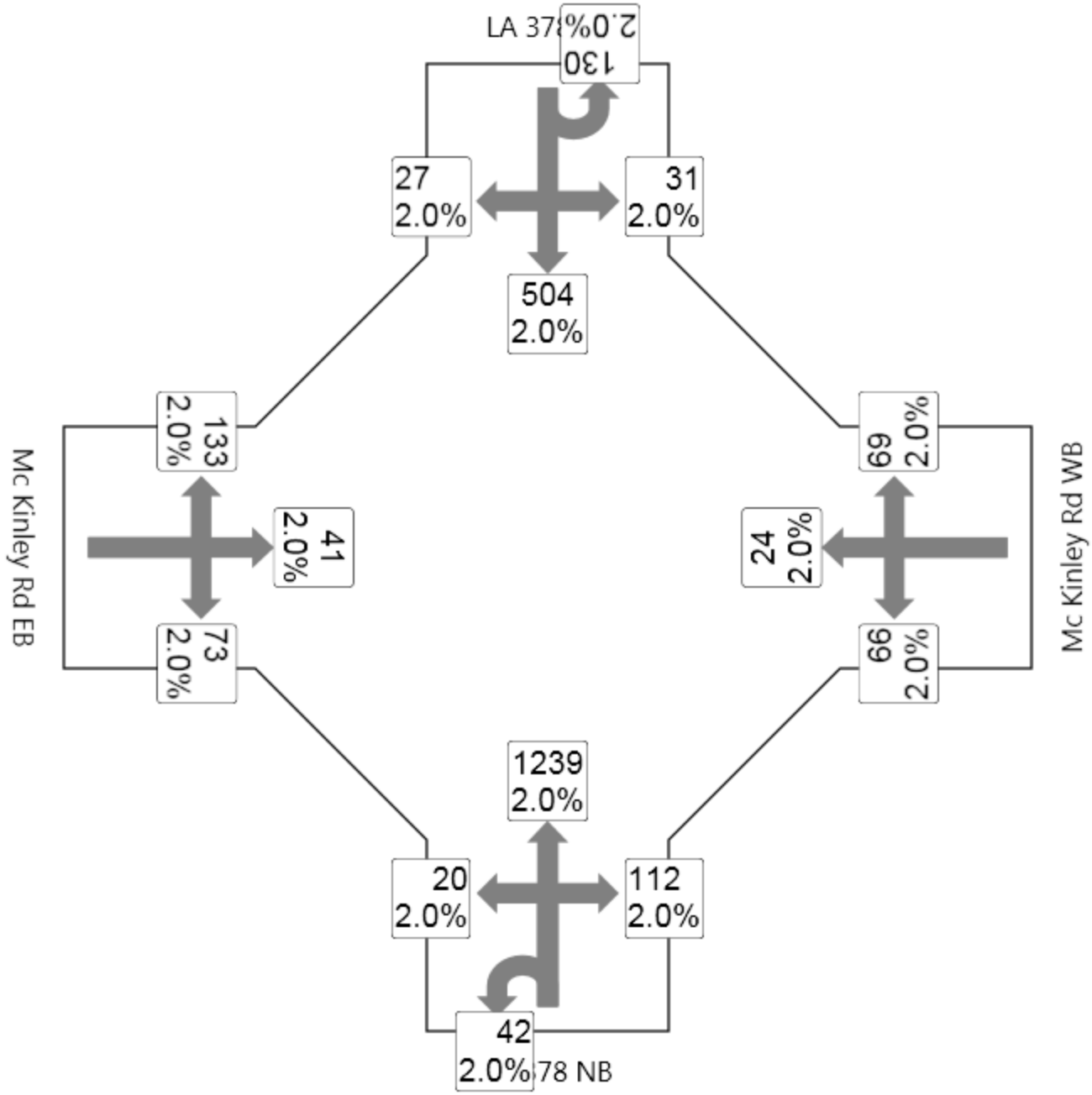
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Mc Kinley Rd EB
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Mc Kinley Rd WB
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20
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42
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78 NB

MOVEMENT SUMMARY

Site: LA 378 at McKinley_PM

LA 378 at Mc Kinley Rd
11-100 LA 378 Improvements
2028 PM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	69	2.0	0.789	23.0	LOS C	11.7	296.6	0.95	1.05	25.8
8	T	1377	2.0	0.789	13.6	LOS B	12.0	304.7	0.94	1.00	28.6
18	R	124	2.0	0.789	14.3	LOS B	12.0	304.7	0.94	0.98	28.8
Approach		1570	2.0	0.789	14.0	LOS B	12.0	304.7	0.94	1.00	28.4
East: Mc Kinley Rd WB											
1	L	83	2.0	0.844	46.7	LOS D	6.1	155.8	0.97	1.24	17.9
6	T	30	2.0	0.844	39.6	LOS D	6.1	155.8	0.97	1.23	18.2
16	R	86	2.0	0.844	40.7	LOS D	6.1	155.8	0.97	1.23	18.2
Approach		199	2.0	0.844	43.0	LOS D	6.1	155.8	0.97	1.23	18.0
North: LA 378 SB											
7	L	179	2.0	0.321	15.4	LOS B	2.1	54.3	0.46	0.78	28.8
4	T	560	2.0	0.321	6.2	LOS A	2.2	55.3	0.45	0.51	32.2
14	R	30	2.0	0.321	7.5	LOS A	2.2	55.3	0.45	0.59	32.0
Approach		769	2.0	0.321	8.4	LOS A	2.2	55.3	0.45	0.58	31.3
West: Mc Kinley Rd EB											
5	L	166	2.0	0.564	19.7	LOS B	3.3	83.3	0.76	1.03	26.4
2	T	51	2.0	0.564	12.7	LOS B	3.3	83.3	0.76	0.93	28.5
12	R	91	2.0	0.564	13.7	LOS B	3.3	83.3	0.76	0.95	28.3
Approach		309	2.0	0.564	16.8	LOS B	3.3	83.3	0.76	0.99	27.2
All Vehicles		2846	2.0	0.844	14.8	LOS B	12.0	304.7	0.79	0.90	27.9

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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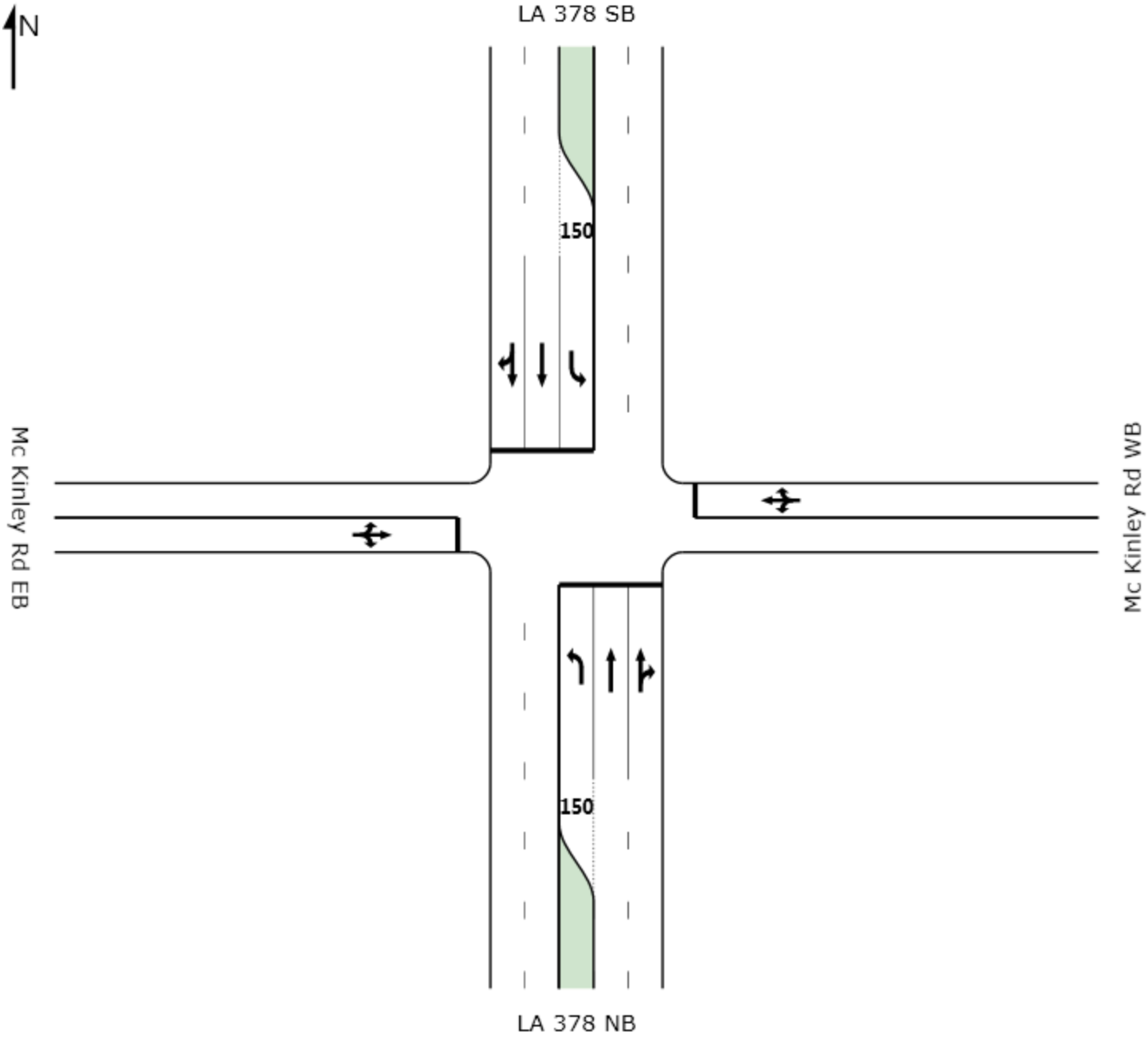
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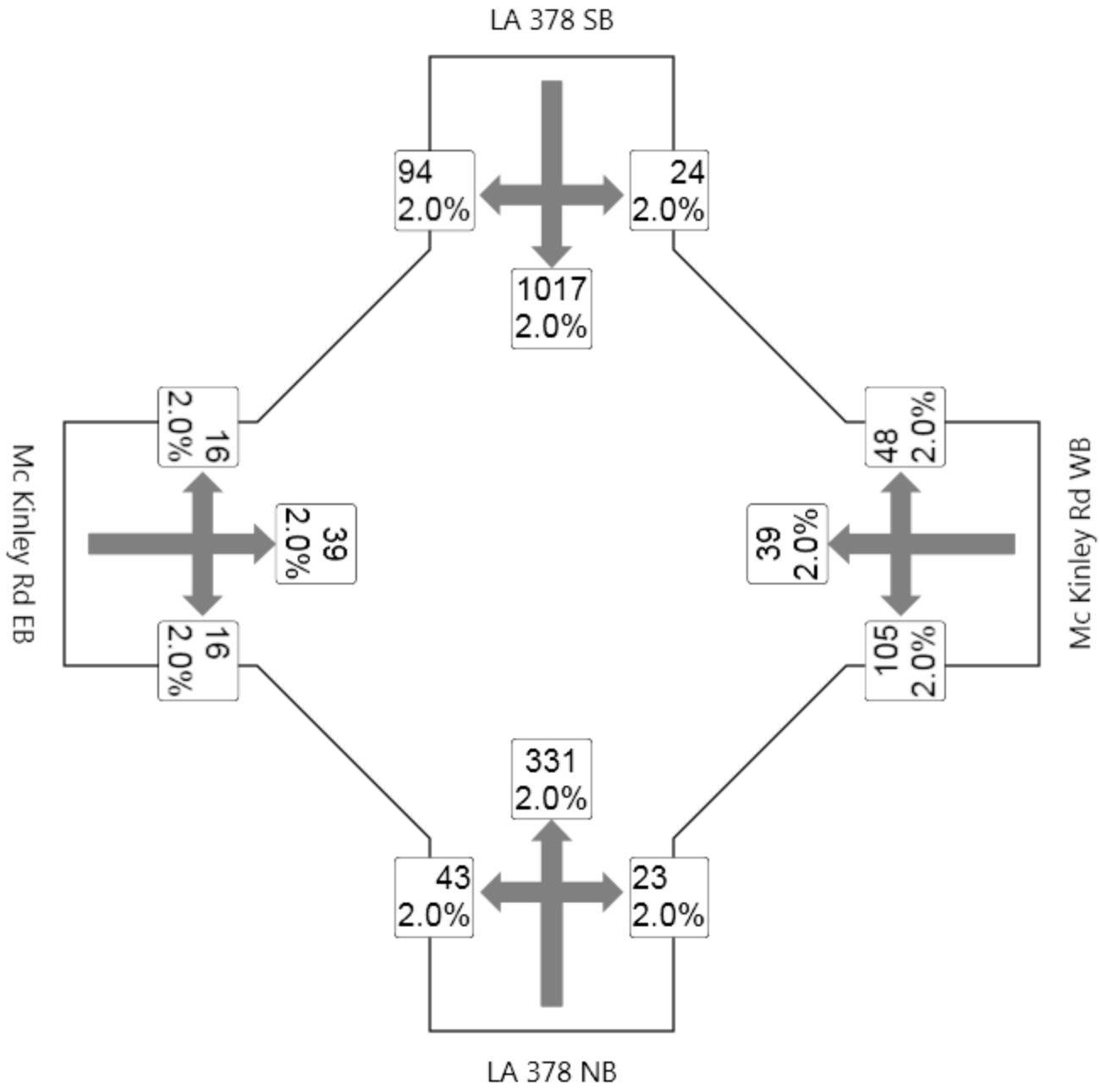
Mc Kinley Rd EB
Mc Kinley Rd WB
150
LA 378 NB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1017
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48
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Mc Kinley Rd EB
39
2.0%
39
2.0%
Mc Kinley Rd WB
16
2.0%
105
2.0%
331
2.0%
43
2.0%
23
2.0%
LA 378 NB

MOVEMENT SUMMARY

Site: LA 378 at McKinley_AM - Conversion

LA 378 at Mc Kinley Rd
11-100 LA 378 Improvements
2028 AM Peak Alt B
Signals - Pretimed Cycle Time = 85 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	48	2.0	0.374	44.4	LOS D	1.9	47.2	0.91	0.78	17.3
8	T	368	2.0	0.228	14.5	LOS B	5.2	131.4	0.65	0.54	26.6
18	R	26	2.0	0.228	22.4	LOS C	4.7	120.2	0.65	0.92	25.3
Approach		441	2.0	0.374	18.2	LOS B	5.2	131.4	0.68	0.59	25.1
East: Mc Kinley Rd WB											
1	L	131	2.0	0.401	63.0	LOS E	9.4	238.7	1.00	0.92	14.1
6	T	49	2.0	0.401	54.2	LOS D	9.4	238.7	1.00	0.92	14.2
16	R	60	2.0	0.401	63.2	LOS E	9.4	238.7	1.00	0.92	14.1
Approach		240	2.0	0.401	61.3	LOS E	9.4	238.7	1.00	0.92	14.2
North: LA 378 SB											
7	L	27	2.0	0.096	26.7	LOS C	0.7	18.3	0.65	0.73	22.4
4	T	1130	2.0	0.718	20.2	LOS C	23.4	593.2	0.87	0.78	23.5
14	R	104	2.0	0.718	28.7	LOS C	22.5	571.1	0.87	0.92	23.0
Approach		1261	2.0	0.718	21.0	LOS C	23.4	593.2	0.87	0.79	23.5
West: Mc Kinley Rd EB											
5	L	20	2.0	0.109	36.5	LOS D	3.0	75.3	0.90	0.85	19.9
2	T	49	2.0	0.109	27.6	LOS C	3.0	75.3	0.90	0.77	20.3
12	R	20	2.0	0.109	36.6	LOS D	3.0	75.3	0.90	0.85	19.9
Approach		89	2.0	0.109	31.7	LOS C	3.0	75.3	0.90	0.80	20.1
All Vehicles		2031	2.0	0.718	25.7	LOS C	23.4	593.2	0.84	0.76	21.9

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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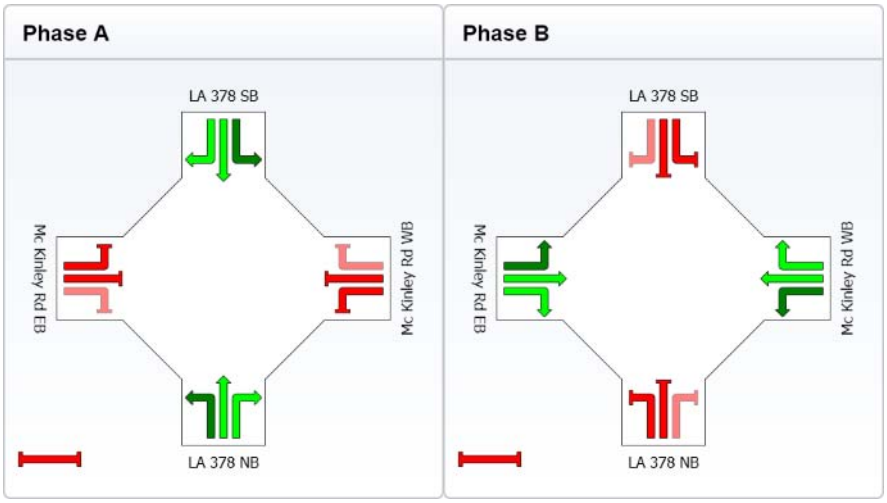
PHASING SUMMARY

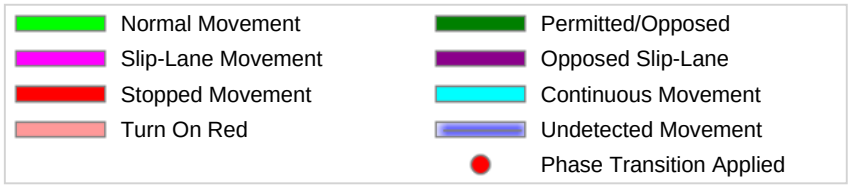
LA 378 at Mc Kinley Rd
11-100 LA 378 Improvements
2028 AM Peak Alt B
Signals - Pretimed Cycle Time = 85 seconds (Optimum Cycle Time - Minimum Delay)

Phase times determined by the program
Sequence: Opposed Turns
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	38	37
Yellow Time (sec)	4	4
All-Red Time (sec)	1	1
Phase Time (sec)	43	42
Phase Split	51 %	49 %





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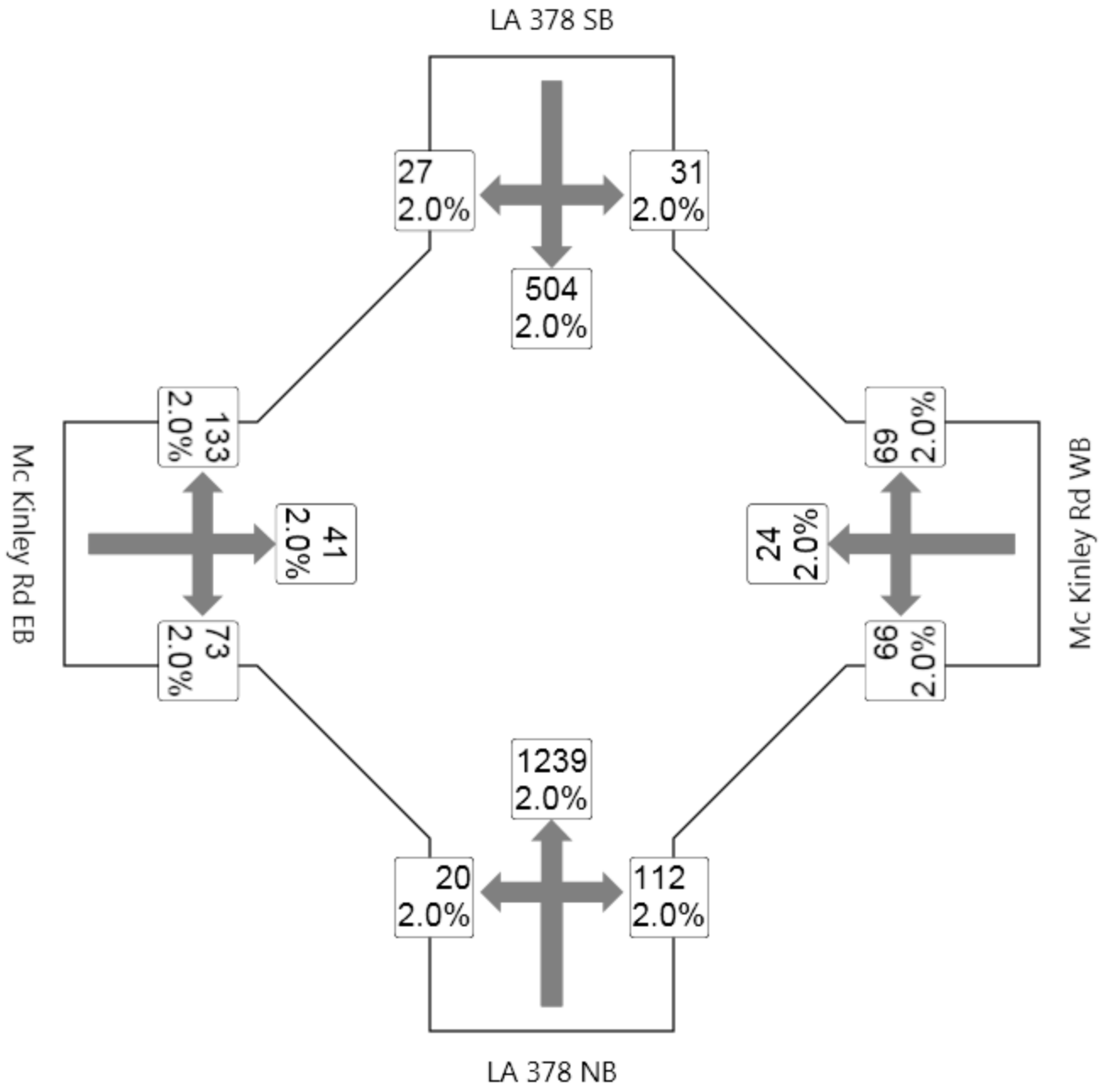
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31
2.0%
504
2.0%
133
2.0%
69
2.0%
Mc Kinley Rd EB
41
2.0%
24
2.0%
Mc Kinley Rd WB
73
2.0%
66
2.0%
1239
2.0%
20
2.0%
112
2.0%
LA 378 NB

MOVEMENT SUMMARY

Site: LA 378 at McKinley_PM - Conversion

LA 378 at Mc Kinley Rd
11-100 LA 378 Improvements
2028 PM Peak Alt B
Signals - Actuated Cycle Time = 100 seconds

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	22	2.0	0.106	38.3	LOS D	0.9	21.9	0.74	0.73	18.8
8	T	1377	2.0	0.976	49.7	LOS D	47.3	1201.0	1.00	1.08	15.5
18	R	124	2.0	0.976	58.4	LOS E	46.1	1171.9	1.00	1.07	15.4
Approach		1523	2.0	0.976	50.2	LOS D	47.3	1201.0	1.00	1.07	15.5
East: Mc Kinley Rd WB											
1	L	83	2.0	0.248	66.1	LOS E	11.7	298.0	1.00	0.92	13.7
6	T	30	2.0	0.248	57.2	LOS E	11.7	298.0	1.00	0.92	13.8
16	R	86	2.0	0.248	66.2	LOS E	11.7	298.0	1.00	0.92	13.6
Approach		199	2.0	0.248	64.8	LOS E	11.7	298.0	1.00	0.92	13.7
North: LA 378 SB											
7	L	34	2.0	0.488	67.1	LOS E	2.0	52.0	1.00	0.69	13.4
4	T	560	2.0	0.382	23.0	LOS C	10.8	275.1	0.73	0.63	22.7
14	R	30	2.0	0.382	31.2	LOS C	10.4	263.9	0.73	0.92	21.9
Approach		624	2.0	0.488	25.8	LOS C	10.8	275.1	0.75	0.65	21.9
West: Mc Kinley Rd EB											
5	L	166	2.0	0.528	73.8	LOS E	19.0	483.7	1.00	0.94	12.7
2	T	51	2.0	0.528	64.9	LOS E	19.0	483.7	1.00	0.94	12.8
12	R	91	2.0	0.528	73.9	LOS E	19.0	483.7	1.00	0.94	12.7
Approach		309	2.0	0.528	72.4	LOS E	19.0	483.7	1.00	0.94	12.7
All Vehicles		2655	2.0	0.976	48.2	LOS D	47.3	1201.0	0.94	0.94	16.1

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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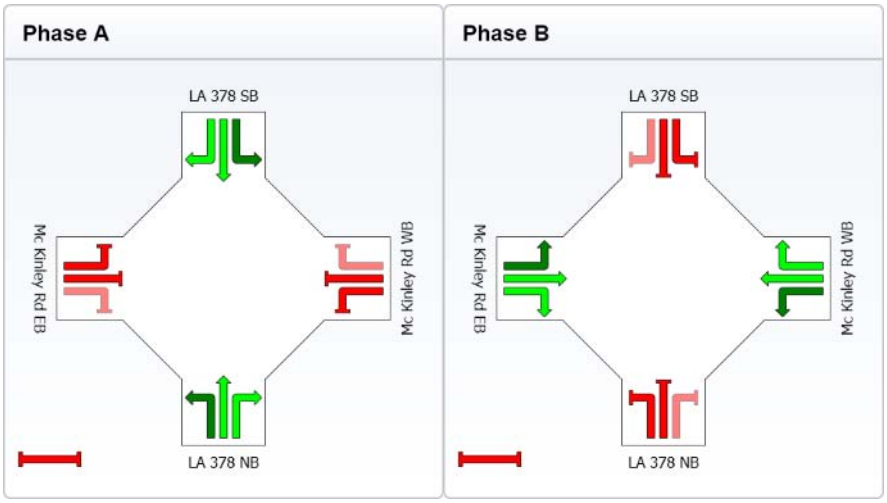
PHASING SUMMARY

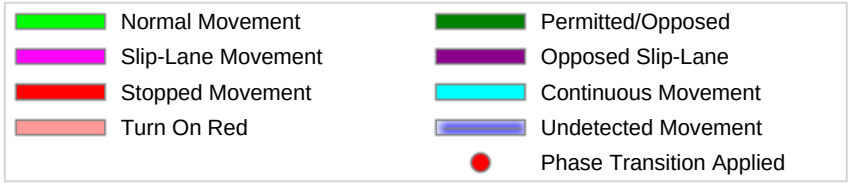
LA 378 at Mc Kinley Rd
11-100 LA 378 Improvements
2028 PM Peak Alt B
Signals - Actuated Cycle Time = 100 seconds

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	40	50
Yellow Time (sec)	4	4
All-Red Time (sec)	1	1
Phase Time (sec)	45	55
Phase Split	45 %	55 %





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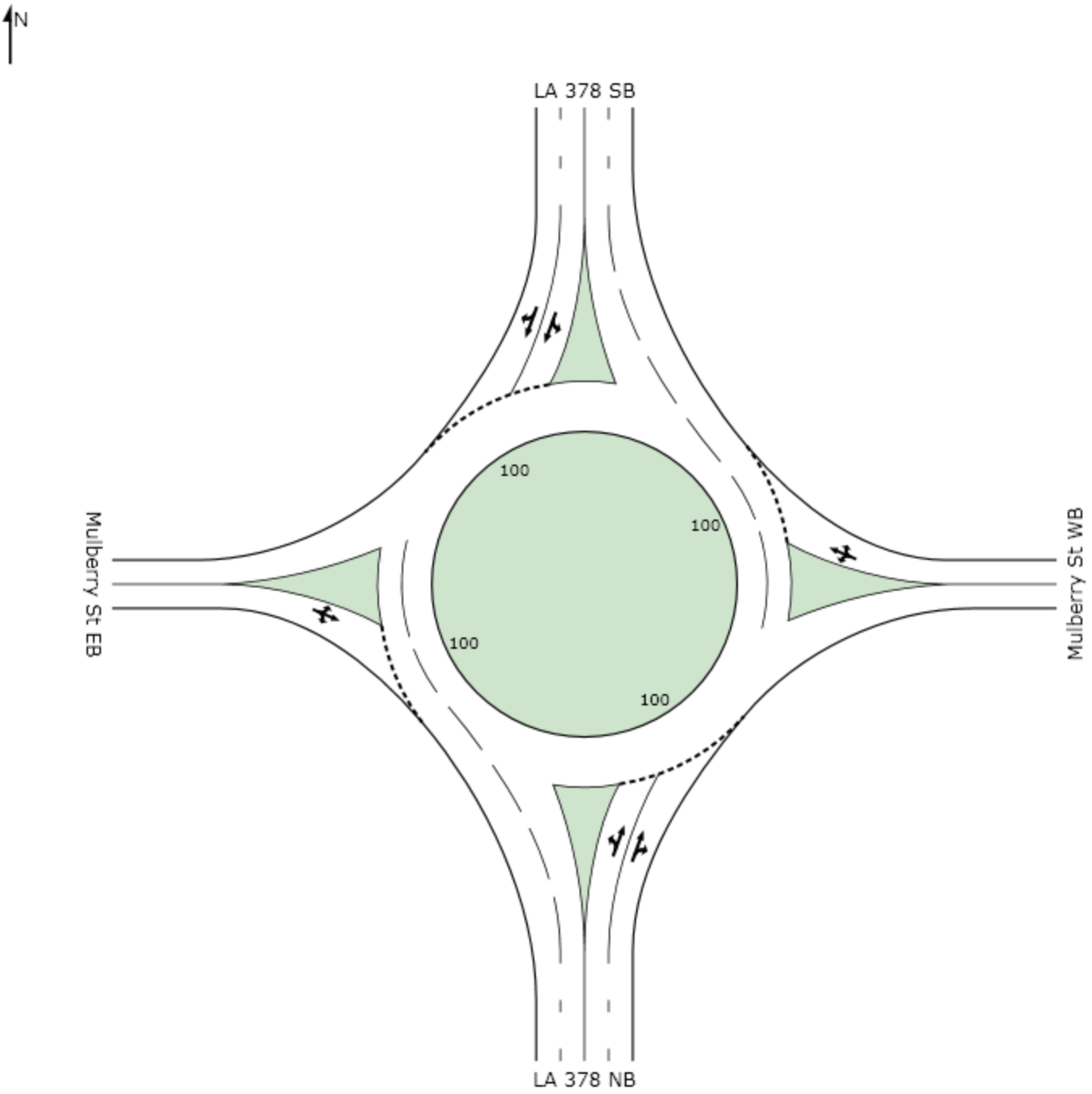
N
LA 378 SB
Mulberry St EB
Mulberry St WB
LA 378 NB
100
100
100
100

LA 378
312
2.0%
33
2.0%
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2.0%
1104
2.0%
16
2.0%
1
2.0%
58
2.0%
11
2.0%
4
2.0%
7
2.0%
Mulberry St EB
Mulberry St WB
525
2.0%
42
2.0%
1
2.0%
52
2.0%
78 NB

MOVEMENT SUMMARY

Site: LA 378 at Mulberry St AM

LA 378 at Mulberry St
11-100 LA 378 Improvements
2028 AM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	104	2.0	0.346	16.1	LOS B	2.3	57.2	0.63	0.85	28.6
8	T	583	2.0	0.346	7.5	LOS A	2.3	58.8	0.62	0.63	31.4
18	R	1	2.0	0.346	8.6	LOS A	2.3	58.8	0.62	0.70	31.5
Approach		689	2.0	0.346	8.8	LOS A	2.3	58.8	0.62	0.67	30.9
East: Mulberry St WB											
1	L	9	2.0	0.059	17.7	LOS B	0.2	6.2	0.67	0.91	27.5
6	T	5	2.0	0.059	10.5	LOS B	0.2	6.2	0.67	0.76	30.1
16	R	14	2.0	0.059	11.6	LOS B	0.2	6.2	0.67	0.80	29.8
Approach		28	2.0	0.059	13.3	LOS B	0.2	6.2	0.67	0.83	29.0
North: LA 378 SB											
7	L	348	2.0	0.607	15.9	LOS B	6.0	151.5	0.53	0.75	28.7
4	T	1227	2.0	0.607	6.2	LOS A	6.0	153.7	0.51	0.50	31.9
14	R	37	2.0	0.607	7.4	LOS A	6.0	153.7	0.51	0.57	31.8
Approach		1611	2.0	0.607	8.3	LOS A	6.0	153.7	0.52	0.55	31.1
West: Mulberry St EB											
5	L	20	2.0	0.278	20.7	LOS C	1.2	29.7	0.80	0.98	26.0
2	T	1	2.0	0.278	13.6	LOS B	1.2	29.7	0.80	0.89	28.1
12	R	73	2.0	0.278	14.7	LOS B	1.2	29.7	0.80	0.91	27.9
Approach		94	2.0	0.278	15.9	LOS B	1.2	29.7	0.80	0.92	27.4
All Vehicles		2421	2.0	0.607	8.8	LOS A	6.0	153.7	0.56	0.60	30.8

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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LA 378
302
2.0%
28
2.0%
16
2.0%
542
2.0%
25
2.0%
11
2.0%
Mulberry St EB
4
2.0%
2
2.0%
Mulberry St WB
73
2.0%
4
2.0%
1571
2.0%
32
2.0%
7
2.0%
52
2.0%
78 NB

MOVEMENT SUMMARY

Site: LA 378 at Mulberry St PM

LA 378 at Mulberry St
11-100 LA 378 Improvements
2028 PM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	93	2.0	0.911	30.2	LOS C	20.8	529.1	1.00	1.24	23.0
8	T	1746	2.0	0.911	20.5	LOS C	21.6	549.3	1.00	1.21	25.0
18	R	8	2.0	0.911	20.9	LOS C	21.6	549.3	1.00	1.19	25.4
Approach		1847	2.0	0.911	21.0	LOS C	21.6	549.3	1.00	1.21	24.9
East: Mulberry St WB											
1	L	5	2.0	0.153	31.7	LOS C	0.7	18.3	0.92	0.99	21.8
6	T	3	2.0	0.153	24.6	LOS C	0.7	18.3	0.92	0.95	22.9
16	R	14	2.0	0.153	25.7	LOS C	0.7	18.3	0.92	0.96	22.8
Approach		21	2.0	0.153	27.0	LOS C	0.7	18.3	0.92	0.96	22.5
North: LA 378 SB											
7	L	353	2.0	0.373	15.3	LOS B	2.9	73.7	0.39	0.71	28.4
4	T	602	2.0	0.373	5.8	LOS A	3.0	75.2	0.38	0.45	32.6
14	R	31	2.0	0.373	7.0	LOS A	3.0	75.2	0.38	0.55	32.3
Approach		987	2.0	0.373	9.2	LOS A	3.0	75.2	0.38	0.55	30.8
West: Mulberry St EB											
5	L	31	2.0	0.249	17.2	LOS B	1.0	25.3	0.67	0.95	27.7
2	T	5	2.0	0.249	10.1	LOS B	1.0	25.3	0.67	0.80	30.3
12	R	91	2.0	0.249	11.2	LOS B	1.0	25.3	0.67	0.83	30.0
Approach		128	2.0	0.249	12.6	LOS B	1.0	25.3	0.67	0.86	29.4
All Vehicles		2982	2.0	0.911	16.8	LOS B	21.6	549.3	0.78	0.98	26.8

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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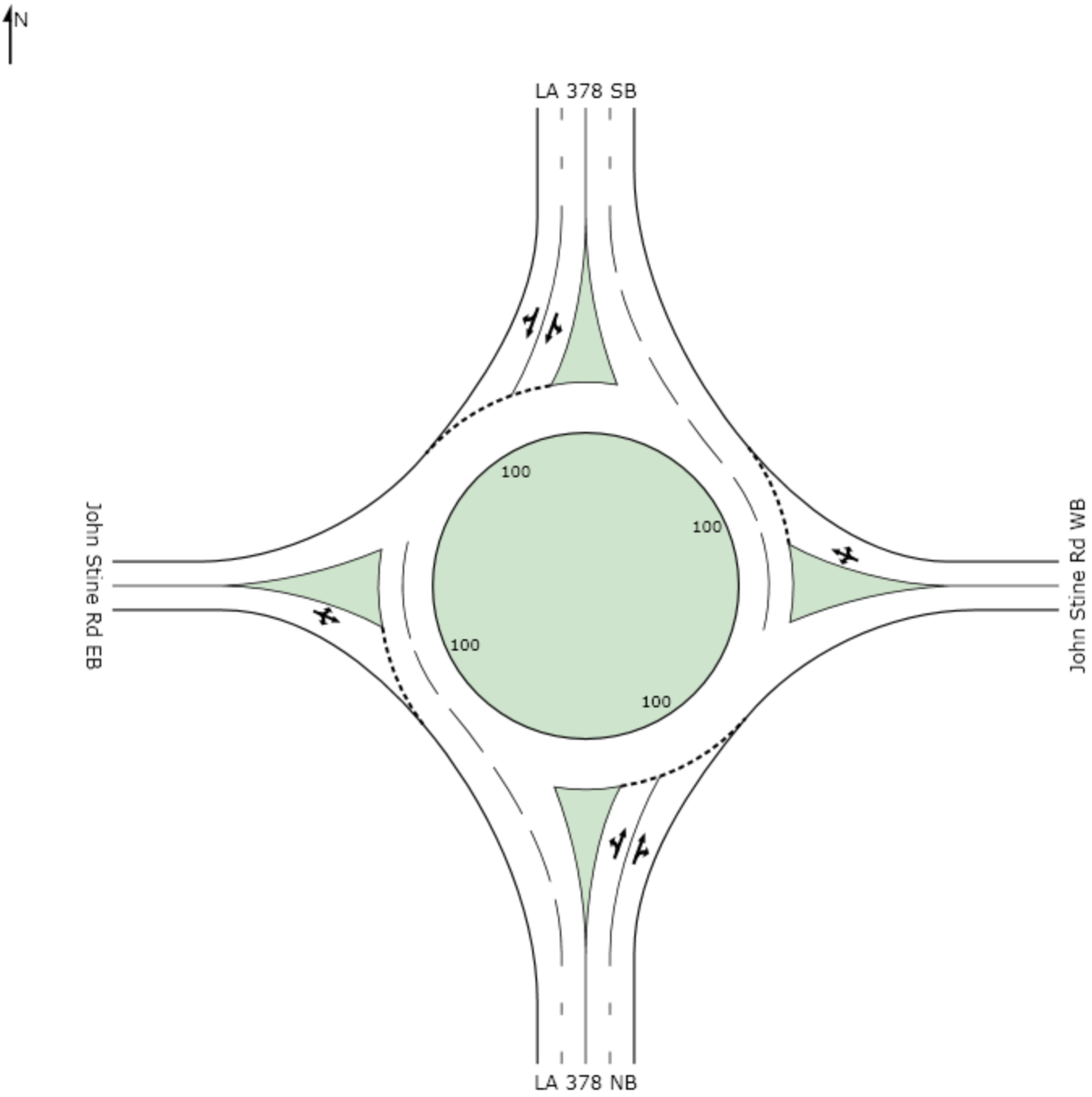
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John Stine Rd EB
John Stine Rd WB
LA 378 NB
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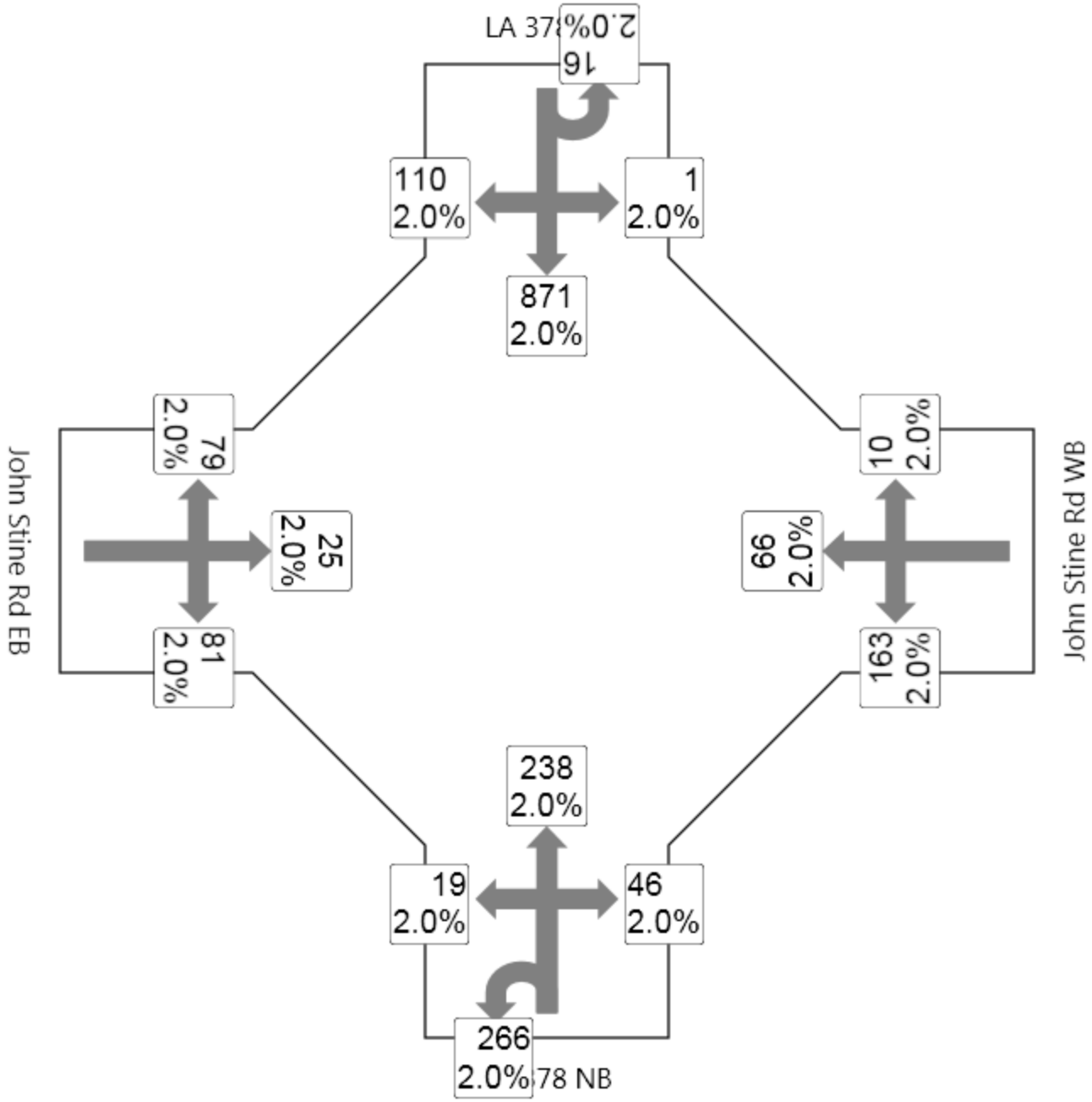
100
100
100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25
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10
2.0%
96
2.0%
163
2.0%
238
2.0%
19
2.0%
46
2.0%
266
2.0%
78 NB
John Stine Rd EB
John Stine Rd WB

