



**Appendix A – Technical Reports**

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**LA 2 I Widening Environmental Assessment**

State Project No. 736-52-0043

Federal Aid Project No. STP 5204 (508)

RPC Project No. 0043-ST

# **Al. Air Quality and Traffic Noise Analysis**

# **Air Quality and Traffic Noise Analysis Technical Report**

**LA21 Widening**  
***From Bootlegger Road to W. 11<sup>th</sup> Avenue***

**Covington, Louisiana**  
**St. Tammany Parish**

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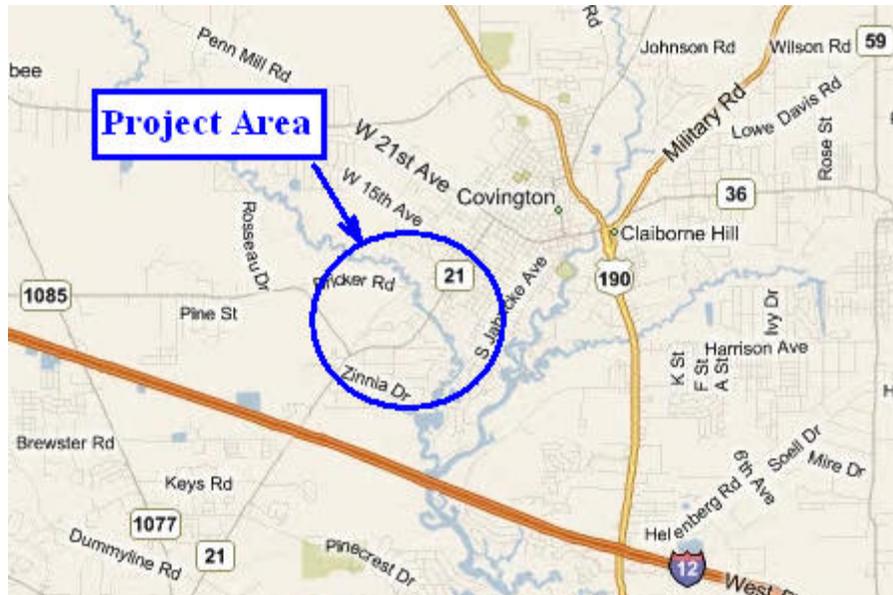
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*1.0 INTRODUCTION*

This report documents the results of an analysis of the air quality and noise impacts of the widening of LA21, between Bootlegger Road (LA1085) and W 11<sup>th</sup> Avenue in Covington, Louisiana located within St. Tammany Parish. Figure 1 shows the general project area. Figure 2 shows the proposed LA21 alignment.



*Figure 1: Project Area*



**Figure 2. Proposed LA21 Alignment**

0 350 ft 700 ft.

## **2.0 AIR QUALITY EVALUATION**

### **2.1 Carbon Monoxide Analysis**

Transportation projects have the potential to affect air quality by changing the number of vehicles at specific locations. Tailpipe emissions from vehicles could result in increases in ambient concentrations of carbon monoxide (CO) near the project.

Carbon monoxide (CO) is a colorless, odorless gas that interferes with the delivery of oxygen to a person's organs and tissues. The health effects of CO exposure depend on the duration and intensity of exposure as well as a person's health. CO concentrations are usually higher during the winter months because vehicles emit higher CO emissions in cold weather due to the characteristics of internal combustion engines. The National Ambient Air Quality Standard (NAAQS) for CO include a one-hour standard of 35 parts per million (ppm) and an eight-hour standard of 9 ppm.

The state of Louisiana is in attainment statewide for CO. Past project-level CO "hot spot" analyses on similar projects have revealed no violations of the NAAQS. Carbon monoxide (CO) concentrations are not anticipated to cause or contribute to an exceedance of the CO NAAQS.

### **2.2 Transportation Conformity**

Transportation conformity is a process required of Metropolitan Planning Organizations (MPOs) pursuant to the Clean Air Act Amendments of 1990 (CAAA of 1990) to ensure that Federal funding and approval are given to those transportation activities that are consistent with air quality goals. CAAA require that transportation plans, programs, and projects in nonattainment or maintenance areas that are funded or approved by the Federal Highway Administration (FHWA) be in conformity with the State Implementation Plan (SIP) which represents the State's plan to either achieve or maintain the NAAQS for a particular pollutant.

The proposed project is not currently located in a nonattainment or maintenance area, so conformity does not apply to this project.

### **2.3 PM 2.5**

The New Orleans Regional Planning Commission area is an attainment area for the EPA particulate matter (PM-2.5) standard and therefore a detailed hot-spot analysis is not required.

### **2.4 Mobile Source Air Toxics**

Emissions will likely be lower than present levels in the design year 2025 as a result of EPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent from 2000 to 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, vehicle miles traveled (VMT), growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in virtually all locations.

The additional travel lanes contemplated as part of the project will have the effect of moving some

traffic closer to nearby homes, churches, and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSATs could be higher under certain Build Alternatives than the No Build Alternative. However, as discussed above, the magnitude and the duration of these potential increases compared to the No-build alternative cannot be accurately quantified due to the inherent deficiencies of current models. In sum, when a highway is widened and, as a result, moves closer to receptors, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSATs will be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

### **3.0 NOISE EVALUATION**

An important characteristic of a community and of transportation systems is noise. Excessive or unwanted noise may annoy people, interfere with speech and listening, disturb concentration, or disturb sleep. There are many sources of noise in communities, and noise levels vary considerably between urban, suburban and rural areas.

This study has been prepared in accordance with Federal Highway Administration noise standards, *Procedures for Abatement of Highway Traffic and Construction Noise*, 23 CFR 772 [1], and the Louisiana Department of Transportation and Development's (DOTD) *Highway Traffic Noise Policy*. [2]. The noise analysis included the following tasks:

- Identification of noise-sensitive land uses;
- Determination of existing equivalent sound levels: Measurement of existing equivalent sound levels at sensitive land uses to characterize the existing noise environment in the project area;
- Determination of future equivalent sound levels using FHWA's Traffic Noise Model, Version 2.5 (TNM): Prediction of future, design year, worst-hour equivalent sound levels with and without the project;
- Determination of traffic noise impacts: Determination of noise impacts based on the increase in existing equivalent sound levels, as well as the absolute future equivalent sound levels;
- Noise abatement evaluation: Evaluation of noise abatement for areas determined to be impacted by the project;
- Discussion of construction noise; and,
- Coordination with local officials.

Each of these analysis steps is discussed below following a discussion of DOTD's criteria for determining noise impacts.