MOVEMENT SUMMARY

Site: LA 378 at John Stine_AM

LA 378 at John Stine Rd
11-100 LA 378 Improvements
2028 AM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	317	2.0	0.258	15.4	LOS B	1.7	43.9	0.40	0.68	28.1
8	T	264	2.0	0.258	6.0	LOS A	1.7	43.9	0.41	0.49	32.5
18	R	51	2.0	0.258	7.3	LOS A	1.7	43.2	0.41	0.57	32.1
Approach		632	2.0	0.258	10.8	LOS B	1.7	43.9	0.41	0.59	29.9
East: John Stine Rd WB											
1	L	204	2.0	0.489	17.9	LOS B	2.7	68.5	0.71	0.99	27.2
6	T	83	2.0	0.489	10.9	LOS B	2.7	68.5	0.71	0.87	29.7
16	R	13	2.0	0.489	11.9	LOS B	2.7	68.5	0.71	0.89	29.4
Approach		299	2.0	0.489	15.7	LOS B	2.7	68.5	0.71	0.95	27.9
North: LA 378 SB											
7	L	19	2.0	0.676	24.4	LOS C	7.4	188.1	0.91	1.12	25.3
4	T	968	2.0	0.676	14.3	LOS B	7.8	197.5	0.91	1.04	28.2
14	R	122	2.0	0.676	14.9	LOS B	7.8	197.5	0.91	1.04	28.3
Approach		1109	2.0	0.676	14.6	LOS B	7.8	197.5	0.91	1.04	28.1
West: John Stine Rd EB											
5	L	99	2.0	0.782	38.9	LOS D	5.9	149.5	0.94	1.21	19.7
2	T	31	2.0	0.782	31.8	LOS C	5.9	149.5	0.94	1.19	20.3
12	R	101	2.0	0.782	32.9	LOS C	5.9	149.5	0.94	1.19	20.3
Approach		231	2.0	0.782	35.3	LOS D	5.9	149.5	0.94	1.20	20.0
All Vehicles		2271	2.0	0.782	15.8	LOS B	7.8	197.5	0.75	0.92	27.4

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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LA 378
32
2.0%
61
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379
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195
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John Stine Rd EB
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John Stine Rd WB
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104
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1003
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77
2.0%
195
2.0%
307
2.0%
78 NB

MOVEMENT SUMMARY

Site: LA 378 at John Stine_PM

LA 378 at John Stine Rd
11-100 LA 378 Improvements
2028 PM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	427	2.0	0.869	25.8	LOS C	17.0	432.7	1.00	1.09	24.3
8	T	1114	2.0	0.869	15.8	LOS B	17.5	445.3	1.00	1.06	27.1
18	R	217	2.0	0.869	16.5	LOS B	17.5	445.3	1.00	1.04	27.5
Approach		1758	2.0	0.869	18.3	LOS B	17.5	445.3	1.00	1.06	26.3
East: John Stine Rd WB											
1	L	130	2.0	0.998	78.4	LOS E	10.3	262.3	1.00	1.46	12.9
6	T	66	2.0	0.998	71.3	LOS E	10.3	262.3	1.00	1.46	12.8
16	R	11	2.0	0.998	72.3	LOS E	10.3	262.3	1.00	1.46	12.8
Approach		208	2.0	0.998	75.8	LOS E	10.3	262.3	1.00	1.46	12.9
North: LA 378 SB											
7	L	41	2.0	0.354	19.0	LOS B	2.4	61.3	0.80	0.94	27.5
4	T	421	2.0	0.354	9.4	LOS A	2.6	64.8	0.80	0.80	30.5
14	R	68	2.0	0.354	10.4	LOS B	2.6	64.8	0.80	0.82	30.7
Approach		530	2.0	0.354	10.3	LOS B	2.6	64.8	0.80	0.81	30.2
West: John Stine Rd EB											
5	L	244	2.0	0.783	28.7	LOS C	7.1	180.8	0.91	1.20	22.7
2	T	64	2.0	0.783	21.6	LOS C	7.1	180.8	0.91	1.17	23.9
12	R	74	2.0	0.783	22.6	LOS C	7.1	180.8	0.91	1.18	23.8
Approach		381	2.0	0.783	26.3	LOS C	7.1	180.8	0.91	1.19	23.1
All Vehicles		2877	2.0	0.998	22.0	LOS C	17.5	445.3	0.95	1.06	24.6

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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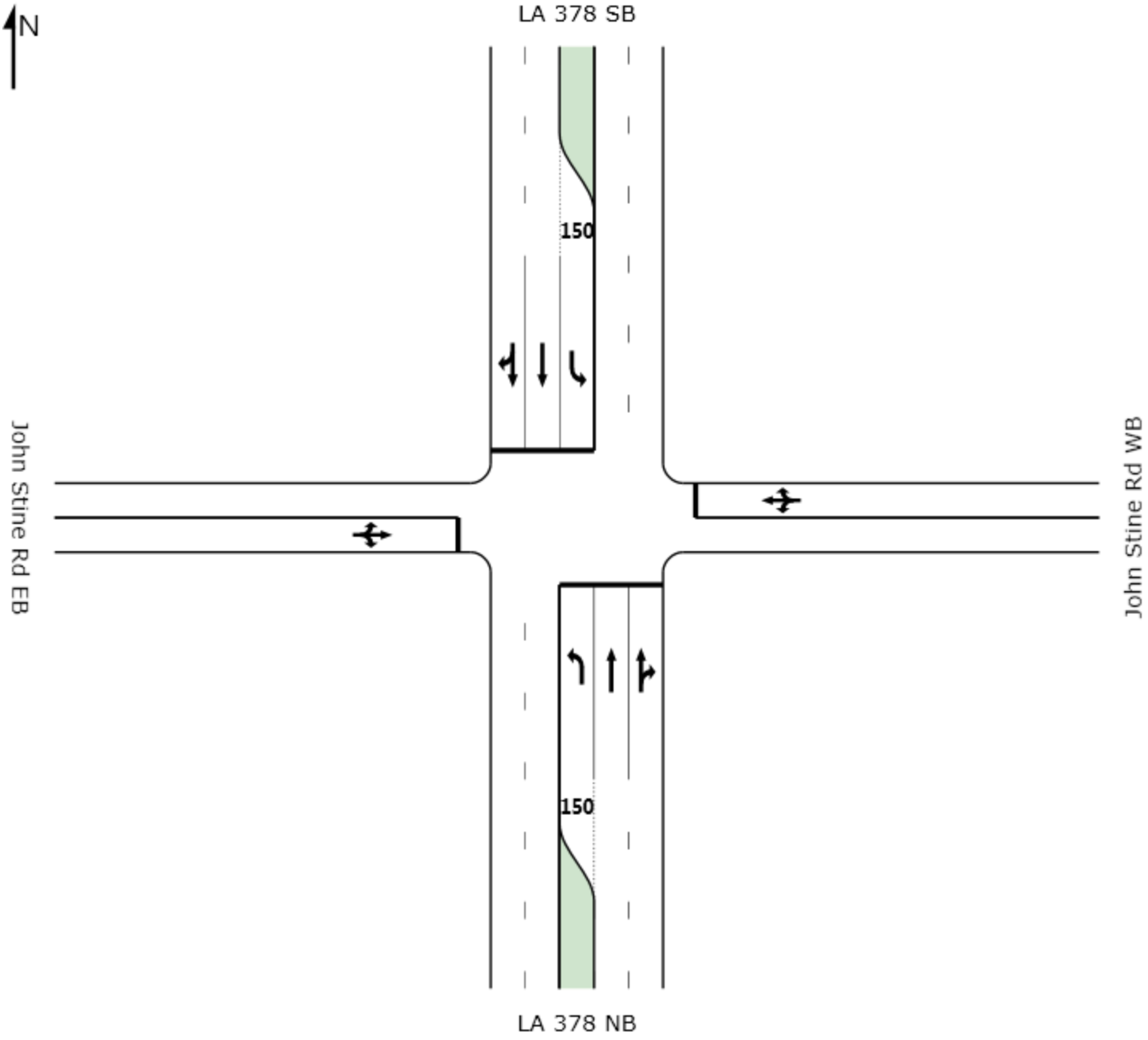
SIDRA INTERSECTION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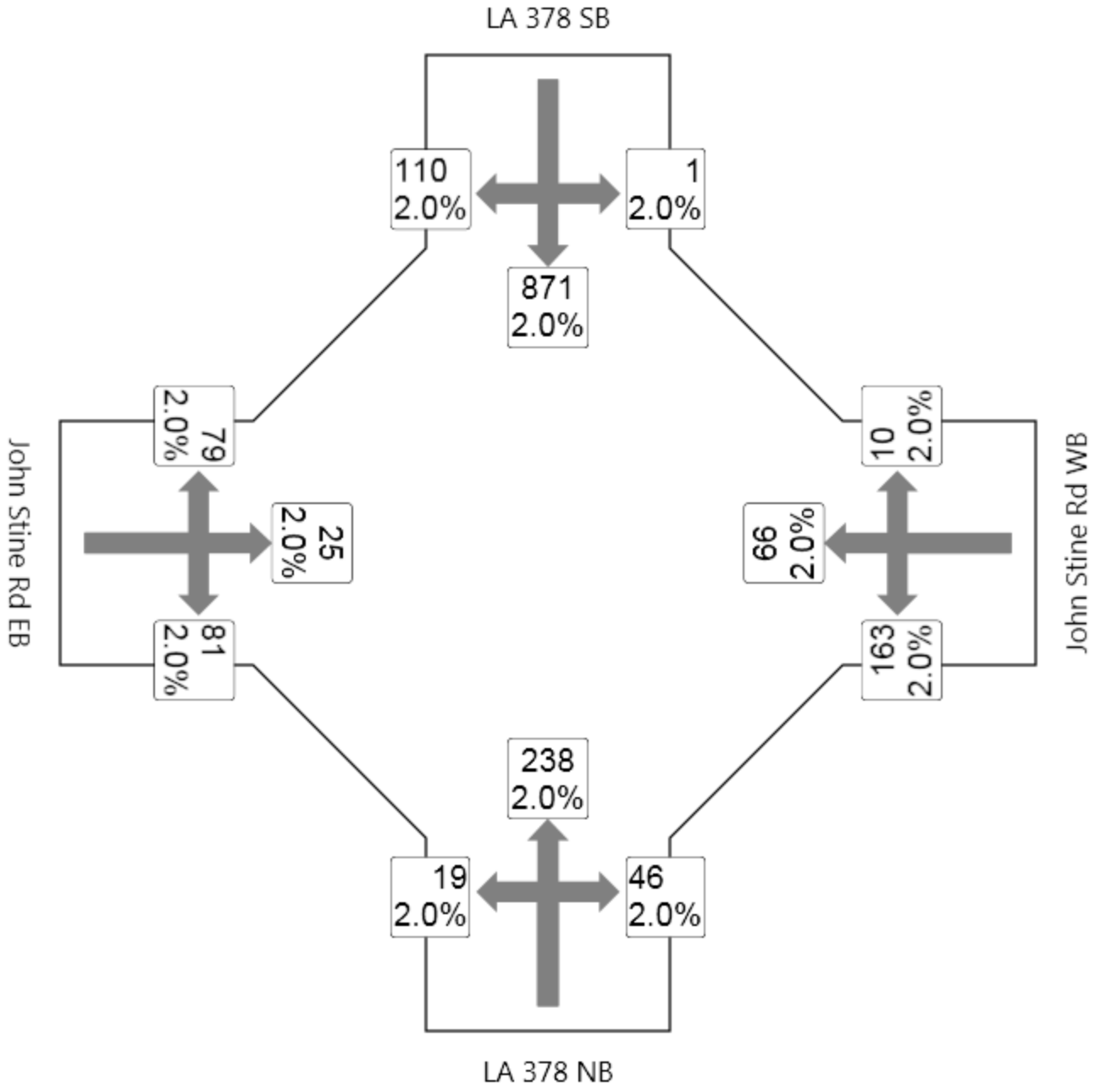
150
John Stine Rd EB
John Stine Rd WB
150
LA 378 NB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John Stine Rd EB
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John Stine Rd WB
81
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163
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238
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19
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46
2.0%
LA 378 NB

MOVEMENT SUMMARY

Site: LA 378 at John Stine_AM - Conversion

LA 378 at John Stine Rd
11-100 LA 378 Improvements
2028 AM Peak Alt B
Signals - Pretimed Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	21	2.0	0.067	21.1	LOS C	0.3	8.3	0.85	0.70	24.7
8	T	264	2.0	0.245	14.0	LOS B	3.5	87.7	0.75	0.60	26.4
18	R	51	2.0	0.245	20.3	LOS C	2.9	74.0	0.74	0.84	26.2
Approach		337	2.0	0.245	15.4	LOS B	3.5	87.7	0.76	0.65	26.2
East: John Stine Rd WB											
1	L	204	2.0	0.860	69.4	LOS E	8.9	225.6	1.00	0.96	13.3
6	T	83	2.0	0.860	60.6	LOS E	8.9	225.6	1.00	0.96	13.4
16	R	13	2.0	0.860	69.6	LOS E	8.9	225.6	1.00	0.96	13.3
Approach		299	2.0	0.860	67.0	LOS E	8.9	225.6	1.00	0.96	13.3
North: LA 378 SB											
7	L	1	2.0	0.002	17.3	LOS B	0.0	0.4	0.63	0.63	26.5
4	T	968	2.0	0.846	26.2	LOS C	18.4	467.8	0.99	1.02	21.1
14	R	122	2.0	0.846	34.4	LOS C	17.7	449.8	0.99	1.03	21.0
Approach		1091	2.0	0.846	27.1	LOS C	18.4	467.8	0.99	1.02	21.1
West: John Stine Rd EB											
5	L	99	2.0	0.360	75.6	LOS E	6.4	163.7	1.00	0.89	12.5
2	T	31	2.0	0.360	66.8	LOS E	6.4	163.7	1.00	0.89	12.5
12	R	101	2.0	0.360	75.8	LOS E	6.4	163.7	1.00	0.89	12.4
Approach		231	2.0	0.360	74.5	LOS E	6.4	163.7	1.00	0.89	12.5
All Vehicles		1958	2.0	0.860	36.8	LOS D	18.4	467.8	0.95	0.93	18.6

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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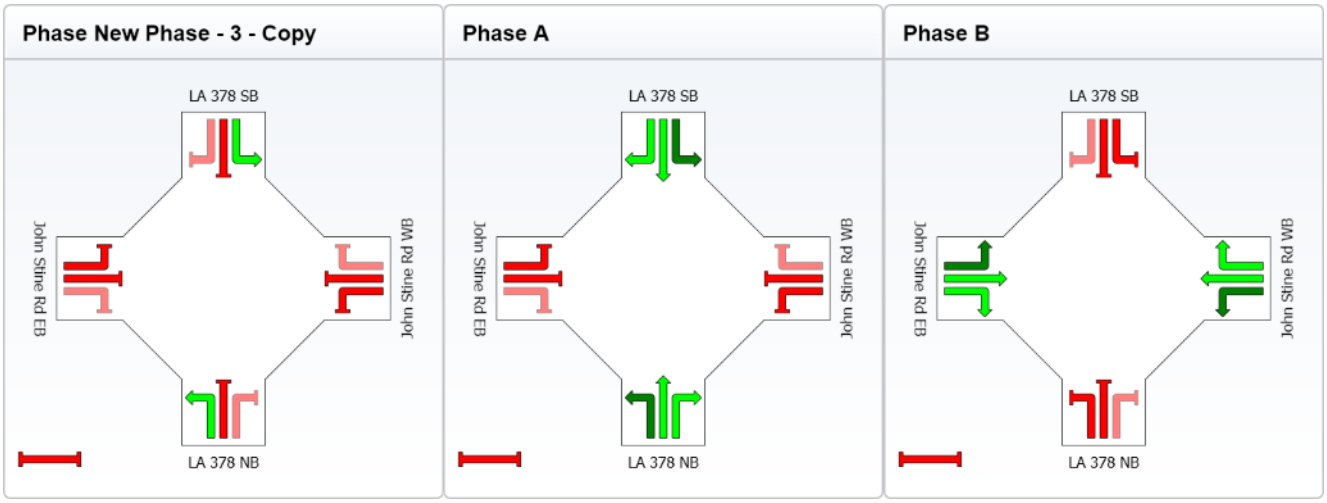
PHASING SUMMARY

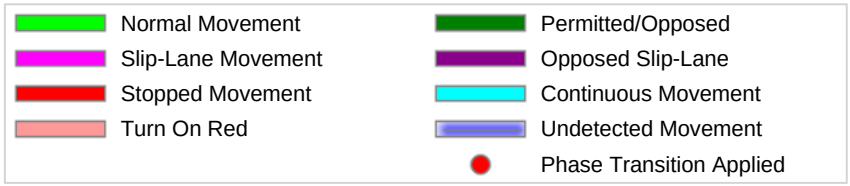
LA 378 at John Stine Rd
11-100 LA 378 Improvements
2028 AM Peak Alt B
Signals - Pretimed Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Phase times determined by the program
Sequence: Opposed Turns
Input Sequence: New Phase - 3 - Copy, A, B
Output Sequence: New Phase - 3 - Copy, A, B

Phase Timing Results

Phase	New Phase - 3 - Copy	A	B
Green Time (sec)	6	20	19
Yellow Time (sec)	4	4	4
All-Red Time (sec)	1	1	1
Phase Time (sec)	11	25	24
Phase Split	18 %	42 %	40 %





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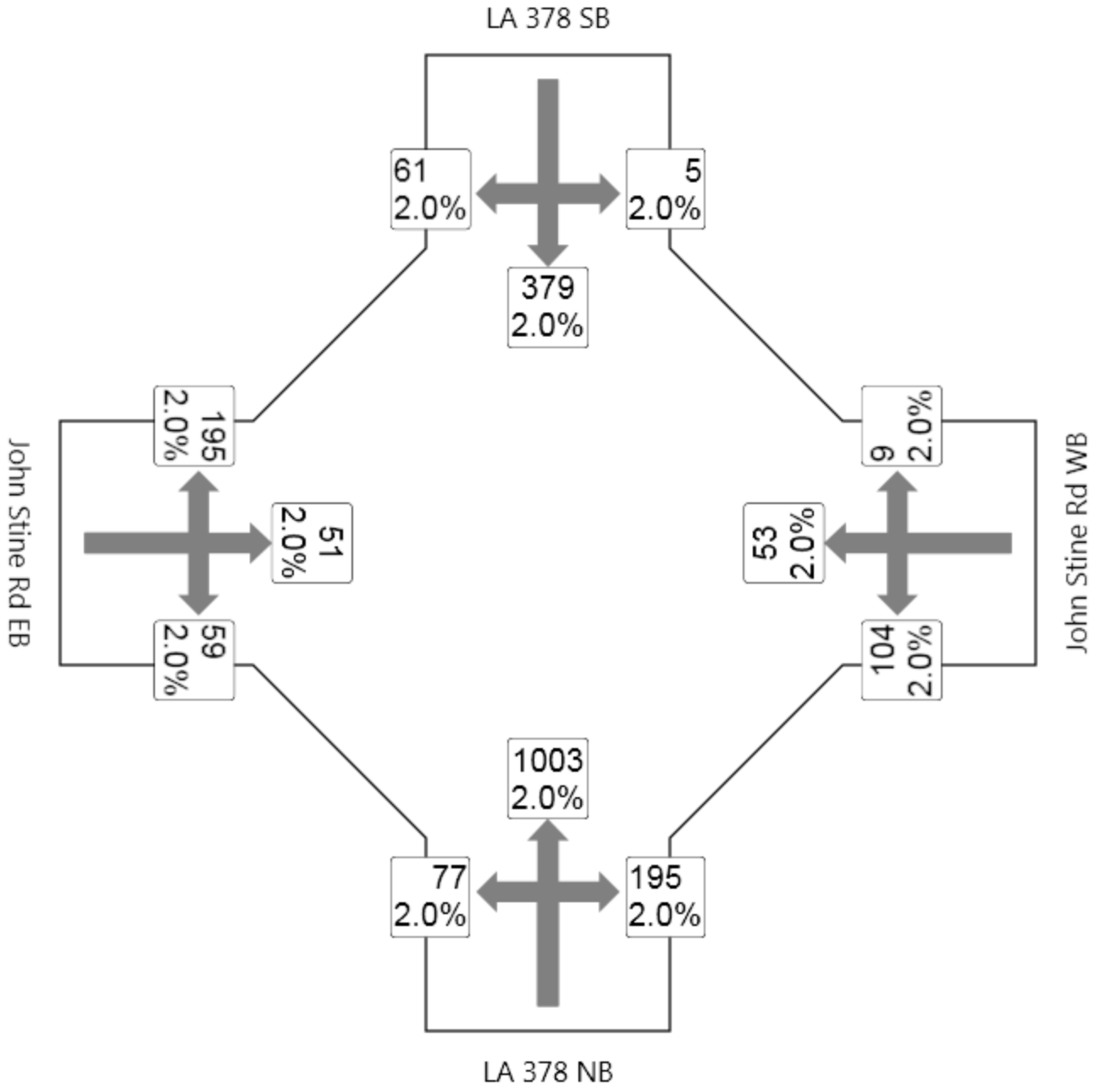
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379
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John Stine Rd EB
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John Stine Rd WB
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1003
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77
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195
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LA 378 NB

MOVEMENT SUMMARY

LA 378 at John Stine Rd
11-100 LA 378 Improvements
2028 PM Peak Alt B
Signals - Actuated Cycle Time = 110 seconds

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	86	2.0	0.282	30.5	LOS C	3.0	76.2	0.74	0.75	21.1
8	T	1114	2.0	1.093	96.9	LOS F	55.1	1398.5	1.00	1.28	10.1
18	R	217	2.0	1.093	103.4	LOS F	51.6	1309.9	1.00	1.23	10.1
Approach		1417	2.0	1.093	93.9	LOS F	55.1	1398.5	0.98	1.24	10.4
East: John Stine Rd WB											
1	L	130	2.0	0.527	102.0	LOS F	19.6	498.7	1.00	1.00	10.1
6	T	66	2.0	0.527	93.2	LOS F	19.6	498.7	1.00	1.00	10.2
16	R	11	2.0	0.527	102.2	LOS F	19.6	498.7	1.00	1.00	10.1
Approach		208	2.0	0.527	99.2	LOS F	19.6	498.7	1.00	1.00	10.1
North: LA 378 SB											
7	L	6	2.0	0.024	35.1	LOS D	0.2	4.6	0.90	0.65	19.7
4	T	421	2.0	0.401	30.7	LOS C	11.0	279.1	0.81	0.68	20.0
14	R	68	2.0	0.401	36.8	LOS D	9.9	251.2	0.80	0.87	20.0
Approach		494	2.0	0.401	31.6	LOS C	11.0	279.1	0.81	0.71	20.0
West: John Stine Rd EB											
5	L	244	2.0	1.019	82.1	LOS F	29.1	738.3	1.00	1.01	11.8
2	T	64	2.0	1.019	73.3	LOS E	29.1	738.3	1.00	1.01	11.9
12	R	74	2.0	1.019	82.3	LOS F	29.1	738.3	1.00	1.01	11.8
Approach		381	2.0	1.019	80.7	LOS F	29.1	738.3	1.00	1.01	11.8
All Vehicles		2500	2.0	1.093	80.0	LOS E	55.1	1398.5	0.95	1.08	11.7

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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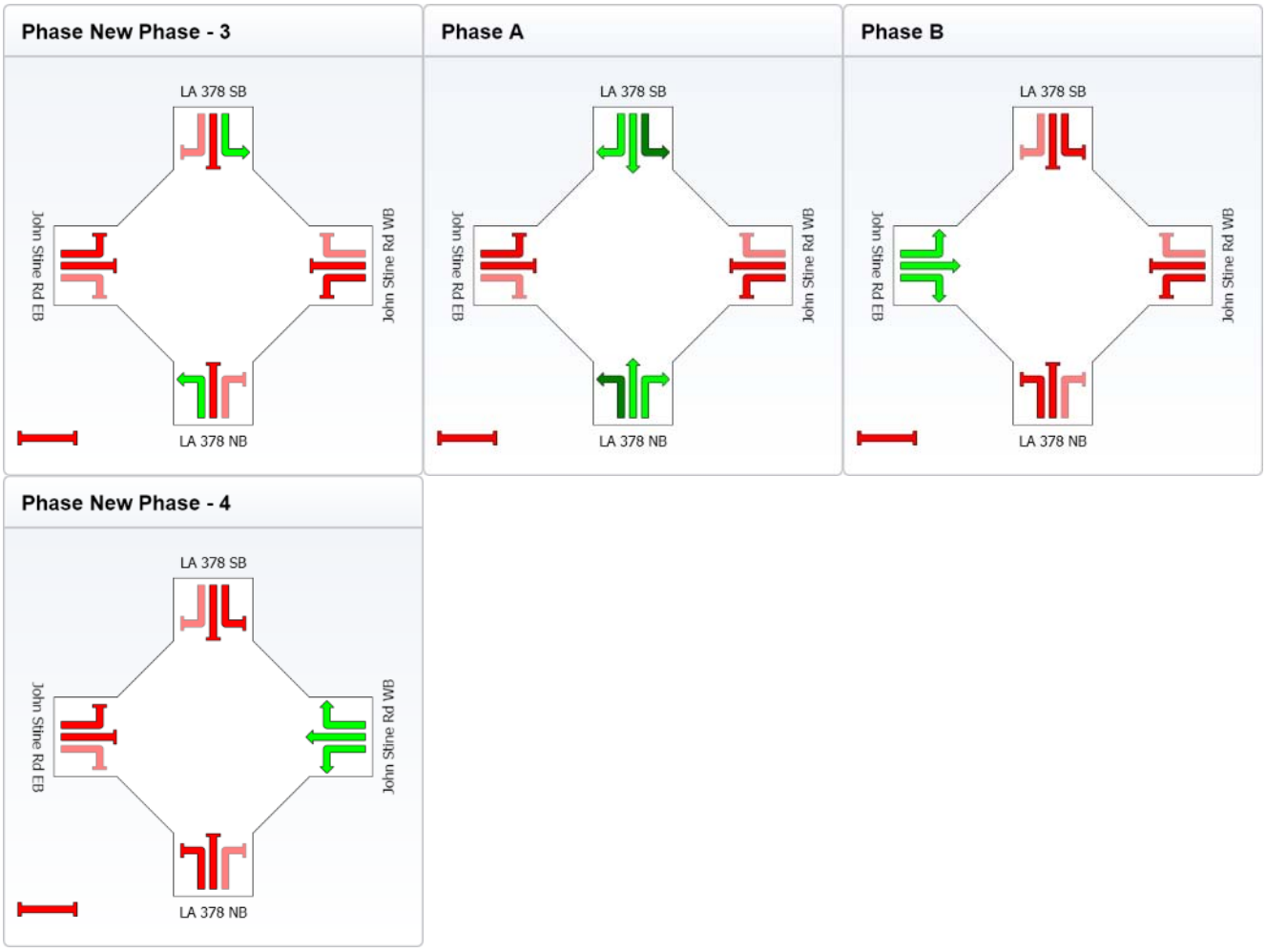
PHASING SUMMARY

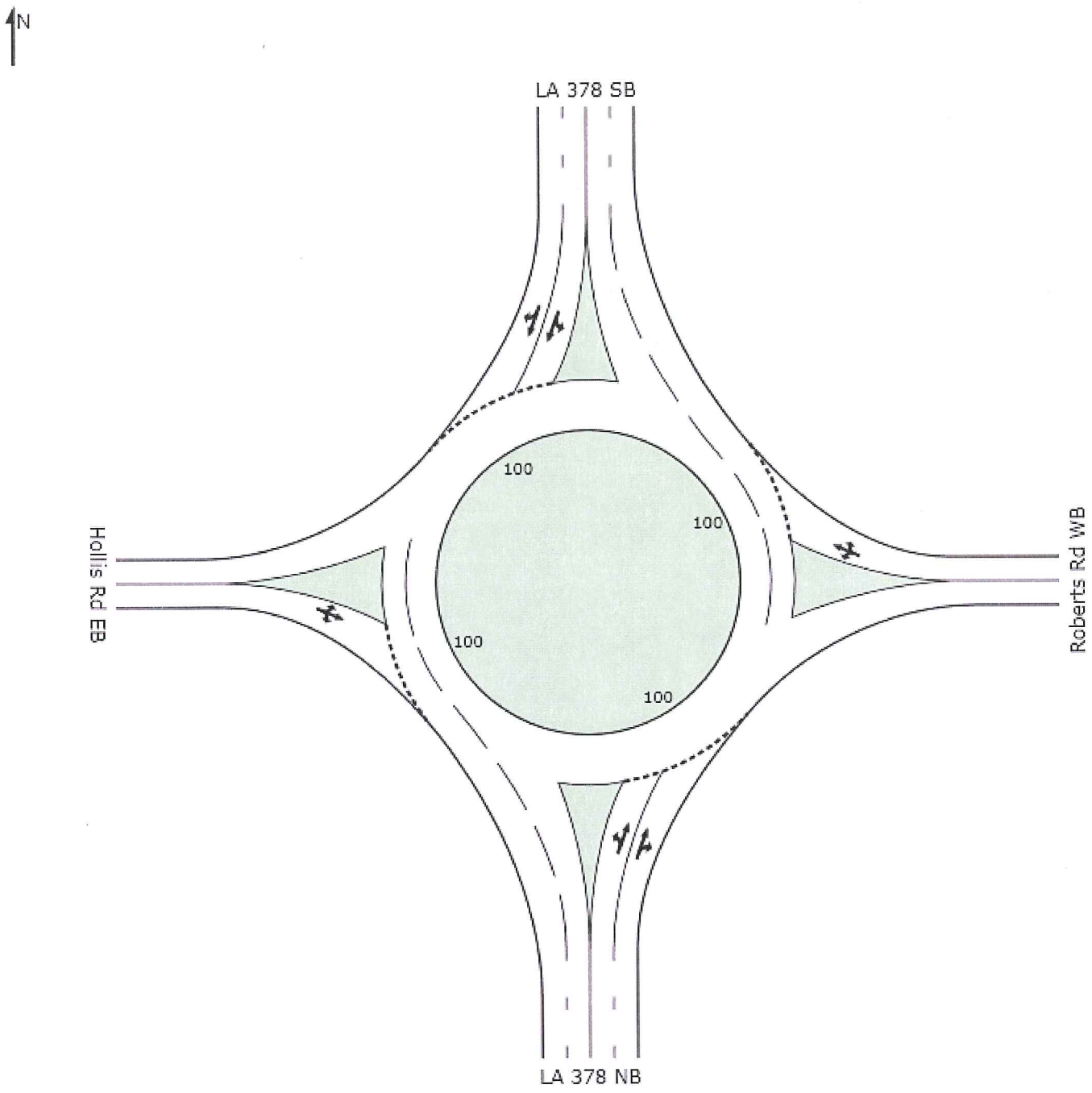
LA 378 at John Stine Rd
11-100 LA 378 Improvements
2028 PM Peak Alt B
Signals - Actuated Cycle Time = 110 seconds

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: New Phase - 3, A, B, New Phase - 4
Output Sequence: New Phase - 3, A, B, New Phase - 4

Phase Timing Results

Phase	New Phase - 3	A	B	New Phase - 4
Green Time (sec)	10	35	22	23
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	1	1	1	1
Phase Time (sec)	15	40	27	28
Phase Split	14 %	36 %	25 %	25 %

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LA 378 SB
Hollis Rd EB
Roberts Rd WB
LA 378 NB
100
100
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LA 37
14
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348
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Hollis Rd EB
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Roberts Rd WB
321
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9
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58
2.0%
78 NB

MOVEMENT SUMMARY

Site: LA 378 at Hollis Rd/Davis Rd AM

LA 378 at Hollis Rd / Davis Rd
11-100 LA 378 Improvements
2028 AM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
5	L	74	2.0	0.226	17.1	LOS B	1.3	33.4	0.60	0.86	28.1
2	T	357	2.0	0.226	7.7	LOS A	1.4	34.4	0.60	0.64	31.5
12	R	1	2.0	0.226	8.7	LOS A	1.4	34.4	0.59	0.69	31.6
Approach		432	2.0	0.226	9.3	LOS A	1.4	34.4	0.60	0.68	30.8
East: Roberts Rd WB											
3	L	6	2.0	0.023	14.5	LOS B	0.1	2.3	0.49	0.79	29.1
8	T	4	2.0	0.023	7.3	LOS A	0.1	2.3	0.49	0.56	31.7
18	R	6	2.0	0.023	8.4	LOS A	0.1	2.3	0.49	0.61	31.5
Approach		16	2.0	0.023	10.5	LOS B	0.1	2.3	0.49	0.67	30.5
North: LA 378 SB											
1	L	402	2.0	0.428	13.0	LOS B	3.3	84.5	0.35	0.69	29.3
6	T	766	2.0	0.428	5.7	LOS A	3.4	85.6	0.34	0.44	32.8
16	R	9	2.0	0.428	7.0	LOS A	3.4	85.6	0.34	0.54	32.4
Approach		1177	2.0	0.428	8.2	LOS A	3.4	85.6	0.34	0.53	31.5
West: Hollis Rd EB											
7	L	33	2.0	0.158	18.0	LOS B	0.6	15.5	0.68	0.94	27.2
4	T	1	2.0	0.158	10.9	LOS B	0.6	15.5	0.68	0.80	29.7
14	R	39	2.0	0.158	11.9	LOS B	0.6	15.5	0.68	0.83	29.4
Approach		73	2.0	0.158	14.6	LOS B	0.6	15.5	0.68	0.88	28.3
All Vehicles		1698	2.0	0.428	8.8	LOS A	3.4	85.6	0.42	0.58	31.1

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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LA 37
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Hollis Rd EB
Roberts Rd WB
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31
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78 NB

MOVEMENT SUMMARY

Site: LA 378 at Hollis Rd/Davis Rd
PM

LA 378 at Hollis Rd / Davis Rd
11-100 LA 378 Improvements
2028 PM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
5	L	91	2.0	0.555	15.1	LOS B	4.4	112.7	0.60	0.83	29.2
2	T	1232	2.0	0.555	6.9	LOS A	4.5	114.7	0.59	0.58	31.6
12	R	1	2.0	0.555	8.0	LOS A	4.5	114.7	0.58	0.64	31.6
Approach		1324	2.0	0.555	7.5	LOS A	4.5	114.7	0.59	0.60	31.4
East: Roberts Rd WB											
3	L	1	2.0	0.042	18.0	LOS B	0.2	4.2	0.71	0.96	27.5
8	T	8	2.0	0.042	11.0	LOS B	0.2	4.2	0.71	0.81	30.0
18	R	8	2.0	0.042	12.0	LOS B	0.2	4.2	0.71	0.84	29.8
Approach		16	2.0	0.042	12.0	LOS B	0.2	4.2	0.71	0.84	29.7
North: LA 378 SB											
1	L	179	2.0	0.201	12.9	LOS B	1.2	30.7	0.30	0.70	29.4
6	T	333	2.0	0.201	5.7	LOS A	1.2	31.1	0.30	0.44	33.0
16	R	16	2.0	0.201	6.9	LOS A	1.2	31.1	0.29	0.55	32.6
Approach		528	2.0	0.201	8.2	LOS A	1.2	31.1	0.30	0.53	31.7
West: Hollis Rd EB											
7	L	38	2.0	0.106	15.0	LOS B	0.4	10.1	0.51	0.84	28.7
4	T	3	2.0	0.106	7.8	LOS A	0.4	10.1	0.51	0.64	31.4
14	R	33	2.0	0.106	8.9	LOS A	0.4	10.1	0.51	0.69	31.3
Approach		73	2.0	0.106	12.0	LOS B	0.4	10.1	0.51	0.77	29.8
All Vehicles		1941	2.0	0.555	7.9	LOS A	4.5	114.7	0.51	0.59	31.4

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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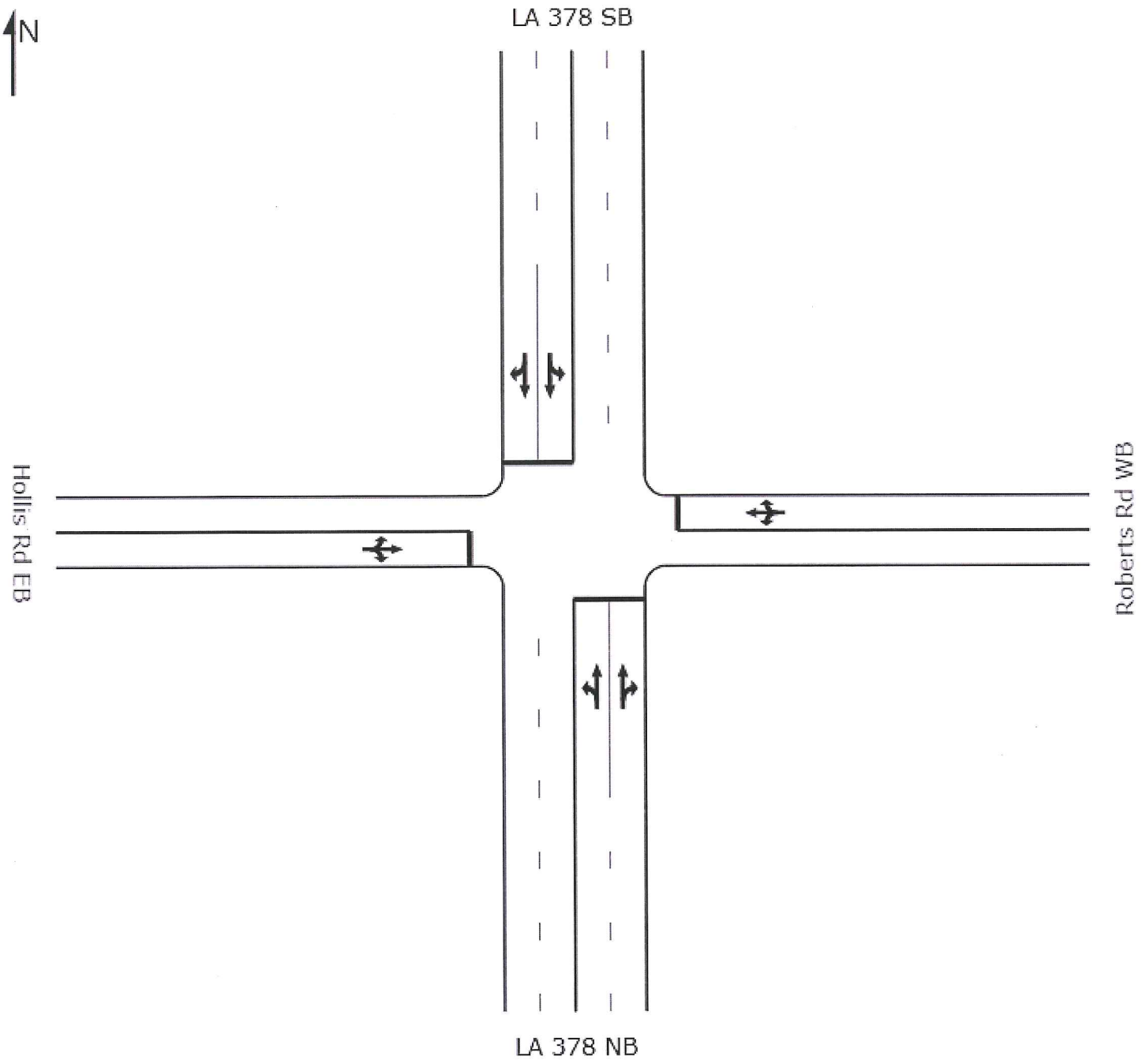
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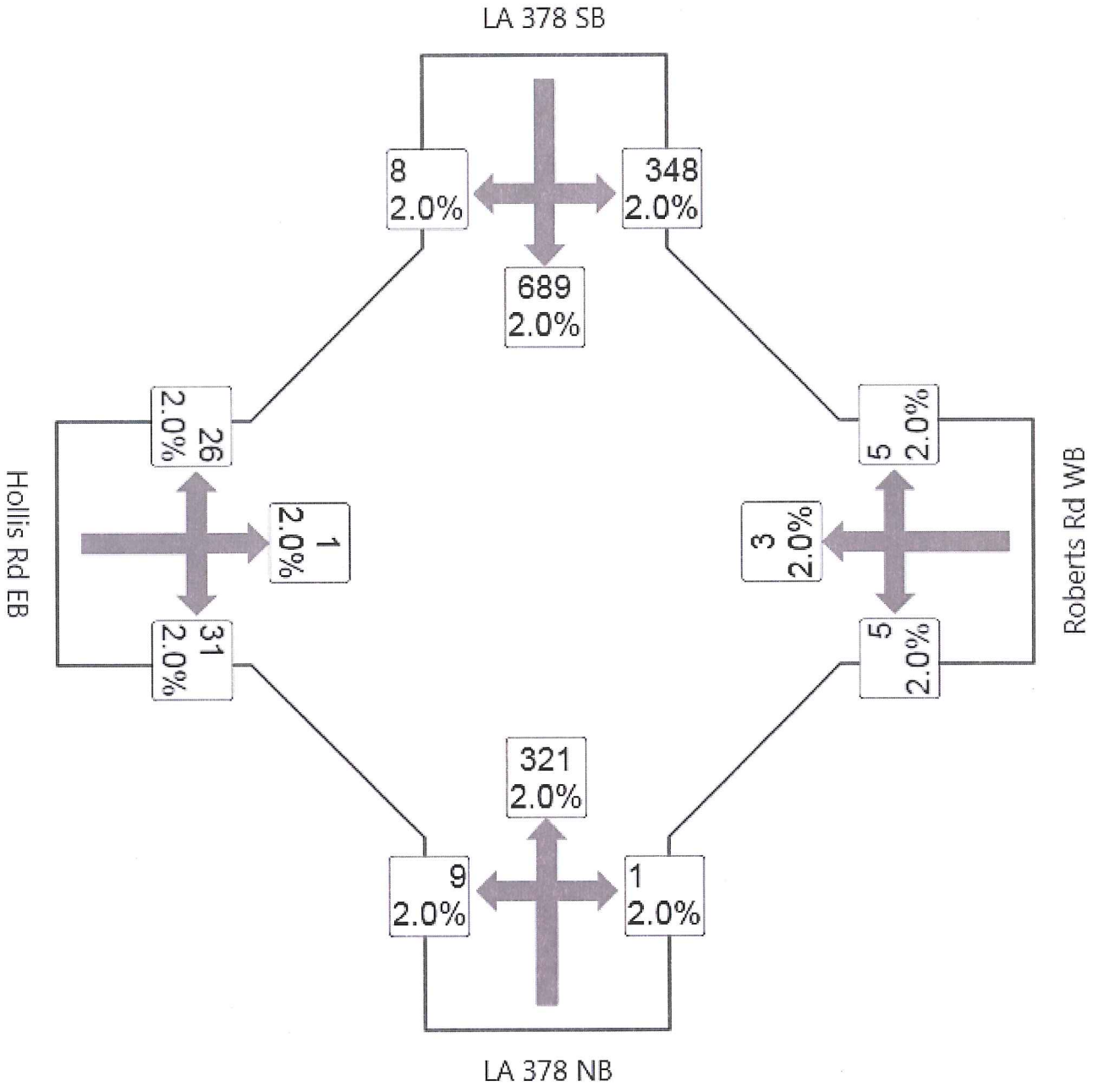
LA 378 SB
Hollis Rd EB
Roberts Rd WB
LA 378 NB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Hollis Rd EB
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Roberts Rd WB
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321
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2.0%
LA 378 NB

MOVEMENT SUMMARY

Site: LA 378 at Hollis Rd/Davis Rd
AM - Conversion

LA 378 at Hollis Rd / Davis Rd
11-100 LA 378 Improvements
2028 AM Peak Alt B
Signals - Actuated Cycle Time = 60 seconds

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
5	L	10	2.0	0.177	17.1	LOS B	2.7	68.8	0.53	0.96	28.0
2	T	357	2.0	0.177	7.0	LOS A	2.8	71.1	0.50	0.42	31.7
12	R	1	2.0	0.177	15.1	LOS B	2.8	71.1	0.48	1.00	29.1
Approach		368	2.0	0.177	7.3	LOS A	2.8	71.1	0.50	0.43	31.5
East: Roberts Rd WB											
3	L	6	2.0	0.036	34.8	LOS C	0.5	11.6	0.86	0.73	20.0
8	T	4	2.0	0.036	25.8	LOS C	0.5	11.6	0.86	0.62	20.5
18	R	6	2.0	0.036	34.8	LOS C	0.5	11.6	0.86	0.73	20.0
Approach		16	2.0	0.036	32.7	LOS C	0.5	11.6	0.86	0.71	20.1
North: LA 378 SB											
1	L	387	2.0	0.683	21.0	LOS C	10.0	253.0	0.77	0.84	24.7
6	T	766	2.0	0.683	9.8	LOS A	17.6	447.4	0.73	0.67	29.2
16	R	9	2.0	0.683	18.7	LOS B	17.6	447.4	0.73	0.98	27.6
Approach		1161	2.0	0.683	13.6	LOS B	17.6	447.4	0.75	0.73	27.6
West: Hollis Rd EB											
7	L	33	2.0	0.147	42.4	LOS D	2.7	68.9	1.00	0.84	17.8
4	T	1	2.0	0.147	33.4	LOS C	2.7	68.9	1.00	0.84	17.9
14	R	39	2.0	0.147	42.4	LOS D	2.7	68.9	1.00	0.84	17.8
Approach		73	2.0	0.147	42.2	LOS D	2.7	68.9	1.00	0.84	17.8
All Vehicles		1618	2.0	0.683	13.6	LOS B	17.6	447.4	0.70	0.67	27.6

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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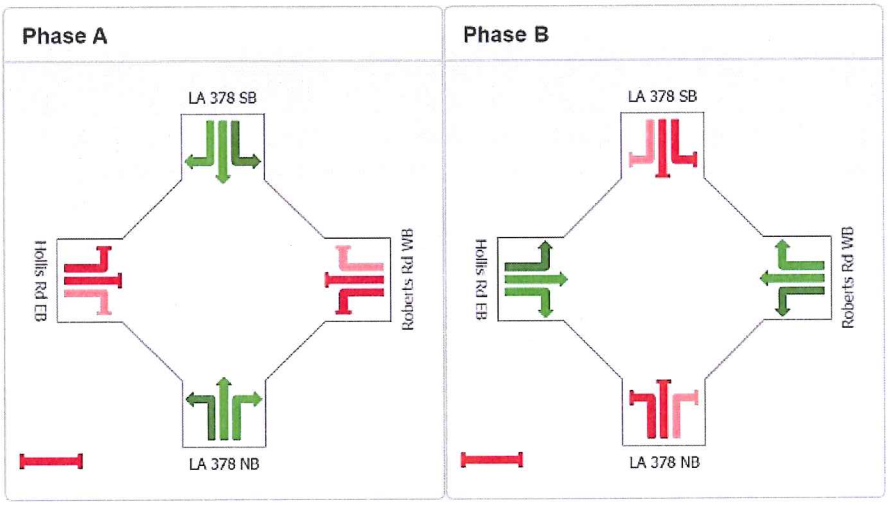
PHASING SUMMARY

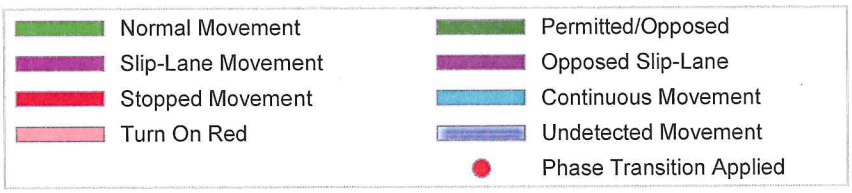
LA 378 at Hollis Rd / Davis Rd
11-100 LA 378 Improvements
2028 AM Peak Alt B
Signals - Actuated Cycle Time = 60 seconds

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	35	15
Yellow Time (sec)	4	4
All-Red Time (sec)	1	1
Phase Time (sec)	40	20
Phase Split	67 %	33 %





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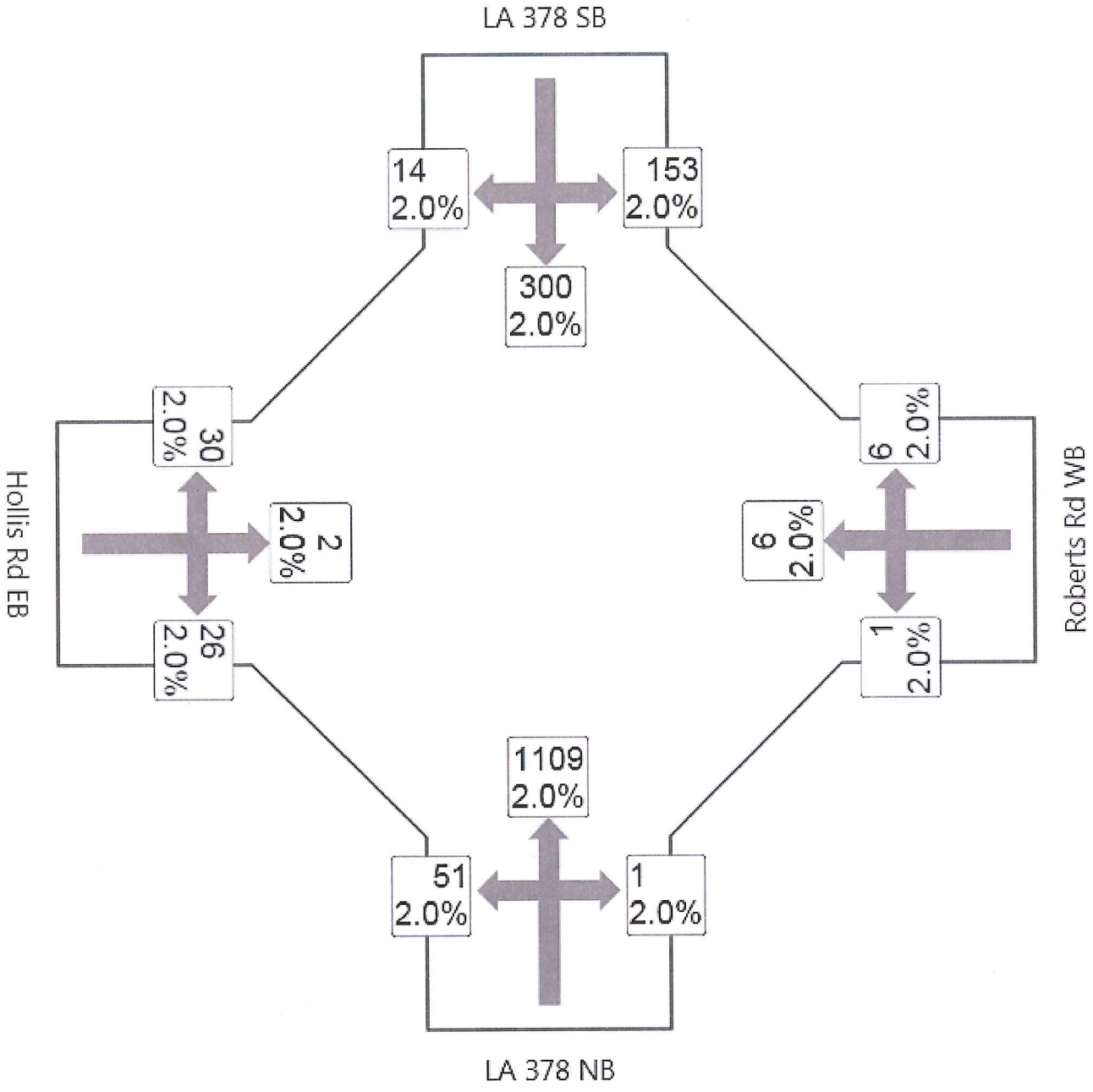
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LA 378 NB
Hollis Rd EB
Roberts Rd WB

MOVEMENT SUMMARY

Site: LA 378 at Hollis Rd/Davis Rd
PM - Conversion

LA 378 at Hollis Rd / Davis Rd
11-100 LA 378 Improvements
2028 PM Peak Alt B
Signals - Actuated Cycle Time = 60 seconds

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
5	L	57	2.0	0.596	18.0	LOS B	12.9	327.8	0.67	0.96	27.7
2	T	1232	2.0	0.596	9.0	LOS A	13.9	354.1	0.67	0.61	29.8
12	R	1	2.0	0.596	17.9	LOS B	13.9	354.1	0.67	0.99	27.9
Approach		1290	2.0	0.596	9.4	LOS A	13.9	354.1	0.67	0.62	29.7
East: Roberts Rd WB											
3	L	1	2.0	0.025	29.8	LOS C	0.4	10.2	0.79	0.75	21.8
8	T	8	2.0	0.025	20.9	LOS C	0.4	10.2	0.79	0.57	22.7
18	R	8	2.0	0.025	29.9	LOS C	0.4	10.2	0.79	0.75	21.8
Approach		16	2.0	0.025	25.8	LOS C	0.4	10.2	0.79	0.67	22.2
North: LA 378 SB											
1	L	170	2.0	0.822	30.2	LOS C	6.3	161.1	0.95	0.85	21.2
6	T	333	2.0	0.309	6.8	LOS A	5.4	137.1	0.53	0.46	31.7
16	R	16	2.0	0.309	15.8	LOS B	5.4	137.1	0.53	0.99	28.7
Approach		519	2.0	0.822	14.7	LOS B	6.3	161.1	0.66	0.60	27.2
West: Hollis Rd EB											
7	L	38	2.0	0.147	44.6	LOS D	2.8	70.1	1.00	0.84	17.3
4	T	3	2.0	0.147	35.6	LOS D	2.8	70.1	1.00	0.84	17.4
14	R	33	2.0	0.147	44.6	LOS D	2.8	70.1	1.00	0.84	17.3
Approach		73	2.0	0.147	44.3	LOS D	2.8	70.1	1.00	0.84	17.3
All Vehicles		1898	2.0	0.822	12.3	LOS B	13.9	354.1	0.68	0.63	28.1

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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SIDRA INTERSECTION

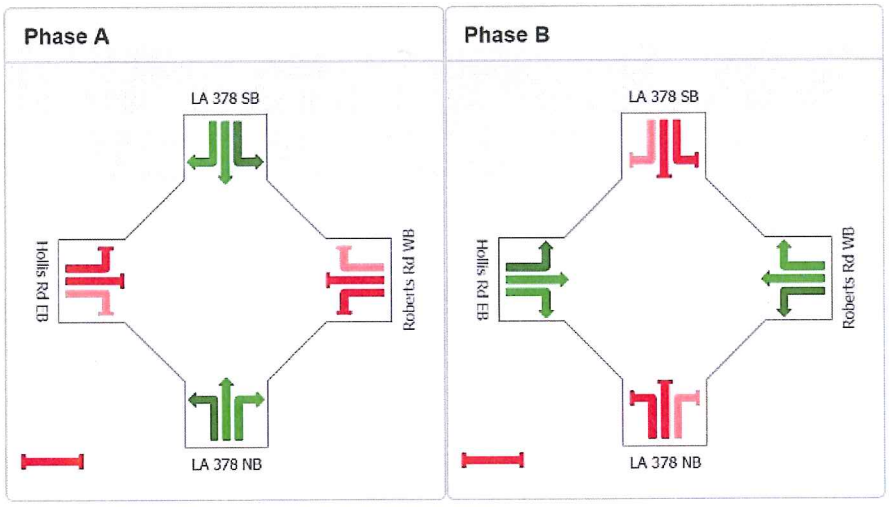
PHASING SUMMARY

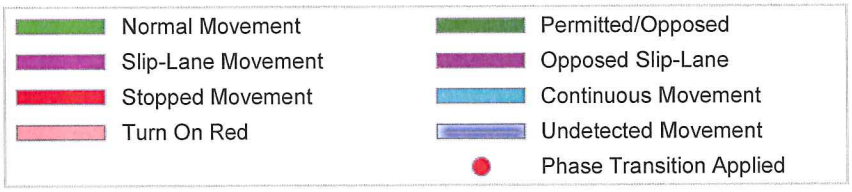
LA 378 at Hollis Rd / Davis Rd
11-100 LA 378 Improvements
2028 PM Peak Alt B
Signals - Actuated Cycle Time = 60 seconds

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	35	15
Yellow Time (sec)	4	4
All-Red Time (sec)	1	1
Phase Time (sec)	40	20
Phase Split	67 %	33 %





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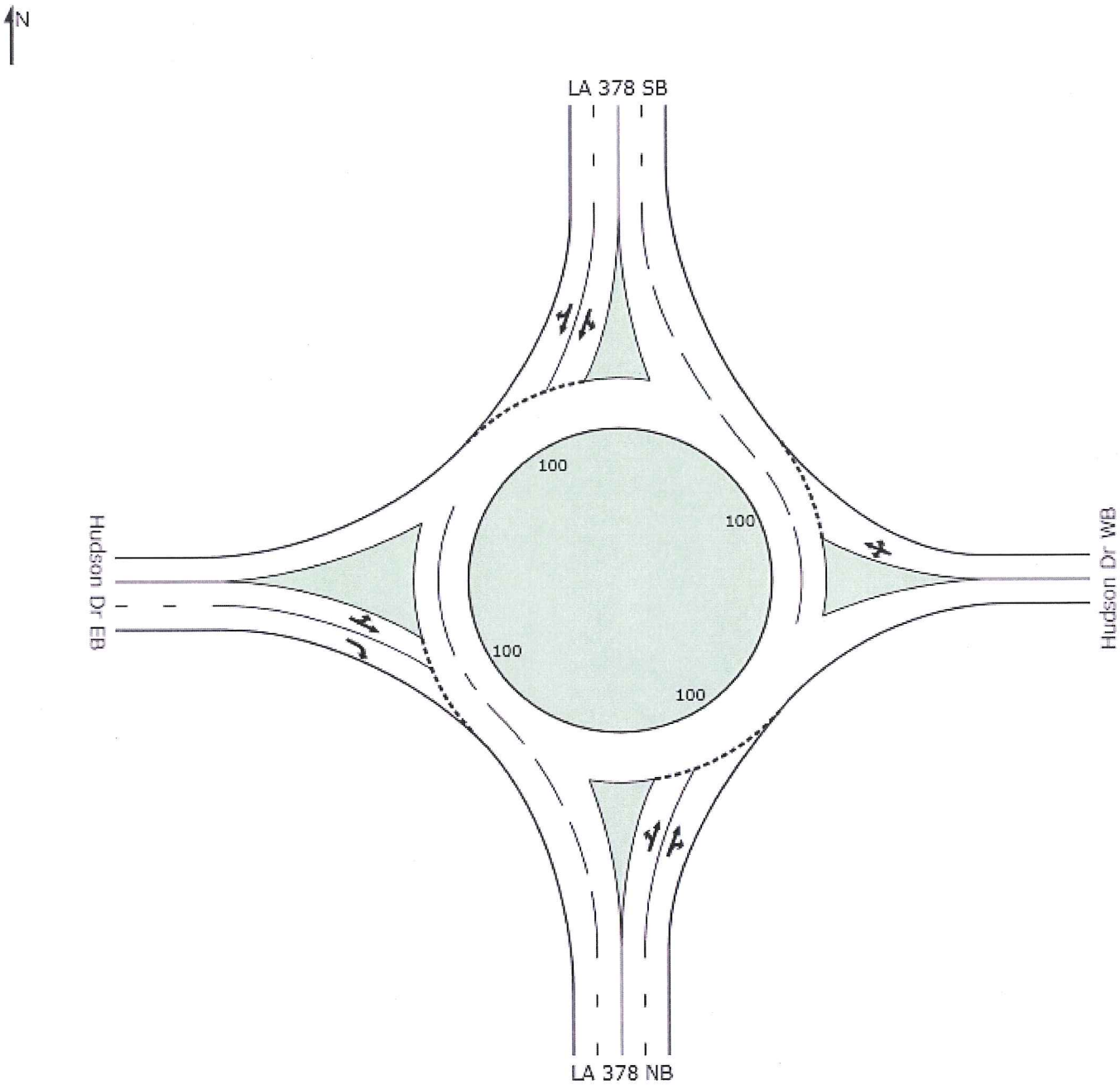
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Hudson Dr WB
LA 378 NB
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90
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78 NB

MOVEMENT SUMMARY

Site: LA 378 at Hudson Dr AM

LA 378 at Hudson Dr
11-100 LA 378 Improvements
2028 AM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
5	L	107	2.0	0.137	14.8	LOS B	0.8	20.0	0.17	0.79	28.9
2	T	222	2.0	0.137	5.4	LOS A	0.8	20.3	0.17	0.40	33.7
12	R	61	2.0	0.137	6.6	LOS A	0.8	20.3	0.17	0.52	33.0
Approach		390	2.0	0.137	8.1	LOS A	0.8	20.3	0.17	0.52	32.0
East: Hudson Dr WB											
3	L	194	2.0	0.322	14.6	LOS B	1.4	36.4	0.51	0.82	28.8
8	T	8	2.0	0.322	7.6	LOS A	1.4	36.4	0.51	0.62	31.3
18	R	50	2.0	0.322	8.6	LOS A	1.4	36.4	0.51	0.68	31.2
Approach		251	2.0	0.322	13.2	LOS B	1.4	36.4	0.51	0.79	29.3
North: LA 378 SB											
1	L	37	2.0	0.402	16.6	LOS B	2.7	68.2	0.59	0.89	28.6
6	T	821	2.0	0.402	7.2	LOS A	2.7	69.8	0.59	0.61	31.6
16	R	4	2.0	0.402	8.3	LOS A	2.7	69.8	0.58	0.67	31.6
Approach		862	2.0	0.402	7.6	LOS A	2.7	69.8	0.59	0.62	31.5
West: Hudson Dr EB											
7	L	1	2.0	0.007	16.3	LOS B	0.0	0.7	0.67	0.79	28.3
4	T	3	2.0	0.007	9.2	LOS A	0.0	0.7	0.67	0.63	30.9
14	R	4	2.0	0.006	10.2	LOS B	0.0	0.7	0.67	0.66	30.7
Approach		8	2.0	0.007	10.9	LOS B	0.0	0.7	0.67	0.67	30.3
All Vehicles		1511	2.0	0.402	8.7	LOS A	2.7	69.8	0.47	0.62	31.2

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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LA 378
38
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Hudson Dr EB
Hudson Dr WB
78 NB

MOVEMENT SUMMARY

Site: LA 378 at Hudson Dr PM

LA 378 at Hudson Dr
11-100 LA 378 Improvements
2028 PM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
5	L	72	2.0	0.470	15.2	LOS B	3.7	94.6	0.30	0.88	29.1
2	T	968	2.0	0.470	5.6	LOS A	3.7	95.0	0.30	0.43	33.1
12	R	306	2.0	0.470	6.8	LOS A	3.7	95.0	0.29	0.52	32.5
Approach		1346	2.0	0.470	6.4	LOS A	3.7	95.0	0.29	0.47	32.7
East: Hudson Dr WB											
3	L	63	2.0	0.291	18.2	LOS B	1.2	30.9	0.70	0.95	27.1
8	T	13	2.0	0.291	11.1	LOS B	1.2	30.9	0.70	0.82	29.6
18	R	69	2.0	0.291	12.1	LOS B	1.2	30.9	0.70	0.85	29.3
Approach		144	2.0	0.291	14.7	LOS B	1.2	30.9	0.70	0.89	28.3
North: LA 378 SB											
1	L	51	2.0	0.183	15.1	LOS B	1.0	26.1	0.35	0.85	29.0
6	T	396	2.0	0.183	5.9	LOS A	1.0	26.4	0.35	0.47	32.8
16	R	6	2.0	0.183	7.2	LOS A	1.0	26.4	0.34	0.57	32.4
Approach		452	2.0	0.183	7.0	LOS A	1.0	26.4	0.35	0.51	32.3
West: Hudson Dr EB											
7	L	9	2.0	0.015	14.2	LOS B	0.1	1.4	0.48	0.75	29.1
4	T	4	2.0	0.015	7.0	LOS A	0.1	1.4	0.48	0.53	31.6
14	R	13	2.0	0.015	8.4	LOS A	0.1	1.4	0.48	0.61	31.5
Approach		25	2.0	0.015	10.2	LOS B	0.1	1.4	0.48	0.65	30.6
All Vehicles		1967	2.0	0.470	7.2	LOS A	3.7	95.0	0.34	0.51	32.2

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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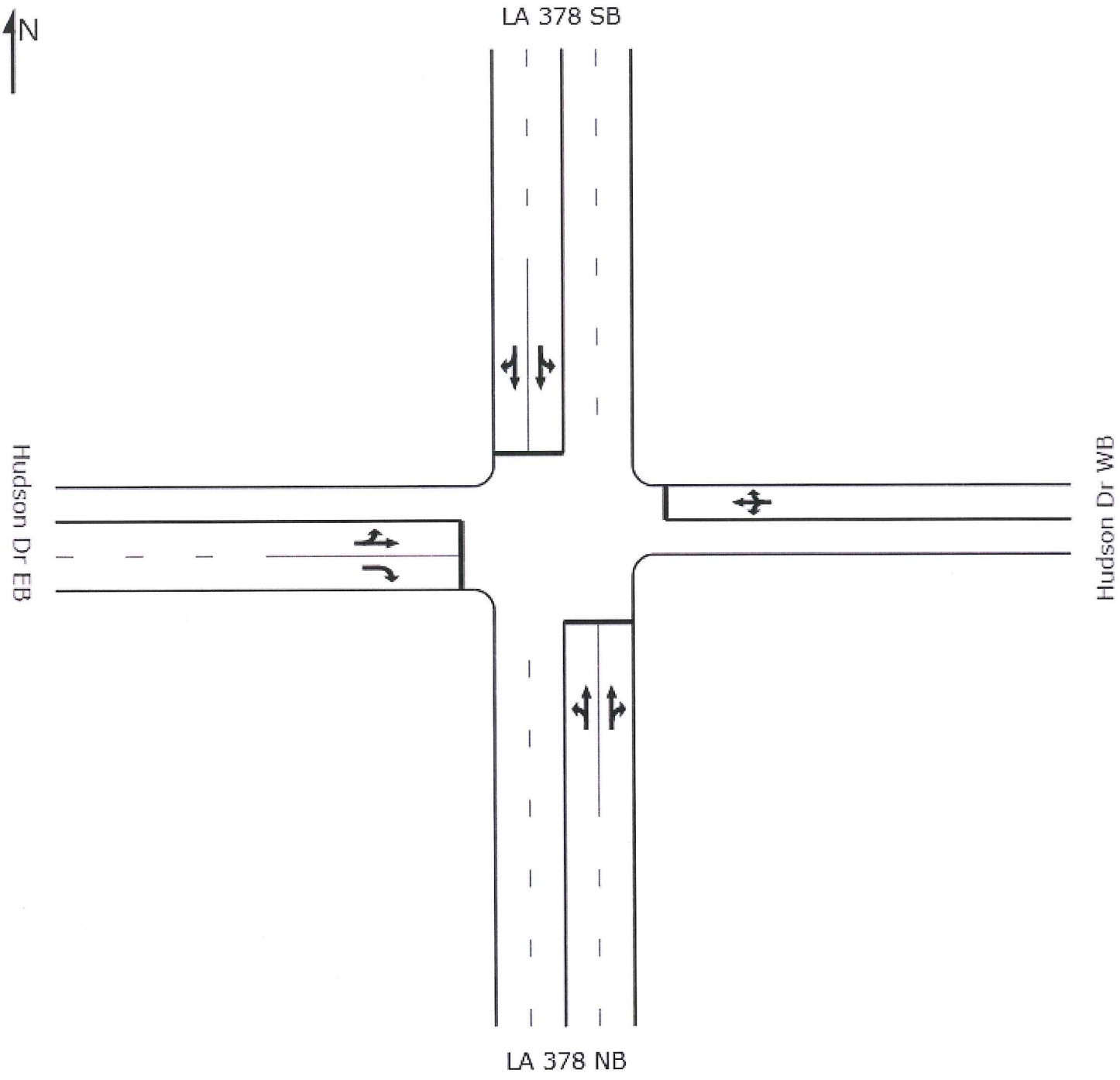
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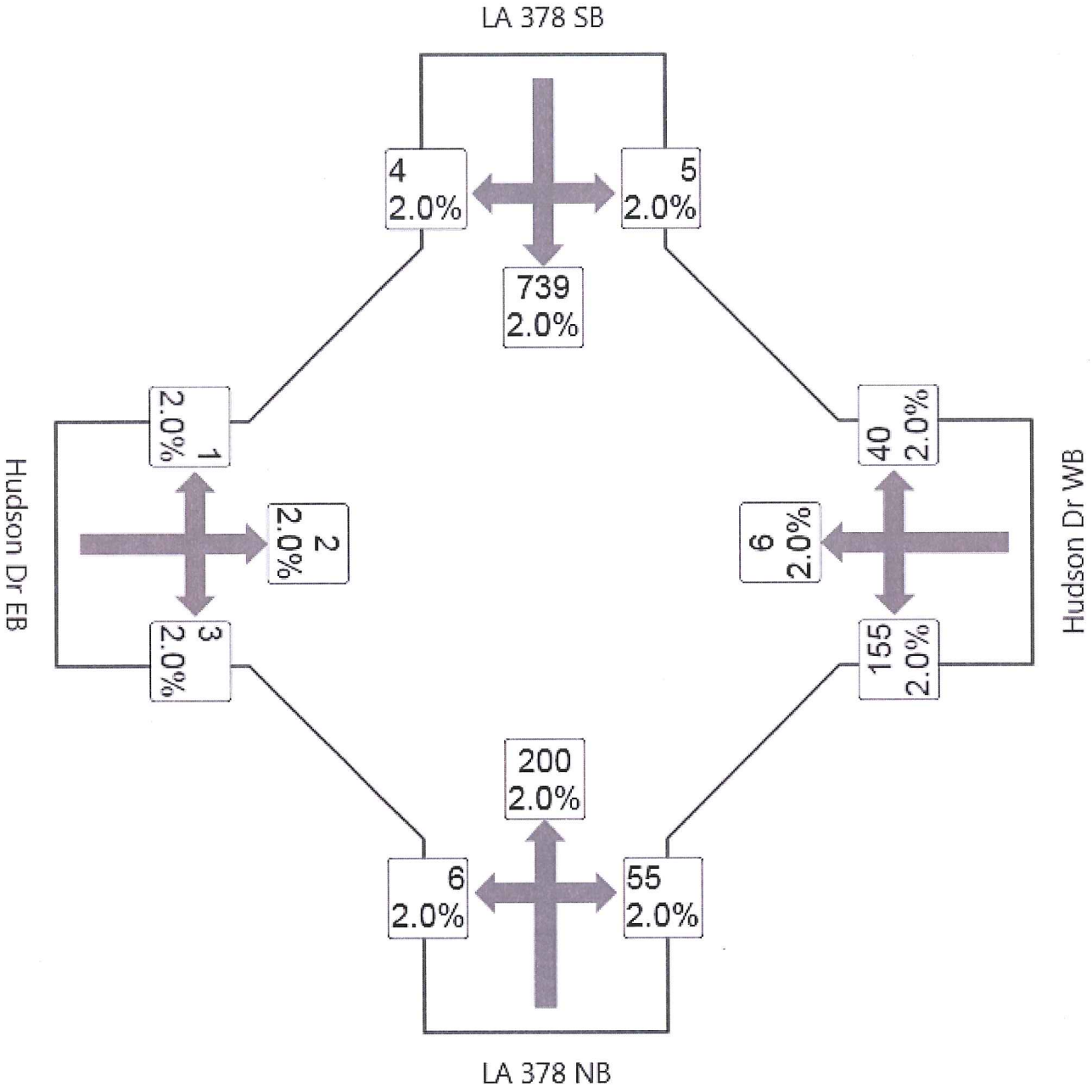
Hudson Dr EB
Hudson Dr WB
LA 378 NB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LA 378 NB

MOVEMENT SUMMARY

Site: LA 378 at Hudson Dr AM - Conversion

LA 378 at Hudson Dr
11-100 LA 378 Improvements
2028 AM Peak Alt B
Signals - Pretimed Cycle Time = 90 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
5	L	7	2.0	0.182	26.3	LOS C	3.9	98.2	0.66	0.91	23.7
2	T	222	2.0	0.182	15.1	LOS B	3.9	98.2	0.64	0.52	26.0
12	R	61	2.0	0.182	20.7	LOS C	3.5	89.5	0.61	0.85	25.6
Approach		290	2.0	0.182	16.5	LOS B	3.9	98.2	0.63	0.60	25.9
East: Hudson Dr WB											
3	L	194	2.0	0.332	44.1	LOS D	7.9	199.5	0.84	0.92	17.4
8	T	8	2.0	0.332	35.1	LOS D	7.9	199.5	0.84	0.80	17.4
18	R	50	2.0	0.332	44.1	LOS D	7.9	199.5	0.84	0.92	17.4
Approach		251	2.0	0.332	43.8	LOS D	7.9	199.5	0.84	0.91	17.4
North: LA 378 SB											
1	L	6	2.0	0.485	28.0	LOS C	13.5	342.1	0.76	0.94	23.3
6	T	821	2.0	0.485	18.9	LOS B	13.5	343.1	0.76	0.66	24.4
16	R	4	2.0	0.485	27.7	LOS C	13.5	343.1	0.76	0.94	23.4
Approach		831	2.0	0.485	19.0	LOS B	13.5	343.1	0.76	0.67	24.4
West: Hudson Dr EB											
7	L	1	2.0	0.020	48.1	LOS D	0.1	3.8	0.91	0.67	17.1
4	T	3	2.0	0.020	39.2	LOS D	0.1	3.8	0.91	0.59	17.4
14	R	4	2.0	0.006	9.6	LOS A	0.0	0.6	0.16	0.68	31.1
Approach		8	2.0	0.020	25.8	LOS C	0.1	3.8	0.54	0.65	22.2
All Vehicles		1380	2.0	0.485	23.0	LOS C	13.5	343.1	0.74	0.70	23.0

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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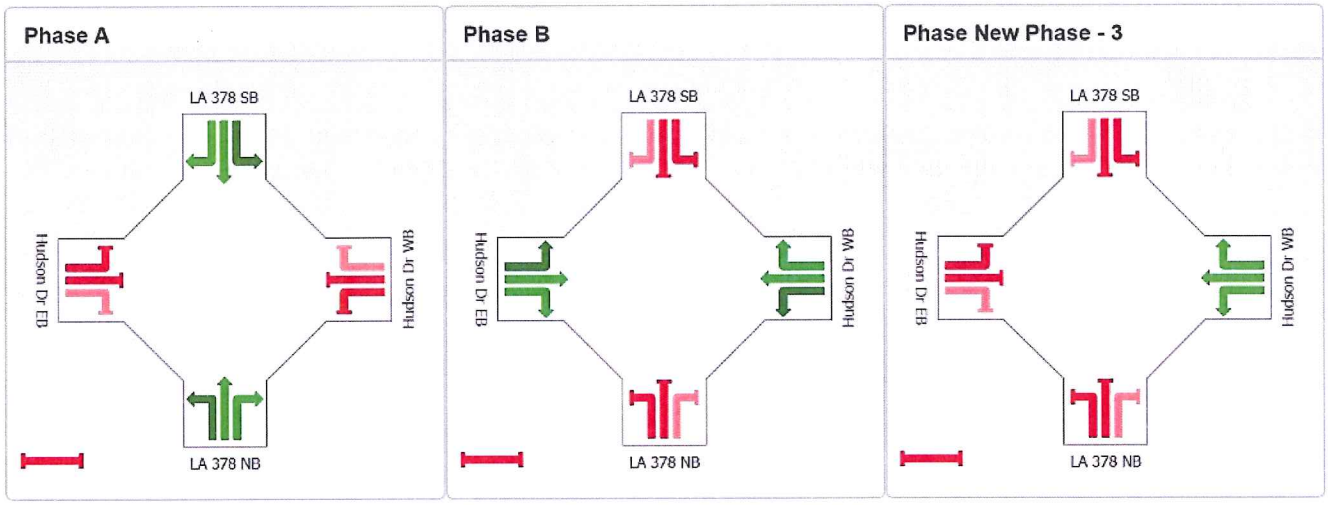
PHASING SUMMARY

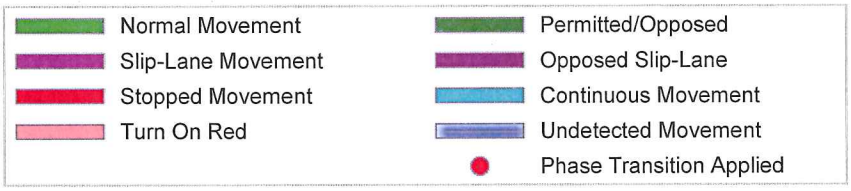
LA 378 at Hudson Dr
11-100 LA 378 Improvements
2028 AM Peak Alt B
Signals - Pretimed Cycle Time = 90 seconds (User-Given Phase Times)

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: A, B, New Phase - 3
Output Sequence: A, B, New Phase - 3

Phase Timing Results

Phase	A	B	New Phase - 3
Green Time (sec)	40	10	25
Yellow Time (sec)	4	4	4
All-Red Time (sec)	1	1	1
Phase Time (sec)	45	15	30
Phase Split	50 %	17 %	33 %