#### **3.1 Criteria for Determining Impacts**

##### **3.1.1 Traffic Noise Terminology**

Traffic noise levels are expressed in terms of the hourly, A-weighted equivalent sound level in decibels (dBA). A sound level represents the level of the rapid air pressure fluctuations caused by sources such as traffic that are heard as noise. A decibel is a unit that relates the sound pressure of a noise to the faintest sound the young human ear can hear. The A-weighting refers to the amplification or attenuation of the different frequencies of the sound (subjectively, the pitch) to correspond to the way the human ear "hears" these frequencies. Generally, when the sound level exceeds the mid-60 dBA range, outdoor conversation in normal tones at a distance of three feet becomes difficult. A 9-10 dBA increase in sound level is typically judged by the listener to be twice as loud as the original sound while a 9-10 dBA reduction is judged to be half as loud. Doubling the number of sources (i.e., vehicles) will increase the hourly equivalent sound level by approximately 3 dBA, which is usually the smallest change in hourly equivalent A-weighted traffic noise levels that people can detect without specifically listening for the change.

Because most environmental noise fluctuates from moment to moment, it is standard practice to condense data into a single level called the equivalent sound level ( $L_{eq}$ ). The  $L_{eq}$  is a steady sound level that would contain the same amount of sound energy as the actual time-varying sound evaluated over the same

time-period. The  $L_{eq}$  averages the louder and quieter moments, but gives much more weight to the louder moments in the averaging. For traffic noise assessment purposes,  $L_{eq}$  is typically evaluated over the worst one-hour period and is defined as  $L_{eq}(h)$ .

The term insertion loss (IL) is generally used to describe the reduction in  $L_{eq}(h)$  at a location after a noise barrier is constructed. For example, if the  $L_{eq}(h)$  at a residence before a barrier is constructed is 75 dBA and the  $L_{eq}(h)$  after a barrier constructed is 65 dBA then the insertion loss would be 10 dBA.

### 3.1.2 Noise Abatement Criteria (NAC)

Noise impact is determined by comparing future project sound levels: (1) to a set of Noise Abatement Criteria (NAC) for a particular land use category, and (2) to existing sound levels.

The FHWA noise standards (contained in 23 CFR 772) and DOTD noise policy state that traffic noise impacts that warrant consideration of abatement occur when worst-hour equivalent sound levels approach or exceed the NAC listed in Table 1. DOTD policy defines “approach” as 66 dBA.

**Table 1: DOTD Noise Abatement Criteria**

<i>Activity Category</i>	<i><math>L_{eq}(h)</math> (dBA)</i>	<i>Description of Activity</i>
A	56 (Exterior)	Land on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	66 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	71 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	---	Undeveloped lands.
E	51 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

As shown in Table 1, Category A land uses refer to parks or other areas where low noise levels are essential for the proper use of the area, such as nature areas. Activity Category B land uses include picnic and recreation areas, playgrounds, active sports areas, parks, and the exterior areas of residences, motels, hotels, schools, churches, libraries, and hospitals. Activity Category C includes all developed lands not included in Categories A and B, while Category D includes undeveloped lands. Activity Category E land uses are those Activity Category B areas where there is no outdoor use of the property, so interior noise levels are considered.

DOTD noise policy also defines impacts to occur if there is an increase of 10 dBA or more in design year equivalent sound levels above the existing equivalent sound levels. The primary areas of concern for this project are the residential properties located along or adjacent to LA21, so the NAC for Activity Category B apply. Therefore, impacts would occur and noise abatement would be considered if future equivalent sound levels for an analysis location were 66 dB or higher, or if an increase of 10 dBA or more in existing

equivalent sound levels was predicted.

### **3.2 Identification of Noise-Sensitive Land Uses**

A review of available electronic mapping as well as field reconnaissance revealed residences on both the sides of LA21 between Bootlegger Road and W. 8<sup>th</sup> Avenue. Residences were identified at the Reedfurn Apartments and along Laurel Leaf Lane on the north side of LA21. On the south side of LA21, residences were identified along Marigold Drive, Dogwood Drive, W. 5<sup>th</sup> Avenue, S. Van Buren Street and W. 6<sup>th</sup> Avenue.

North of W. 8<sup>th</sup> Avenue the land use was typically identified as commercial and includes the St. Tammany Parish Hospital.

Other noise-sensitive land uses that might be affected by the project include the Holy Trinity Lutheran Church, the Covington Faithway Baptist Church and the Forest Manor Nursing Home.

### **3.3 Measurement of Existing Equivalent Sound Levels**

Measurements were conducted at DOTD-approved, sensitive land uses on May 8-9, 2007 between 7:00 am and 6:00 pm. Two RION NL-32 noise meters, which meet ANSI Type 1 standards, were deployed at seven different locations for both peak and off-peak noise measurements.

Measurement procedures at a site included:

1. Record measurement and site information on data sheets: equipment parameters, calibration, time, date, distance to key sources or other landmarks and weather parameters (temperature, wind speed and direction).
2. Set the microphone of the analyzer on a tripod at height of approximately 1.5 meters above the ground; place a windscreen on the microphone, which was oriented 70 degrees from the horizontal per manufacturer's recommendations.
3. Calibrate before and after each set of measurements.
4. Measure for desired number of periods.
5. Record notes for the individual one minute periods onto field data sheets.
6. Count and record traffic volumes in five-minute increments during noise measurements.
7. Check data sheets for completeness.

Table 2 summarizes the measured equivalent sound levels at each of the measurement sites. The measurement locations are designated by an "(M)" in Figure 3. The noise measurement data and site photographs are provided in Appendix A.

Noise measurements of at least 20 minute duration were recorded at all sites in one minute interval periods. Background noise was noted, and any one-minute measurement intervals with intrusive, non-representative noise (dogs barking near microphone, sirens, loud car stereos) were eliminated from the averaging of the measurement data.

Five of the measurement sites were chosen as representative of the first row noise-sensitive land uses along LA21. The other two measurement sites, at the back row of the Reedfurn Apartments and on W. 7<sup>th</sup> Avenue, were chosen to be representative of the second row noise sensitive land uses along LA21.

*Table 2: Measured Equivalent Sound Levels*

<i>Site</i>	<i>Distance from LA21 (feet)</i>	<i>Peak Measurement Date</i>	<i>Peak Start Time</i>	<i>Duration (min)</i>	<i>Peak Leq (dBA)</i>	<i>Off Peak Measurement Date</i>	<i>Off Peak Start Time</i>	<i>Duration (min)</i>	<i>Off Peak Leq (dBA)</i>
Holy Trinity Lutheran Church	160	5/8/2007	16:29	30	61	5/9/2007	9:30	30	62
Reedfurn Apartments (1 <sup>st</sup> row)	180	5/8/2007	17:16	30	57	5/8/2007 5/9/2007	14:40 12:15	30 20	58 58
Reedfurn Apartments (back row)	400	5/8/2007	17:16	30	49	5/8/2007 5/9/2007	14:40 12:15	30 20	51 51
Forest Manor Nursing Home	50	5/9/2007 5/9/2007	8:15 16:30	45 30	68 65	5/8/2007	15:35	30	65
Covington Faithway Baptist Church	280	5/9/2007 5/9/2007	8:15 16:30	45 30	57 54	5/8/2007	15:35	30	54
519 7 <sup>th</sup> Street	470	N/A*	N/A	N/A	N/A	5/9/2007	11:10	30	52
St. Tammany Parish Hospital	60	5/9/2007	7:05	30	65	5/9/2007	10:21	30	64

\* Local conditions prevented a peak hour sound level measurement for the W. 7<sup>th</sup> Avenue measurement location.