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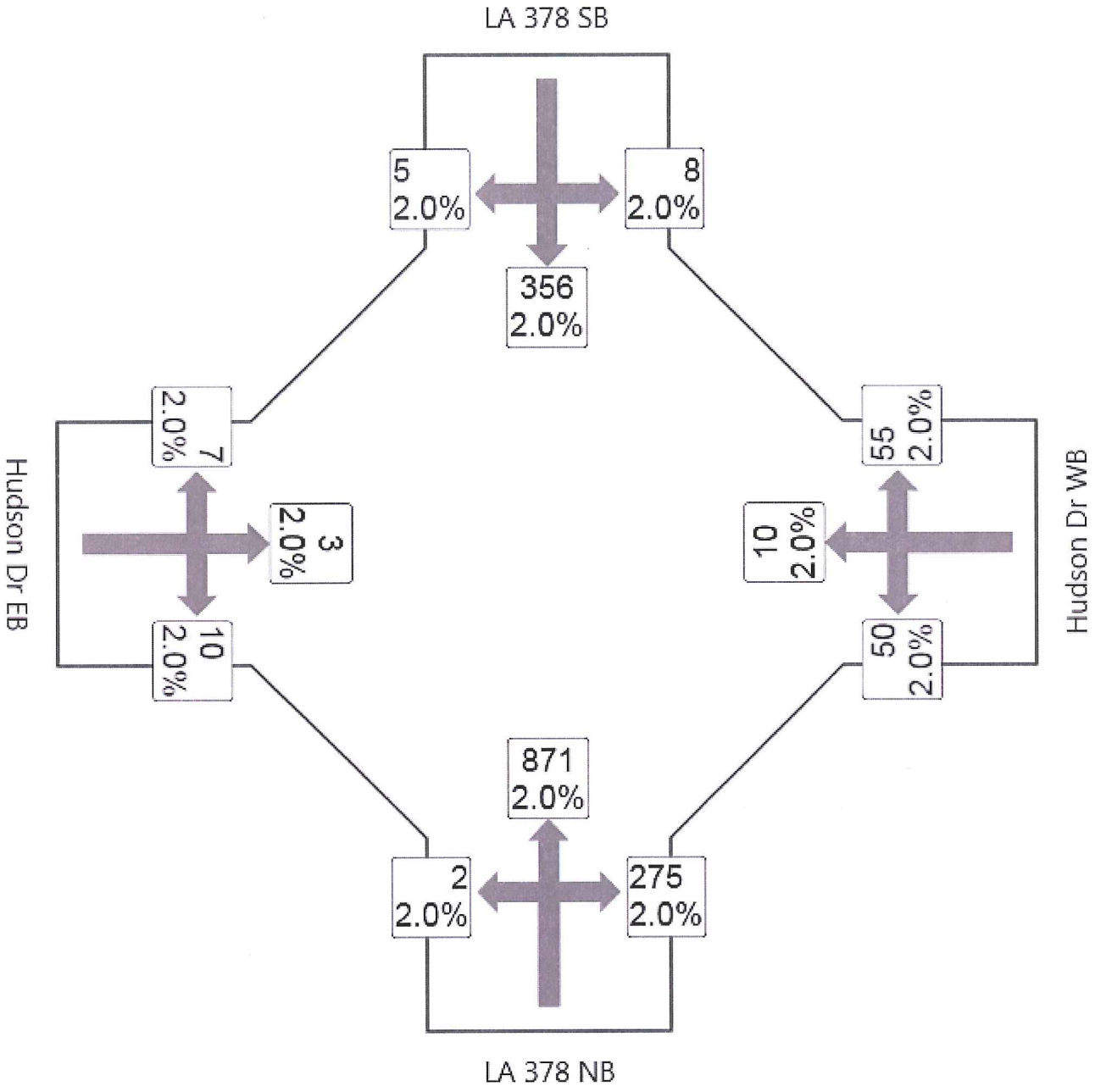
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Hudson Dr WB
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LA 378 NB

MOVEMENT SUMMARY

Site: LA 378 at Hudson Dr PM - Conversion

LA 378 at Hudson Dr
11-100 LA 378 Improvements
2028 PM Peak Alt B
Signals - Pretimed Cycle Time = 90 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
5	L	2	2.0	0.754	31.8	LOS C	26.7	677.2	0.90	0.93	22.1
2	T	968	2.0	0.754	21.7	LOS C	26.7	677.2	0.89	0.81	22.7
12	R	306	2.0	0.754	28.2	LOS C	24.0	610.9	0.89	0.91	22.6
Approach		1276	2.0	0.754	23.3	LOS C	26.7	677.2	0.89	0.83	22.7
East: Hudson Dr WB											
3	L	63	2.0	0.176	33.2	LOS C	4.4	111.4	0.78	0.86	20.2
8	T	13	2.0	0.176	24.2	LOS C	4.4	111.4	0.78	0.67	20.6
18	R	69	2.0	0.176	33.2	LOS C	4.4	111.4	0.78	0.86	20.2
Approach		144	2.0	0.176	32.4	LOS C	4.4	111.4	0.78	0.84	20.3
North: LA 378 SB											
1	L	9	2.0	0.269	29.9	LOS C	5.6	141.0	0.73	0.91	22.5
6	T	396	2.0	0.269	18.2	LOS B	6.4	163.0	0.70	0.58	24.8
16	R	6	2.0	0.269	25.2	LOS C	6.4	163.0	0.67	0.94	24.3
Approach		410	2.0	0.269	18.6	LOS B	6.4	163.0	0.70	0.60	24.7
West: Hudson Dr EB											
7	L	9	2.0	0.116	55.4	LOS E	0.5	13.6	0.98	0.68	15.4
4	T	4	2.0	0.116	46.4	LOS D	0.5	13.6	0.98	0.66	15.6
14	R	13	2.0	0.014	9.3	LOS A	0.1	1.4	0.12	0.69	31.3
Approach		25	2.0	0.116	31.0	LOS C	0.5	13.6	0.55	0.68	20.7
All Vehicles		1854	2.0	0.754	23.1	LOS C	26.7	677.2	0.84	0.78	22.9

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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PHASING SUMMARY

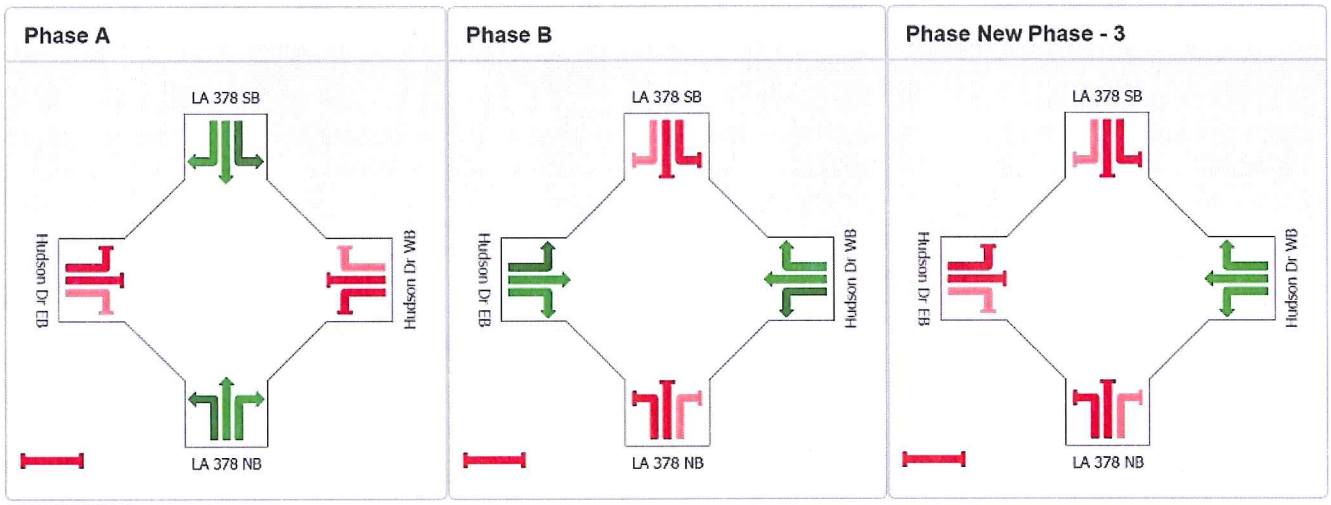
Site: LA 378 at Hudson Dr PM - Conversion

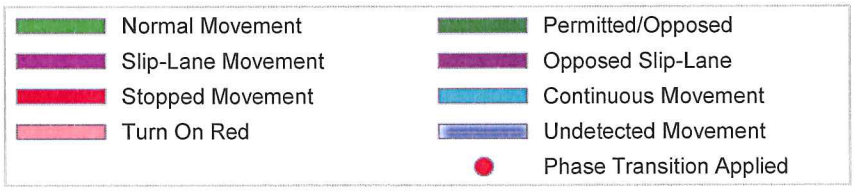
LA 378 at Hudson Dr
11-100 LA 378 Improvements
2028 PM Peak Alt B
Signals - Pretimed Cycle Time = 90 seconds (User-Given Phase Times)

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: A, B, New Phase - 3
Output Sequence: A, B, New Phase - 3

Phase Timing Results

Phase	A	B	New Phase - 3
Green Time (sec)	40	10	25
Yellow Time (sec)	4	4	4
All-Red Time (sec)	1	1	1
Phase Time (sec)	45	15	30
Phase Split	50 %	17 %	33 %





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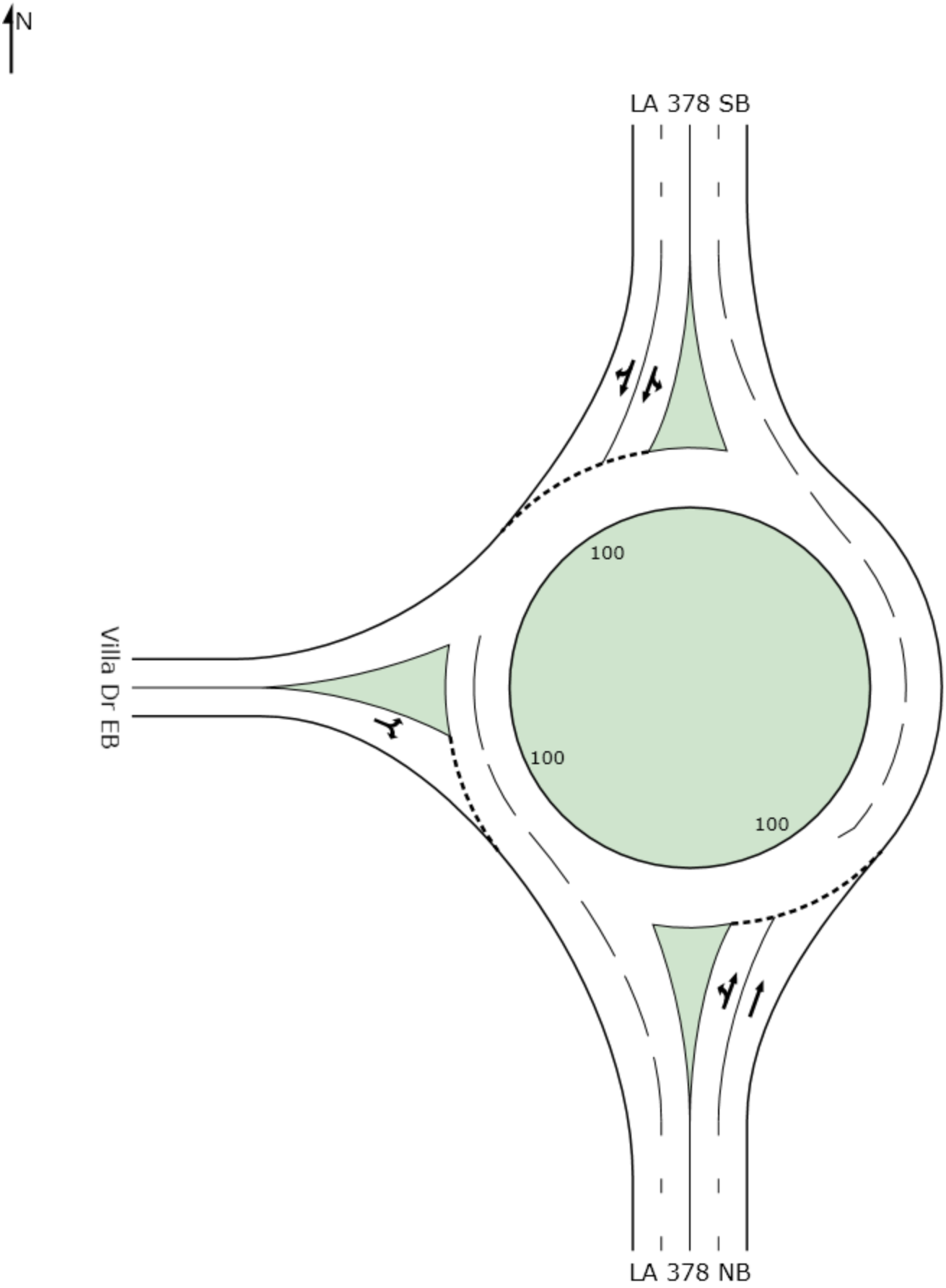
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LA 378 SB
Villa Dr EB
LA 378 NB
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LA 378
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4
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Villa Dr EB
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2.0%
316
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1
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2
2.0%
78 NB

MOVEMENT SUMMARY

Site: LA 378 at Villa Dr AM

LA 378 at Villa Dr
11-100 LA 378 Improvements
2028 AM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	3	2.0	0.115	13.9	LOS B	0.6	15.8	0.06	1.01	29.3
8	T	351	2.0	0.115	5.2	LOS A	0.6	16.0	0.06	0.42	34.4
Approach		354	2.0	0.115	5.3	LOS A	0.6	16.0	0.06	0.42	34.4
North: LA 378 SB											
7	L	3	2.0	0.356	14.7	LOS B	2.3	59.3	0.04	1.07	29.0
4	T	1143	2.0	0.356	5.2	LOS A	2.3	59.3	0.04	0.42	34.6
14	R	4	2.0	0.356	6.4	LOS A	2.3	58.8	0.04	0.56	33.5
Approach		1151	2.0	0.356	5.2	LOS A	2.3	59.3	0.04	0.42	34.5
West: Villa Dr EB											
5	L	5	2.0	0.030	16.9	LOS B	0.1	2.6	0.59	0.88	27.7
12	R	11	2.0	0.030	10.9	LOS B	0.1	2.6	0.59	0.74	30.2
Approach		16	2.0	0.030	12.7	LOS B	0.1	2.6	0.59	0.78	29.3
All Vehicles		1522	2.0	0.356	5.3	LOS A	2.3	59.3	0.05	0.43	34.4

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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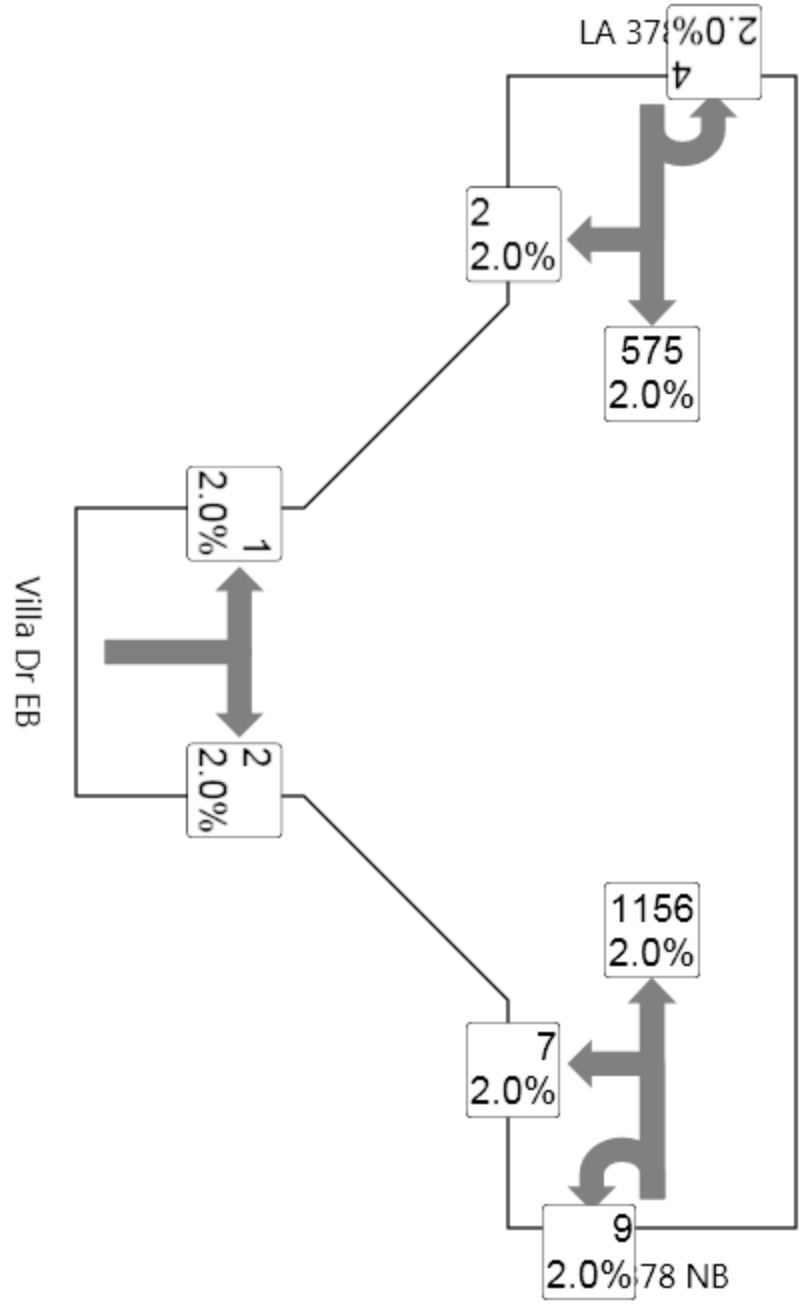
SIDRA INTERSECTION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Villa Dr EB
2
2.0%
1156
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7
2.0%
9
2.0%
78 NB

MOVEMENT SUMMARY

Site: LA 378 at Villa Dr PM

LA 378 at Villa Dr
11-100 LA 378 Improvements
2028 PM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	18	2.0	0.405	13.7	LOS B	2.9	73.2	0.07	1.00	29.5
8	T	1284	2.0	0.405	5.2	LOS A	2.9	73.2	0.06	0.42	34.4
Approach		1302	2.0	0.405	5.3	LOS A	2.9	73.2	0.06	0.43	34.4
North: LA 378 SB											
7	L	4	2.0	0.212	14.8	LOS B	1.2	29.6	0.10	1.02	29.0
4	T	639	2.0	0.212	5.3	LOS A	1.2	29.6	0.10	0.42	34.2
14	R	2	2.0	0.212	6.4	LOS A	1.2	29.6	0.09	0.55	33.3
Approach		646	2.0	0.212	5.3	LOS A	1.2	29.6	0.10	0.42	34.2
West: Villa Dr EB											
5	L	1	2.0	0.006	14.8	LOS B	0.0	0.5	0.49	0.76	28.8
12	R	3	2.0	0.006	8.8	LOS A	0.0	0.5	0.49	0.59	31.4
Approach		4	2.0	0.006	10.8	LOS B	0.0	0.5	0.49	0.64	30.4
All Vehicles		1952	2.0	0.405	5.3	LOS A	2.9	73.2	0.07	0.42	34.3

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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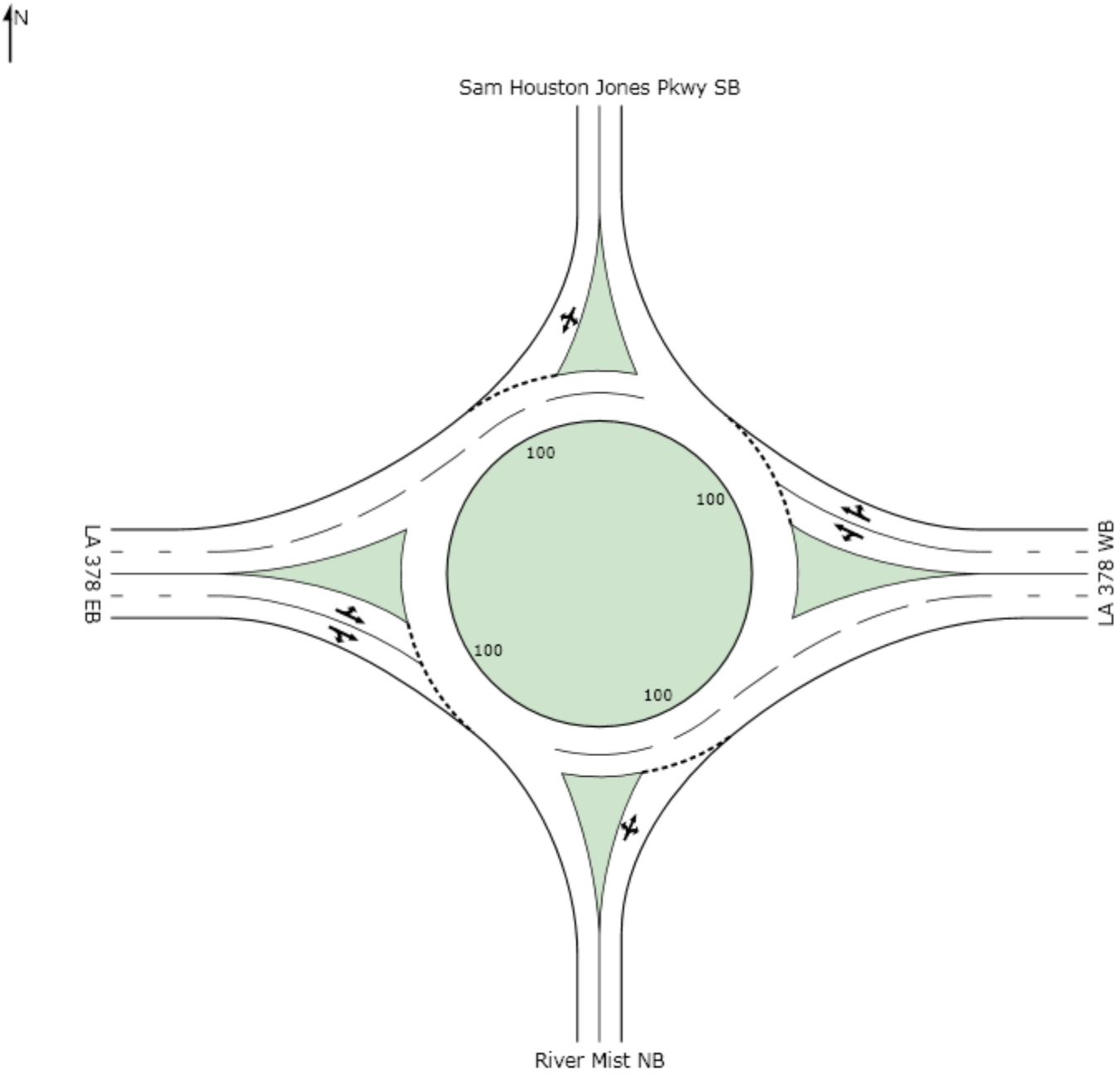
SIDRA INTERSECTION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Sam Houston Jones Pkwy SB
LA 378 EB
LA 378 WB
River Mist NB
100
100
100
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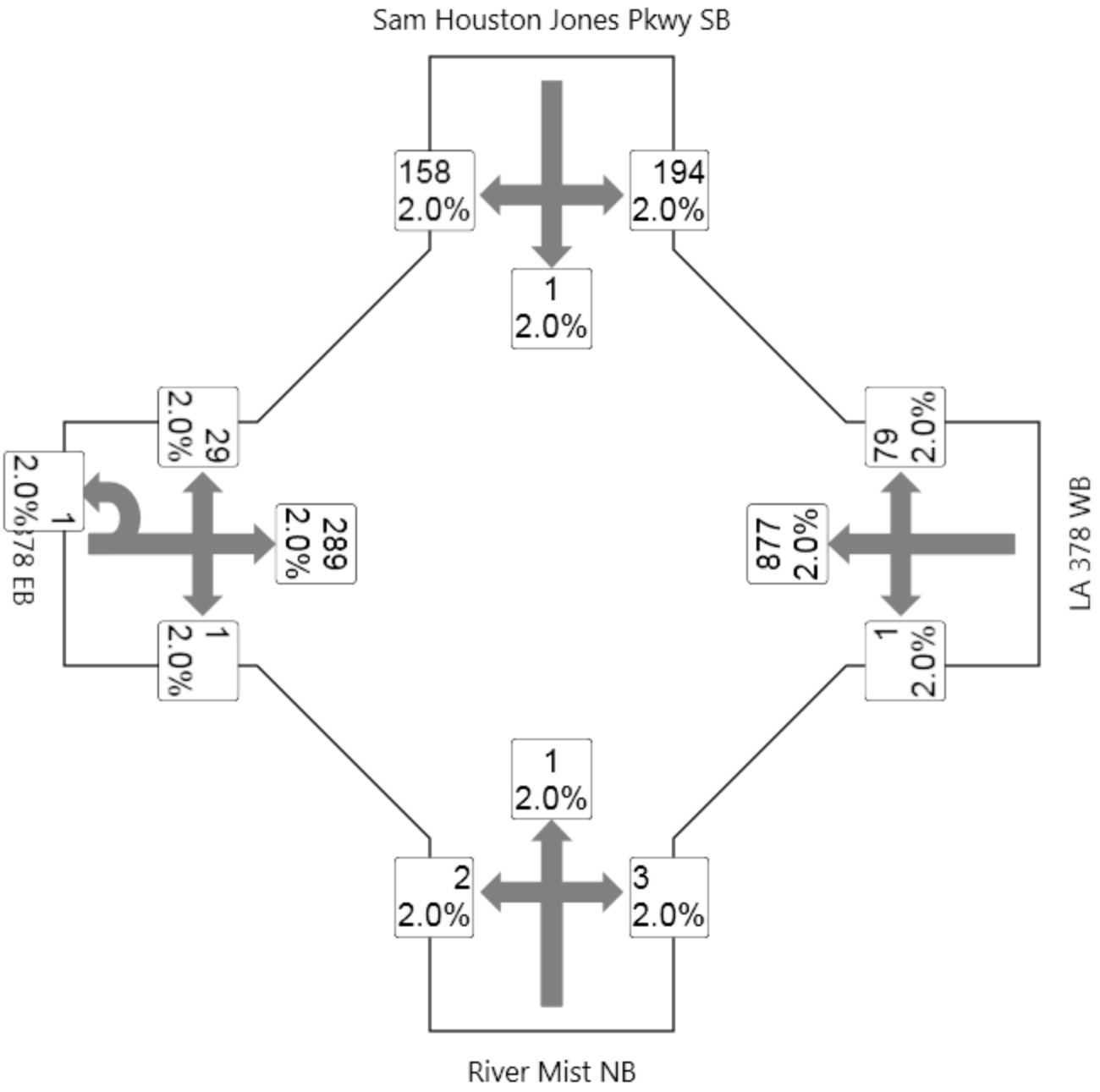
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LA 378 WB
LA 378 EB
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River Mist NB

MOVEMENT SUMMARY

Site: LA 378 at Sam Houston Jones Pkwy AM

LA 378 at Sam Houston Jones Pkwy
11-100 LA 378 Improvements
2028 AM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: River Mist NB											
3	L	3	2.0	0.012	15.3	LOS B	0.0	1.2	0.56	0.77	28.6
8	T	1	2.0	0.012	8.2	LOS A	0.0	1.2	0.56	0.57	31.3
18	R	4	2.0	0.012	9.2	LOS A	0.0	1.2	0.56	0.61	31.2
Approach		8	2.0	0.012	11.1	LOS B	0.0	1.2	0.56	0.66	30.3
East: LA 378 WB											
1	L	1	2.0	0.360	12.5	LOS B	2.8	70.1	0.22	0.86	30.1
6	T	974	2.0	0.360	5.4	LOS A	2.8	70.7	0.21	0.41	33.6
16	R	88	2.0	0.360	6.6	LOS A	2.8	70.7	0.20	0.52	32.9
Approach		1063	2.0	0.360	5.5	LOS A	2.8	70.7	0.21	0.42	33.5
North: Sam Houston Jones Pkwy SB											
7	L	243	2.0	0.856	30.9	LOS C	8.3	211.3	0.90	1.28	22.0
4	T	1	2.0	0.856	23.8	LOS C	8.3	211.3	0.90	1.25	23.0
14	R	198	2.0	0.856	24.8	LOS C	8.3	211.3	0.90	1.25	22.9
Approach		441	2.0	0.856	28.1	LOS C	8.3	211.3	0.90	1.27	22.4
West: LA 378 EB											
5	L	33	2.0	0.166	13.8	LOS B	1.1	26.8	0.51	0.80	29.7
2	T	321	2.0	0.166	6.6	LOS A	1.1	27.3	0.51	0.54	32.0
12	R	1	2.0	0.166	7.6	LOS A	1.1	27.3	0.50	0.61	31.9
Approach		356	2.0	0.166	7.2	LOS A	1.1	27.3	0.51	0.56	31.7
All Vehicles		1868	2.0	0.856	11.2	LOS B	8.3	211.3	0.43	0.65	29.6

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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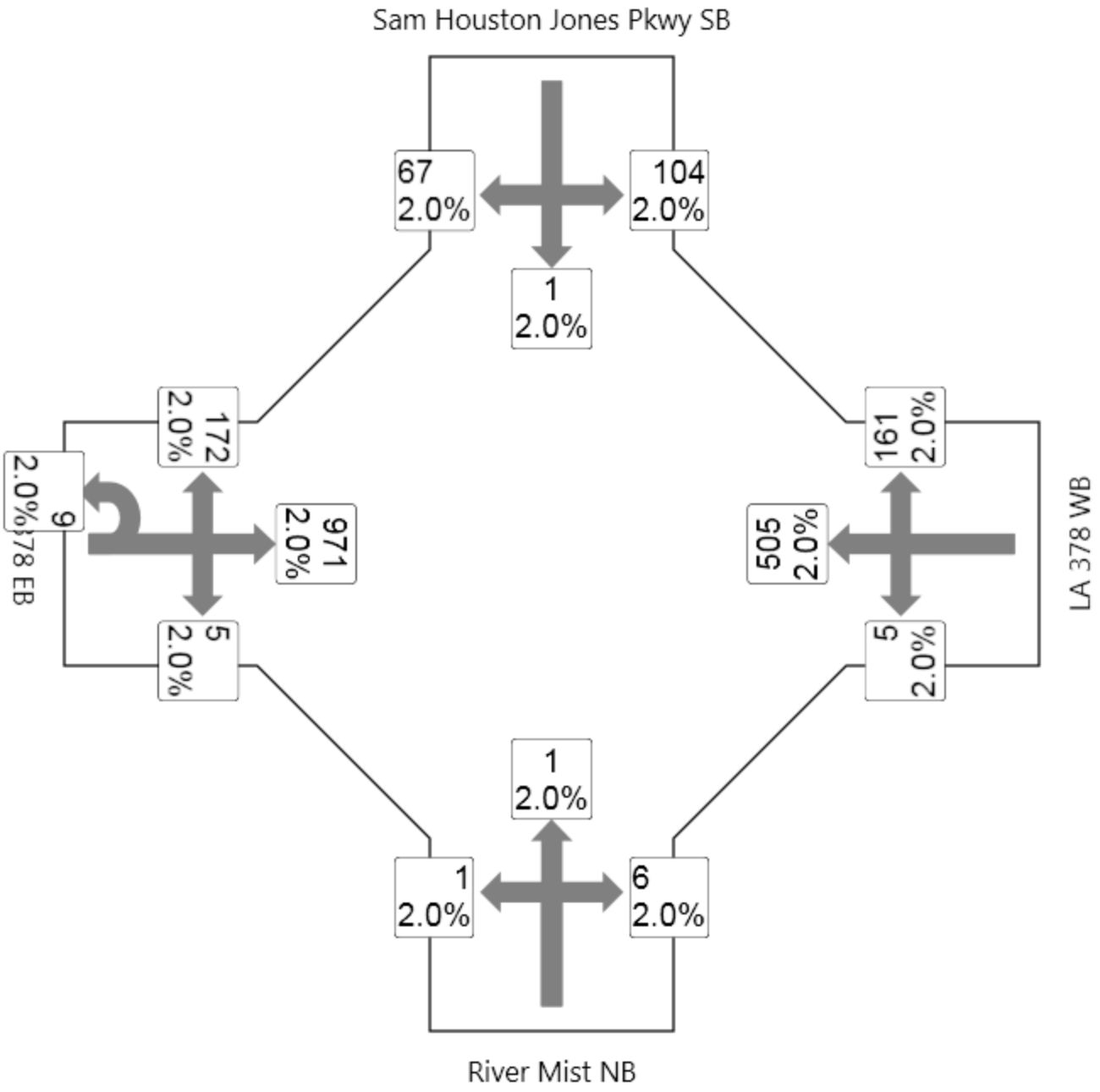
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LA 378 WB
378 EB
River Mist NB

MOVEMENT SUMMARY

Site: LA 378 at Sam Houston Jones Pkwy PM

LA 378 at Sam Houston Jones Pkwy
11-100 LA 378 Improvements
2028 PM Peak Alt B
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: River Mist NB											
3	L	1	2.0	0.028	19.3	LOS B	0.1	2.8	0.73	0.91	26.7
8	T	1	2.0	0.028	12.2	LOS B	0.1	2.8	0.73	0.79	29.0
18	R	8	2.0	0.028	13.3	LOS B	0.1	2.8	0.73	0.82	28.8
Approach		10	2.0	0.028	13.9	LOS B	0.1	2.8	0.73	0.83	28.5
East: LA 378 WB											
1	L	6	2.0	0.322	13.7	LOS B	2.2	55.9	0.50	0.83	29.9
6	T	561	2.0	0.322	6.5	LOS A	2.2	56.9	0.50	0.54	32.0
16	R	179	2.0	0.322	7.7	LOS A	2.2	56.9	0.49	0.59	31.7
Approach		746	2.0	0.322	6.9	LOS A	2.2	56.9	0.49	0.55	31.9
North: Sam Houston Jones Pkwy SB											
7	L	130	2.0	0.346	16.3	LOS B	1.7	42.3	0.66	0.92	28.0
4	T	1	2.0	0.346	9.1	LOS A	1.7	42.3	0.66	0.76	30.5
14	R	84	2.0	0.346	10.2	LOS B	1.7	42.3	0.66	0.82	30.5
Approach		215	2.0	0.346	13.9	LOS B	1.7	42.3	0.66	0.88	28.9
West: LA 378 EB											
5	L	201	2.0	0.505	13.6	LOS B	4.5	113.4	0.52	0.75	29.6
2	T	1079	2.0	0.505	6.3	LOS A	4.5	115.4	0.51	0.51	31.9
12	R	6	2.0	0.505	7.4	LOS A	4.5	115.4	0.50	0.58	31.9
Approach		1286	2.0	0.505	7.4	LOS A	4.5	115.4	0.51	0.55	31.5
All Vehicles		2256	2.0	0.505	7.9	LOS A	4.5	115.4	0.52	0.58	31.4

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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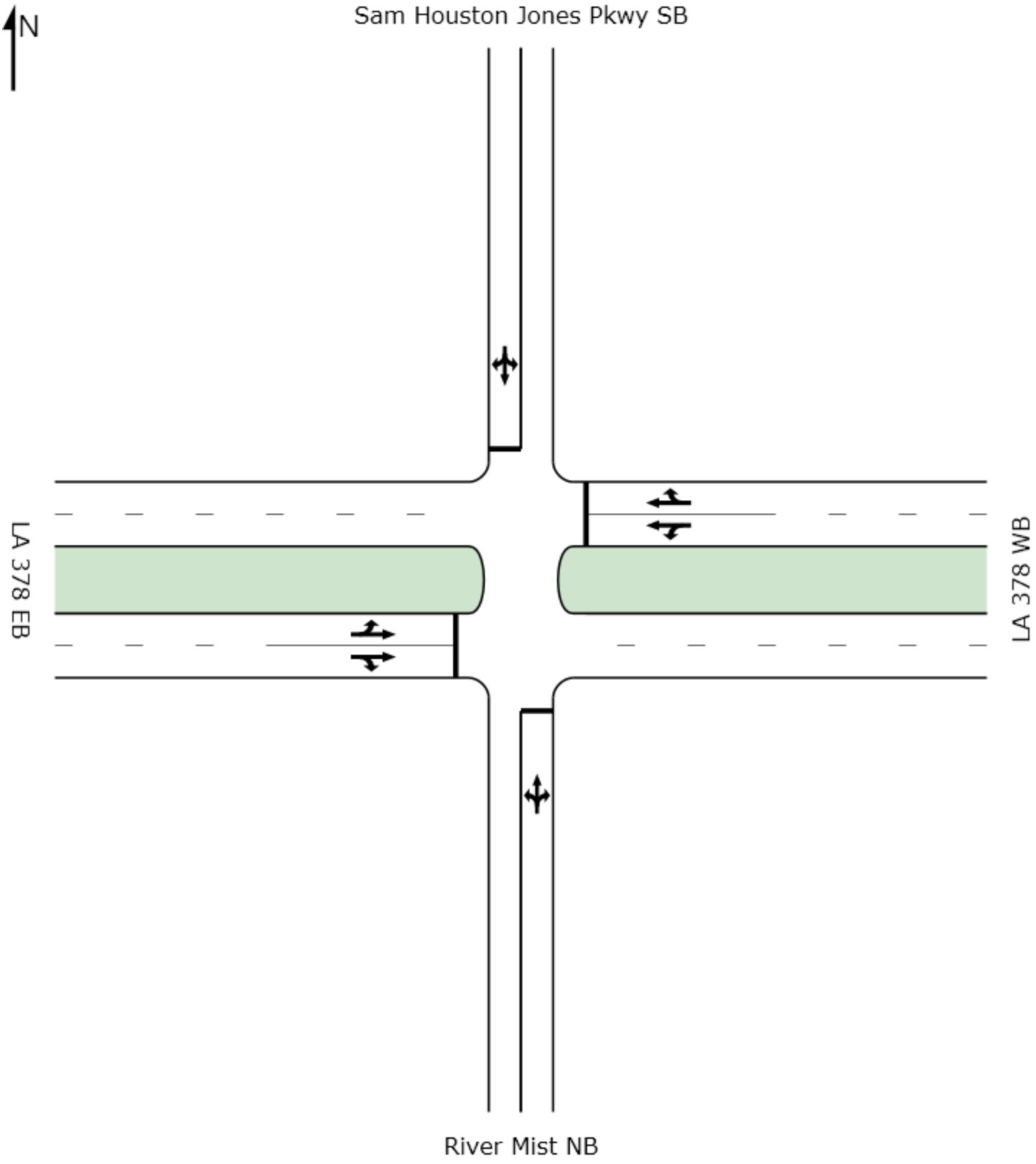
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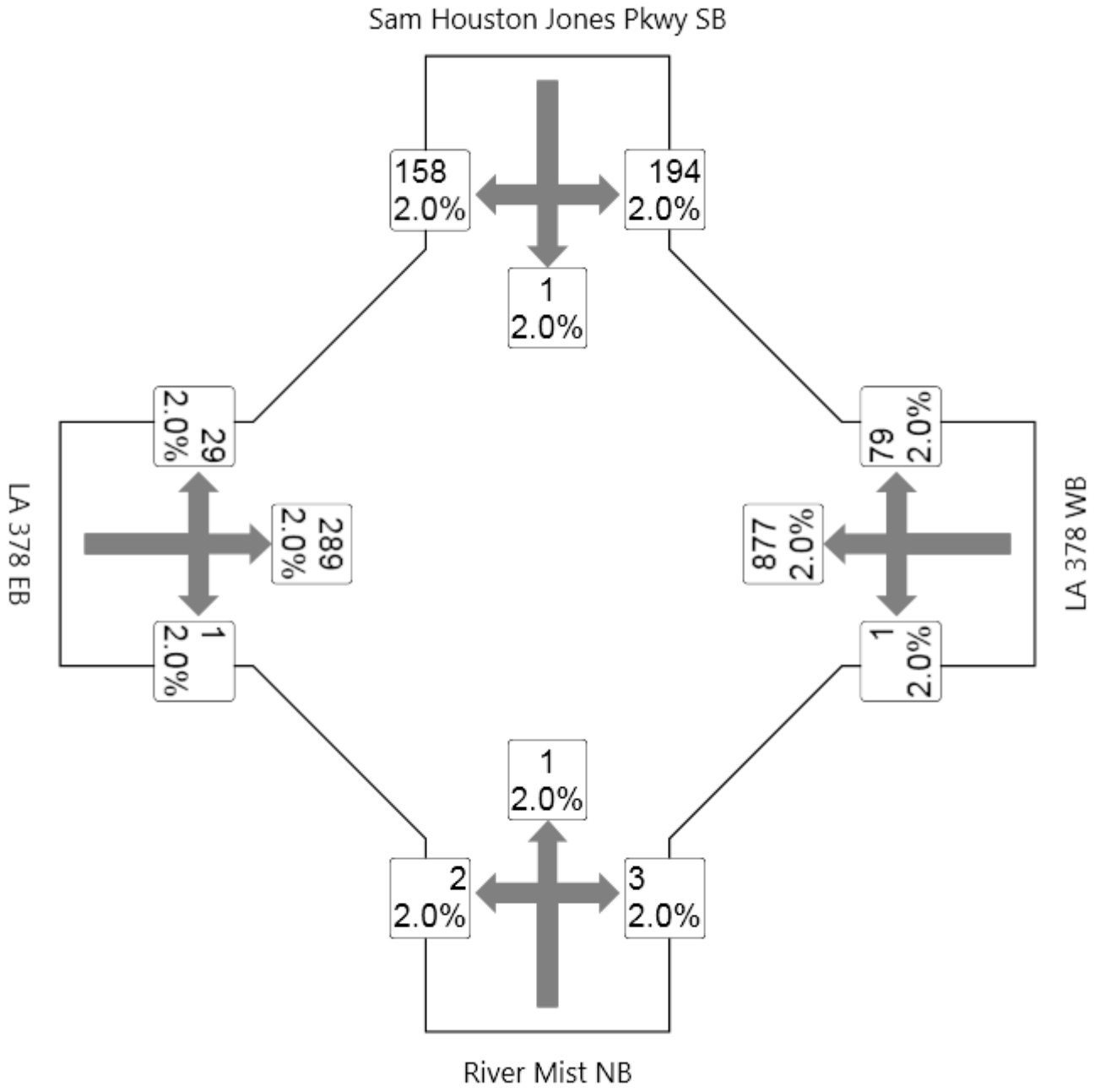
LA 378 EB
LA 378 WB
River Mist NB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LA 378 EB
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River Mist NB