As indicated in Table 2, the highest measured peak hour equivalent sound level of 68 dBA was recorded at the Forest Manor Nursing Home for the AM peak, which is approximately 50 feet from LA21. The AM peak hour measurement at Forest Manor Nursing Home had very little congestion, while the other two measurements at this site had the southbound lanes of travel congested for about half of the measurement duration. Measured peak hour equivalent sound levels at the other sites along LA21 were as high as 65 dBA for the St. Tammany Parish Hospital and ranged as low as 49 dBA for the back fence of the Reedfurn Apartments, which is close to the back yards of the residences on Laurelleaf Lane.

In general, measured peak hour levels were slightly lower than the off-peak levels, due to congestion during the peak hour. The exceptions occurred when peak hour congestion was at a minimum.

**3.4 Model Validation**

As a check to make sure that TNM was accurately predicting traffic noise levels for the geometry of the project area, model validation was necessary. The traffic count from each noise measurement session listed above was factored to an hourly volume. That hourly volume was plugged into TNM and the resulting  $L_{eq}$  prediction was compared to the measured  $L_{eq}$ . The results of this validation process are shown below in Table 3.

**Table 3: TNM Model Validation Results**

<i>Site</i>	<i>Distance from LA21 (feet)</i>	<i>Peak Measured <math>L_{eq}</math></i>	<i>Peak Predicted <math>L_{eq}</math></i>	<i>Meas-Pred</i>	<i>Off Peak Measured <math>L_{eq}</math></i>	<i>Off Peak Predicted <math>L_{eq}</math></i>	<i>Meas-Pred</i>
Holy Trinity Lutheran Church	160	61	61	0	62	61	1
Reedfurn Apartments (1 <sup>st</sup> row)	180	57	59	-2	58 58	61 61	-3 -3
Reedfurn Apartments (back row)	400	49	47	2	51 51	49 50	2 1
Forest Manor Nursing Home	50	68 65	68 67	0 -2	65	67	-2
Covington Faithway Baptist Church	280	57 54	58 55	-1 -1	54	54	0
519 7 <sup>th</sup> Street	470	N/A*	N/A	N/A	52	52	0
St. Tammany Parish Hospital	60	65	65	0	64	65	-1

In general, the modeled results showed good agreement with the measured  $L_{eq}$ . All of the individual predictions were within 3 dBA of the measured  $L_{eq}$ .

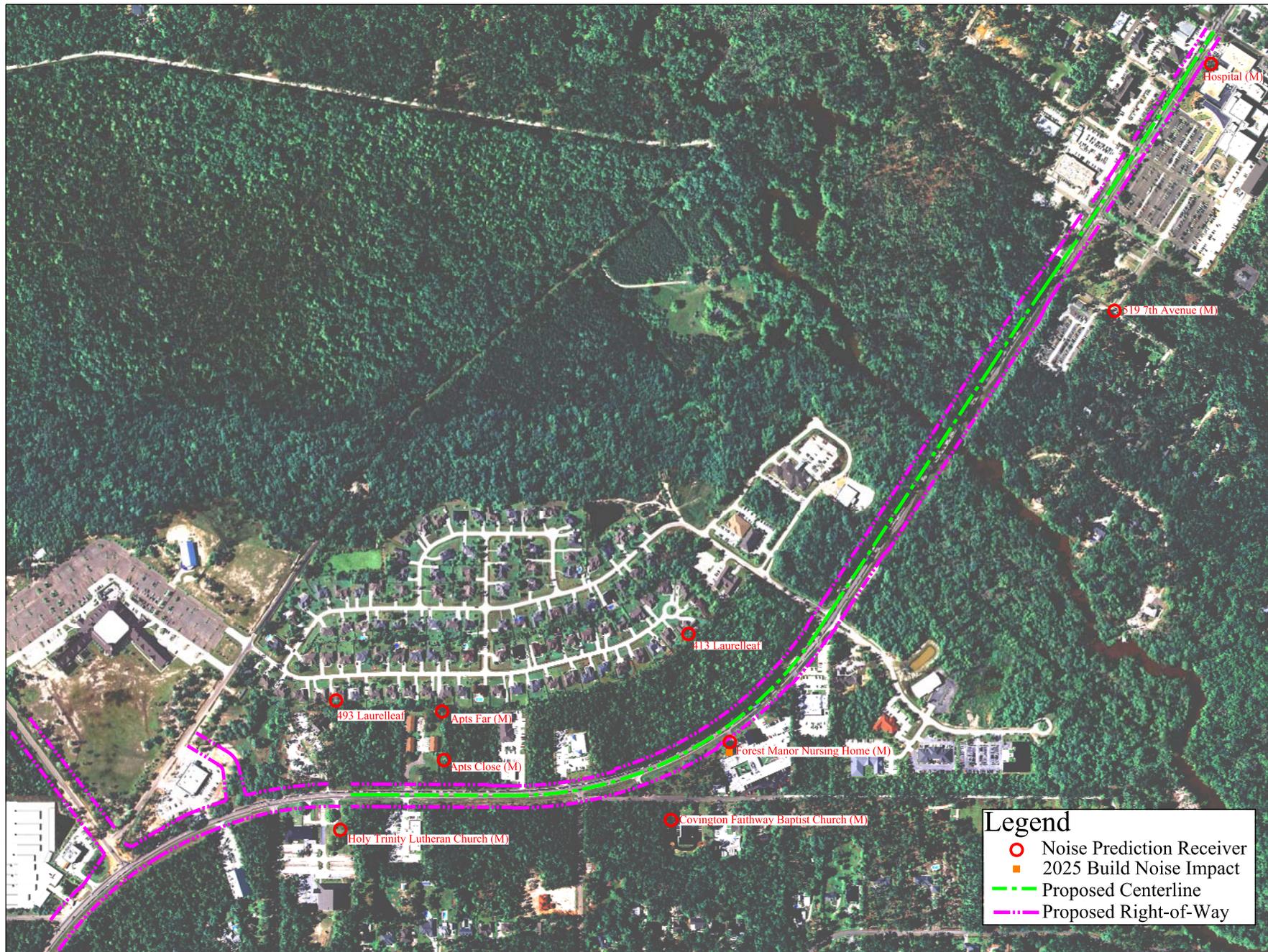


Figure 3. Noise Prediction Receivers and Impacts

0 350 ft 700 ft.

### **3.5 Prediction of Traffic Noise Equivalent Sound Levels**

TNM traffic noise predictions were made at nine representative receivers. Seven of these receivers are noise measurement locations discussed in Section 3.3. The other two receivers, along Laurelleaf Lane, were chosen to represent the noise-sensitive land uses that are over 400 feet from the project. The noise prediction receivers are shown in Figure 3.

#### **3.5.1 Existing Year 2007**

Existing noise levels are determined by modeling the existing LA21 geometry and traffic within TNM and then calculating the  $L_{eq}(h)$  for each representative noise receiver. Predicted  $L_{eq}(h)$  for the Existing Year 2007 case ranged from 51 dBA at the back row of the Reedfurn Apartments and 493 Laurelleaf Lane up to 69 dBA at the Forest Manor Nursing Home.