MOVEMENT SUMMARY

Site: LA 378 at Sam Houston Jones Pkwy AM - Conversion

LA 378 at Sam Houston Jones Pkwy
11-100 LA 378 Improvements
2028 AM Peak Alt B
Signals - Actuated Cycle Time = 60 seconds

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: River Mist NB											
3	L	3	2.0	0.015	30.1	LOS C	0.2	4.7	0.81	0.67	21.4
8	T	1	2.0	0.015	21.4	LOS C	0.2	4.7	0.81	0.54	22.1
18	R	4	2.0	0.015	30.4	LOS C	0.2	4.7	0.81	0.68	21.3
Approach		8	2.0	0.015	28.8	LOS C	0.2	4.7	0.81	0.65	21.5
East: LA 378 WB											
1	L	1	2.0	0.493	16.9	LOS B	10.1	256.4	0.61	0.95	28.2
6	T	974	2.0	0.493	7.8	LOS A	10.1	256.4	0.61	0.54	30.7
16	R	88	2.0	0.493	16.3	LOS B	9.3	237.0	0.60	0.95	28.4
Approach		1063	2.0	0.493	8.5	LOS A	10.1	256.4	0.61	0.58	30.5
North: Sam Houston Jones Pkwy SB											
7	L	243	2.0	0.946	41.5	LOS D	18.4	466.6	1.00	0.95	18.0
4	T	1	2.0	0.946	32.7	LOS C	18.4	466.6	1.00	0.95	18.1
14	R	198	2.0	0.946	41.7	LOS D	18.4	466.6	1.00	0.95	18.0
Approach		441	2.0	0.946	41.5	LOS D	18.4	466.6	1.00	0.95	18.0
West: LA 378 EB											
5	L	32	2.0	0.210	18.3	LOS B	2.3	57.5	0.57	0.86	27.0
2	T	321	2.0	0.210	7.1	LOS A	3.2	82.1	0.51	0.43	31.5
12	R	1	2.0	0.210	15.0	LOS B	3.2	82.1	0.49	1.01	29.1
Approach		354	2.0	0.210	8.2	LOS A	3.2	82.1	0.52	0.47	31.0
All Vehicles		1867	2.0	0.946	16.3	LOS B	18.4	466.6	0.68	0.64	26.2

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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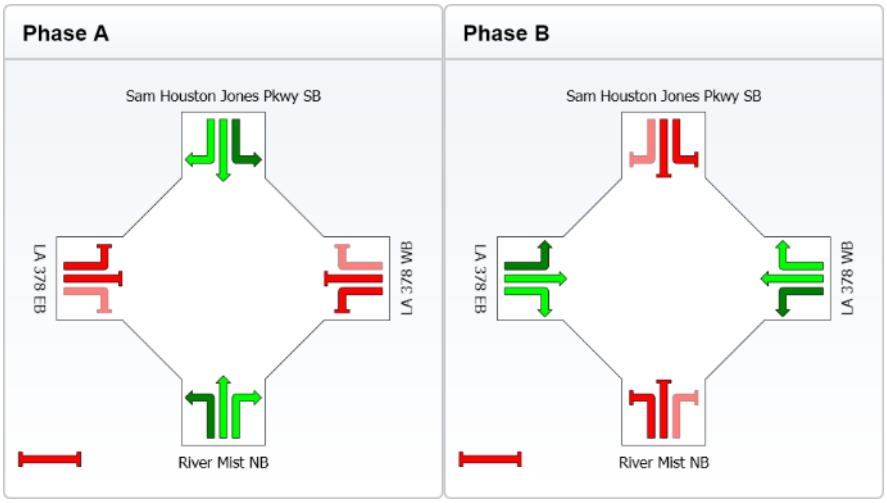
PHASING SUMMARY

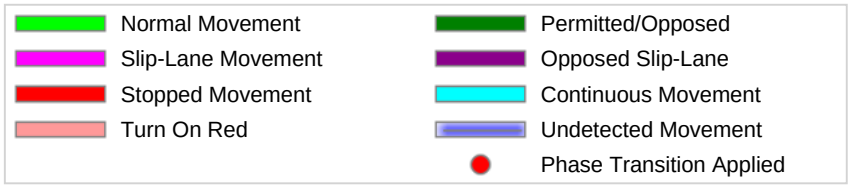
LA 378 at Sam Houston Jones Pkwy
11-100 LA 378 Improvements
2028 AM Peak Alt B
Signals - Actuated Cycle Time = 60 seconds

Phase times specified by the user
Sequence: Opposed Turns
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	15	35
Yellow Time (sec)	4	4
All-Red Time (sec)	1	1
Phase Time (sec)	20	40
Phase Split	33 %	67 %





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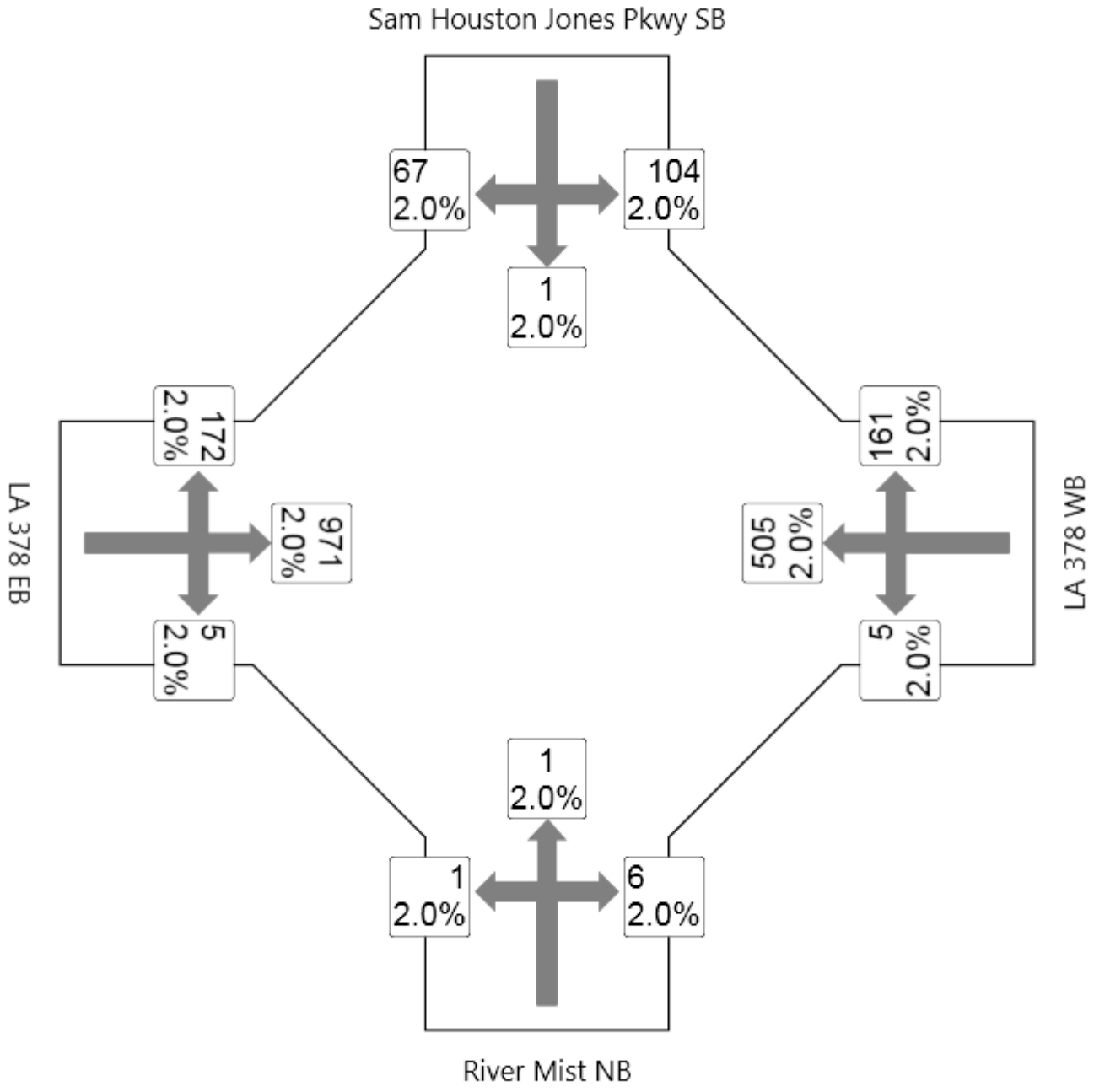
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LA 378 EB
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LA 378 WB
1
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6
2.0%
River Mist NB

MOVEMENT SUMMARY

Site: LA 378 at Sam Houston Jones Pkwy PM - Conversion

LA 378 at Sam Houston Jones Pkwy
11-100 LA 378 Improvements
2028 PM Peak Alt B
Signals - Actuated Cycle Time = 58 seconds

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: River Mist NB											
3	L	1	2.0	0.019	26.6	LOS C	0.2	5.7	0.75	0.68	22.5
8	T	1	2.0	0.019	17.9	LOS B	0.2	5.7	0.75	0.51	23.5
18	R	8	2.0	0.019	26.9	LOS C	0.2	5.7	0.75	0.70	22.5
Approach		10	2.0	0.019	25.7	LOS C	0.2	5.7	0.75	0.67	22.6
East: LA 378 WB											
1	L	6	2.0	0.367	17.0	LOS B	6.3	160.8	0.59	0.94	28.1
6	T	561	2.0	0.367	6.7	LOS A	6.3	160.8	0.56	0.48	31.2
16	R	179	2.0	0.367	13.1	LOS B	4.6	117.4	0.53	0.86	29.7
Approach		746	2.0	0.367	8.3	LOS A	6.3	160.8	0.56	0.57	30.8
North: Sam Houston Jones Pkwy SB											
7	L	130	2.0	0.461	30.2	LOS C	5.9	149.1	0.88	0.81	21.2
4	T	1	2.0	0.461	21.4	LOS C	5.9	149.1	0.88	0.73	21.7
14	R	84	2.0	0.461	30.4	LOS C	5.9	149.1	0.88	0.81	21.2
Approach		215	2.0	0.461	30.2	LOS C	5.9	149.1	0.88	0.81	21.2
West: LA 378 EB											
5	L	191	2.0	0.775	22.6	LOS C	12.8	325.3	0.86	0.88	25.0
2	T	1079	2.0	0.775	11.5	LOS B	20.9	531.3	0.83	0.75	27.7
12	R	6	2.0	0.775	19.8	LOS B	20.9	531.3	0.82	0.96	27.3
Approach		1276	2.0	0.775	13.2	LOS B	20.9	531.3	0.83	0.77	27.3
All Vehicles		2246	2.0	0.775	13.3	LOS B	20.9	531.3	0.74	0.71	27.5

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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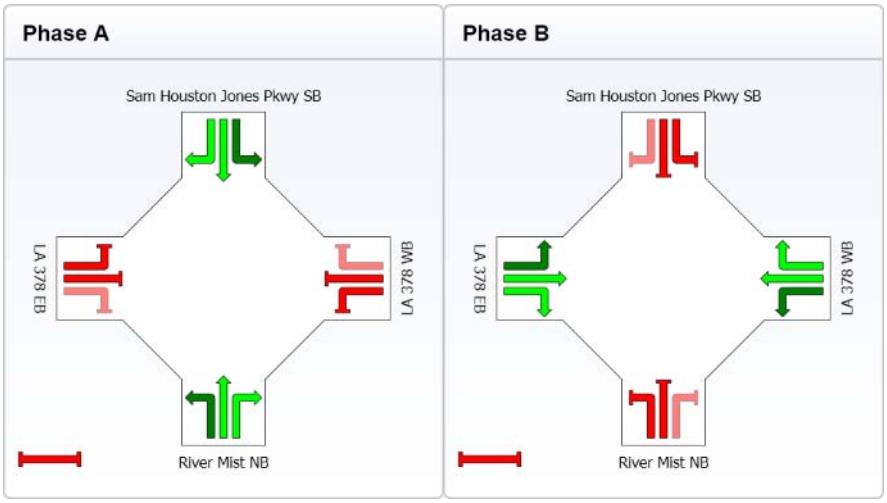
PHASING SUMMARY

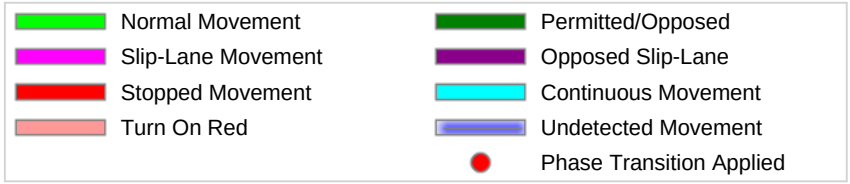
LA 378 at Sam Houston Jones Pkwy
11-100 LA 378 Improvements
2028 PM Peak Alt B
Signals - Actuated Cycle Time = 58 seconds

Phase times determined by the program
Sequence: Opposed Turns
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	15	33
Yellow Time (sec)	4	4
All-Red Time (sec)	1	1
Phase Time (sec)	20	38
Phase Split	34 %	66 %





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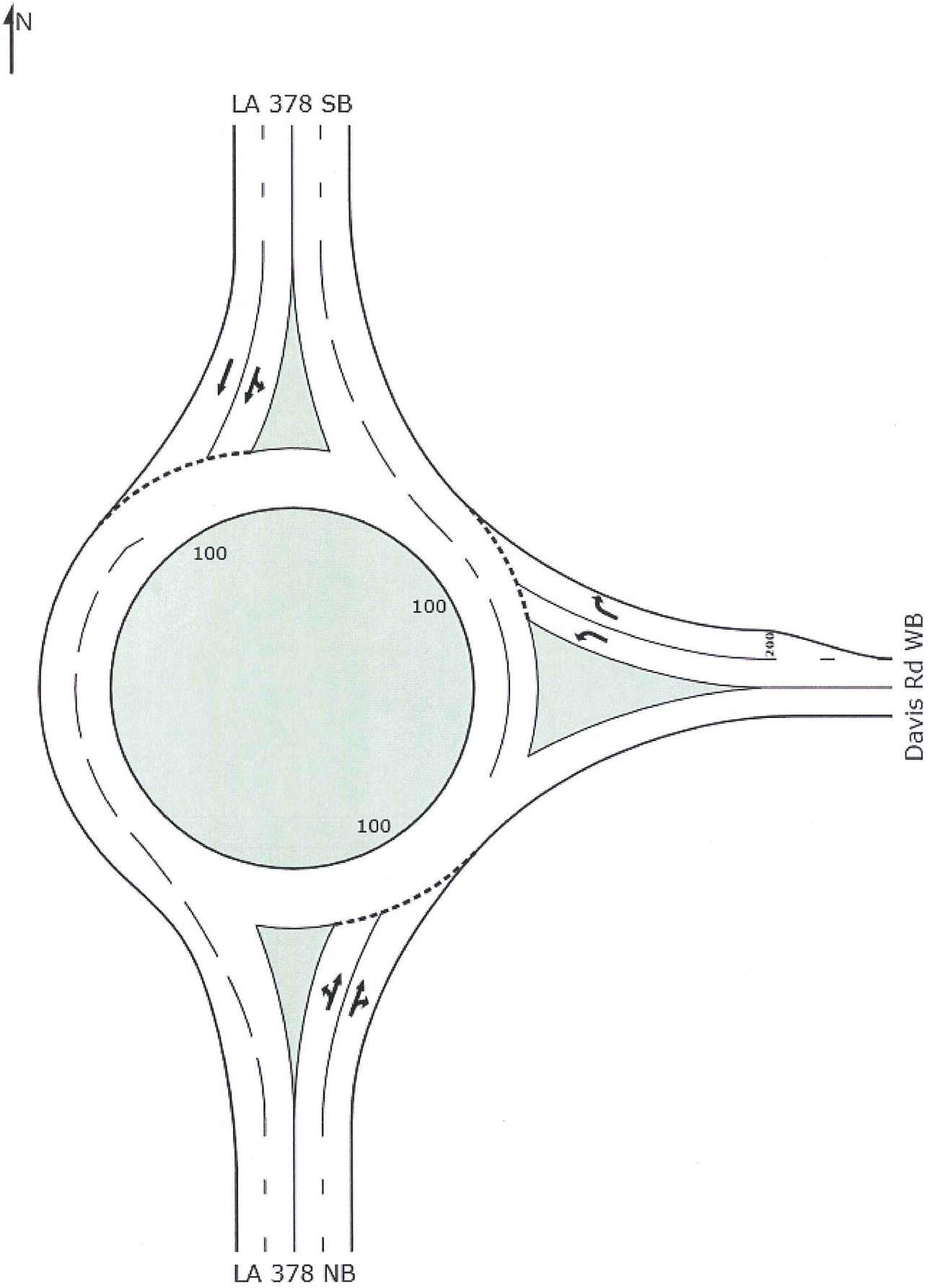
N
LA 378 SB
100
100
100
Davis Rd WB
LA 378 NB

LA 37
2.0%
18
278
2.0%
583
2.0%
111
2.0%
Davis Rd WB
30
2.0%
156
2.0%
7
2.0%
32
2.0%
78 NB

MOVEMENT SUMMARY

LA 378 at Davis Rd
11-100 LA 378 Improvements
AM Peak 2013 Alternative C
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	36	2.0	0.103	16.5	LOS B	0.5	13.7	0.48	0.83	28.4
8	T	173	2.0	0.103	6.8	LOS A	0.6	14.0	0.48	0.54	32.1
18	R	8	2.0	0.103	8.0	LOS A	0.6	14.0	0.47	0.62	31.9
Approach		217	2.0	0.103	8.4	LOS A	0.6	14.0	0.48	0.59	31.3
East: Davis Rd WB											
1	L	38	2.0	0.062	14.3	LOS B	0.2	6.0	0.41	0.71	28.9
16	R	139	2.0	0.137	7.4	LOS A	0.6	15.0	0.37	0.58	32.0
Approach		176	2.0	0.137	8.9	LOS A	0.6	15.0	0.38	0.61	31.2
North: LA 378 SB											
7	L	329	2.0	0.350	12.9	LOS B	2.3	59.0	0.28	0.70	29.5
4	T	648	2.0	0.350	5.6	LOS A	2.3	59.4	0.27	0.43	33.2
Approach		977	2.0	0.350	8.0	LOS A	2.3	59.4	0.27	0.52	31.8
All Vehicles		1370	2.0	0.350	8.2	LOS A	2.3	59.4	0.32	0.54	31.6

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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SIDRA INTERSECTION

LA 378
21
2.0%
203
2.0%
296
2.0%
307
2.0%
Davis Rd WB
17
2.0%
570
2.0%
28
2.0%
16
2.0%
78 NB

MOVEMENT SUMMARY

Site: 2013 LA 378 at Davis Rd PM

LA 378 at Davis Rd
11-100 LA 378 Improvements
PM Peak 2013 Alternative C
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	18	2.0	0.301	16.3	LOS B	1.8	45.7	0.48	0.90	28.7
8	T	633	2.0	0.301	6.7	LOS A	1.8	46.4	0.48	0.56	32.2
18	R	31	2.0	0.301	7.9	LOS A	1.8	46.4	0.47	0.63	31.9
Approach		682	2.0	0.301	7.0	LOS A	1.8	46.4	0.48	0.57	32.1
East: Davis Rd WB											
1	L	21	2.0	0.054	17.7	LOS B	0.2	4.8	0.59	0.86	27.1
16	R	384	2.0	0.497	10.4	LOS B	2.8	71.8	0.69	0.89	30.7
Approach		405	2.0	0.497	10.8	LOS B	2.8	71.8	0.68	0.88	30.4
North: LA 378 SB											
7	L	249	2.0	0.200	12.7	LOS B	1.2	29.4	0.17	0.67	29.5
4	T	329	2.0	0.200	5.3	LOS A	1.2	29.7	0.16	0.41	33.9
Approach		578	2.0	0.200	8.5	LOS A	1.2	29.7	0.17	0.53	31.8
All Vehicles		1665	2.0	0.497	8.4	LOS A	2.8	71.8	0.42	0.63	31.5

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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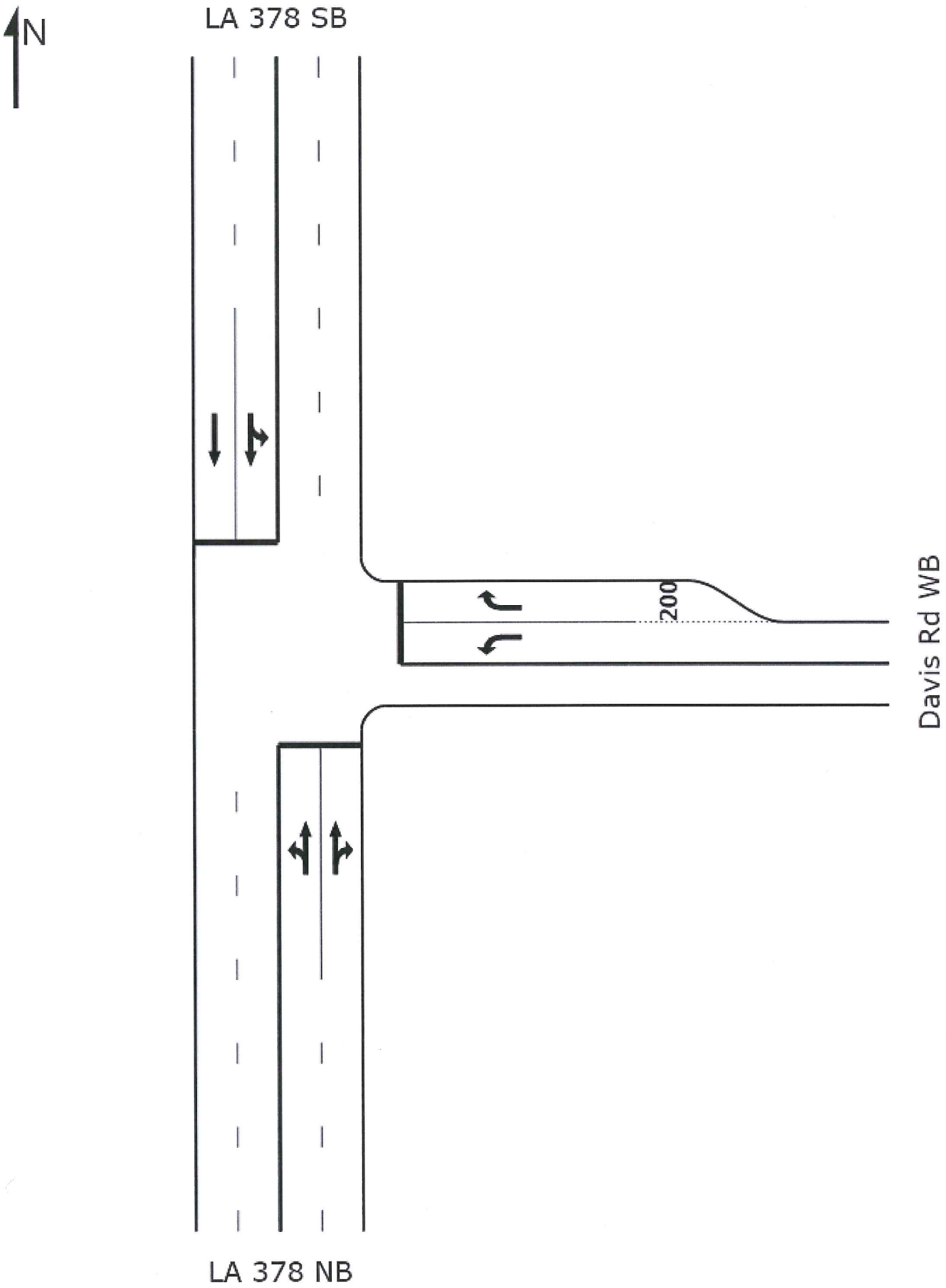
N
LA 378 SB
200
Davis Rd WB
LA 378 NB

LA 37
18
2.0%
278
2.0%
583
2.0%
111
2.0%
Davis Rd WB
30
2.0%
156
2.0%
7
2.0%
32
2.0%
78 NB

MOVEMENT SUMMARY

Site: 2013 LA 378 at Davis Rd AM - Conversion

LA 378 at Davis Rd
11-100 LA 378 Improvements
AM Peak 2013 Alternative C
Signals - Pretimed Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	36	2.0	0.114	17.8	LOS B	1.1	27.9	0.50	0.91	27.0
8	T	173	2.0	0.114	4.7	LOS A	1.6	40.0	0.42	0.35	33.4
18	R	8	2.0	0.114	13.0	LOS B	1.6	40.0	0.40	1.00	30.1
Approach		217	2.0	0.114	7.1	LOS A	1.6	40.0	0.43	0.46	32.1
East: Davis Rd WB											
1	L	38	2.0	0.111	31.7	LOS C	0.9	23.7	0.87	0.73	20.7
16	R	139	2.0	0.200	9.9	LOS A	0.8	21.2	0.25	0.72	30.9
Approach		176	2.0	0.200	14.5	LOS B	0.9	23.7	0.38	0.73	28.0
North: LA 378 SB											
7	L	329	2.0	0.461	14.7	LOS B	6.4	163.8	0.54	0.81	28.2
4	T	648	2.0	0.461	5.7	LOS A	9.3	236.2	0.54	0.48	32.5
Approach		977	2.0	0.461	8.7	LOS A	9.3	236.2	0.54	0.59	30.9
All Vehicles		1370	2.0	0.461	9.2	LOS A	9.3	236.2	0.50	0.59	30.7

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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SIDRA INTERSECTION

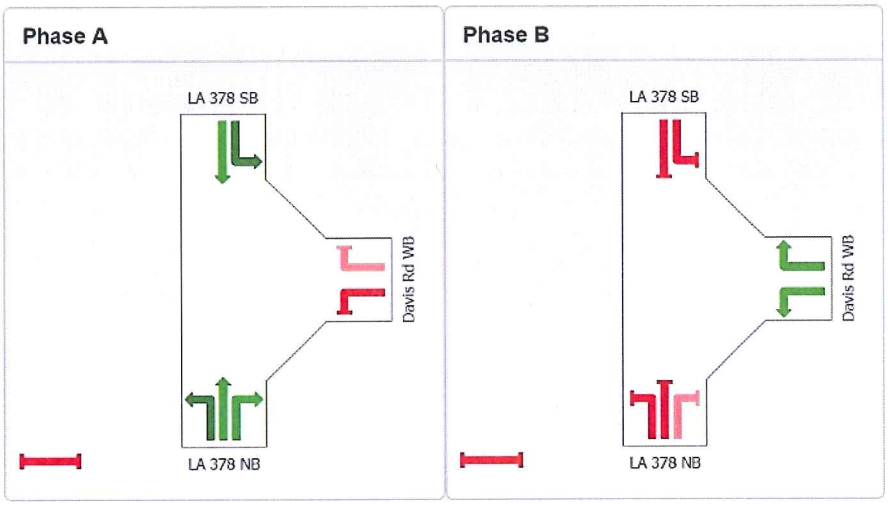
PHASING SUMMARY

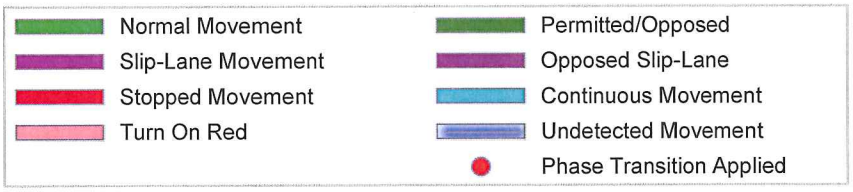
LA 378 at Davis Rd
11-100 LA 378 Improvements
AM Peak 2013 Alternative C
Signals - Pretimed Cycle Time = 60 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Opposed Turns
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	39	11
Yellow Time (sec)	4	4
All-Red Time (sec)	1	1
Phase Time (sec)	44	16
Phase Split	73 %	27 %





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SIDRA INTERSECTION

LA 37
21
2.0%
203
2.0%
296
2.0%
307
2.0%
Davis Rd WB
17
2.0%
570
2.0%
28
2.0%
16
2.0%
78 NB

MOVEMENT SUMMARY

Site: 2013 LA 378 at Davis Rd PM - Conversion

LA 378 at Davis Rd
11-100 LA 378 Improvements
PM Peak 2013 Alternative C
Signals - Pretimed Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: LA 378 NB											
3	L	18	2.0	0.303	17.0	LOS B	5.1	129.3	0.52	1.13	28.2
8	T	633	2.0	0.303	6.2	LOS A	5.1	129.7	0.52	0.45	32.1
18	R	31	2.0	0.303	15.1	LOS B	5.1	129.7	0.52	0.98	29.0
Approach		682	2.0	0.303	6.9	LOS A	5.1	129.7	0.52	0.49	31.8
East: Davis Rd WB											
1	L	21	2.0	0.049	28.5	LOS C	0.5	12.4	0.80	0.71	21.7
16	R	384	2.0	0.588	11.9	LOS B	8.0	203.6	0.79	0.86	29.4
Approach		405	2.0	0.588	12.8	LOS B	8.0	203.6	0.79	0.85	28.9
North: LA 378 SB											
7	L	249	2.0	0.565	20.2	LOS C	5.6	142.8	0.73	0.82	25.1
4	T	329	2.0	0.283	6.2	LOS A	4.9	125.0	0.51	0.44	32.3
Approach		578	2.0	0.565	12.3	LOS B	5.6	142.8	0.61	0.60	28.7
All Vehicles		1665	2.0	0.588	10.2	LOS B	8.0	203.6	0.62	0.62	30.0

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

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SIDRA INTERSECTION

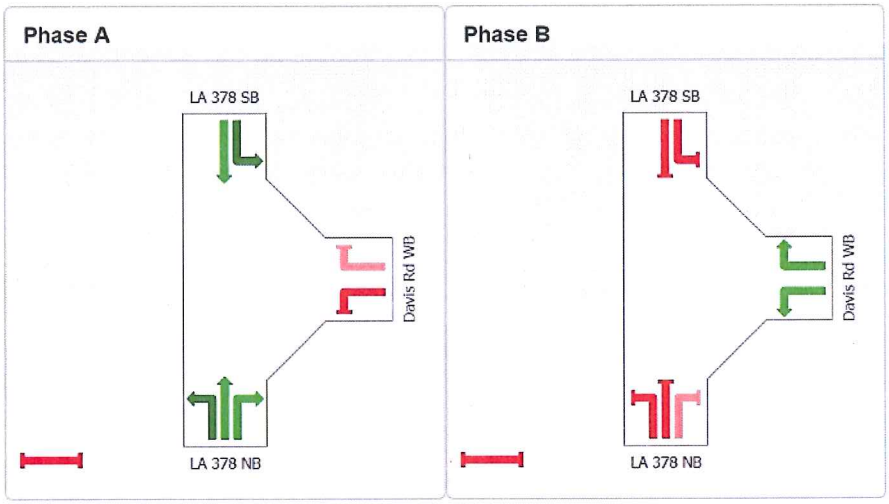
PHASING SUMMARY

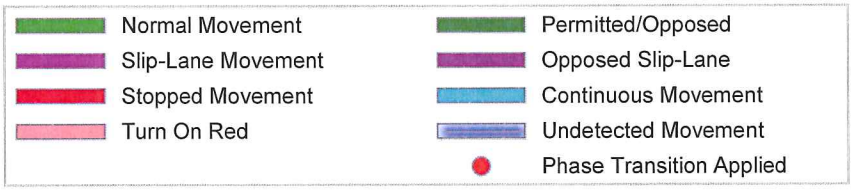
LA 378 at Davis Rd
11-100 LA 378 Improvements
PM Peak 2013 Alternative C
Signals - Pretimed Cycle Time = 60 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Opposed Turns
Input Sequence: A, B
Output Sequence: A, B

Phase Timing Results

Phase	A	B
Green Time (sec)	36	14
Yellow Time (sec)	4	4
All-Red Time (sec)	1	1
Phase Time (sec)	41	19
Phase Split	68 %	32 %





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Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	I-10 to McKinley Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
		Analysis Year	2013

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4U
Length of segment, L (mi)		--	1.03
AADT (veh/day)	$AADT_{MAX}$ = 40,100 (veh/day)	--	20,531
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	26
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	1
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	5
Other driveways (number)		--	8
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	51
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	10
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.13	1.00	1.00	1.00	1.13

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-11.63	1.33	1.01	4.983	1.000	4.983	1.13	1.00	5.614
Fatal and Injury (FI)	-12.08	1.25	0.99	1.436	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.301	1.502	1.13	1.00	1.692
Property Damage Only (PDO)	-12.53	1.38	1.08	3.329	$(5)_{TOTAL}-(5)_{FI}$ = 0.699	3.481	1.13	1.00	3.922

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	1.692	1.000	3.922	5.614
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.511	0.865	0.506	1.985	2.849
Head-on collision	0.077	0.130	0.004	0.016	0.146
Angle collision	0.181	0.306	0.130	0.510	0.816
Sideswipe, same direction	0.093	0.157	0.249	0.977	1.134
Sideswipe, opposite direction	0.082	0.139	0.031	0.122	0.260
Other multiple-vehicle collision	0.056	0.095	0.080	0.314	0.409

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-7.99	0.81	0.91	1.086	1.000	1.086	1.13	1.00	1.224
Fatal and Injury (FI)	-7.37	0.61	0.54	0.277	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.240	0.260	1.13	1.00	0.293
Property Damage Only (PDO)	-8.50	0.84	0.97	0.879	$(5)_{TOTAL}-(5)_{FI}$ = 0.760	0.826	1.13	1.00	0.930

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.293	1.000	0.930	1.224
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.001	0.001	0.001
Collision with fixed object	0.612	0.180	0.809	0.753	0.932
Collision with other object	0.020	0.006	0.029	0.027	0.033
Other single-vehicle collision	0.367	0.108	0.161	0.150	0.257

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.182	1.172	0.000	
Minor commercial	26	0.058	1.172	2.179	
Major industrial/institutional	0	0.198	1.172	0.000	
Minor industrial/institutional	1	0.026	1.172	0.038	--
Major residential	0	0.096	1.172	0.000	
Minor residential	5	0.018	1.172	0.130	
Other	8	0.029	1.172	0.335	
Total	--	--	--	2.681	0.81

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	2.681	1.000	2.681	1.13	1.00	3.021
Fatal and injury (FI)	--	0.342	0.917	1.13	1.00	1.033
Property damage only (PDO)	--	0.658	1.764	1.13	1.00	1.988

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	5.614	1.224	3.021	9.859	0.009	1.00	0.089
Fatal and injury (FI)	--	--	--	--	--	1.00	0.089

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	5.614	1.224	3.021	9.859	0.002	1.00	0.020
Fatal and injury (FI)	--	--	--	--	--	1.00	0.020

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)** (3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	**Property damage only (PDO)** (5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	**Total** (6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.865	1.985	2.849
Head-on collisions (from Worksheet 1D)	0.130	0.016	0.146
Angle collisions (from Worksheet 1D)	0.306	0.510	0.816
Sideswipe, same direction (from Worksheet 1D)	0.157	0.977	1.134
Sideswipe, opposite direction (from Worksheet 1D)	0.139	0.122	0.260
Driveway-related collisions (from Worksheet 1H)	1.033	1.988	3.021
Other multiple-vehicle collision (from Worksheet 1D)	0.095	0.314	0.409
Subtotal	2.725	5.910	8.635
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 1F)	0.180	0.753	0.932
Collision with other object (from Worksheet 1F)	0.006	0.027	0.033
Other single-vehicle collision (from Worksheet 1F)	0.108	0.150	0.257
Collision with pedestrian (from Worksheet 1I)	0.089	0.000	0.089
Collision with bicycle (from Worksheet 1J)	0.020	0.000	0.020
Subtotal	0.402	0.930	1.332
Total	3.127	6.840	9.967

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	10.0	1.03	9.7
Fatal and injury (FI)	3.1	1.03	3.0
Property damage only (PDO)	6.8	1.03	6.6

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	McKinley Rd to John Stine Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
		Analysis Year	2013

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	5T
Length of segment, L (mi)		--	1.1
AADT (veh/day)	$AADT_{MAX}$ = 53,800 (veh/day)	--	15,267
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	54
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	9
Other driveways (number)		--	13
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	68
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	10
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.08	1.00	0.94	1.00	1.01

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-9.70	1.17	0.81	5.293	1.000	5.293	1.01	1.00	5.368
Fatal and Injury (FI)	-10.47	1.12	0.62	1.514	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.273	1.443	1.01	1.00	1.463
Property Damage Only (PDO)	-9.97	1.17	0.88	4.041	$(5)_{TOTAL}-(5)_{FI}$ = 0.727	3.851	1.01	1.00	3.905

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	1.463	1.000	3.905	5.368
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.846	1.238	0.651	2.542	3.780
Head-on collision	0.021	0.031	0.004	0.016	0.046
Angle collision	0.050	0.073	0.059	0.230	0.304
Sideswipe, same direction	0.061	0.089	0.248	0.968	1.058
Sideswipe, opposite direction	0.004	0.006	0.009	0.035	0.041
Other multiple-vehicle collision	0.018	0.026	0.029	0.113	0.140

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-4.82	0.54	0.52	1.612	1.000	1.612	1.01	1.00	1.635
Fatal and Injury (FI)	-4.43	0.35	0.36	0.382	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.249	0.401	1.01	1.00	0.407
Property Damage Only (PDO)	-5.83	0.61	0.55	1.152	$(5)_{TOTAL}-(5)_{FI}$ = 0.751	1.211	1.01	1.00	1.228