#### **3.5.2 Year 2025 No Build**

Sound levels without the project are predicted by modeling the existing roadway system along the project within TNM and then calculating sound levels with future Year 2025 No Build traffic. Traffic volumes on LA21 will continue to grow even without the project. This increase in traffic would ultimately decrease the operational speed of vehicles during the peak hour. For the Year 2025 No Build case, this lowered operational speed results in predicted traffic sound levels that are typically lower than the Existing Year 2007 levels.

Predicted  $L_{eq}(h)$  for the Year 2025 No Build case ranged from 49 dBA at the back row of the Reedfurn Apartments up to 67 dBA at the Forest Manor Nursing Home. The Year 2025 No Build levels typically dropped 1 to 2 dBA from the Year 2007 Existing levels, however, there is a slight increase predicted at the St. Tammany Parish Hospital.

#### **3.5.3 Year 2025 Build**

Design Year 2025 traffic projections, vehicle speeds and the proposed roadway geometry were entered into TNM to produce future "with project" levels.

Predictions of the worst hour  $L_{eq}(h)$  for Year 2025 Build show levels ranging from 53 dBA at the back row of the Reedfurn Apartments receiver up to 71 dB at the exterior of the Forest Manor Nursing Home. These levels typically represent increases of 2 to 3 dBA over the predicted Existing Year 2007 levels and 1 to 4 dBA over the predicted 2025 No Build case.

TNM plan views, showing the locations of the receivers and other TNM input, and the TNM input tables, are provided in Appendix B.

*Table 4: Predicted Worst Hour Equivalent Sound Levels*

<i>Site</i>	<i>Existing Year 2007 <math>L_{eq}(h)</math></i>	<i>Year 2025 No Build <math>L_{eq}(h)</math></i>	<i>Increase over 2010</i>	<i>Year 2025 Build <math>L_{eq}(h)</math></i>	<i>Increase over 2007</i>
Holy Trinity Lutheran Church	62	60	-2	64	2
493 Laurelleaf	51	51	0	54	3
Reedfurn Apartments (1 <sup>st</sup> row)	62	60	-2	63	1
Reedfurn Apartments (back row)	51	49	-2	53	2
413 Laurelleaf	53	51	-2	55	2
Forest Manor Nursing Home	69	67	-2	71	2
Covington Faithway Baptist Church	59	57	-2	59	0
519 7th Ave	56	55	-1	58	2
St. Tammany Parish Hospital	63	64	1	65	2

### **3.5 Impact Determination Analysis**

As noted previously, a location is impacted if 1) the predicted worst hour  $L_{eq}(h)$  approaches or exceeds the NAC (defined by DOTD as 66 dBA), or 2) a substantial increase (defined by DOTD as an increase of more than 10 dBA) in  $L_{eq}(h)$  occurs.

Sound level increases along LA21 because of the proposed widening are predicted to range from 0 to 3 dBA over the Existing Year 2007 levels. No noise impacts are created by the project due to a substantial increase in sound level.

Predicted future peak hour equivalent sound levels with the project at the modeled first-row receivers are in the 59 to 71 dBA range. Only the Forest Manor Nursing Home is predicted to be impacted. This impact is indicated in Figure 3.

### **3.6 Noise Abatement Evaluation**

DOTD policy requires the consideration of abatement when traffic noise impacts occur as a result of a project. Noise abatement measures may include alteration of horizontal and vertical alignment and traffic management measures (such as reducing speed limits, prohibition of heavy trucks, etc.). These forms of mitigation have already been taken into consideration in the development of the preferred alternative for the project.

DOTD requires that a determination of feasibility and reasonableness be made for an abatement measure. For an abatement measure to be feasible, at least one of the impacted receivers must receive a minimum of an 8 dBA insertion loss.

DOTD also requires that the cost of any proposed abatement measure be at or below \$25,000 per benefited residence. A benefited residence receives at least 5 dBA of insertion loss from the abatement measure.

Though there is an impacted receiver, the Forest Manor Nursing Home, the cost of constructing an abatement measure for this single noise sensitive land use would not be below the \$25,000 per benefited residence requirement for reasonableness.

### **3.7 Construction Noise**

The construction of the project would result in temporary noise increases for the residences and noise sensitive land uses along LA21. Other noise-sensitive land uses are located at a distance far enough from the project area that noise levels would not increase. The noise would be generated primarily from heavy equipment used in hauling materials and building the roadway.

The construction contractor has the responsibility for protection of the general public in all aspects of construction throughout the life of the project. All construction equipment will be required to comply with OSHA Regulations as they apply to the employees' safety, and in accordance with the LADOTD Standard Specifications. All construction equipment used in the construction phase of the project should be properly muffled and all motor panels should be shut during operation. In order to minimize the potential for impacts of construction noise on the local residents, the contractor should operate, whenever possible, between the hours of 7:00 a.m. and 5:00 p.m.

### **3.8 Future 66 dB Contours**

In order to protect future development from becoming incompatible with anticipated highway traffic noise levels, the best estimation of future noise levels for undeveloped lands will be provided to local officials and planners.

Figure 4 presents the Year 2025 Build predicted 66 dBA equivalent sound level impact contours for areas along LA21 where vacant and possibly developable lands exist. These contours are approximations of the predicted sound levels and do not represent predicted levels at every location at a particular distance back from the roadway. This information is being included to make local officials and planners aware of anticipated highway noise levels so that future development will be compatible with these levels.

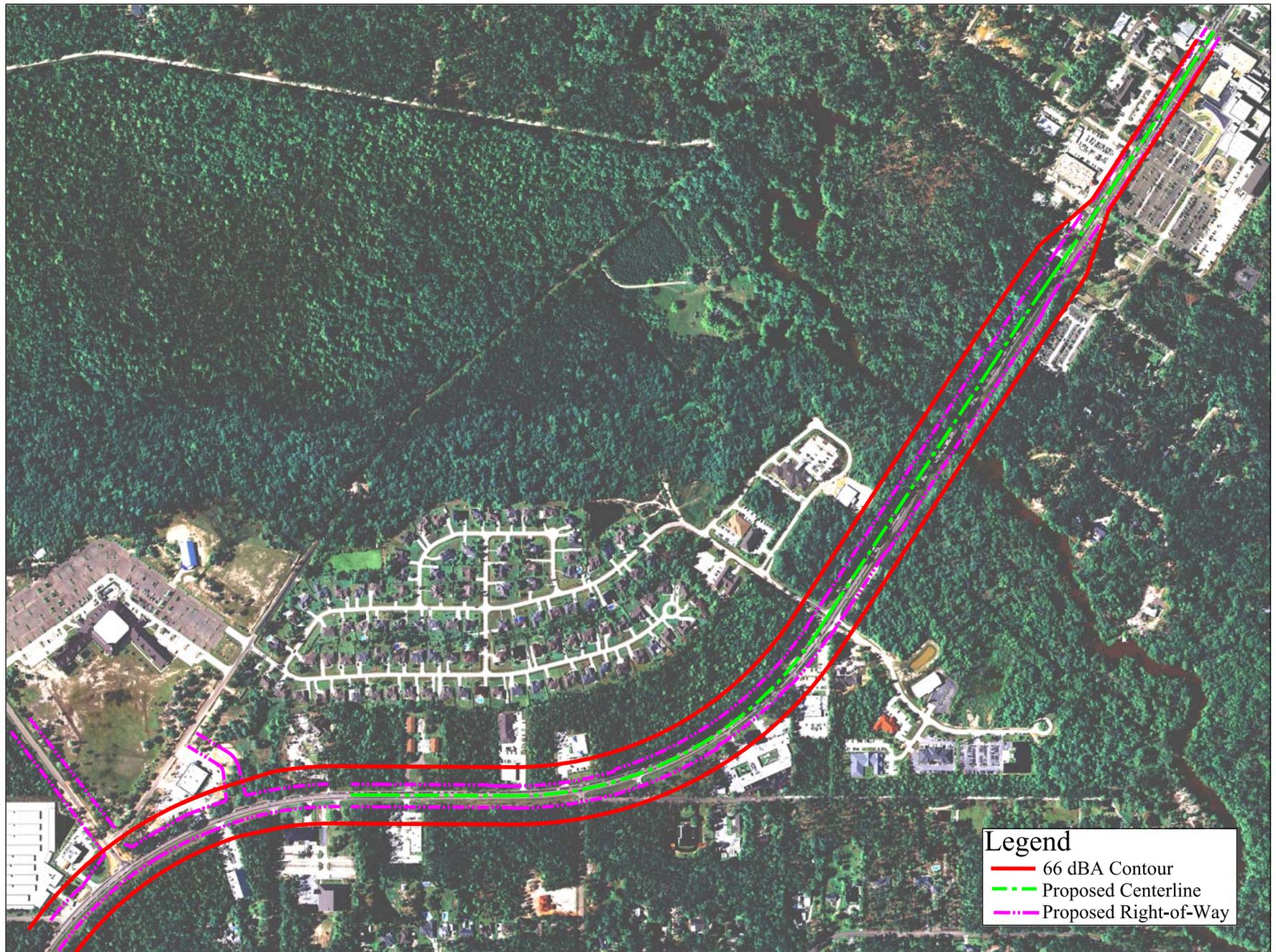


Figure 4. 66 dBA Noise Contour

**4.0**    *REFERENCES*

- [1]    *Procedures for Abatement of Highway Traffic and Construction Noise*, 23 CFR 772, Federal Highway Administration.
  
- [2]    *Highway Traffic Noise Policy*, Louisiana Department of Transportation and Development, March, 2004.

## **Appendix A: Noise Measurement Data and Photographs**



**Holy Trinity Lutheran Church, looking west**



**Holy Trinity Lutheran Church, looking north**

**LA21, St. Tammany Parrish  
Noise Measurements**

**Date:** 05/09/07  
**Site:** Lutheran Church  
**Description:** off-peak  
**Filename:** AU2\_2168

<u>Period #</u>	<u>Time Start</u>	<u>Leq</u>	<u>Lmax</u>	<u>Energy</u>	<u>Keep?</u>	<u>Count</u>	<u>Note</u>
1	9:30:00 AM	61.4	65.1	1380384	Y	1	
2	9:31:00 AM	61.1	63.6	1288250	Y	1	
3	9:32:00 AM	60.1	63	1023293	Y	1	
4	9:33:00 AM	61.7	64.7	1479108	Y	1	
5	9:34:00 AM	60.9	63	1230269	Y	1	
6	9:35:00 AM	61.9	65.8	1548817	Y	1	
7	9:36:00 AM	61.9	66.4	1548817	Y	1	
8	9:37:00 AM	62.8	65.4	1905461	Y	1	
9	9:38:00 AM	62.5	64.9	1778279	Y	1	
10	9:39:00 AM	60.7	64.1	1174898	Y	1	
11	9:40:00 AM	62.1	65.7	1621810	Y	1	
12	9:41:00 AM	60.6	65.4	1148154	Y	1	
13	9:42:00 AM	61.7	65.5	1479108	Y	1	
14	9:43:00 AM	62	64.7	1584893	Y	1	
15	9:44:00 AM	61.8	64.5	1513561	Y	1	
16	9:45:00 AM	63.2	67.2	2089296	Y	1	
17	9:46:00 AM	61	66.2	1258925	Y	1	
18	9:47:00 AM	72.7	86	0	N	0	Ambulance
19	9:48:00 AM	73.5	87.4	0	N	0	Ambulance
20	9:49:00 AM	61.6	64.8	1445440	Y	1	
21	9:50:00 AM	62.3	64.9	1698244	Y	1	
22	9:51:00 AM	63.7	70.4	2344229	Y	1	
23	9:52:00 AM	61.4	65	1380384	Y	1	
24	9:53:00 AM	63.7	68.3	2344229	Y	1	
25	9:54:00 AM	61.5	64.9	1412538	Y	1	
26	9:55:00 AM	63.3	69	2137962	Y	1	
27	9:56:00 AM	61	64.8	1258925	Y	1	
28	9:57:00 AM	63.2	69.7	2089296	Y	1	
29	9:58:00 AM	61.7	64	1479108	Y	1	
30	9:59:00 AM	62.2	65.7	1659587	Y	1	
31	10:00:00 AM	63.1	63.8	0	N	0	
		Energy Sum		44303265			28
		<b>Leq</b>		<b>62.0</b>			

LA21, St. Tammany Parrish  
Noise Measurements

Date: 05/08/07  
Site: Lutheran Church  
Description: peak  
Filename: AU2\_2164

<u>Period #</u>	<u>Time Start</u>	<u>Leq</u>	<u>Lmax</u>	<u>Energy</u>	<u>Keep?</u>	<u>Count</u>	<u>Note</u>
1	4:29:00 PM	61.6	63.6	1445440	Y	1	
2	4:30:00 PM	62.6	70.4	1819701	Y	1	
3	4:31:00 PM	59.2	62.3	831764	Y	1	
4	4:32:00 PM	61.6	63.8	1445440	Y	1	
5	4:33:00 PM	61.5	63.3	1412538	Y	1	
6	4:34:00 PM	62.8	70.8	1905461	Y	1	
7	4:35:00 PM	60.4	63.5	1096478	Y	1	
8	4:36:00 PM	61.6	63.5	1445440	Y	1	
9	4:37:00 PM	62	68.9	1584893	Y	1	
10	4:38:00 PM	60.7	63.5	1174898	Y	1	
11	4:39:00 PM	63.3	66.5	2137962	Y	1	
12	4:40:00 PM	62.4	68	1737801	Y	1	
13	4:41:00 PM	62.5	64.2	1778279	Y	1	
14	4:42:00 PM	61.8	64.7	1513561	Y	1	
15	4:43:00 PM	61.6	63.6	1445440	Y	1	
16	4:44:00 PM	62.5	68.8	1778279	Y	1	
17	4:45:00 PM	60.6	64.2	1148154	Y	1	
18	4:46:00 PM	62.3	66.4	1698244	Y	1	
19	4:47:00 PM	58.4	62.2	691831	Y	1	
20	4:48:00 PM	60.4	65.4	1096478	Y	1	
21	4:49:00 PM	61.6	66.6	1445440	Y	1	
22	4:50:00 PM	60.4	62.8	1096478	Y	1	
23	4:51:00 PM	60.3	64.6	1071519	Y	1	
24	4:52:00 PM	60.2	65.3	1047129	Y	1	
25	4:53:00 PM	61.9	67.1	1548817	Y	1	
26	4:54:00 PM	61.2	63.9	1318257	Y	1	
27	4:55:00 PM	61.7	63.6	1479108	Y	1	
28	4:56:00 PM	60.8	64.6	1202264	Y	1	
29	4:57:00 PM	61	65.7	1258925	Y	1	
30	4:58:00 PM	60.6	65.7	1148154	Y	1	
31	4:59:00 PM	54.6	57.5	0	N	0	
				Energy Sum	41804171	30	
				<b>Leq</b>	<b>61.4</b>		