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.407	1.000	1.228	1.635
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.016	0.007	0.049	0.060	0.067
Collision with fixed object	0.398	0.162	0.768	0.943	1.105
Collision with other object	0.005	0.002	0.061	0.075	0.077
Other single-vehicle collision	0.581	0.236	0.122	0.150	0.386

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.165	1.172	0.000	--
Minor commercial	54	0.053	1.172	2.922	
Major industrial/institutional	0	0.181	1.172	0.000	
Minor industrial/institutional	0	0.024	1.172	0.000	
Major residential	0	0.087	1.172	0.000	
Minor residential	9	0.016	1.172	0.147	
Other	13	0.027	1.172	0.358	
Total	--	--	--	3.427	0.10

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	3.427	1.000	3.427	1.01	1.00	3.475
Fatal and injury (FI)	--	0.269	0.922	1.01	1.00	0.935
Property damage only (PDO)	--	0.731	2.505	1.01	1.00	2.541

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	5.368	1.635	3.475	10.478	0.023	1.00	0.241
Fatal and injury (FI)	--	--	--	--	--	1.00	0.241

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	5.368	1.635	3.475	10.478	0.012	1.00	0.126
Fatal and injury (FI)	--	--	--	--	--	1.00	0.126

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	1.238	2.542	3.780
Head-on collisions (from Worksheet 1D)	0.031	0.016	0.046
Angle collisions (from Worksheet 1D)	0.073	0.230	0.304
Sideswipe, same direction (from Worksheet 1D)	0.089	0.968	1.058
Sideswipe, opposite direction (from Worksheet 1D)	0.006	0.035	0.041
Driveway-related collisions (from Worksheet 1H)	0.935	2.541	3.475
Other multiple-vehicle collision (from Worksheet 1D)	0.026	0.113	0.140
Subtotal	2.398	6.445	8.843
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.007	0.060	0.067
Collision with fixed object (from Worksheet 1F)	0.162	0.943	1.105
Collision with other object (from Worksheet 1F)	0.002	0.075	0.077
Other single-vehicle collision (from Worksheet 1F)	0.236	0.150	0.386
Collision with pedestrian (from Worksheet 1I)	0.241	0.000	0.241
Collision with bicycle (from Worksheet 1J)	0.126	0.000	0.126
Subtotal	0.774	1.228	2.001
Total	3.171	7.673	10.845

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	10.8	1.10	9.9
Fatal and injury (FI)	3.2	1.10	2.9
Property damage only (PDO)	7.7	1.10	7.0

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	John Stine Rd to Phillips Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
		Analysis Year	2013

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	2U
Length of segment, L (mi)		--	1.42
AADT (veh/day)	$AADT_{MAX}$ = 32,600 (veh/day)	--	13,340
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	15
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	1
Minor residential driveways (number)		--	14
Other driveways (number)		--	14
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	41
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	15
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.10	1.00	1.00	1.00	1.10

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-15.22	1.68	0.84	2.969	1.000	2.969	1.10	1.00	3.279
Fatal and Injury (FI)	-16.22	1.66	0.65	0.903	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.292	0.867	1.10	1.00	0.958
Property Damage Only (PDO)	-15.62	1.69	0.87	2.188	$(5)_{TOTAL}-(5)_{FI}$ = 0.708	2.101	1.10	1.00	2.321

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.958	1.000	2.321	3.279
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.730	0.699	0.778	1.806	2.505
Head-on collision	0.068	0.065	0.004	0.009	0.074
Angle collision	0.085	0.081	0.079	0.183	0.265
Sideswipe, same direction	0.015	0.014	0.031	0.072	0.086
Sideswipe, opposite direction	0.073	0.070	0.055	0.128	0.198
Other multiple-vehicle collision	0.029	0.028	0.053	0.123	0.151

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.47	0.56	0.81	1.221	1.000	1.221	1.10	1.00	1.349
Fatal and Injury (FI)	-3.96	0.23	0.50	0.241	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.207	0.253	1.10	1.00	0.279
Property Damage Only (PDO)	-6.51	0.64	0.87	0.923	$(5)_{TOTAL}-(5)_{FI}$ = 0.793	0.969	1.10	1.00	1.070

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.279	1.000	1.070	1.349
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.026	0.007	0.066	0.071	0.078
Collision with fixed object	0.723	0.202	0.759	0.812	1.014
Collision with other object	0.010	0.003	0.013	0.014	0.017
Other single-vehicle collision	0.241	0.067	0.162	0.173	0.241

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.158	1.000	0.000	
Minor commercial	15	0.050	1.000	0.667	
Major industrial/institutional	0	0.172	1.000	0.000	
Minor industrial/institutional	0	0.023	1.000	0.000	--
Major residential	1	0.083	1.000	0.074	
Minor residential	14	0.016	1.000	0.199	
Other	14	0.025	1.000	0.311	
Total	--	--	--	1.251	0.81

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL} * (3)$	(6) from Worksheet 1B		(4)*(5)*(6)
Total	1.251	1.000	1.251	1.10	1.00	1.382
Fatal and injury (FI)	--	0.323	0.404	1.10	1.00	0.446
Property damage only (PDO)	--	0.677	0.847	1.10	1.00	0.936

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	3.279	1.349	1.382	6.010	0.005	1.00	0.030
Fatal and injury (FI)	--	--	--	--	--	1.00	0.030

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	3.279	1.349	1.382	6.010	0.004	1.00	0.024
Fatal and injury (FI)	--	--	--	--	--	1.00	0.024

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.699	1.806	2.505
Head-on collisions (from Worksheet 1D)	0.065	0.009	0.074
Angle collisions (from Worksheet 1D)	0.081	0.183	0.265
Sideswipe, same direction (from Worksheet 1D)	0.014	0.072	0.086
Sideswipe, opposite direction (from Worksheet 1D)	0.070	0.128	0.198
Driveway-related collisions (from Worksheet 1H)	0.446	0.936	1.382
Other multiple-vehicle collision (from Worksheet 1D)	0.028	0.123	0.151
Subtotal	1.404	3.257	4.661
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.007	0.071	0.078
Collision with fixed object (from Worksheet 1F)	0.202	0.812	1.014
Collision with other object (from Worksheet 1F)	0.003	0.014	0.017
Other single-vehicle collision (from Worksheet 1F)	0.067	0.173	0.241
Collision with pedestrian (from Worksheet 1I)	0.030	0.000	0.030
Collision with bicycle (from Worksheet 1J)	0.024	0.000	0.024
Subtotal	0.333	1.070	1.403
Total	1.738	4.327	6.064

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	6.1	1.42	4.3
Fatal and injury (FI)	1.7	1.42	1.2
Property damage only (PDO)	4.3	1.42	3.0

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	Phillips Rd to Sam Houston Pkwy
Date Performed	10/02/13	Jurisdiction	Westlake, LA
		Analysis Year	2013

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	2U
Length of segment, L (mi)		--	1.72
AADT (veh/day)	$AADT_{MAX}$ = 32,600 (veh/day)	--	13,952
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	5
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	38
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	30
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	18
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.05	1.00	1.00	1.00	1.05

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-15.22	1.68	0.84	3.878	1.000	3.878	1.05	1.00	4.064
Fatal and Injury (FI)	-16.22	1.66	0.65	1.179	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.292	1.132	1.05	1.00	1.186
Property Damage Only (PDO)	-15.62	1.69	0.87	2.859	$(5)_{TOTAL}-(5)_{FI}$ = 0.708	2.746	1.05	1.00	2.878

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	1.186	1.000	2.878	4.064
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.730	0.866	0.778	2.239	3.105
Head-on collision	0.068	0.081	0.004	0.012	0.092
Angle collision	0.085	0.101	0.079	0.227	0.328
Sideswipe, same direction	0.015	0.018	0.031	0.089	0.107
Sideswipe, opposite direction	0.073	0.087	0.055	0.158	0.245
Other multiple-vehicle collision	0.029	0.034	0.053	0.153	0.187

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.47	0.56	0.81	1.517	1.000	1.517	1.05	1.00	1.590
Fatal and Injury (FI)	-3.96	0.23	0.50	0.294	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.204	0.309	1.05	1.00	0.324
Property Damage Only (PDO)	-6.51	0.64	0.87	1.150	$(5)_{TOTAL}-(5)_{FI}$ = 0.796	1.208	1.05	1.00	1.266

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.324	1.000	1.266	1.590
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.026	0.008	0.066	0.084	0.092
Collision with fixed object	0.723	0.234	0.759	0.961	1.195
Collision with other object	0.010	0.003	0.013	0.016	0.020
Other single-vehicle collision	0.241	0.078	0.162	0.205	0.283

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.158	1.000	0.000	--
Minor commercial	5	0.050	1.000	0.233	
Major industrial/institutional	0	0.172	1.000	0.000	
Minor industrial/institutional	0	0.023	1.000	0.000	
Major residential	0	0.083	1.000	0.000	
Minor residential	38	0.016	1.000	0.566	
Other	0	0.025	1.000	0.000	
Total	--	--	--	0.798	0.81

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Initial N_{brdwy}	Proportion of total crashes (f_{dwy})	Adjusted N_{brdwy}	Combined CMFs	Calibration factor, C_r	Predicted N_{brdwy}
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.798	1.000	0.798	1.05	1.00	0.836
Fatal and injury (FI)	--	0.323	0.258	1.05	1.00	0.270
Property damage only (PDO)	--	0.677	0.540	1.05	1.00	0.566

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{pedr}	Calibration factor, C_r	Predicted N_{pedr}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	4.064	1.590	0.836	6.490	0.005	1.00	0.032
Fatal and injury (FI)	--	--	--	--	--	1.00	0.032

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{biker}	Calibration factor, C_r	Predicted N_{biker}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	4.064	1.590	0.836	6.490	0.004	1.00	0.026
Fatal and injury (FI)	--	--	--	--	--	1.00	0.026

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	Property damage only (PDO)	Total
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.866	2.239	3.105
Head-on collisions (from Worksheet 1D)	0.081	0.012	0.092
Angle collisions (from Worksheet 1D)	0.101	0.227	0.328
Sideswipe, same direction (from Worksheet 1D)	0.018	0.089	0.107
Sideswipe, opposite direction (from Worksheet 1D)	0.087	0.158	0.245
Driveway-related collisions (from Worksheet 1H)	0.270	0.566	0.836
Other multiple-vehicle collision (from Worksheet 1D)	0.034	0.153	0.187
Subtotal	1.456	3.444	4.900
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.008	0.084	0.092
Collision with fixed object (from Worksheet 1F)	0.234	0.961	1.195
Collision with other object (from Worksheet 1F)	0.003	0.016	0.020
Other single-vehicle collision (from Worksheet 1F)	0.078	0.205	0.283
Collision with pedestrian (from Worksheet 1I)	0.032	0.000	0.032
Collision with bicycle (from Worksheet 1J)	0.026	0.000	0.026
Subtotal	0.382	1.266	1.648
Total	1.839	4.710	6.548

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	6.5	1.72	3.8
Fatal and injury (FI)	1.8	1.72	1.1
Property damage only (PDO)	4.7	1.72	2.7

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	I-10 to McKinley Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative A	Analysis Year	2013

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4U
Length of segment, L (mi)		--	1.03
AADT (veh/day)	$AADT_{MAX}$ = 40,100 (veh/day)	--	20,531
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	26
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	1
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	5
Other driveways (number)		--	8
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	51
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	10
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.13	1.00	1.00	1.00	1.13

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-11.63	1.33	1.01	4.983	1.000	4.983	1.13	1.00	5.614
Fatal and Injury (FI)	-12.08	1.25	0.99	1.436	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.301	1.502	1.13	1.00	1.692
Property Damage Only (PDO)	-12.53	1.38	1.08	3.329	$(5)_{TOTAL}-(5)_{FI}$ = 0.699	3.481	1.13	1.00	3.922

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	1.692	1.000	3.922	5.614
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.511	0.865	0.506	1.985	2.849
Head-on collision	0.077	0.130	0.004	0.016	0.146
Angle collision	0.181	0.306	0.130	0.510	0.816
Sideswipe, same direction	0.093	0.157	0.249	0.977	1.134
Sideswipe, opposite direction	0.082	0.139	0.031	0.122	0.260
Other multiple-vehicle collision	0.056	0.095	0.080	0.314	0.409

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-7.99	0.81	0.91	1.086	1.000	1.086	1.13	1.00	1.224
Fatal and Injury (FI)	-7.37	0.61	0.54	0.277	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.240	0.260	1.13	1.00	0.293
Property Damage Only (PDO)	-8.50	0.84	0.97	0.879	$(5)_{TOTAL}-(5)_{FI}$ = 0.760	0.826	1.13	1.00	0.930

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.293	1.000	0.930	1.224
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.001	0.001	0.001
Collision with fixed object	0.612	0.180	0.809	0.753	0.932
Collision with other object	0.020	0.006	0.029	0.027	0.033
Other single-vehicle collision	0.367	0.108	0.161	0.150	0.257

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.182	1.172	0.000	--
Minor commercial	26	0.058	1.172	2.179	
Major industrial/institutional	0	0.198	1.172	0.000	
Minor industrial/institutional	1	0.026	1.172	0.038	
Major residential	0	0.096	1.172	0.000	
Minor residential	5	0.018	1.172	0.130	
Other	8	0.029	1.172	0.335	
Total	--	--	--	2.681	0.81

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL} * (3)$	(6) from Worksheet 1B		(4)*(5)*(6)
Total	2.681	1.000	2.681	1.13	1.00	3.021
Fatal and injury (FI)	--	0.342	0.917	1.13	1.00	1.033
Property damage only (PDO)	--	0.658	1.764	1.13	1.00	1.988

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	5.614	1.224	3.021	9.859	0.009	1.00	0.089
Fatal and injury (FI)	--	--	--	--	--	1.00	0.089

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	5.614	1.224	3.021	9.859	0.002	1.00	0.020
Fatal and injury (FI)	--	--	--	--	--	1.00	0.020

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.865	1.985	2.849
Head-on collisions (from Worksheet 1D)	0.130	0.016	0.146
Angle collisions (from Worksheet 1D)	0.306	0.510	0.816
Sideswipe, same direction (from Worksheet 1D)	0.157	0.977	1.134
Sideswipe, opposite direction (from Worksheet 1D)	0.139	0.122	0.260
Driveway-related collisions (from Worksheet 1H)	1.033	1.988	3.021
Other multiple-vehicle collision (from Worksheet 1D)	0.095	0.314	0.409
Subtotal	2.725	5.910	8.635
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 1F)	0.180	0.753	0.932
Collision with other object (from Worksheet 1F)	0.006	0.027	0.033
Other single-vehicle collision (from Worksheet 1F)	0.108	0.150	0.257
Collision with pedestrian (from Worksheet 1I)	0.089	0.000	0.089
Collision with bicycle (from Worksheet 1J)	0.020	0.000	0.020
Subtotal	0.402	0.930	1.332
Total	3.127	6.840	9.967

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	10.0	1.03	9.7
Fatal and injury (FI)	3.1	1.03	3.0
Property damage only (PDO)	6.8	1.03	6.6

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	McKinley Rd to John Stine Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative A	Analysis Year	2013

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	5T
Length of segment, L (mi)		--	1.1
AADT (veh/day)	$AADT_{MAX}$ = 53,800 (veh/day)	--	15,267
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	54
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	9
Other driveways (number)		--	13
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	68
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	10
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.08	1.00	0.94	1.00	1.01

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-9.70	1.17	0.81	5.293	1.000	5.293	1.01	1.00	5.368
Fatal and Injury (FI)	-10.47	1.12	0.62	1.514	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.273	1.443	1.01	1.00	1.463
Property Damage Only (PDO)	-9.97	1.17	0.88	4.041	$(5)_{TOTAL}-(5)_{FI}$ = 0.727	3.851	1.01	1.00	3.905

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	1.463	1.000	3.905	5.368
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.846	1.238	0.651	2.542	3.780
Head-on collision	0.021	0.031	0.004	0.016	0.046
Angle collision	0.050	0.073	0.059	0.230	0.304
Sideswipe, same direction	0.061	0.089	0.248	0.968	1.058
Sideswipe, opposite direction	0.004	0.006	0.009	0.035	0.041
Other multiple-vehicle collision	0.018	0.026	0.029	0.113	0.140

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-4.82	0.54	0.52	1.612	1.000	1.612	1.01	1.00	1.635
Fatal and Injury (FI)	-4.43	0.35	0.36	0.382	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.249	0.401	1.01	1.00	0.407
Property Damage Only (PDO)	-5.83	0.61	0.55	1.152	$(5)_{TOTAL}-(5)_{FI}$ = 0.751	1.211	1.01	1.00	1.228

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.407	1.000	1.228	1.635
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.016	0.007	0.049	0.060	0.067
Collision with fixed object	0.398	0.162	0.768	0.943	1.105
Collision with other object	0.005	0.002	0.061	0.075	0.077
Other single-vehicle collision	0.581	0.236	0.122	0.150	0.386

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_i * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.165	1.172	0.000	--
Minor commercial	54	0.053	1.172	2.922	
Major industrial/institutional	0	0.181	1.172	0.000	
Minor industrial/institutional	0	0.024	1.172	0.000	
Major residential	0	0.087	1.172	0.000	
Minor residential	9	0.016	1.172	0.147	
Other	13	0.027	1.172	0.358	
Total	--	--	--	3.427	0.10

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	3.427	1.000	3.427	1.01	1.00	3.475
Fatal and injury (FI)	--	0.269	0.922	1.01	1.00	0.935
Property damage only (PDO)	--	0.731	2.505	1.01	1.00	2.541

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	5.368	1.635	3.475	10.478	0.023	1.00	0.241
Fatal and injury (FI)	--	--	--	--	--	1.00	0.241

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	5.368	1.635	3.475	10.478	0.012	1.00	0.126
Fatal and injury (FI)	--	--	--	--	--	1.00	0.126

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	1.238	2.542	3.780
Head-on collisions (from Worksheet 1D)	0.031	0.016	0.046
Angle collisions (from Worksheet 1D)	0.073	0.230	0.304
Sideswipe, same direction (from Worksheet 1D)	0.089	0.968	1.058
Sideswipe, opposite direction (from Worksheet 1D)	0.006	0.035	0.041
Driveway-related collisions (from Worksheet 1H)	0.935	2.541	3.475
Other multiple-vehicle collision (from Worksheet 1D)	0.026	0.113	0.140
Subtotal	2.398	6.445	8.843
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.007	0.060	0.067
Collision with fixed object (from Worksheet 1F)	0.162	0.943	1.105
Collision with other object (from Worksheet 1F)	0.002	0.075	0.077
Other single-vehicle collision (from Worksheet 1F)	0.236	0.150	0.386
Collision with pedestrian (from Worksheet 1I)	0.241	0.000	0.241
Collision with bicycle (from Worksheet 1J)	0.126	0.000	0.126
Subtotal	0.774	1.228	2.001
Total	3.171	7.673	10.845

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	10.8	1.10	9.9
Fatal and injury (FI)	3.2	1.10	2.9
Property damage only (PDO)	7.7	1.10	7.0

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	John Stine Rd to Phillips Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative A	Analysis Year	2013

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	1.42
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	13,340
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	20
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	15
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	1
Minor residential driveways (number)		--	14
Other driveways (number)		--	14
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	41
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	15
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.06	0.99	1.00	1.00	1.05

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	2.531	1.000	2.531	1.05	1.00	2.666
Fatal and Injury (FI)	-12.76	1.28	1.31	0.778	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.289	0.732	1.05	1.00	0.771
Property Damage Only (PDO)	-12.81	1.38	1.34	1.913	$(5)_{TOTAL}-(5)_{FI}$ = 0.711	1.799	1.05	1.00	1.895

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.771	1.000	1.895	2.666
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.641	0.662	1.255	1.896
Head-on collision	0.020	0.015	0.007	0.013	0.029
Angle collision	0.040	0.031	0.036	0.068	0.099
Sideswipe, same direction	0.050	0.039	0.223	0.423	0.461
Sideswipe, opposite direction	0.010	0.008	0.001	0.002	0.010
Other multiple-vehicle collision	0.048	0.037	0.071	0.135	0.172

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.791	1.000	0.791	1.05	1.00	0.833
Fatal and Injury (FI)	-8.71	0.66	0.28	0.124	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.158	0.125	1.05	1.00	0.131
Property Damage Only (PDO)	-5.04	0.45	1.06	0.660	$(5)_{TOTAL}-(5)_{FI}$ = 0.842	0.666	1.05	1.00	0.701

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.131	1.000	0.701	0.833
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.044	0.044
Collision with fixed object	0.500	0.066	0.813	0.570	0.636
Collision with other object	0.028	0.004	0.016	0.011	0.015
Other single-vehicle collision	0.471	0.062	0.108	0.076	0.138

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.033	1.106	0.000	--
Minor commercial	15	0.011	1.106	0.145	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	1	0.018	1.106	0.016	
Minor residential	14	0.003	1.106	0.037	
Other	14	0.005	1.106	0.061	
Total	--	--	--	0.259	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Initial N_{brdwy}	Proportion of total crashes (f_{dwy})	Adjusted N_{brdwy}	Combined CMFs	Calibration factor, C_r	Predicted N_{brdwy}
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.259	1.000	0.259	1.05	1.00	0.273
Fatal and injury (FI)	--	0.284	0.074	1.05	1.00	0.078
Property damage only (PDO)	--	0.716	0.186	1.05	1.00	0.195

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{pedr}	Calibration factor, C_r	Predicted N_{pedr}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	2.666	0.833	0.273	3.771	0.019	1.00	0.072
Fatal and injury (FI)	--	--	--	--	--	1.00	0.072

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{biker}	Calibration factor, C_r	Predicted N_{biker}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	2.666	0.833	0.273	3.771	0.005	1.00	0.019
Fatal and injury (FI)	--	--	--	--	--	1.00	0.019

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	Property damage only (PDO)	Total
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.641	1.255	1.896
Head-on collisions (from Worksheet 1D)	0.015	0.013	0.029
Angle collisions (from Worksheet 1D)	0.031	0.068	0.099
Sideswipe, same direction (from Worksheet 1D)	0.039	0.423	0.461
Sideswipe, opposite direction (from Worksheet 1D)	0.008	0.002	0.010
Driveway-related collisions (from Worksheet 1H)	0.078	0.195	0.273
Other multiple-vehicle collision (from Worksheet 1D)	0.037	0.135	0.172
Subtotal	0.848	2.090	2.939
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.044	0.044
Collision with fixed object (from Worksheet 1F)	0.066	0.570	0.636
Collision with other object (from Worksheet 1F)	0.004	0.011	0.015
Other single-vehicle collision (from Worksheet 1F)	0.062	0.076	0.138
Collision with pedestrian (from Worksheet 1I)	0.072	0.000	0.072
Collision with bicycle (from Worksheet 1J)	0.019	0.000	0.019
Subtotal	0.222	0.701	0.923
Total	1.070	2.792	3.862

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	3.9	1.42	2.7
Fatal and injury (FI)	1.1	1.42	0.8
Property damage only (PDO)	2.8	1.42	2.0

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	Phillips Rd to Sam Houston Pkwy
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative A	Analysis Year	2013

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	1.72
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	13,952
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	20
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	5
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	38
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	30
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	18
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.03	0.99	1.00	1.00	1.02

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	3.259	1.000	3.259	1.02	1.00	3.321
Fatal and Injury (FI)	-12.76	1.28	1.31	0.998	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.288	0.939	1.02	1.00	0.957
Property Damage Only (PDO)	-12.81	1.38	1.34	2.465	$(5)_{TOTAL}-(5)_{FI}$ = 0.712	2.320	1.02	1.00	2.364

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.957	1.000	2.364	3.321
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.796	0.662	1.565	2.361
Head-on collision	0.020	0.019	0.007	0.017	0.036
Angle collision	0.040	0.038	0.036	0.085	0.123
Sideswipe, same direction	0.050	0.048	0.223	0.527	0.575
Sideswipe, opposite direction	0.010	0.010	0.001	0.002	0.012
Other multiple-vehicle collision	0.048	0.046	0.071	0.168	0.214

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.978	1.000	0.978	1.02	1.00	0.997
Fatal and Injury (FI)	-8.71	0.66	0.28	0.154	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.159	0.155	1.02	1.00	0.158
Property Damage Only (PDO)	-5.04	0.45	1.06	0.816	$(5)_{TOTAL}-(5)_{FI}$ = 0.841	0.822	1.02	1.00	0.838

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.158	1.000	0.838	0.997
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.053	0.053
Collision with fixed object	0.500	0.079	0.813	0.681	0.761
Collision with other object	0.028	0.004	0.016	0.013	0.018
Other single-vehicle collision	0.471	0.075	0.108	0.091	0.165

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.033	1.106	0.000	--
Minor commercial	5	0.011	1.106	0.051	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	0	0.018	1.106	0.000	
Minor residential	38	0.003	1.106	0.105	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.156	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Initial N_{brdwy}	Proportion of total crashes (f_{dwy})	Adjusted N_{brdwy}	Combined CMFs	Calibration factor, C_r	Predicted N_{brdwy}
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.156	1.000	0.156	1.02	1.00	0.159
Fatal and injury (FI)	--	0.284	0.044	1.02	1.00	0.045
Property damage only (PDO)	--	0.716	0.112	1.02	1.00	0.114

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{pedr}	Calibration factor, C_r	Predicted N_{pedr}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	3.321	0.997	0.159	4.476	0.019	1.00	0.085
Fatal and injury (FI)	--	--	--	--	--	1.00	0.085

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{biker}	Calibration factor, C_r	Predicted N_{biker}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	3.321	0.997	0.159	4.476	0.005	1.00	0.022
Fatal and injury (FI)	--	--	--	--	--	1.00	0.022

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	Property damage only (PDO)	Total
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.796	1.565	2.361
Head-on collisions (from Worksheet 1D)	0.019	0.017	0.036
Angle collisions (from Worksheet 1D)	0.038	0.085	0.123
Sideswipe, same direction (from Worksheet 1D)	0.048	0.527	0.575
Sideswipe, opposite direction (from Worksheet 1D)	0.010	0.002	0.012
Driveway-related collisions (from Worksheet 1H)	0.045	0.114	0.159
Other multiple-vehicle collision (from Worksheet 1D)	0.046	0.168	0.214
Subtotal	1.002	2.478	3.480
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.053	0.053
Collision with fixed object (from Worksheet 1F)	0.079	0.681	0.761
Collision with other object (from Worksheet 1F)	0.004	0.013	0.018
Other single-vehicle collision (from Worksheet 1F)	0.075	0.091	0.165
Collision with pedestrian (from Worksheet 1I)	0.085	0.000	0.085
Collision with bicycle (from Worksheet 1J)	0.022	0.000	0.022
Subtotal	0.266	0.838	1.104
Total	1.268	3.316	4.584

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	4.6	1.72	2.7
Fatal and injury (FI)	1.3	1.72	0.7
Property damage only (PDO)	3.3	1.72	1.9

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	I-10 to McKinley Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative B	Analysis Year	2013

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	1.03
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	20,531
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	26
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	1
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	5
Other driveways (number)		--	8
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	51
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	10
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.12	1.01	1.00	1.00	1.13

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	3.300	1.000	3.300	1.13	1.00	3.744
Fatal and Injury (FI)	-12.76	1.28	1.31	0.980	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.280	0.925	1.13	1.00	1.049
Property Damage Only (PDO)	-12.81	1.38	1.34	2.516	$(5)_{TOTAL}-(5)_{FI}$ = 0.720	2.375	1.13	1.00	2.694

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	1.049	1.000	2.694	3.744
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.873	0.662	1.784	2.657
Head-on collision	0.020	0.021	0.007	0.019	0.040
Angle collision	0.040	0.042	0.036	0.097	0.139
Sideswipe, same direction	0.050	0.052	0.223	0.601	0.653
Sideswipe, opposite direction	0.010	0.010	0.001	0.003	0.013
Other multiple-vehicle collision	0.048	0.050	0.071	0.191	0.242

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.702	1.000	0.702	1.13	1.00	0.797
Fatal and Injury (FI)	-8.71	0.66	0.28	0.119	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.170	0.119	1.13	1.00	0.136
Property Damage Only (PDO)	-5.04	0.45	1.06	0.582	$(5)_{TOTAL}-(5)_{FI}$ = 0.830	0.583	1.13	1.00	0.661

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.136	1.000	0.661	0.797
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.042	0.042
Collision with fixed object	0.500	0.068	0.813	0.538	0.605
Collision with other object	0.028	0.004	0.016	0.011	0.014
Other single-vehicle collision	0.471	0.064	0.108	0.071	0.135

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.033	1.106	0.000	
Minor commercial	26	0.011	1.106	0.405	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	1	0.005	1.106	0.007	--
Major residential	0	0.018	1.106	0.000	
Minor residential	5	0.003	1.106	0.021	
Other	8	0.005	1.106	0.057	
Total	--	--	--	0.490	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL} * (3)$	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.490	1.000	0.490	1.13	1.00	0.555
Fatal and injury (FI)	--	0.284	0.139	1.13	1.00	0.158
Property damage only (PDO)	--	0.716	0.351	1.13	1.00	0.398

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	3.744	0.797	0.555	5.096	0.019	1.00	0.097
Fatal and injury (FI)	--	--	--	--	--	1.00	0.097

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	3.744	0.797	0.555	5.096	0.005	1.00	0.025
Fatal and injury (FI)	--	--	--	--	--	1.00	0.025

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.873	1.784	2.657
Head-on collisions (from Worksheet 1D)	0.021	0.019	0.040
Angle collisions (from Worksheet 1D)	0.042	0.097	0.139
Sideswipe, same direction (from Worksheet 1D)	0.052	0.601	0.653
Sideswipe, opposite direction (from Worksheet 1D)	0.010	0.003	0.013
Driveway-related collisions (from Worksheet 1H)	0.158	0.398	0.555
Other multiple-vehicle collision (from Worksheet 1D)	0.050	0.191	0.242
Subtotal	1.207	3.092	4.299
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.042	0.042
Collision with fixed object (from Worksheet 1F)	0.068	0.538	0.605
Collision with other object (from Worksheet 1F)	0.004	0.011	0.014
Other single-vehicle collision (from Worksheet 1F)	0.064	0.071	0.135
Collision with pedestrian (from Worksheet 1I)	0.097	0.000	0.097
Collision with bicycle (from Worksheet 1J)	0.025	0.000	0.025
Subtotal	0.258	0.661	0.919
Total	1.465	3.753	5.218

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	5.2	1.03	5.1
Fatal and injury (FI)	1.5	1.03	1.4
Property damage only (PDO)	3.8	1.03	3.6

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	McKinley Rd to John Stine Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative B	Analysis Year	2013

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	1.1
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	15,267
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	54
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	9
Other driveways (number)		--	13
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	68
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	10
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.18	1.01	0.91	1.00	1.09

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	2.356	1.000	2.356	1.09	1.00	2.558
Fatal and Injury (FI)	-12.76	1.28	1.31	0.716	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.286	0.674	1.09	1.00	0.732
Property Damage Only (PDO)	-12.81	1.38	1.34	1.785	$(5)_{TOTAL}-(5)_{FI}$ = 0.714	1.681	1.09	1.00	1.825

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.732	1.000	1.825	2.558
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.609	0.662	1.208	1.818
Head-on collision	0.020	0.015	0.007	0.013	0.027
Angle collision	0.040	0.029	0.036	0.066	0.095
Sideswipe, same direction	0.050	0.037	0.223	0.407	0.444
Sideswipe, opposite direction	0.010	0.007	0.001	0.002	0.009
Other multiple-vehicle collision	0.048	0.035	0.071	0.130	0.165

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.652	1.000	0.652	1.09	1.00	0.708
Fatal and Injury (FI)	-8.71	0.66	0.28	0.105	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.162	0.105	1.09	1.00	0.114
Property Damage Only (PDO)	-5.04	0.45	1.06	0.544	$(5)_{TOTAL}-(5)_{FI}$ = 0.838	0.547	1.09	1.00	0.594

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.114	1.000	0.594	0.708
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.037	0.038
Collision with fixed object	0.500	0.057	0.813	0.483	0.540
Collision with other object	0.028	0.003	0.016	0.010	0.013
Other single-vehicle collision	0.471	0.054	0.108	0.064	0.118

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.033	1.106	0.000	--
Minor commercial	54	0.011	1.106	0.606	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	0	0.018	1.106	0.000	
Minor residential	9	0.003	1.106	0.028	
Other	13	0.005	1.106	0.066	
Total	--	--	--	0.700	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Initial N_{brdwy}	Proportion of total crashes (f_{dwy})	Adjusted N_{brdwy}	Combined CMFs	Calibration factor, C_r	Predicted N_{brdwy}
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL} * (3)$	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.700	1.000	0.700	1.09	1.00	0.760
Fatal and injury (FI)	--	0.284	0.199	1.09	1.00	0.216
Property damage only (PDO)	--	0.716	0.501	1.09	1.00	0.544

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{pedr}	Calibration factor, C_r	Predicted N_{pedr}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	2.558	0.708	0.760	4.026	0.019	1.00	0.076
Fatal and injury (FI)	--	--	--	--	--	1.00	0.076

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{biker}	Calibration factor, C_r	Predicted N_{biker}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	2.558	0.708	0.760	4.026	0.005	1.00	0.020
Fatal and injury (FI)	--	--	--	--	--	1.00	0.020

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	Property damage only (PDO)	Total
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.609	1.208	1.818
Head-on collisions (from Worksheet 1D)	0.015	0.013	0.027
Angle collisions (from Worksheet 1D)	0.029	0.066	0.095
Sideswipe, same direction (from Worksheet 1D)	0.037	0.407	0.444
Sideswipe, opposite direction (from Worksheet 1D)	0.007	0.002	0.009
Driveway-related collisions (from Worksheet 1H)	0.216	0.544	0.760
Other multiple-vehicle collision (from Worksheet 1D)	0.035	0.130	0.165
Subtotal	0.948	2.369	3.317
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.037	0.038
Collision with fixed object (from Worksheet 1F)	0.057	0.483	0.540
Collision with other object (from Worksheet 1F)	0.003	0.010	0.013
Other single-vehicle collision (from Worksheet 1F)	0.054	0.064	0.118
Collision with pedestrian (from Worksheet 1I)	0.076	0.000	0.076
Collision with bicycle (from Worksheet 1J)	0.020	0.000	0.020
Subtotal	0.211	0.594	0.805
Total	1.159	2.963	4.122

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	4.1	1.10	3.7
Fatal and injury (FI)	1.2	1.10	1.1
Property damage only (PDO)	3.0	1.10	2.7

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	BDP	Roadway	LA 378
Agency or Company	USI	Roadway Section	John Stine Rd to Phillips Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative B	Analysis Year	2013

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	1.42
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	13,340
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	20
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	15
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	1
Minor residential driveways (number)		--	14
Other driveways (number)		--	14
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	41
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	15
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.06	0.99	1.00	1.00	1.05

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	2.531	1.000	2.531	1.05	1.00	2.666
Fatal and Injury (FI)	-12.76	1.28	1.31	0.778	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.289	0.732	1.05	1.00	0.771
Property Damage Only (PDO)	-12.81	1.38	1.34	1.913	$(5)_{TOTAL}-(5)_{FI}$ = 0.711	1.799	1.05	1.00	1.895

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.771	1.000	1.895	2.666
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.641	0.662	1.255	1.896
Head-on collision	0.020	0.015	0.007	0.013	0.029
Angle collision	0.040	0.031	0.036	0.068	0.099
Sideswipe, same direction	0.050	0.039	0.223	0.423	0.461
Sideswipe, opposite direction	0.010	0.008	0.001	0.002	0.010
Other multiple-vehicle collision	0.048	0.037	0.071	0.135	0.172

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.791	1.000	0.791	1.05	1.00	0.833
Fatal and Injury (FI)	-8.71	0.66	0.28	0.124	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.158	0.125	1.05	1.00	0.131
Property Damage Only (PDO)	-5.04	0.45	1.06	0.660	$(5)_{TOTAL}-(5)_{FI}$ = 0.842	0.666	1.05	1.00	0.701

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.131	1.000	0.701	0.833
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.044	0.044
Collision with fixed object	0.500	0.066	0.813	0.570	0.636
Collision with other object	0.028	0.004	0.016	0.011	0.015
Other single-vehicle collision	0.471	0.062	0.108	0.076	0.138

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.033	1.106	0.000	--
Minor commercial	15	0.011	1.106	0.145	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	1	0.018	1.106	0.016	
Minor residential	14	0.003	1.106	0.037	
Other	14	0.005	1.106	0.061	
Total	--	--	--	0.259	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL} * (3)$	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.259	1.000	0.259	1.05	1.00	0.273
Fatal and injury (FI)	--	0.284	0.074	1.05	1.00	0.078
Property damage only (PDO)	--	0.716	0.186	1.05	1.00	0.195

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	2.666	0.833	0.273	3.771	0.019	1.00	0.072
Fatal and injury (FI)	--	--	--	--	--	1.00	0.072

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	2.666	0.833	0.273	3.771	0.005	1.00	0.019
Fatal and injury (FI)	--	--	--	--	--	1.00	0.019

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.641	1.255	1.896
Head-on collisions (from Worksheet 1D)	0.015	0.013	0.029
Angle collisions (from Worksheet 1D)	0.031	0.068	0.099
Sideswipe, same direction (from Worksheet 1D)	0.039	0.423	0.461
Sideswipe, opposite direction (from Worksheet 1D)	0.008	0.002	0.010
Driveway-related collisions (from Worksheet 1H)	0.078	0.195	0.273
Other multiple-vehicle collision (from Worksheet 1D)	0.037	0.135	0.172
Subtotal	0.848	2.090	2.939
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.044	0.044
Collision with fixed object (from Worksheet 1F)	0.066	0.570	0.636
Collision with other object (from Worksheet 1F)	0.004	0.011	0.015
Other single-vehicle collision (from Worksheet 1F)	0.062	0.076	0.138
Collision with pedestrian (from Worksheet 1I)	0.072	0.000	0.072
Collision with bicycle (from Worksheet 1J)	0.019	0.000	0.019
Subtotal	0.222	0.701	0.923
Total	1.070	2.792	3.862

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	3.9	1.42	2.7
Fatal and injury (FI)	1.1	1.42	0.8
Property damage only (PDO)	2.8	1.42	2.0

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	Phillips Rd to Sam Houston Pkwy
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative B	Analysis Year	2013

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	1.72
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	13,952
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	20
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	5
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	38
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	30
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	18
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.03	0.99	1.00	1.00	1.02

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	3.259	1.000	3.259	1.02	1.00	3.321
Fatal and Injury (FI)	-12.76	1.28	1.31	0.998	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.288	0.939	1.02	1.00	0.957
Property Damage Only (PDO)	-12.81	1.38	1.34	2.465	$(5)_{TOTAL}-(5)_{FI}$ = 0.712	2.320	1.02	1.00	2.364

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.957	1.000	2.364	3.321
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.796	0.662	1.565	2.361
Head-on collision	0.020	0.019	0.007	0.017	0.036
Angle collision	0.040	0.038	0.036	0.085	0.123
Sideswipe, same direction	0.050	0.048	0.223	0.527	0.575
Sideswipe, opposite direction	0.010	0.010	0.001	0.002	0.012
Other multiple-vehicle collision	0.048	0.046	0.071	0.168	0.214

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.978	1.000	0.978	1.02	1.00	0.997
Fatal and Injury (FI)	-8.71	0.66	0.28	0.154	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.159	0.155	1.02	1.00	0.158
Property Damage Only (PDO)	-5.04	0.45	1.06	0.816	$(5)_{TOTAL}-(5)_{FI}$ = 0.841	0.822	1.02	1.00	0.838

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.158	1.000	0.838	0.997
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.053	0.053
Collision with fixed object	0.500	0.079	0.813	0.681	0.761
Collision with other object	0.028	0.004	0.016	0.013	0.018
Other single-vehicle collision	0.471	0.075	0.108	0.091	0.165