**Reedfurn Apartments - Front Row, looking south**



**Reedfurn Apartments - Front Row, looking north**

**SR-21, St. Tammany Parrish  
Noise Measurements**

**Date:** 05/08/07  
**Site:** Apartments close  
**Description:** off peak  
**Filename:** AU2\_2161

<u>Period #</u>	<u>Time Start</u>	<u>Leq</u>	<u>Lmax</u>	<u>Energy</u>	<u>Keep?</u>	<u>Count</u>	<u>Note</u>
1	2:40:00 PM	55.1	56.9	323594	Y	1	
2	2:41:00 PM	56.7	60.5	467735	Y	1	
3	2:42:00 PM	57.5	63.7	562341	Y	1	
4	2:43:00 PM	59.9	69.6	977237	Y	1	
5	2:44:00 PM	55.9	63.8	389045	Y	1	
6	2:45:00 PM	55.8	61.3	380189	Y	1	
7	2:46:00 PM	56.1	59.8	407380	Y	1	
8	2:47:00 PM	68	79.4	6309573	Y	1	
9	2:48:00 PM	60.7	71.9	1174898	Y	1	
10	2:49:00 PM	52.9	54.5	194984	Y	1	
11	2:50:00 PM	53.1	57	204174	Y	1	
12	2:51:00 PM	51.3	54.2	134896	Y	1	
13	2:52:00 PM	51.4	53.7	138038	Y	1	
14	2:53:00 PM	53.1	56.2	204174	Y	1	
15	2:54:00 PM	54.1	57.5	257040	Y	1	
16	2:55:00 PM	53.4	56.7	218776	Y	1	
17	2:56:00 PM	54.3	57.8	269153	Y	1	
18	2:57:00 PM	53.4	54.9	218776	Y	1	
19	2:58:00 PM	54.3	56.9	269153	Y	1	
20	2:59:00 PM	55	59	316228	Y	1	
21	3:00:00 PM	54.1	58	257040	Y	1	
22	3:01:00 PM	52.4	56.5	173780	Y	1	
23	3:02:00 PM	59.6	65	912011	Y	1	
24	3:03:00 PM	53.6	59.3	229087	Y	1	
25	3:04:00 PM	56.1	61.1	407380	Y	1	
26	3:05:00 PM	54.1	61.5	257040	Y	1	
27	3:06:00 PM	53.7	59.9	234423	Y	1	
28	3:07:00 PM	55.2	60.3	331131	Y	1	
29	3:08:00 PM	56.9	61.1	489779	Y	1	
30	3:09:00 PM	53.3	57.3	0	N	0	
		Energy Sum		16709057		29	
		<b>Leq</b>		<b>57.6</b>			

**LA21, St. Tammany Parrish  
Noise Measurements**

**Date:** 05/09/07  
**Site:** Apartments close  
**Description:** off-peak  
**Filename:** AU2\_2180

<u>Period #</u>	<u>Time Start</u>	<u>Leq</u>	<u>Lmax</u>	<u>Energy</u>	<u>Keep?</u>	<u>Count</u>	<u>Note</u>
1	12:15:00 PM	56.7	59.4	467735	Y	1	
2	12:16:00 PM	57.2	60.2	524807	Y	1	
3	12:17:00 PM	57.5	65.5	562341	Y	1	
4	12:18:00 PM	57.9	62.3	616595	Y	1	
5	12:19:00 PM	55.8	61.6	380189	Y	1	
6	12:20:00 PM	56.4	60.8	436516	Y	1	
7	12:21:00 PM	57.1	60.5	512861	Y	1	
8	12:22:00 PM	63.5	74.1	2238721	Y	1	
9	12:23:00 PM	57.6	61.6	575440	Y	1	
10	12:24:00 PM	56.1	59.8	407380	Y	1	
11	12:25:00 PM	58	63.8	630957	Y	1	
12	12:26:00 PM	57	60.3	501187	Y	1	
13	12:27:00 PM	57.2	62.8	524807	Y	1	
14	12:28:00 PM	58.7	64.6	741310	Y	1	
15	12:29:00 PM	57.4	60.5	549541	Y	1	
16	12:30:00 PM	55.9	59	389045	Y	1	
17	12:31:00 PM	55.9	59.8	389045	Y	1	
18	12:32:00 PM	56.9	59.3	489779	Y	1	
19	12:33:00 PM	59.3	65.1	851138	Y	1	
20	12:34:00 PM	56.1	60.7	407380	Y	1	
21	12:35:00 PM	55.6	56.1	0	N	0	
				Energy Sum	12196777	20	
				<b>Leq</b>	<b>57.9</b>		

**LA21, St. Tammany Parrish  
Noise Measurements**

*Date:* 05/08/07  
*Site:* Apts Close  
*Description:* peak  
*Filename:* AU2\_2165