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.033	1.106	0.000	--
Minor commercial	5	0.011	1.106	0.051	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	0	0.018	1.106	0.000	
Minor residential	38	0.003	1.106	0.105	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.156	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Initial N_{brdwy}	Proportion of total crashes (f_{dwy})	Adjusted N_{brdwy}	Combined CMFs	Calibration factor, C_r	Predicted N_{brdwy}
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.156	1.000	0.156	1.02	1.00	0.159
Fatal and injury (FI)	--	0.284	0.044	1.02	1.00	0.045
Property damage only (PDO)	--	0.716	0.112	1.02	1.00	0.114

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{pedr}	Calibration factor, C_r	Predicted N_{pedr}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	3.321	0.997	0.159	4.476	0.019	1.00	0.085
Fatal and injury (FI)	--	--	--	--	--	1.00	0.085

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{biker}	Calibration factor, C_r	Predicted N_{biker}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	3.321	0.997	0.159	4.476	0.005	1.00	0.022
Fatal and injury (FI)	--	--	--	--	--	1.00	0.022

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	Property damage only (PDO)	Total
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.796	1.565	2.361
Head-on collisions (from Worksheet 1D)	0.019	0.017	0.036
Angle collisions (from Worksheet 1D)	0.038	0.085	0.123
Sideswipe, same direction (from Worksheet 1D)	0.048	0.527	0.575
Sideswipe, opposite direction (from Worksheet 1D)	0.010	0.002	0.012
Driveway-related collisions (from Worksheet 1H)	0.045	0.114	0.159
Other multiple-vehicle collision (from Worksheet 1D)	0.046	0.168	0.214
Subtotal	1.002	2.478	3.480
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.053	0.053
Collision with fixed object (from Worksheet 1F)	0.079	0.681	0.761
Collision with other object (from Worksheet 1F)	0.004	0.013	0.018
Other single-vehicle collision (from Worksheet 1F)	0.075	0.091	0.165
Collision with pedestrian (from Worksheet 1I)	0.085	0.000	0.085
Collision with bicycle (from Worksheet 1J)	0.022	0.000	0.022
Subtotal	0.266	0.838	1.104
Total	1.268	3.316	4.584

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	4.6	1.72	2.7
Fatal and injury (FI)	1.3	1.72	0.7
Property damage only (PDO)	3.3	1.72	1.9

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	I-10 to McKinley Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative C	Analysis Year	2013

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	1.03
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	20,531
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	26
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	1
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	5
Other driveways (number)		--	8
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	51
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	10
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.12	1.01	1.00	1.00	1.13

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	3.300	1.000	3.300	1.13	1.00	3.744
Fatal and Injury (FI)	-12.76	1.28	1.31	0.980	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.280	0.925	1.13	1.00	1.049
Property Damage Only (PDO)	-12.81	1.38	1.34	2.516	$(5)_{TOTAL}-(5)_{FI}$ = 0.720	2.375	1.13	1.00	2.694

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	1.049	1.000	2.694	3.744
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.873	0.662	1.784	2.657
Head-on collision	0.020	0.021	0.007	0.019	0.040
Angle collision	0.040	0.042	0.036	0.097	0.139
Sideswipe, same direction	0.050	0.052	0.223	0.601	0.653
Sideswipe, opposite direction	0.010	0.010	0.001	0.003	0.013
Other multiple-vehicle collision	0.048	0.050	0.071	0.191	0.242

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.702	1.000	0.702	1.13	1.00	0.797
Fatal and Injury (FI)	-8.71	0.66	0.28	0.119	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.170	0.119	1.13	1.00	0.136
Property Damage Only (PDO)	-5.04	0.45	1.06	0.582	$(5)_{TOTAL}-(5)_{FI}$ = 0.830	0.583	1.13	1.00	0.661

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.136	1.000	0.661	0.797
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.042	0.042
Collision with fixed object	0.500	0.068	0.813	0.538	0.605
Collision with other object	0.028	0.004	0.016	0.011	0.014
Other single-vehicle collision	0.471	0.064	0.108	0.071	0.135

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.033	1.106	0.000	
Minor commercial	26	0.011	1.106	0.405	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	1	0.005	1.106	0.007	--
Major residential	0	0.018	1.106	0.000	
Minor residential	5	0.003	1.106	0.021	
Other	8	0.005	1.106	0.057	
Total	--	--	--	0.490	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL} * (3)$	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.490	1.000	0.490	1.13	1.00	0.555
Fatal and injury (FI)	--	0.284	0.139	1.13	1.00	0.158
Property damage only (PDO)	--	0.716	0.351	1.13	1.00	0.398

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	3.744	0.797	0.555	5.096	0.019	1.00	0.097
Fatal and injury (FI)	--	--	--	--	--	1.00	0.097

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	3.744	0.797	0.555	5.096	0.005	1.00	0.025
Fatal and injury (FI)	--	--	--	--	--	1.00	0.025

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.873	1.784	2.657
Head-on collisions (from Worksheet 1D)	0.021	0.019	0.040
Angle collisions (from Worksheet 1D)	0.042	0.097	0.139
Sideswipe, same direction (from Worksheet 1D)	0.052	0.601	0.653
Sideswipe, opposite direction (from Worksheet 1D)	0.010	0.003	0.013
Driveway-related collisions (from Worksheet 1H)	0.158	0.398	0.555
Other multiple-vehicle collision (from Worksheet 1D)	0.050	0.191	0.242
Subtotal	1.207	3.092	4.299
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.042	0.042
Collision with fixed object (from Worksheet 1F)	0.068	0.538	0.605
Collision with other object (from Worksheet 1F)	0.004	0.011	0.014
Other single-vehicle collision (from Worksheet 1F)	0.064	0.071	0.135
Collision with pedestrian (from Worksheet 1I)	0.097	0.000	0.097
Collision with bicycle (from Worksheet 1J)	0.025	0.000	0.025
Subtotal	0.258	0.661	0.919
Total	1.465	3.753	5.218

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	5.2	1.03	5.1
Fatal and injury (FI)	1.5	1.03	1.4
Property damage only (PDO)	3.8	1.03	3.6

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	McKinley Rd to John Stine Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative C	Analysis Year	2013

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	1.1
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	15,267
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	54
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	9
Other driveways (number)		--	13
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	68
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	10
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.18	1.01	0.91	1.00	1.09

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	2.356	1.000	2.356	1.09	1.00	2.558
Fatal and Injury (FI)	-12.76	1.28	1.31	0.716	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.286	0.674	1.09	1.00	0.732
Property Damage Only (PDO)	-12.81	1.38	1.34	1.785	$(5)_{TOTAL}-(5)_{FI}$ = 0.714	1.681	1.09	1.00	1.825

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.732	1.000	1.825	2.558
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.609	0.662	1.208	1.818
Head-on collision	0.020	0.015	0.007	0.013	0.027
Angle collision	0.040	0.029	0.036	0.066	0.095
Sideswipe, same direction	0.050	0.037	0.223	0.407	0.444
Sideswipe, opposite direction	0.010	0.007	0.001	0.002	0.009
Other multiple-vehicle collision	0.048	0.035	0.071	0.130	0.165

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.652	1.000	0.652	1.09	1.00	0.708
Fatal and Injury (FI)	-8.71	0.66	0.28	0.105	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.162	0.105	1.09	1.00	0.114
Property Damage Only (PDO)	-5.04	0.45	1.06	0.544	$(5)_{TOTAL}-(5)_{FI}$ = 0.838	0.547	1.09	1.00	0.594

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.114	1.000	0.594	0.708
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.037	0.038
Collision with fixed object	0.500	0.057	0.813	0.483	0.540
Collision with other object	0.028	0.003	0.016	0.010	0.013
Other single-vehicle collision	0.471	0.054	0.108	0.064	0.118

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.033	1.106	0.000	--
Minor commercial	54	0.011	1.106	0.606	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	0	0.018	1.106	0.000	
Minor residential	9	0.003	1.106	0.028	
Other	13	0.005	1.106	0.066	
Total	--	--	--	0.700	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Initial N_{brdwy}	Proportion of total crashes (f_{dwy})	Adjusted N_{brdwy}	Combined CMFs	Calibration factor, C_r	Predicted N_{brdwy}
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL} * (3)$	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.700	1.000	0.700	1.09	1.00	0.760
Fatal and injury (FI)	--	0.284	0.199	1.09	1.00	0.216
Property damage only (PDO)	--	0.716	0.501	1.09	1.00	0.544

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{pedr}	Calibration factor, C_r	Predicted N_{pedr}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	2.558	0.708	0.760	4.026	0.019	1.00	0.076
Fatal and injury (FI)	--	--	--	--	--	1.00	0.076

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{biker}	Calibration factor, C_r	Predicted N_{biker}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	2.558	0.708	0.760	4.026	0.005	1.00	0.020
Fatal and injury (FI)	--	--	--	--	--	1.00	0.020

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	Property damage only (PDO)	Total
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.609	1.208	1.818
Head-on collisions (from Worksheet 1D)	0.015	0.013	0.027
Angle collisions (from Worksheet 1D)	0.029	0.066	0.095
Sideswipe, same direction (from Worksheet 1D)	0.037	0.407	0.444
Sideswipe, opposite direction (from Worksheet 1D)	0.007	0.002	0.009
Driveway-related collisions (from Worksheet 1H)	0.216	0.544	0.760
Other multiple-vehicle collision (from Worksheet 1D)	0.035	0.130	0.165
Subtotal	0.948	2.369	3.317
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.037	0.038
Collision with fixed object (from Worksheet 1F)	0.057	0.483	0.540
Collision with other object (from Worksheet 1F)	0.003	0.010	0.013
Other single-vehicle collision (from Worksheet 1F)	0.054	0.064	0.118
Collision with pedestrian (from Worksheet 1I)	0.076	0.000	0.076
Collision with bicycle (from Worksheet 1J)	0.020	0.000	0.020
Subtotal	0.211	0.594	0.805
Total	1.159	2.963	4.122

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	4.1	1.10	3.7
Fatal and injury (FI)	1.2	1.10	1.1
Property damage only (PDO)	3.0	1.10	2.7

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	John Stine Rd to Phillips Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative C	Analysis Year	2013

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	1.42
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	13,340
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	20
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	15
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	1
Minor residential driveways (number)		--	14
Other driveways (number)		--	14
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	41
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	15
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.06	0.99	1.00	1.00	1.05

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	2.531	1.000	2.531	1.05	1.00	2.666
Fatal and Injury (FI)	-12.76	1.28	1.31	0.778	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.289	0.732	1.05	1.00	0.771
Property Damage Only (PDO)	-12.81	1.38	1.34	1.913	$(5)_{TOTAL}-(5)_{FI}$ = 0.711	1.799	1.05	1.00	1.895

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.771	1.000	1.895	2.666
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.641	0.662	1.255	1.896
Head-on collision	0.020	0.015	0.007	0.013	0.029
Angle collision	0.040	0.031	0.036	0.068	0.099
Sideswipe, same direction	0.050	0.039	0.223	0.423	0.461
Sideswipe, opposite direction	0.010	0.008	0.001	0.002	0.010
Other multiple-vehicle collision	0.048	0.037	0.071	0.135	0.172

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.791	1.000	0.791	1.05	1.00	0.833
Fatal and Injury (FI)	-8.71	0.66	0.28	0.124	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.158	0.125	1.05	1.00	0.131
Property Damage Only (PDO)	-5.04	0.45	1.06	0.660	$(5)_{TOTAL}-(5)_{FI}$ = 0.842	0.666	1.05	1.00	0.701

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.131	1.000	0.701	0.833
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.044	0.044
Collision with fixed object	0.500	0.066	0.813	0.570	0.636
Collision with other object	0.028	0.004	0.016	0.011	0.015
Other single-vehicle collision	0.471	0.062	0.108	0.076	0.138

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.033	1.106	0.000	--
Minor commercial	15	0.011	1.106	0.145	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	1	0.018	1.106	0.016	
Minor residential	14	0.003	1.106	0.037	
Other	14	0.005	1.106	0.061	
Total	--	--	--	0.259	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL} * (3)$	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.259	1.000	0.259	1.05	1.00	0.273
Fatal and injury (FI)	--	0.284	0.074	1.05	1.00	0.078
Property damage only (PDO)	--	0.716	0.186	1.05	1.00	0.195

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	2.666	0.833	0.273	3.771	0.019	1.00	0.072
Fatal and injury (FI)	--	--	--	--	--	1.00	0.072

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	2.666	0.833	0.273	3.771	0.005	1.00	0.019
Fatal and injury (FI)	--	--	--	--	--	1.00	0.019

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.641	1.255	1.896
Head-on collisions (from Worksheet 1D)	0.015	0.013	0.029
Angle collisions (from Worksheet 1D)	0.031	0.068	0.099
Sideswipe, same direction (from Worksheet 1D)	0.039	0.423	0.461
Sideswipe, opposite direction (from Worksheet 1D)	0.008	0.002	0.010
Driveway-related collisions (from Worksheet 1H)	0.078	0.195	0.273
Other multiple-vehicle collision (from Worksheet 1D)	0.037	0.135	0.172
Subtotal	0.848	2.090	2.939
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.044	0.044
Collision with fixed object (from Worksheet 1F)	0.066	0.570	0.636
Collision with other object (from Worksheet 1F)	0.004	0.011	0.015
Other single-vehicle collision (from Worksheet 1F)	0.062	0.076	0.138
Collision with pedestrian (from Worksheet 1I)	0.072	0.000	0.072
Collision with bicycle (from Worksheet 1J)	0.019	0.000	0.019
Subtotal	0.222	0.701	0.923
Total	1.070	2.792	3.862

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	3.9	1.42	2.7
Fatal and injury (FI)	1.1	1.42	0.8
Property damage only (PDO)	2.8	1.42	2.0

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	Phillips Rd to Sam Houston Pkwy
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative C	Analysis Year	2013

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	1.56
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	13,952
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	20
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	15
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	18
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.00	0.99	1.00	1.00	0.99

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	2.956	1.000	2.956	0.99	1.00	2.926
Fatal and Injury (FI)	-12.76	1.28	1.31	0.905	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.288	0.852	0.99	1.00	0.843
Property Damage Only (PDO)	-12.81	1.38	1.34	2.236	$(5)_{TOTAL}-(5)_{FI}$ = 0.712	2.104	0.99	1.00	2.083

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.843	1.000	2.083	2.926
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.702	0.662	1.379	2.080
Head-on collision	0.020	0.017	0.007	0.015	0.031
Angle collision	0.040	0.034	0.036	0.075	0.109
Sideswipe, same direction	0.050	0.042	0.223	0.464	0.507
Sideswipe, opposite direction	0.010	0.008	0.001	0.002	0.011
Other multiple-vehicle collision	0.048	0.040	0.071	0.148	0.188

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.887	1.000	0.887	0.99	1.00	0.878
Fatal and Injury (FI)	-8.71	0.66	0.28	0.140	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.159	0.141	0.99	1.00	0.140
Property Damage Only (PDO)	-5.04	0.45	1.06	0.740	$(5)_{TOTAL}-(5)_{FI}$ = 0.841	0.746	0.99	1.00	0.739

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.140	1.000	0.739	0.878
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.047	0.047
Collision with fixed object	0.500	0.070	0.813	0.600	0.670
Collision with other object	0.028	0.004	0.016	0.012	0.016
Other single-vehicle collision	0.471	0.066	0.108	0.080	0.146

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL} * (3)$	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	0.99	1.00	0.000
Fatal and injury (FI)	--	0.284	0.000	0.99	1.00	0.000
Property damage only (PDO)	--	0.716	0.000	0.99	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	2.926	0.878	0.000	3.804	0.019	1.00	0.072
Fatal and injury (FI)	--	--	--	--	--	1.00	0.072

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	2.926	0.878	0.000	3.804	0.005	1.00	0.019
Fatal and injury (FI)	--	--	--	--	--	1.00	0.019

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.702	1.379	2.080
Head-on collisions (from Worksheet 1D)	0.017	0.015	0.031
Angle collisions (from Worksheet 1D)	0.034	0.075	0.109
Sideswipe, same direction (from Worksheet 1D)	0.042	0.464	0.507
Sideswipe, opposite direction (from Worksheet 1D)	0.008	0.002	0.011
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.040	0.148	0.188
Subtotal	0.843	2.083	2.926
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.047	0.047
Collision with fixed object (from Worksheet 1F)	0.070	0.600	0.670
Collision with other object (from Worksheet 1F)	0.004	0.012	0.016
Other single-vehicle collision (from Worksheet 1F)	0.066	0.080	0.146
Collision with pedestrian (from Worksheet 1I)	0.072	0.000	0.072
Collision with bicycle (from Worksheet 1J)	0.019	0.000	0.019
Subtotal	0.231	0.739	0.969
Total	1.074	2.821	3.895

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	3.9	1.56	2.5
Fatal and injury (FI)	1.1	1.56	0.7
Property damage only (PDO)	2.8	1.56	1.8

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	I-10 to McKinley Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
		Analysis Year	2028

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4U
Length of segment, L (mi)		--	1.03
AADT (veh/day)	$AADT_{MAX}$ = 40,100 (veh/day)	--	22,126
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	26
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	1
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	5
Other driveways (number)		--	8
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	51
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	10
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.13	1.00	1.00	1.00	1.13

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-11.63	1.33	1.01	5.504	1.000	5.504	1.13	1.00	6.202
Fatal and Injury (FI)	-12.08	1.25	0.99	1.576	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.299	1.648	1.13	1.00	1.856
Property Damage Only (PDO)	-12.53	1.38	1.08	3.691	$(5)_{TOTAL}-(5)_{FI}$ = 0.701	3.857	1.13	1.00	4.345

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	1.856	1.000	4.345	6.202
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.511	0.949	0.506	2.199	3.147
Head-on collision	0.077	0.143	0.004	0.017	0.160
Angle collision	0.181	0.336	0.130	0.565	0.901
Sideswipe, same direction	0.093	0.173	0.249	1.082	1.255
Sideswipe, opposite direction	0.082	0.152	0.031	0.135	0.287
Other multiple-vehicle collision	0.056	0.104	0.080	0.348	0.452

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-7.99	0.81	0.91	1.154	1.000	1.154	1.13	1.00	1.300
Fatal and Injury (FI)	-7.37	0.61	0.54	0.290	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.237	0.273	1.13	1.00	0.308
Property Damage Only (PDO)	-8.50	0.84	0.97	0.936	$(5)_{TOTAL}-(5)_{FI}$ = 0.763	0.881	1.13	1.00	0.992

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.308	1.000	0.992	1.300
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.001	0.001	0.001
Collision with fixed object	0.612	0.188	0.809	0.803	0.991
Collision with other object	0.020	0.006	0.029	0.029	0.035
Other single-vehicle collision	0.367	0.113	0.161	0.160	0.273

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.182	1.172	0.000	
Minor commercial	26	0.058	1.172	2.378	
Major industrial/institutional	0	0.198	1.172	0.000	
Minor industrial/institutional	1	0.026	1.172	0.041	--
Major residential	0	0.096	1.172	0.000	
Minor residential	5	0.018	1.172	0.142	
Other	8	0.029	1.172	0.366	
Total	--	--	--	2.927	0.81

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Initial N_{brdwy}	Proportion of total crashes (f_{dwy})	Adjusted N_{brdwy}	Combined CMFs	Calibration factor, C_r	Predicted N_{brdwy}
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	2.927	1.000	2.927	1.13	1.00	3.298
Fatal and injury (FI)	--	0.342	1.001	1.13	1.00	1.128
Property damage only (PDO)	--	0.658	1.926	1.13	1.00	2.170

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{pedr}	Calibration factor, C_r	Predicted N_{pedr}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	6.202	1.300	3.298	10.800	0.009	1.00	0.097
Fatal and injury (FI)	--	--	--	--	--	1.00	0.097

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{biker}	Calibration factor, C_r	Predicted N_{biker}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	6.202	1.300	3.298	10.800	0.002	1.00	0.022
Fatal and injury (FI)	--	--	--	--	--	1.00	0.022

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	Property damage only (PDO)	Total
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.949	2.199	3.147
Head-on collisions (from Worksheet 1D)	0.143	0.017	0.160
Angle collisions (from Worksheet 1D)	0.336	0.565	0.901
Sideswipe, same direction (from Worksheet 1D)	0.173	1.082	1.255
Sideswipe, opposite direction (from Worksheet 1D)	0.152	0.135	0.287
Driveway-related collisions (from Worksheet 1H)	1.128	2.170	3.298
Other multiple-vehicle collision (from Worksheet 1D)	0.104	0.348	0.452
Subtotal	2.984	6.515	9.499
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 1F)	0.188	0.803	0.991
Collision with other object (from Worksheet 1F)	0.006	0.029	0.035
Other single-vehicle collision (from Worksheet 1F)	0.113	0.160	0.273
Collision with pedestrian (from Worksheet 1I)	0.097	0.000	0.097
Collision with bicycle (from Worksheet 1J)	0.022	0.000	0.022
Subtotal	0.426	0.992	1.419
Total	3.411	7.508	10.918

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	10.9	1.03	10.6
Fatal and injury (FI)	3.4	1.03	3.3
Property damage only (PDO)	7.5	1.03	7.3

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	McKinley Rd to John Stine Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
		Analysis Year	2028

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	5T
Length of segment, L (mi)		--	1.1
AADT (veh/day)	$AADT_{MAX}$ = 53,800 (veh/day)	--	16,453
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	54
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	9
Other driveways (number)		--	13
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	68
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	10
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.08	1.00	0.94	1.00	1.01

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-9.70	1.17	0.81	5.778	1.000	5.778	1.01	1.00	5.859
Fatal and Injury (FI)	-10.47	1.12	0.62	1.646	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.272	1.570	1.01	1.00	1.593
Property Damage Only (PDO)	-9.97	1.17	0.88	4.410	$(5)_{TOTAL}-(5)_{FI}$ = 0.728	4.207	1.01	1.00	4.266

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	1.593	1.000	4.266	5.859
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.846	1.347	0.651	2.777	4.125
Head-on collision	0.021	0.033	0.004	0.017	0.051
Angle collision	0.050	0.080	0.059	0.252	0.331
Sideswipe, same direction	0.061	0.097	0.248	1.058	1.155
Sideswipe, opposite direction	0.004	0.006	0.009	0.038	0.045
Other multiple-vehicle collision	0.018	0.029	0.029	0.124	0.152

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-4.82	0.54	0.52	1.678	1.000	1.678	1.01	1.00	1.702
Fatal and Injury (FI)	-4.43	0.35	0.36	0.392	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.245	0.412	1.01	1.00	0.417
Property Damage Only (PDO)	-5.83	0.61	0.55	1.206	$(5)_{TOTAL}-(5)_{FI}$ = 0.755	1.267	1.01	1.00	1.285

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.417	1.000	1.285	1.702
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.016	0.007	0.049	0.063	0.070
Collision with fixed object	0.398	0.166	0.768	0.987	1.153
Collision with other object	0.005	0.002	0.061	0.078	0.080
Other single-vehicle collision	0.581	0.243	0.122	0.157	0.399

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.165	1.172	0.000	--
Minor commercial	54	0.053	1.172	3.190	
Major industrial/institutional	0	0.181	1.172	0.000	
Minor industrial/institutional	0	0.024	1.172	0.000	
Major residential	0	0.087	1.172	0.000	
Minor residential	9	0.016	1.172	0.160	
Other	13	0.027	1.172	0.391	
Total	--	--	--	3.741	0.10

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	3.741	1.000	3.741	1.01	1.00	3.794
Fatal and injury (FI)	--	0.269	1.006	1.01	1.00	1.021
Property damage only (PDO)	--	0.731	2.735	1.01	1.00	2.773

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	5.859	1.702	3.794	11.355	0.023	1.00	0.261
Fatal and injury (FI)	--	--	--	--	--	1.00	0.261

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	5.859	1.702	3.794	11.355	0.012	1.00	0.136
Fatal and injury (FI)	--	--	--	--	--	1.00	0.136

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	1.347	2.777	4.125
Head-on collisions (from Worksheet 1D)	0.033	0.017	0.051
Angle collisions (from Worksheet 1D)	0.080	0.252	0.331
Sideswipe, same direction (from Worksheet 1D)	0.097	1.058	1.155
Sideswipe, opposite direction (from Worksheet 1D)	0.006	0.038	0.045
Driveway-related collisions (from Worksheet 1H)	1.021	2.773	3.794
Other multiple-vehicle collision (from Worksheet 1D)	0.029	0.124	0.152
Subtotal	2.613	7.040	9.653
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.007	0.063	0.070
Collision with fixed object (from Worksheet 1F)	0.166	0.987	1.153
Collision with other object (from Worksheet 1F)	0.002	0.078	0.080
Other single-vehicle collision (from Worksheet 1F)	0.243	0.157	0.399
Collision with pedestrian (from Worksheet 1I)	0.261	0.000	0.261
Collision with bicycle (from Worksheet 1J)	0.136	0.000	0.136
Subtotal	0.815	1.285	2.099
Total	3.428	8.324	11.752

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	11.8	1.10	10.7
Fatal and injury (FI)	3.4	1.10	3.1
Property damage only (PDO)	8.3	1.10	7.6

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	John Stine Rd to Phillips Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
		Analysis Year	2028

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	2U
Length of segment, L (mi)		--	1.42
AADT (veh/day)	$AADT_{MAX}$ = 32,600 (veh/day)	--	14,376
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	15
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	1
Minor residential driveways (number)		--	14
Other driveways (number)		--	14
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	41
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	15
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.10	1.00	1.00	1.00	1.10

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-15.22	1.68	0.84	3.366	1.000	3.366	1.10	1.00	3.718
Fatal and Injury (FI)	-16.22	1.66	0.65	1.023	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.292	0.982	1.10	1.00	1.085
Property Damage Only (PDO)	-15.62	1.69	0.87	2.483	$(5)_{TOTAL}-(5)_{FI}$ = 0.708	2.384	1.10	1.00	2.634

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	1.085	1.000	2.634	3.718
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.730	0.792	0.778	2.049	2.841
Head-on collision	0.068	0.074	0.004	0.011	0.084
Angle collision	0.085	0.092	0.079	0.208	0.300
Sideswipe, same direction	0.015	0.016	0.031	0.082	0.098
Sideswipe, opposite direction	0.073	0.079	0.055	0.145	0.224
Other multiple-vehicle collision	0.029	0.031	0.053	0.140	0.171

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.47	0.56	0.81	1.273	1.000	1.273	1.10	1.00	1.407
Fatal and Injury (FI)	-3.96	0.23	0.50	0.245	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.202	0.257	1.10	1.00	0.284
Property Damage Only (PDO)	-6.51	0.64	0.87	0.968	$(5)_{TOTAL}-(5)_{FI}$ = 0.798	1.016	1.10	1.00	1.123

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.284	1.000	1.123	1.407
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.026	0.007	0.066	0.074	0.081
Collision with fixed object	0.723	0.205	0.759	0.852	1.057
Collision with other object	0.010	0.003	0.013	0.015	0.017
Other single-vehicle collision	0.241	0.068	0.162	0.182	0.250

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.158	1.000	0.000	
Minor commercial	15	0.050	1.000	0.719	
Major industrial/institutional	0	0.172	1.000	0.000	
Minor industrial/institutional	0	0.023	1.000	0.000	--
Major residential	1	0.083	1.000	0.080	
Minor residential	14	0.016	1.000	0.215	
Other	14	0.025	1.000	0.335	
Total	--	--	--	1.348	0.81

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Initial N_{brdwy}	Proportion of total crashes (f_{dwy})	Adjusted N_{brdwy}	Combined CMFs	Calibration factor, C_r	Predicted N_{brdwy}
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	1.348	1.000	1.348	1.10	1.00	1.489
Fatal and injury (FI)	--	0.323	0.436	1.10	1.00	0.481
Property damage only (PDO)	--	0.677	0.913	1.10	1.00	1.008

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{pedr}	Calibration factor, C_r	Predicted N_{pedr}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	3.718	1.407	1.489	6.614	0.005	1.00	0.033
Fatal and injury (FI)	--	--	--	--	--	1.00	0.033

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{biker}	Calibration factor, C_r	Predicted N_{biker}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	3.718	1.407	1.489	6.614	0.004	1.00	0.026
Fatal and injury (FI)	--	--	--	--	--	1.00	0.026

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	Property damage only (PDO)	Total
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.792	2.049	2.841
Head-on collisions (from Worksheet 1D)	0.074	0.011	0.084
Angle collisions (from Worksheet 1D)	0.092	0.208	0.300
Sideswipe, same direction (from Worksheet 1D)	0.016	0.082	0.098
Sideswipe, opposite direction (from Worksheet 1D)	0.079	0.145	0.224
Driveway-related collisions (from Worksheet 1H)	0.481	1.008	1.489
Other multiple-vehicle collision (from Worksheet 1D)	0.031	0.140	0.171
Subtotal	1.566	3.642	5.208
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.007	0.074	0.081
Collision with fixed object (from Worksheet 1F)	0.205	0.852	1.057
Collision with other object (from Worksheet 1F)	0.003	0.015	0.017
Other single-vehicle collision (from Worksheet 1F)	0.068	0.182	0.250
Collision with pedestrian (from Worksheet 1I)	0.033	0.000	0.033
Collision with bicycle (from Worksheet 1J)	0.026	0.000	0.026
Subtotal	0.343	1.123	1.466
Total	1.909	4.765	6.674

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	6.7	1.42	4.7
Fatal and injury (FI)	1.9	1.42	1.3
Property damage only (PDO)	4.8	1.42	3.4

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	Phillips Rd to Sam Houston Pkwy
Date Performed	10/02/13	Jurisdiction	Westlake, LA
		Analysis Year	2028

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	2U
Length of segment, L (mi)		--	1.72
AADT (veh/day)	$AADT_{MAX}$ = 32,600 (veh/day)	--	16,198
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	5
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	38
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	30
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	18
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.05	1.00	1.00	1.00	1.05

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-15.22	1.68	0.84	4.983	1.000	4.983	1.05	1.00	5.222
Fatal and Injury (FI)	-16.22	1.66	0.65	1.510	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.291	1.450	1.05	1.00	1.519
Property Damage Only (PDO)	-15.62	1.69	0.87	3.680	$(5)_{TOTAL}-(5)_{FI}$ = 0.709	3.533	1.05	1.00	3.703

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	1.519	1.000	3.703	5.222
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.730	1.109	0.778	2.881	3.990
Head-on collision	0.068	0.103	0.004	0.015	0.118
Angle collision	0.085	0.129	0.079	0.293	0.422
Sideswipe, same direction	0.015	0.023	0.031	0.115	0.138
Sideswipe, opposite direction	0.073	0.111	0.055	0.204	0.315
Other multiple-vehicle collision	0.029	0.044	0.053	0.196	0.240

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.47	0.56	0.81	1.649	1.000	1.649	1.05	1.00	1.728
Fatal and Injury (FI)	-3.96	0.23	0.50	0.305	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.194	0.320	1.05	1.00	0.335
Property Damage Only (PDO)	-6.51	0.64	0.87	1.266	$(5)_{TOTAL}-(5)_{FI}$ = 0.806	1.329	1.05	1.00	1.393

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.335	1.000	1.393	1.728
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.026	0.009	0.066	0.092	0.101
Collision with fixed object	0.723	0.242	0.759	1.057	1.300
Collision with other object	0.010	0.003	0.013	0.018	0.021
Other single-vehicle collision	0.241	0.081	0.162	0.226	0.306

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.158	1.000	0.000	
Minor commercial	5	0.050	1.000	0.270	
Major industrial/institutional	0	0.172	1.000	0.000	
Minor industrial/institutional	0	0.023	1.000	0.000	--
Major residential	0	0.083	1.000	0.000	
Minor residential	38	0.016	1.000	0.657	
Other	0	0.025	1.000	0.000	
Total	--	--	--	0.927	0.81

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Initial N_{brdwy}	Proportion of total crashes (f_{dwy})	Adjusted N_{brdwy}	Combined CMFs	Calibration factor, C_r	Predicted N_{brdwy}
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.927	1.000	0.927	1.05	1.00	0.971
Fatal and injury (FI)	--	0.323	0.299	1.05	1.00	0.314
Property damage only (PDO)	--	0.677	0.627	1.05	1.00	0.657

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{pedr}	Calibration factor, C_r	Predicted N_{pedr}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	5.222	1.728	0.971	7.921	0.005	1.00	0.040
Fatal and injury (FI)	--	--	--	--	--	1.00	0.040

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{biker}	Calibration factor, C_r	Predicted N_{biker}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	5.222	1.728	0.971	7.921	0.004	1.00	0.032
Fatal and injury (FI)	--	--	--	--	--	1.00	0.032

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	Property damage only (PDO)	Total
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	1.109	2.881	3.990
Head-on collisions (from Worksheet 1D)	0.103	0.015	0.118
Angle collisions (from Worksheet 1D)	0.129	0.293	0.422
Sideswipe, same direction (from Worksheet 1D)	0.023	0.115	0.138
Sideswipe, opposite direction (from Worksheet 1D)	0.111	0.204	0.315
Driveway-related collisions (from Worksheet 1H)	0.314	0.657	0.971
Other multiple-vehicle collision (from Worksheet 1D)	0.044	0.196	0.240
Subtotal	1.833	4.360	6.193
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.009	0.092	0.101
Collision with fixed object (from Worksheet 1F)	0.242	1.057	1.300
Collision with other object (from Worksheet 1F)	0.003	0.018	0.021
Other single-vehicle collision (from Worksheet 1F)	0.081	0.226	0.306
Collision with pedestrian (from Worksheet 1I)	0.040	0.000	0.040
Collision with bicycle (from Worksheet 1J)	0.032	0.000	0.032
Subtotal	0.407	1.393	1.800
Total	2.240	5.753	7.992

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	8.0	1.72	4.6
Fatal and injury (FI)	2.2	1.72	1.3
Property damage only (PDO)	5.8	1.72	3.3

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	I-10 to McKinley Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative A	Analysis Year	2028

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4U
Length of segment, L (mi)		--	1.03
AADT (veh/day)	$AADT_{MAX}$ = 40,100 (veh/day)	--	22,126
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	26
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	1
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	5
Other driveways (number)		--	8
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	51
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	10
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.13	1.00	1.00	1.00	1.13

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-11.63	1.33	1.01	5.504	1.000	5.504	1.13	1.00	6.202
Fatal and Injury (FI)	-12.08	1.25	0.99	1.576	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.299	1.648	1.13	1.00	1.856
Property Damage Only (PDO)	-12.53	1.38	1.08	3.691	$(5)_{TOTAL}-(5)_{FI}$ = 0.701	3.857	1.13	1.00	4.345

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	1.856	1.000	4.345	6.202
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.511	0.949	0.506	2.199	3.147
Head-on collision	0.077	0.143	0.004	0.017	0.160
Angle collision	0.181	0.336	0.130	0.565	0.901
Sideswipe, same direction	0.093	0.173	0.249	1.082	1.255
Sideswipe, opposite direction	0.082	0.152	0.031	0.135	0.287
Other multiple-vehicle collision	0.056	0.104	0.080	0.348	0.452

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-7.99	0.81	0.91	1.154	1.000	1.154	1.13	1.00	1.300
Fatal and Injury (FI)	-7.37	0.61	0.54	0.290	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.237	0.273	1.13	1.00	0.308
Property Damage Only (PDO)	-8.50	0.84	0.97	0.936	$(5)_{TOTAL}-(5)_{FI}$ = 0.763	0.881	1.13	1.00	0.992

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.308	1.000	0.992	1.300
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.001	0.001	0.001
Collision with fixed object	0.612	0.188	0.809	0.803	0.991
Collision with other object	0.020	0.006	0.029	0.029	0.035
Other single-vehicle collision	0.367	0.113	0.161	0.160	0.273

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.182	1.172	0.000	
Minor commercial	26	0.058	1.172	2.378	
Major industrial/institutional	0	0.198	1.172	0.000	
Minor industrial/institutional	1	0.026	1.172	0.041	--
Major residential	0	0.096	1.172	0.000	
Minor residential	5	0.018	1.172	0.142	
Other	8	0.029	1.172	0.366	
Total	--	--	--	2.927	0.81

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	2.927	1.000	2.927	1.13	1.00	3.298
Fatal and injury (FI)	--	0.342	1.001	1.13	1.00	1.128
Property damage only (PDO)	--	0.658	1.926	1.13	1.00	2.170

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	6.202	1.300	3.298	10.800	0.009	1.00	0.097
Fatal and injury (FI)	--	--	--	--	--	1.00	0.097

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	6.202	1.300	3.298	10.800	0.002	1.00	0.022
Fatal and injury (FI)	--	--	--	--	--	1.00	0.022

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.949	2.199	3.147
Head-on collisions (from Worksheet 1D)	0.143	0.017	0.160
Angle collisions (from Worksheet 1D)	0.336	0.565	0.901
Sideswipe, same direction (from Worksheet 1D)	0.173	1.082	1.255
Sideswipe, opposite direction (from Worksheet 1D)	0.152	0.135	0.287
Driveway-related collisions (from Worksheet 1H)	1.128	2.170	3.298
Other multiple-vehicle collision (from Worksheet 1D)	0.104	0.348	0.452
Subtotal	2.984	6.515	9.499
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 1F)	0.188	0.803	0.991
Collision with other object (from Worksheet 1F)	0.006	0.029	0.035
Other single-vehicle collision (from Worksheet 1F)	0.113	0.160	0.273
Collision with pedestrian (from Worksheet 1I)	0.097	0.000	0.097
Collision with bicycle (from Worksheet 1J)	0.022	0.000	0.022
Subtotal	0.426	0.992	1.419
Total	3.411	7.508	10.918

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	10.9	1.03	10.6
Fatal and injury (FI)	3.4	1.03	3.3
Property damage only (PDO)	7.5	1.03	7.3

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	McKinley Rd to John Stine Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative A	Analysis Year	2028

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	5T
Length of segment, L (mi)		--	1.1
AADT (veh/day)	$AADT_{MAX}$ = 53,800 (veh/day)	--	16,453
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	54
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	9
Other driveways (number)		--	13
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	68
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	10
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.08	1.00	0.94	1.00	1.01

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-9.70	1.17	0.81	5.778	1.000	5.778	1.01	1.00	5.859
Fatal and Injury (FI)	-10.47	1.12	0.62	1.646	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.272	1.570	1.01	1.00	1.593
Property Damage Only (PDO)	-9.97	1.17	0.88	4.410	$(5)_{TOTAL}-(5)_{FI}$ = 0.728	4.207	1.01	1.00	4.266

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	1.593	1.000	4.266	5.859
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.846	1.347	0.651	2.777	4.125
Head-on collision	0.021	0.033	0.004	0.017	0.051
Angle collision	0.050	0.080	0.059	0.252	0.331
Sideswipe, same direction	0.061	0.097	0.248	1.058	1.155
Sideswipe, opposite direction	0.004	0.006	0.009	0.038	0.045
Other multiple-vehicle collision	0.018	0.029	0.029	0.124	0.152

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-4.82	0.54	0.52	1.678	1.000	1.678	1.01	1.00	1.702
Fatal and Injury (FI)	-4.43	0.35	0.36	0.392	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.245	0.412	1.01	1.00	0.417
Property Damage Only (PDO)	-5.83	0.61	0.55	1.206	$(5)_{TOTAL}-(5)_{FI}$ = 0.755	1.267	1.01	1.00	1.285

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.417	1.000	1.285	1.702
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.016	0.007	0.049	0.063	0.070
Collision with fixed object	0.398	0.166	0.768	0.987	1.153
Collision with other object	0.005	0.002	0.061	0.078	0.080
Other single-vehicle collision	0.581	0.243	0.122	0.157	0.399

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.165	1.172	0.000	--
Minor commercial	54	0.053	1.172	3.190	
Major industrial/institutional	0	0.181	1.172	0.000	
Minor industrial/institutional	0	0.024	1.172	0.000	
Major residential	0	0.087	1.172	0.000	
Minor residential	9	0.016	1.172	0.160	
Other	13	0.027	1.172	0.391	
Total	--	--	--	3.741	0.10

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL} * (3)$	(6) from Worksheet 1B		(4)*(5)*(6)
Total	3.741	1.000	3.741	1.01	1.00	3.794
Fatal and injury (FI)	--	0.269	1.006	1.01	1.00	1.021
Property damage only (PDO)	--	0.731	2.735	1.01	1.00	2.773

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	5.859	1.702	3.794	11.355	0.023	1.00	0.261
Fatal and injury (FI)	--	--	--	--	--	1.00	0.261

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	5.859	1.702	3.794	11.355	0.012	1.00	0.136
Fatal and injury (FI)	--	--	--	--	--	1.00	0.136

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	1.347	2.777	4.125
Head-on collisions (from Worksheet 1D)	0.033	0.017	0.051
Angle collisions (from Worksheet 1D)	0.080	0.252	0.331
Sideswipe, same direction (from Worksheet 1D)	0.097	1.058	1.155
Sideswipe, opposite direction (from Worksheet 1D)	0.006	0.038	0.045
Driveway-related collisions (from Worksheet 1H)	1.021	2.773	3.794
Other multiple-vehicle collision (from Worksheet 1D)	0.029	0.124	0.152
Subtotal	2.613	7.040	9.653
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.007	0.063	0.070
Collision with fixed object (from Worksheet 1F)	0.166	0.987	1.153
Collision with other object (from Worksheet 1F)	0.002	0.078	0.080
Other single-vehicle collision (from Worksheet 1F)	0.243	0.157	0.399
Collision with pedestrian (from Worksheet 1I)	0.261	0.000	0.261
Collision with bicycle (from Worksheet 1J)	0.136	0.000	0.136
Subtotal	0.815	1.285	2.099
Total	3.428	8.324	11.752

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	11.8	1.10	10.7
Fatal and injury (FI)	3.4	1.10	3.1
Property damage only (PDO)	8.3	1.10	7.6

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	John Stine Rd to Phillips Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative A	Analysis Year	2028

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	1.42
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	14,376
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	20
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	15
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	1
Minor residential driveways (number)		--	14
Other driveways (number)		--	14
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	41
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	15
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.06	0.99	1.00	1.00	1.05

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	2.802	1.000	2.802	1.05	1.00	2.951
Fatal and Injury (FI)	-12.76	1.28	1.31	0.856	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.288	0.806	1.05	1.00	0.849
Property Damage Only (PDO)	-12.81	1.38	1.34	2.121	$(5)_{TOTAL}-(5)_{FI}$ = 0.712	1.996	1.05	1.00	2.102

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.849	1.000	2.102	2.951
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.706	0.662	1.392	2.098
Head-on collision	0.020	0.017	0.007	0.015	0.032
Angle collision	0.040	0.034	0.036	0.076	0.110
Sideswipe, same direction	0.050	0.042	0.223	0.469	0.511
Sideswipe, opposite direction	0.010	0.008	0.001	0.002	0.011
Other multiple-vehicle collision	0.048	0.041	0.071	0.149	0.190

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.819	1.000	0.819	1.05	1.00	0.862
Fatal and Injury (FI)	-8.71	0.66	0.28	0.130	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.160	0.131	1.05	1.00	0.138
Property Damage Only (PDO)	-5.04	0.45	1.06	0.683	$(5)_{TOTAL}-(5)_{FI}$ = 0.840	0.688	1.05	1.00	0.725

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.138	1.000	0.725	0.862
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.046	0.046
Collision with fixed object	0.500	0.069	0.813	0.589	0.658
Collision with other object	0.028	0.004	0.016	0.012	0.015
Other single-vehicle collision	0.471	0.065	0.108	0.078	0.143

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.033	1.106	0.000	--
Minor commercial	15	0.011	1.106	0.157	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	1	0.018	1.106	0.017	
Minor residential	14	0.003	1.106	0.040	
Other	14	0.005	1.106	0.067	
Total	--	--	--	0.281	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.281	1.000	0.281	1.05	1.00	0.296
Fatal and injury (FI)	--	0.284	0.080	1.05	1.00	0.084
Property damage only (PDO)	--	0.716	0.202	1.05	1.00	0.212

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	2.951	0.862	0.296	4.110	0.019	1.00	0.078
Fatal and injury (FI)	--	--	--	--	--	1.00	0.078

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	2.951	0.862	0.296	4.110	0.005	1.00	0.021
Fatal and injury (FI)	--	--	--	--	--	1.00	0.021

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.706	1.392	2.098
Head-on collisions (from Worksheet 1D)	0.017	0.015	0.032
Angle collisions (from Worksheet 1D)	0.034	0.076	0.110
Sideswipe, same direction (from Worksheet 1D)	0.042	0.469	0.511
Sideswipe, opposite direction (from Worksheet 1D)	0.008	0.002	0.011
Driveway-related collisions (from Worksheet 1H)	0.084	0.212	0.296
Other multiple-vehicle collision (from Worksheet 1D)	0.041	0.149	0.190
Subtotal	0.933	2.315	3.247
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.046	0.046
Collision with fixed object (from Worksheet 1F)	0.069	0.589	0.658
Collision with other object (from Worksheet 1F)	0.004	0.012	0.015
Other single-vehicle collision (from Worksheet 1F)	0.065	0.078	0.143
Collision with pedestrian (from Worksheet 1I)	0.078	0.000	0.078
Collision with bicycle (from Worksheet 1J)	0.021	0.000	0.021
Subtotal	0.236	0.725	0.961
Total	1.169	3.039	4.208

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	4.2	1.42	3.0
Fatal and injury (FI)	1.2	1.42	0.8
Property damage only (PDO)	3.0	1.42	2.1

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	Phillips Rd to Sam Houston Pkwy
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative A	Analysis Year	2028

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	1.72
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	16,198
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	20
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	5
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	38
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	30
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	18
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.03	0.99	1.00	1.00	1.02

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	3.992	1.000	3.992	1.02	1.00	4.068
Fatal and Injury (FI)	-12.76	1.28	1.31	1.208	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.285	1.138	1.02	1.00	1.160
Property Damage Only (PDO)	-12.81	1.38	1.34	3.029	$(5)_{TOTAL}-(5)_{FI}$ = 0.715	2.854	1.02	1.00	2.908

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	1.160	1.000	2.908	4.068
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.965	0.662	1.925	2.890
Head-on collision	0.020	0.023	0.007	0.020	0.044
Angle collision	0.040	0.046	0.036	0.105	0.151
Sideswipe, same direction	0.050	0.058	0.223	0.649	0.707
Sideswipe, opposite direction	0.010	0.012	0.001	0.003	0.015
Other multiple-vehicle collision	0.048	0.056	0.071	0.206	0.262

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	1.049	1.000	1.049	1.02	1.00	1.069
Fatal and Injury (FI)	-8.71	0.66	0.28	0.170	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.163	0.171	1.02	1.00	0.174
Property Damage Only (PDO)	-5.04	0.45	1.06	0.873	$(5)_{TOTAL}-(5)_{FI}$ = 0.837	0.878	1.02	1.00	0.894

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.174	1.000	0.894	1.069
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.056	0.057
Collision with fixed object	0.500	0.087	0.813	0.727	0.814
Collision with other object	0.028	0.005	0.016	0.014	0.019
Other single-vehicle collision	0.471	0.082	0.108	0.097	0.179

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.033	1.106	0.000	--
Minor commercial	5	0.011	1.106	0.060	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	0	0.018	1.106	0.000	
Minor residential	38	0.003	1.106	0.124	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.184	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Initial N_{brdwy}	Proportion of total crashes (f_{dwy})	Adjusted N_{brdwy}	Combined CMFs	Calibration factor, C_r	Predicted N_{brdwy}
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.184	1.000	0.184	1.02	1.00	0.187
Fatal and injury (FI)	--	0.284	0.052	1.02	1.00	0.053
Property damage only (PDO)	--	0.716	0.132	1.02	1.00	0.134

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{pedr}	Calibration factor, C_r	Predicted N_{pedr}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	4.068	1.069	0.187	5.324	0.019	1.00	0.101
Fatal and injury (FI)	--	--	--	--	--	1.00	0.101

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{biker}	Calibration factor, C_r	Predicted N_{biker}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	4.068	1.069	0.187	5.324	0.005	1.00	0.027
Fatal and injury (FI)	--	--	--	--	--	1.00	0.027

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	Property damage only (PDO)	Total
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.965	1.925	2.890
Head-on collisions (from Worksheet 1D)	0.023	0.020	0.044
Angle collisions (from Worksheet 1D)	0.046	0.105	0.151
Sideswipe, same direction (from Worksheet 1D)	0.058	0.649	0.707
Sideswipe, opposite direction (from Worksheet 1D)	0.012	0.003	0.015
Driveway-related collisions (from Worksheet 1H)	0.053	0.134	0.187
Other multiple-vehicle collision (from Worksheet 1D)	0.056	0.206	0.262
Subtotal	1.213	3.042	4.255
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.056	0.057
Collision with fixed object (from Worksheet 1F)	0.087	0.727	0.814
Collision with other object (from Worksheet 1F)	0.005	0.014	0.019
Other single-vehicle collision (from Worksheet 1F)	0.082	0.097	0.179
Collision with pedestrian (from Worksheet 1I)	0.101	0.000	0.101
Collision with bicycle (from Worksheet 1J)	0.027	0.000	0.027
Subtotal	0.302	0.894	1.197
Total	1.515	3.937	5.452

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	5.5	1.72	3.2
Fatal and injury (FI)	1.5	1.72	0.9
Property damage only (PDO)	3.9	1.72	2.3

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	I-10 to McKinley Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative B	Analysis Year	2028

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	1.03
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	22,126
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	26
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	1
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	5
Other driveways (number)		--	8
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	51
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	10
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.12	1.01	1.00	1.00	1.13

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	3.654	1.000	3.654	1.13	1.00	4.145
Fatal and Injury (FI)	-12.76	1.28	1.31	1.078	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.279	1.019	1.13	1.00	1.156
Property Damage Only (PDO)	-12.81	1.38	1.34	2.789	$(5)_{TOTAL}-(5)_{FI}$ = 0.721	2.635	1.13	1.00	2.989

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	1.156	1.000	2.989	4.145
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.961	0.662	1.979	2.940
Head-on collision	0.020	0.023	0.007	0.021	0.044
Angle collision	0.040	0.046	0.036	0.108	0.154
Sideswipe, same direction	0.050	0.058	0.223	0.667	0.724
Sideswipe, opposite direction	0.010	0.012	0.001	0.003	0.015
Other multiple-vehicle collision	0.048	0.055	0.071	0.212	0.268

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.727	1.000	0.727	1.13	1.00	0.825
Fatal and Injury (FI)	-8.71	0.66	0.28	0.125	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.172	0.125	1.13	1.00	0.142
Property Damage Only (PDO)	-5.04	0.45	1.06	0.601	$(5)_{TOTAL}-(5)_{FI}$ = 0.828	0.602	1.13	1.00	0.683

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.142	1.000	0.683	0.825
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.043	0.043
Collision with fixed object	0.500	0.071	0.813	0.555	0.626
Collision with other object	0.028	0.004	0.016	0.011	0.015
Other single-vehicle collision	0.471	0.067	0.108	0.074	0.141

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.033	1.106	0.000	
Minor commercial	26	0.011	1.106	0.440	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	1	0.005	1.106	0.008	--
Major residential	0	0.018	1.106	0.000	
Minor residential	5	0.003	1.106	0.023	
Other	8	0.005	1.106	0.061	
Total	--	--	--	0.532	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Initial N_{brdwy}	Proportion of total crashes (f_{dwy})	Adjusted N_{brdwy}	Combined CMFs	Calibration factor, C_r	Predicted N_{brdwy}
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.532	1.000	0.532	1.13	1.00	0.603
Fatal and injury (FI)	--	0.284	0.151	1.13	1.00	0.171
Property damage only (PDO)	--	0.716	0.381	1.13	1.00	0.432

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{pedr}	Calibration factor, C_r	Predicted N_{pedr}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	4.145	0.825	0.603	5.573	0.019	1.00	0.106
Fatal and injury (FI)	--	--	--	--	--	1.00	0.106

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{biker}	Calibration factor, C_r	Predicted N_{biker}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	4.145	0.825	0.603	5.573	0.005	1.00	0.028
Fatal and injury (FI)	--	--	--	--	--	1.00	0.028

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	Property damage only (PDO)	Total
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.961	1.979	2.940
Head-on collisions (from Worksheet 1D)	0.023	0.021	0.044
Angle collisions (from Worksheet 1D)	0.046	0.108	0.154
Sideswipe, same direction (from Worksheet 1D)	0.058	0.667	0.724
Sideswipe, opposite direction (from Worksheet 1D)	0.012	0.003	0.015
Driveway-related collisions (from Worksheet 1H)	0.171	0.432	0.603
Other multiple-vehicle collision (from Worksheet 1D)	0.055	0.212	0.268
Subtotal	1.327	3.421	4.748
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.043	0.043
Collision with fixed object (from Worksheet 1F)	0.071	0.555	0.626
Collision with other object (from Worksheet 1F)	0.004	0.011	0.015
Other single-vehicle collision (from Worksheet 1F)	0.067	0.074	0.141
Collision with pedestrian (from Worksheet 1I)	0.106	0.000	0.106
Collision with bicycle (from Worksheet 1J)	0.028	0.000	0.028
Subtotal	0.276	0.683	0.959
Total	1.603	4.104	5.707

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	5.7	1.03	5.5
Fatal and injury (FI)	1.6	1.03	1.6
Property damage only (PDO)	4.1	1.03	4.0

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	McKinley Rd to John Stine Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative B	Analysis Year	2028

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	1.1
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	16,453
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	54
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	9
Other driveways (number)		--	13
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	68
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	10
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.18	1.01	0.91	1.00	1.09

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	2.608	1.000	2.608	1.09	1.00	2.832
Fatal and Injury (FI)	-12.76	1.28	1.31	0.788	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.285	0.743	1.09	1.00	0.806
Property Damage Only (PDO)	-12.81	1.38	1.34	1.979	$(5)_{TOTAL}-(5)_{FI}$ = 0.715	1.865	1.09	1.00	2.025

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.806	1.000	2.025	2.832
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.671	0.662	1.341	2.012
Head-on collision	0.020	0.016	0.007	0.014	0.030
Angle collision	0.040	0.032	0.036	0.073	0.105
Sideswipe, same direction	0.050	0.040	0.223	0.452	0.492
Sideswipe, opposite direction	0.010	0.008	0.001	0.002	0.010
Other multiple-vehicle collision	0.048	0.039	0.071	0.144	0.182

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.676	1.000	0.676	1.09	1.00	0.734
Fatal and Injury (FI)	-8.71	0.66	0.28	0.110	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.164	0.111	1.09	1.00	0.120
Property Damage Only (PDO)	-5.04	0.45	1.06	0.562	$(5)_{TOTAL}-(5)_{FI}$ = 0.836	0.565	1.09	1.00	0.614

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.120	1.000	0.614	0.734
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.039	0.039
Collision with fixed object	0.500	0.060	0.813	0.499	0.559
Collision with other object	0.028	0.003	0.016	0.010	0.013
Other single-vehicle collision	0.471	0.057	0.108	0.066	0.123

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_i * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	--
Minor commercial	54	0.011	1.106	0.658	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	0	0.018	1.106	0.000	
Minor residential	9	0.003	1.106	0.030	
Other	13	0.005	1.106	0.072	
Total	--	--	--	0.760	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Initial N_{brdwy}	Proportion of total crashes (f_{dwy})	Adjusted N_{brdwy}	Combined CMFs	Calibration factor, C_r	Predicted N_{brdwy}
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL} * (3)$	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.760	1.000	0.760	1.09	1.00	0.825
Fatal and injury (FI)	--	0.284	0.216	1.09	1.00	0.234
Property damage only (PDO)	--	0.716	0.544	1.09	1.00	0.591

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{pedr}	Calibration factor, C_r	Predicted N_{pedr}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	2.832	0.734	0.825	4.390	0.019	1.00	0.083
Fatal and injury (FI)	--	--	--	--	--	1.00	0.083

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{biker}	Calibration factor, C_r	Predicted N_{biker}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	2.832	0.734	0.825	4.390	0.005	1.00	0.022
Fatal and injury (FI)	--	--	--	--	--	1.00	0.022

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	Property damage only (PDO)	Total
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.671	1.341	2.012
Head-on collisions (from Worksheet 1D)	0.016	0.014	0.030
Angle collisions (from Worksheet 1D)	0.032	0.073	0.105
Sideswipe, same direction (from Worksheet 1D)	0.040	0.452	0.492
Sideswipe, opposite direction (from Worksheet 1D)	0.008	0.002	0.010
Driveway-related collisions (from Worksheet 1H)	0.234	0.591	0.825
Other multiple-vehicle collision (from Worksheet 1D)	0.039	0.144	0.182
Subtotal	1.041	2.616	3.657
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.039	0.039
Collision with fixed object (from Worksheet 1F)	0.060	0.499	0.559
Collision with other object (from Worksheet 1F)	0.003	0.010	0.013
Other single-vehicle collision (from Worksheet 1F)	0.057	0.066	0.123
Collision with pedestrian (from Worksheet 1I)	0.083	0.000	0.083
Collision with bicycle (from Worksheet 1J)	0.022	0.000	0.022
Subtotal	0.225	0.614	0.839
Total	1.266	3.230	4.496

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	4.5	1.10	4.1
Fatal and injury (FI)	1.3	1.10	1.2
Property damage only (PDO)	3.2	1.10	2.9

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	BDP	Roadway	LA 378
Agency or Company	USI	Roadway Section	John Stine Rd to Phillips Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative B	Analysis Year	2028

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	1.42
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	14,376
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	20
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	15
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	1
Minor residential driveways (number)		--	14
Other driveways (number)		--	14
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	41
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	15
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.06	0.99	1.00	1.00	1.05

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	2.802	1.000	2.802	1.05	1.00	2.951
Fatal and Injury (FI)	-12.76	1.28	1.31	0.856	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.288	0.806	1.05	1.00	0.849
Property Damage Only (PDO)	-12.81	1.38	1.34	2.121	$(5)_{TOTAL}-(5)_{FI}$ = 0.712	1.996	1.05	1.00	2.102

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.849	1.000	2.102	2.951
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.706	0.662	1.392	2.098
Head-on collision	0.020	0.017	0.007	0.015	0.032
Angle collision	0.040	0.034	0.036	0.076	0.110
Sideswipe, same direction	0.050	0.042	0.223	0.469	0.511
Sideswipe, opposite direction	0.010	0.008	0.001	0.002	0.011
Other multiple-vehicle collision	0.048	0.041	0.071	0.149	0.190

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.819	1.000	0.819	1.05	1.00	0.862
Fatal and Injury (FI)	-8.71	0.66	0.28	0.130	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.160	0.131	1.05	1.00	0.138
Property Damage Only (PDO)	-5.04	0.45	1.06	0.683	$(5)_{TOTAL}-(5)_{FI}$ = 0.840	0.688	1.05	1.00	0.725

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.138	1.000	0.725	0.862
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.046	0.046
Collision with fixed object	0.500	0.069	0.813	0.589	0.658
Collision with other object	0.028	0.004	0.016	0.012	0.015
Other single-vehicle collision	0.471	0.065	0.108	0.078	0.143

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.033	1.106	0.000	--
Minor commercial	15	0.011	1.106	0.157	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	1	0.018	1.106	0.017	
Minor residential	14	0.003	1.106	0.040	
Other	14	0.005	1.106	0.067	
Total	--	--	--	0.281	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.281	1.000	0.281	1.05	1.00	0.296
Fatal and injury (FI)	--	0.284	0.080	1.05	1.00	0.084
Property damage only (PDO)	--	0.716	0.202	1.05	1.00	0.212

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	2.951	0.862	0.296	4.110	0.019	1.00	0.078
Fatal and injury (FI)	--	--	--	--	--	1.00	0.078

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	2.951	0.862	0.296	4.110	0.005	1.00	0.021
Fatal and injury (FI)	--	--	--	--	--	1.00	0.021

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.706	1.392	2.098
Head-on collisions (from Worksheet 1D)	0.017	0.015	0.032
Angle collisions (from Worksheet 1D)	0.034	0.076	0.110
Sideswipe, same direction (from Worksheet 1D)	0.042	0.469	0.511
Sideswipe, opposite direction (from Worksheet 1D)	0.008	0.002	0.011
Driveway-related collisions (from Worksheet 1H)	0.084	0.212	0.296
Other multiple-vehicle collision (from Worksheet 1D)	0.041	0.149	0.190
Subtotal	0.933	2.315	3.247
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.046	0.046
Collision with fixed object (from Worksheet 1F)	0.069	0.589	0.658
Collision with other object (from Worksheet 1F)	0.004	0.012	0.015
Other single-vehicle collision (from Worksheet 1F)	0.065	0.078	0.143
Collision with pedestrian (from Worksheet 1I)	0.078	0.000	0.078
Collision with bicycle (from Worksheet 1J)	0.021	0.000	0.021
Subtotal	0.236	0.725	0.961
Total	1.169	3.039	4.208

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	4.2	1.42	3.0
Fatal and injury (FI)	1.2	1.42	0.8
Property damage only (PDO)	3.0	1.42	2.1

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	Phillips Rd to Sam Houston Pkwy
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative B	Analysis Year	2028

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	1.72
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	16,198
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	20
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	5
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	38
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	30
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	18
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.03	0.99	1.00	1.00	1.02

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	3.992	1.000	3.992	1.02	1.00	4.068
Fatal and Injury (FI)	-12.76	1.28	1.31	1.208	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.285	1.138	1.02	1.00	1.160
Property Damage Only (PDO)	-12.81	1.38	1.34	3.029	$(5)_{TOTAL}-(5)_{FI}$ = 0.715	2.854	1.02	1.00	2.908

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	1.160	1.000	2.908	4.068
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.965	0.662	1.925	2.890
Head-on collision	0.020	0.023	0.007	0.020	0.044
Angle collision	0.040	0.046	0.036	0.105	0.151
Sideswipe, same direction	0.050	0.058	0.223	0.649	0.707
Sideswipe, opposite direction	0.010	0.012	0.001	0.003	0.015
Other multiple-vehicle collision	0.048	0.056	0.071	0.206	0.262

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	1.049	1.000	1.049	1.02	1.00	1.069
Fatal and Injury (FI)	-8.71	0.66	0.28	0.170	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.163	0.171	1.02	1.00	0.174
Property Damage Only (PDO)	-5.04	0.45	1.06	0.873	$(5)_{TOTAL}-(5)_{FI}$ = 0.837	0.878	1.02	1.00	0.894

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.174	1.000	0.894	1.069
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.056	0.057
Collision with fixed object	0.500	0.087	0.813	0.727	0.814
Collision with other object	0.028	0.005	0.016	0.014	0.019
Other single-vehicle collision	0.471	0.082	0.108	0.097	0.179

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.033	1.106	0.000	--
Minor commercial	5	0.011	1.106	0.060	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	0	0.018	1.106	0.000	
Minor residential	38	0.003	1.106	0.124	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.184	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Initial N_{brdwy}	Proportion of total crashes (f_{dwy})	Adjusted N_{brdwy}	Combined CMFs	Calibration factor, C_r	Predicted N_{brdwy}
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.184	1.000	0.184	1.02	1.00	0.187
Fatal and injury (FI)	--	0.284	0.052	1.02	1.00	0.053
Property damage only (PDO)	--	0.716	0.132	1.02	1.00	0.134

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{pedr}	Calibration factor, C_r	Predicted N_{pedr}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	4.068	1.069	0.187	5.324	0.019	1.00	0.101
Fatal and injury (FI)	--	--	--	--	--	1.00	0.101

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{biker}	Calibration factor, C_r	Predicted N_{biker}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	4.068	1.069	0.187	5.324	0.005	1.00	0.027
Fatal and injury (FI)	--	--	--	--	--	1.00	0.027

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	Property damage only (PDO)	Total
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.965	1.925	2.890
Head-on collisions (from Worksheet 1D)	0.023	0.020	0.044
Angle collisions (from Worksheet 1D)	0.046	0.105	0.151
Sideswipe, same direction (from Worksheet 1D)	0.058	0.649	0.707
Sideswipe, opposite direction (from Worksheet 1D)	0.012	0.003	0.015
Driveway-related collisions (from Worksheet 1H)	0.053	0.134	0.187
Other multiple-vehicle collision (from Worksheet 1D)	0.056	0.206	0.262
Subtotal	1.213	3.042	4.255
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.056	0.057
Collision with fixed object (from Worksheet 1F)	0.087	0.727	0.814
Collision with other object (from Worksheet 1F)	0.005	0.014	0.019
Other single-vehicle collision (from Worksheet 1F)	0.082	0.097	0.179
Collision with pedestrian (from Worksheet 1I)	0.101	0.000	0.101
Collision with bicycle (from Worksheet 1J)	0.027	0.000	0.027
Subtotal	0.302	0.894	1.197
Total	1.515	3.937	5.452

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	5.5	1.72	3.2
Fatal and injury (FI)	1.5	1.72	0.9
Property damage only (PDO)	3.9	1.72	2.3

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	I-10 to McKinley Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative C	Analysis Year	2028

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	1.03
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	22,126
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	26
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	1
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	5
Other driveways (number)		--	8
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	51
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	10
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.12	1.01	1.00	1.00	1.13

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	3.654	1.000	3.654	1.13	1.00	4.145
Fatal and Injury (FI)	-12.76	1.28	1.31	1.078	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.279	1.019	1.13	1.00	1.156
Property Damage Only (PDO)	-12.81	1.38	1.34	2.789	$(5)_{TOTAL}-(5)_{FI}$ = 0.721	2.635	1.13	1.00	2.989

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	1.156	1.000	2.989	4.145
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.961	0.662	1.979	2.940
Head-on collision	0.020	0.023	0.007	0.021	0.044
Angle collision	0.040	0.046	0.036	0.108	0.154
Sideswipe, same direction	0.050	0.058	0.223	0.667	0.724
Sideswipe, opposite direction	0.010	0.012	0.001	0.003	0.015
Other multiple-vehicle collision	0.048	0.055	0.071	0.212	0.268

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.727	1.000	0.727	1.13	1.00	0.825
Fatal and Injury (FI)	-8.71	0.66	0.28	0.125	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.172	0.125	1.13	1.00	0.142
Property Damage Only (PDO)	-5.04	0.45	1.06	0.601	$(5)_{TOTAL}-(5)_{FI}$ = 0.828	0.602	1.13	1.00	0.683

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.142	1.000	0.683	0.825
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.043	0.043
Collision with fixed object	0.500	0.071	0.813	0.555	0.626
Collision with other object	0.028	0.004	0.016	0.011	0.015
Other single-vehicle collision	0.471	0.067	0.108	0.074	0.141

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.033	1.106	0.000	
Minor commercial	26	0.011	1.106	0.440	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	1	0.005	1.106	0.008	--
Major residential	0	0.018	1.106	0.000	
Minor residential	5	0.003	1.106	0.023	
Other	8	0.005	1.106	0.061	
Total	--	--	--	0.532	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Initial N_{brdwy}	Proportion of total crashes (f_{dwy})	Adjusted N_{brdwy}	Combined CMFs	Calibration factor, C_r	Predicted N_{brdwy}
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.532	1.000	0.532	1.13	1.00	0.603
Fatal and injury (FI)	--	0.284	0.151	1.13	1.00	0.171
Property damage only (PDO)	--	0.716	0.381	1.13	1.00	0.432

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{pedr}	Calibration factor, C_r	Predicted N_{pedr}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	4.145	0.825	0.603	5.573	0.019	1.00	0.106
Fatal and injury (FI)	--	--	--	--	--	1.00	0.106

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{biker}	Calibration factor, C_r	Predicted N_{biker}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	4.145	0.825	0.603	5.573	0.005	1.00	0.028
Fatal and injury (FI)	--	--	--	--	--	1.00	0.028

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	Property damage only (PDO)	Total
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.961	1.979	2.940
Head-on collisions (from Worksheet 1D)	0.023	0.021	0.044
Angle collisions (from Worksheet 1D)	0.046	0.108	0.154
Sideswipe, same direction (from Worksheet 1D)	0.058	0.667	0.724
Sideswipe, opposite direction (from Worksheet 1D)	0.012	0.003	0.015
Driveway-related collisions (from Worksheet 1H)	0.171	0.432	0.603
Other multiple-vehicle collision (from Worksheet 1D)	0.055	0.212	0.268
Subtotal	1.327	3.421	4.748
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.043	0.043
Collision with fixed object (from Worksheet 1F)	0.071	0.555	0.626
Collision with other object (from Worksheet 1F)	0.004	0.011	0.015
Other single-vehicle collision (from Worksheet 1F)	0.067	0.074	0.141
Collision with pedestrian (from Worksheet 1I)	0.106	0.000	0.106
Collision with bicycle (from Worksheet 1J)	0.028	0.000	0.028
Subtotal	0.276	0.683	0.959
Total	1.603	4.104	5.707

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	5.7	1.03	5.5
Fatal and injury (FI)	1.6	1.03	1.6
Property damage only (PDO)	4.1	1.03	4.0

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	McKinley Rd to John Stine Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative C	Analysis Year	2028

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	1.1
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	16,453
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	54
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	9
Other driveways (number)		--	13
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	68
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	10
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.18	1.01	0.91	1.00	1.09

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	2.608	1.000	2.608	1.09	1.00	2.832
Fatal and Injury (FI)	-12.76	1.28	1.31	0.788	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.285	0.743	1.09	1.00	0.806
Property Damage Only (PDO)	-12.81	1.38	1.34	1.979	$(5)_{TOTAL}-(5)_{FI}$ = 0.715	1.865	1.09	1.00	2.025

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.806	1.000	2.025	2.832
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.671	0.662	1.341	2.012
Head-on collision	0.020	0.016	0.007	0.014	0.030
Angle collision	0.040	0.032	0.036	0.073	0.105
Sideswipe, same direction	0.050	0.040	0.223	0.452	0.492
Sideswipe, opposite direction	0.010	0.008	0.001	0.002	0.010
Other multiple-vehicle collision	0.048	0.039	0.071	0.144	0.182

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.676	1.000	0.676	1.09	1.00	0.734
Fatal and Injury (FI)	-8.71	0.66	0.28	0.110	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.164	0.111	1.09	1.00	0.120
Property Damage Only (PDO)	-5.04	0.45	1.06	0.562	$(5)_{TOTAL}-(5)_{FI}$ = 0.836	0.565	1.09	1.00	0.614

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.120	1.000	0.614	0.734
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.039	0.039
Collision with fixed object	0.500	0.060	0.813	0.499	0.559
Collision with other object	0.028	0.003	0.016	0.010	0.013
Other single-vehicle collision	0.471	0.057	0.108	0.066	0.123

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_i * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	--
Minor commercial	54	0.011	1.106	0.658	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	0	0.018	1.106	0.000	
Minor residential	9	0.003	1.106	0.030	
Other	13	0.005	1.106	0.072	
Total	--	--	--	0.760	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	Initial N_{brdwy}	Proportion of total crashes (f_{dwy})	Adjusted N_{brdwy}	Combined CMFs	Calibration factor, C_r	Predicted N_{brdwy}
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL} * (3)$	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.760	1.000	0.760	1.09	1.00	0.825
Fatal and injury (FI)	--	0.284	0.216	1.09	1.00	0.234
Property damage only (PDO)	--	0.716	0.544	1.09	1.00	0.591

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{pedr}	Calibration factor, C_r	Predicted N_{pedr}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	2.832	0.734	0.825	4.390	0.019	1.00	0.083
Fatal and injury (FI)	--	--	--	--	--	1.00	0.083

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	Predicted N_{brmv}	Predicted N_{brsv}	Predicted N_{brdwy}	Predicted N_{br}	f_{biker}	Calibration factor, C_r	Predicted N_{biker}
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	2.832	0.734	0.825	4.390	0.005	1.00	0.022
Fatal and injury (FI)	--	--	--	--	--	1.00	0.022

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	Property damage only (PDO)	Total
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.671	1.341	2.012
Head-on collisions (from Worksheet 1D)	0.016	0.014	0.030
Angle collisions (from Worksheet 1D)	0.032	0.073	0.105
Sideswipe, same direction (from Worksheet 1D)	0.040	0.452	0.492
Sideswipe, opposite direction (from Worksheet 1D)	0.008	0.002	0.010
Driveway-related collisions (from Worksheet 1H)	0.234	0.591	0.825
Other multiple-vehicle collision (from Worksheet 1D)	0.039	0.144	0.182
Subtotal	1.041	2.616	3.657
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.039	0.039
Collision with fixed object (from Worksheet 1F)	0.060	0.499	0.559
Collision with other object (from Worksheet 1F)	0.003	0.010	0.013
Other single-vehicle collision (from Worksheet 1F)	0.057	0.066	0.123
Collision with pedestrian (from Worksheet 1I)	0.083	0.000	0.083
Collision with bicycle (from Worksheet 1J)	0.022	0.000	0.022
Subtotal	0.225	0.614	0.839
Total	1.266	3.230	4.496

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	4.5	1.10	4.1
Fatal and injury (FI)	1.3	1.10	1.2
Property damage only (PDO)	3.2	1.10	2.9

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	John Stine Rd to Phillips Rd
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative C	Analysis Year	2028

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	1.42
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	14,376
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	20
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	15
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	1
Minor residential driveways (number)		--	14
Other driveways (number)		--	14
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	41
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	15
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.06	0.99	1.00	1.00	1.05

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	2.802	1.000	2.802	1.05	1.00	2.951
Fatal and Injury (FI)	-12.76	1.28	1.31	0.856	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.288	0.806	1.05	1.00	0.849
Property Damage Only (PDO)	-12.81	1.38	1.34	2.121	$(5)_{TOTAL}-(5)_{FI}$ = 0.712	1.996	1.05	1.00	2.102

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.849	1.000	2.102	2.951
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.706	0.662	1.392	2.098
Head-on collision	0.020	0.017	0.007	0.015	0.032
Angle collision	0.040	0.034	0.036	0.076	0.110
Sideswipe, same direction	0.050	0.042	0.223	0.469	0.511
Sideswipe, opposite direction	0.010	0.008	0.001	0.002	0.011
Other multiple-vehicle collision	0.048	0.041	0.071	0.149	0.190

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.819	1.000	0.819	1.05	1.00	0.862
Fatal and Injury (FI)	-8.71	0.66	0.28	0.130	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.160	0.131	1.05	1.00	0.138
Property Damage Only (PDO)	-5.04	0.45	1.06	0.683	$(5)_{TOTAL}-(5)_{FI}$ = 0.840	0.688	1.05	1.00	0.725

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.138	1.000	0.725	0.862
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.046	0.046
Collision with fixed object	0.500	0.069	0.813	0.589	0.658
Collision with other object	0.028	0.004	0.016	0.012	0.015
Other single-vehicle collision	0.471	0.065	0.108	0.078	0.143

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.033	1.106	0.000	--
Minor commercial	15	0.011	1.106	0.157	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	1	0.018	1.106	0.017	
Minor residential	14	0.003	1.106	0.040	
Other	14	0.005	1.106	0.067	
Total	--	--	--	0.281	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.281	1.000	0.281	1.05	1.00	0.296
Fatal and injury (FI)	--	0.284	0.080	1.05	1.00	0.084
Property damage only (PDO)	--	0.716	0.202	1.05	1.00	0.212

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	2.951	0.862	0.296	4.110	0.019	1.00	0.078
Fatal and injury (FI)	--	--	--	--	--	1.00	0.078

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	2.951	0.862	0.296	4.110	0.005	1.00	0.021
Fatal and injury (FI)	--	--	--	--	--	1.00	0.021

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.706	1.392	2.098
Head-on collisions (from Worksheet 1D)	0.017	0.015	0.032
Angle collisions (from Worksheet 1D)	0.034	0.076	0.110
Sideswipe, same direction (from Worksheet 1D)	0.042	0.469	0.511
Sideswipe, opposite direction (from Worksheet 1D)	0.008	0.002	0.011
Driveway-related collisions (from Worksheet 1H)	0.084	0.212	0.296
Other multiple-vehicle collision (from Worksheet 1D)	0.041	0.149	0.190
Subtotal	0.933	2.315	3.247
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.046	0.046
Collision with fixed object (from Worksheet 1F)	0.069	0.589	0.658
Collision with other object (from Worksheet 1F)	0.004	0.012	0.015
Other single-vehicle collision (from Worksheet 1F)	0.065	0.078	0.143
Collision with pedestrian (from Worksheet 1I)	0.078	0.000	0.078
Collision with bicycle (from Worksheet 1J)	0.021	0.000	0.021
Subtotal	0.236	0.725	0.961
Total	1.169	3.039	4.208

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	4.2	1.42	3.0
Fatal and injury (FI)	1.2	1.42	0.8
Property damage only (PDO)	3.0	1.42	2.1

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	DMF	Roadway	LA 378
Agency or Company	USI	Roadway Section	Phillips Rd to Sam Houston Pkwy
Date Performed	10/02/13	Jurisdiction	Westlake, LA
	Alternative C	Analysis Year	2028

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	1.56
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	16,198
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	20
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	15
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	18
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.00	0.99	1.00	1.00	0.99

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	3.621	1.000	3.621	0.99	1.00	3.585
Fatal and Injury (FI)	-12.76	1.28	1.31	1.096	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.285	1.032	0.99	1.00	1.022
Property Damage Only (PDO)	-12.81	1.38	1.34	2.747	$(5)_{TOTAL}-(5)_{FI}$ = 0.715	2.588	0.99	1.00	2.563

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	1.022	1.000	2.563	3.585
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.850	0.662	1.696	2.547
Head-on collision	0.020	0.020	0.007	0.018	0.038
Angle collision	0.040	0.041	0.036	0.092	0.133
Sideswipe, same direction	0.050	0.051	0.223	0.571	0.623
Sideswipe, opposite direction	0.010	0.010	0.001	0.003	0.013
Other multiple-vehicle collision	0.048	0.049	0.071	0.182	0.231

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.951	1.000	0.951	0.99	1.00	0.942
Fatal and Injury (FI)	-8.71	0.66	0.28	0.154	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.163	0.155	0.99	1.00	0.154
Property Damage Only (PDO)	-5.04	0.45	1.06	0.792	$(5)_{TOTAL}-(5)_{FI}$ = 0.837	0.796	0.99	1.00	0.788

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.154	1.000	0.788	0.942
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.050	0.050
Collision with fixed object	0.500	0.077	0.813	0.641	0.718
Collision with other object	0.028	0.004	0.016	0.013	0.017
Other single-vehicle collision	0.471	0.072	0.108	0.085	0.158

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)

Driveway Type	Number of driveways, n_j	Crashes per driveway per year, N_i	Coefficient for traffic adjustment, t	Initial N_{brdwy}	Overdispersion parameter, k
		from Table 12-7	from Table 12-7	Equation 12-16	from Table 12-7
				$n_j * N_i * (AADT/15,000)^t$	
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL} * (3)$	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	0.99	1.00	0.000
Fatal and injury (FI)	--	0.284	0.000	0.99	1.00	0.000
Property damage only (PDO)	--	0.716	0.000	0.99	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	3.585	0.942	0.000	4.526	0.019	1.00	0.086
Fatal and injury (FI)	--	--	--	--	--	1.00	0.086

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	3.585	0.942	0.000	4.526	0.005	1.00	0.023
Fatal and injury (FI)	--	--	--	--	--	1.00	0.023

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and

	(8) from Worksheet 1I and 1J		(8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.850	1.696	2.547
Head-on collisions (from Worksheet 1D)	0.020	0.018	0.038
Angle collisions (from Worksheet 1D)	0.041	0.092	0.133
Sideswipe, same direction (from Worksheet 1D)	0.051	0.571	0.623
Sideswipe, opposite direction (from Worksheet 1D)	0.010	0.003	0.013
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.049	0.182	0.231
Subtotal	1.022	2.563	3.585
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.050	0.050
Collision with fixed object (from Worksheet 1F)	0.077	0.641	0.718
Collision with other object (from Worksheet 1F)	0.004	0.013	0.017
Other single-vehicle collision (from Worksheet 1F)	0.072	0.085	0.158
Collision with pedestrian (from Worksheet 1I)	0.086	0.000	0.086
Collision with bicycle (from Worksheet 1J)	0.023	0.000	0.023
Subtotal	0.262	0.788	1.051
Total	1.284	3.351	4.635

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	4.6	1.56	3.0
Fatal and injury (FI)	1.3	1.56	0.8
Property damage only (PDO)	3.4	1.56	2.1