<u>Period #</u>	<u>Time Start</u>	<u>Leq</u>	<u>Lmax</u>	<u>Energy</u>	<u>Keep?</u>	<u>Count</u>	<u>Note</u>
1	5:16:00 PM	55.3	60.6	338844	Y	1	
2	5:17:00 PM	55.3	59.6	338844	Y	1	
3	5:18:00 PM	54.6	56.4	288403	Y	1	
4	5:19:00 PM	52.1	56	162181	Y	1	
5	5:20:00 PM	54.6	58.1	288403	Y	1	
6	5:21:00 PM	52.2	56.4	165959	Y	1	
7	5:22:00 PM	55.1	62.5	323594	Y	1	
8	5:23:00 PM	55.9	57.6	389045	Y	1	
9	5:24:00 PM	54.6	60.8	288403	Y	1	
10	5:25:00 PM	55.3	57.7	338844	Y	1	
11	5:26:00 PM	55.3	60.1	338844	Y	1	
12	5:27:00 PM	53.8	56.8	239883	Y	1	
13	5:28:00 PM	55.3	57.8	338844	Y	1	
14	5:29:00 PM	56.3	61.2	426580	Y	1	
15	5:30:00 PM	56	57.5	398107	Y	1	
16	5:31:00 PM	56.9	60.5	489779	Y	1	
17	5:32:00 PM	56.9	59.7	489779	Y	1	
18	5:33:00 PM	55.9	58.7	389045	Y	1	
19	5:34:00 PM	58.1	61.1	645654	Y	1	
20	5:35:00 PM	57.5	59.7	562341	Y	1	
21	5:36:00 PM	57.9	60.1	616595	Y	1	
22	5:37:00 PM	56.4	58	436516	Y	1	
23	5:38:00 PM	57.6	59.7	575440	Y	1	
24	5:39:00 PM	58.7	61.4	741310	Y	1	
25	5:40:00 PM	58.7	59.9	741310	Y	1	
26	5:41:00 PM	58.6	60.9	724436	Y	1	
27	5:42:00 PM	58.1	61.4	645654	Y	1	
28	5:43:00 PM	57.5	60	562341	Y	1	
29	5:44:00 PM	58	61.4	630957	Y	1	
30	5:45:00 PM	58.7	64	741310	Y	1	
31	5:46:00 PM	61.1	64.6	0	N	0	
		Energy Sum		13657247			30
		<b>Leq</b>		<b>56.6</b>			



**Reedfurn Apartments - Back Row, looking east**



**Reedfurn Apartments - Back Row, looking north**

**LA21, St. Tammany Parrish  
Noise Measurements**

*Date:* 05/08/07  
*Site:* Apartments far  
*Description:* off peak  
*Filename:* AU2\_2170

<u>Period #</u>	<u>Time Start</u>	<u>Leq</u>	<u>Lmax</u>	<u>Energy</u>	<u>Keep?</u>	<u>Count</u>	<u>Note</u>
1	2:40:00 PM	50.5	54.8	112202	Y	1	
2	2:41:00 PM	55.4	65.5	346737	Y	1	
3	2:42:00 PM	52.6	61.2	181970	Y	1	
4	2:43:00 PM	50.7	56.2	117490	Y	1	
5	2:44:00 PM	54.6	60.3	288403	Y	1	
6	2:45:00 PM	48.6	52.4	72444	Y	1	
7	2:46:00 PM	48.5	51.3	70795	Y	1	
8	2:47:00 PM	55.1	66.2	323594	Y	1	
9	2:48:00 PM	53.7	62.1	234423	Y	1	
10	2:49:00 PM	45.1	45.9	32359	Y	1	
11	2:50:00 PM	45.2	46.1	33113	Y	1	
12	2:51:00 PM	44.2	46.2	26303	Y	1	
13	2:52:00 PM	44.9	53.3	30903	Y	1	
14	2:53:00 PM	52.4	57.6	173780	Y	1	
15	2:54:00 PM	51.8	57.2	151356	Y	1	
16	2:55:00 PM	48.3	53.8	67608	Y	1	
17	2:56:00 PM	54.3	62.2	269153	Y	1	
18	2:57:00 PM	50.6	55.2	114815	Y	1	
19	2:58:00 PM	49.6	53.2	91201	Y	1	
20	2:59:00 PM	54.3	59.6	269153	Y	1	
21	3:00:00 PM	54.1	61.2	257040	Y	1	
22	3:01:00 PM	48.8	53.5	75858	Y	1	
23	3:02:00 PM	51.2	58.1	131826	Y	1	
24	3:03:00 PM	48	52.9	63096	Y	1	
25	3:04:00 PM	49.8	53.7	95499	Y	1	
26	3:05:00 PM	48.8	52.3	75858	Y	1	
27	3:06:00 PM	48	53.1	63096	Y	1	
28	3:07:00 PM	47	55.4	50119	Y	1	
29	3:08:00 PM	49.8	57.2	95499	Y	1	
30	3:09:00 PM	48.1	52.6	64565	Y	1	
31	3:10:00 PM	47.5	57.9	0	N	0	
		Energy Sum		3980257		30	
		Leq		51.2			

LA21, St. Tammany Parrish  
Noise Measurements

Date: 05/09/07  
Site: Apartments far  
Description: off-peak  
Filename: AU2\_2175

<u>Period #</u>	<u>Time Start</u>	<u>Leq</u>	<u>Lmax</u>	<u>Energy</u>	<u>Keep?</u>	<u>Count</u>	<u>Note</u>
1	12:15:00 PM	49.1	51.7	81283	Y	1	
2	12:16:00 PM	49.9	52.1	97724	Y	1	
3	12:17:00 PM	52.3	59	169824	Y	1	
4	12:18:00 PM	53	58.5	199526	Y	1	
5	12:19:00 PM	54.4	61.1	275423	Y	1	
6	12:20:00 PM	50.1	57.5	102329	Y	1	
7	12:21:00 PM	48.4	50.8	69183	Y	1	
8	12:22:00 PM	52.1	62.8	162181	Y	1	
9	12:23:00 PM	48.4	51.2	69183	Y	1	
10	12:24:00 PM	48.4	54	69183	Y	1	
11	12:25:00 PM	51	56.8	125893	Y	1	
12	12:26:00 PM	49.5	51.4	89125	Y	1	
13	12:27:00 PM	50	55.4	100000	Y	1	
14	12:28:00 PM	51.6	57.9	144544	Y	1	
15	12:29:00 PM	50.9	54.4	123027	Y	1	
16	12:30:00 PM	49.2	52	83176	Y	1	
17	12:31:00 PM	51.9	59.6	154882	Y	1	
18	12:32:00 PM	50.4	54.6	109648	Y	1	
19	12:33:00 PM	51.9	57.8	154882	Y	1	
20	12:34:00 PM	49.4	54.1	87096	Y	1	
21	12:35:00 PM	50	55	0	N	0	
		Energy Sum		2468112		20	
		<b>Leq</b>		<b>50.9</b>			

**LA21, St. Tammany Parrish  
Noise Measurements**

**Date:** 05/08/07  
**Site:** Apartments far  
**Description:** peak  
**Filename:** AU2\_2172

<u>Period #</u>	<u>Time Start</u>	<u>Leq</u>	<u>Lmax</u>	<u>Energy</u>	<u>Keep?</u>	<u>Count</u>	<u>Note</u>
1	5:16:00 PM	47.3	51.4	53703	Y	1	
2	5:17:00 PM	47.3	50.9	53703	Y	1	
3	5:18:00 PM	47.5	50.8	56234	Y	1	
4	5:19:00 PM	47.3	51.4	53703	Y	1	
5	5:20:00 PM	47.6	49.2	57544	Y	1	
6	5:21:00 PM	45.6	47.8	36308	Y	1	
7	5:22:00 PM	47.1	54.1	51286	Y	1	
8	5:23:00 PM	48	48.9	63096	Y	1	
9	5:24:00 PM	47.2	48.4	52481	Y	1	
10	5:25:00 PM	48.1	51	64565	Y	1	
11	5:26:00 PM	48	54	63096	Y	1	
12	5:27:00 PM	45.1	47.2	32359	Y	1	
13	5:28:00 PM	46.8	47.9	47863	Y	1	
14	5:29:00 PM	47.6	51.6	57544	Y	1	
15	5:30:00 PM	47.5	48.5	56234	Y	1	
16	5:31:00 PM	49.2	54.9	83176	Y	1	
17	5:32:00 PM	50.2	55.7	104713	Y	1	
18	5:33:00 PM	47.7	49.5	58884	Y	1	
19	5:34:00 PM	49.2	50.7	83176	Y	1	
20	5:35:00 PM	49	51.2	79433	Y	1	
21	5:36:00 PM	50.2	52.5	104713	Y	1	
22	5:37:00 PM	49.5	52.4	89125	Y	1	
23	5:38:00 PM	50.9	52.9	123027	Y	1	
24	5:39:00 PM	51.4	55.2	138038	Y	1	
25	5:40:00 PM	50.9	54.3	123027	Y	1	
26	5:41:00 PM	51.2	53	131826	Y	1	
27	5:42:00 PM	51.4	53.5	138038	Y	1	
28	5:43:00 PM	51.6	57.5	144544	Y	1	
29	5:44:00 PM	50.3	57.5	107152	Y	1	
30	5:45:00 PM	51.2	56.1	131826	Y	1	
31	5:46:00 PM	50.2	53.6	0	N	0	
				Energy Sum	2440418	30	
				<b>Leq</b>	<b>49.1</b>		



**Covington Faithway Baptist Church, looking east**



**Covington Faithway Baptist Church, looking north**

LA21, St. Tammany Parrish  
Noise Measurements

Date: 05/08/07  
Site: Baptist Church  
Description: off peak  
Filename: AU2\_2171

<u>Period #</u>	<u>Time Start</u>	<u>Leq</u>	<u>Lmax</u>	<u>L10</u>	<u>L90</u>	<u>Energy</u>	<u>Keep?</u>	<u>Count</u>	<u>Note</u>
1	3:35:00 PM	48.3	50	49.3	46.6	67608	Y	1	
2	3:36:00 PM	52	58	55.4	48.2	158489	Y	1	
3	3:37:00 PM	51.9	55.9	54.6	48.8	154882	Y	1	
4	3:38:00 PM	52.5	56.3	54.2	49.8	177828	Y	1	
5	3:39:00 PM	52.7	60.3	56.4	47.5	186209	Y	1	
6	3:40:00 PM	51.1	54.1	53.1	46.7	128825	Y	1	
7	3:41:00 PM	53.3	56.6	54.8	50.4	213796	Y	1	
8	3:42:00 PM	51.4	53.7	53.2	48.1	138038	Y	1	
9	3:43:00 PM	51.9	56.1	54.4	48.3	154882	Y	1	
10	3:44:00 PM	50.9	52.4	51.9	49.7	123027	Y	1	
11	3:45:00 PM	52	56	54.7	49	158489	Y	1	
12	3:46:00 PM	51.5	53.8	53.1	49	141254	Y	1	
13	3:47:00 PM	54.9	60.8	57	51.8	309030	Y	1	
14	3:48:00 PM	53.4	55.8	55.3	50.5	218776	Y	1	
15	3:49:00 PM	55.6	57.8	56.7	53.7	363078	Y	1	
16	3:50:00 PM	54.1	56.2	55.4	51.7	257040	Y	1	
17	3:51:00 PM	54.3	55.6	55.2	52.6	269153	Y	1	
18	3:52:00 PM	55.4	56.7	56.2	53.4	346737	Y	1	
19	3:53:00 PM	53.6	56	55.4	51.8	229087	Y	1	
20	3:54:00 PM	52.7	54.8	54.3	49.3	186209	Y	1	
21	3:55:00 PM	52.8	54.5	54.2	50.3	190546	Y	1	
22	3:56:00 PM	56.3	63	59.7	53.4	426580	Y	1	
23	3:57:00 PM	54.2	57.3	56.5	49.6	263027	Y	1	
24	3:58:00 PM	55.6	58.4	57.6	51.7	363078	Y	1	
25	3:59:00 PM	55.6	59.3	57.6	51.8	363078	Y	1	
26	4:00:00 PM	54.1	56	55.1	53.2	257040	Y	1	
27	4:01:00 PM	53.4	55.3	54.1	52.7	218776	Y	1	
28	4:02:00 PM	55.7	60.1	57.5	53.5	371535	Y	1	
29	4:03:00 PM	54.4	55.8	55.4	53.1	275423	Y	1	
30	4:04:00 PM	54.6	56.4	56.1	52.6	288403	Y	1	
31	4:05:00 PM	54.5	57.1	56.2	51.3	0	N	0	
Energy Sum						6999922		30	
Leq						53.7			

**LA21, St. Tammany Parrish  
Noise Measurements**

**Date:** 05/09/07

**Site:** Baptist Church

**Description:** peak AM

**Filename:** AU2\_2173

<u>Period #</u>	<u>Time Start</u>	<u>Leq</u>	<u>Lmax</u>	<u>L10</u>	<u>L90</u>	<u>Energy</u>	<u>Keep?</u>	<u>Count</u>	<u>Note</u>
1	8:15:00 AM	55.9	57.6	57.2	53.7	389045	Y	1	
2	8:16:00 AM	55.6	57.4	56.5	54.1	363078	Y	1	
3	8:17:00 AM	56.9	63.4	60.4	52.4	489779	Y	1	
4	8:18:00 AM	54.7	56.7	55.8	52.9	295121	Y	1	
5	8:19:00 AM	54.3	57.4	56.1	49.4	269153	Y	1	
6	8:20:00 AM	54.8	58.3	56.8	52.3	301995	Y	1	
7	8:21:00 AM	54.8	56.6	56.1	53.3	301995	Y	1	
8	8:22:00 AM	57.9	66.7	61.1	53.9	616595	Y	1	
9	8:23:00 AM	56.5	64.8	59.7	52	446684	Y	1	
10	8:24:00 AM	53.6	55.9	55.5	51.5	229087	Y	1	
11	8:25:00 AM	53.1	55.5	54.3	51.3	204174	Y	1	
12	8:26:00 AM	56.5	61	58.6	54.1	446684	Y	1	
13	8:27:00 AM	54.1	56.4	55.6	52.1	257040	Y	1	
14	8:28:00 AM	53.8	55.2	54.7	52.8	239883	Y	1	
15	8:29:00 AM	53.7	55.5	55.2	52.1	234423	Y	1	
16	8:30:00 AM	55.3	59.3	56.3	52.9	338844	Y	1	
17	8:31:00 AM	55.8	60.4	58.8	52.5	380189	Y	1	
18	8:32:00 AM	56.2	61.1	58.6	53.4	416869	Y	1	
19	8:33:00 AM	53.5	56.3	55.7	49.4	223872	Y	1	
20	8:34:00 AM	57.8	64.4	60	54.4	602560	Y	1	
21	8:35:00 AM	56.3	63.4	60.2	52.9	426580	Y	1	
22	8:36:00 AM	55.2	58.1	57.1	53.7	331131	Y	1	
23	8:37:00 AM	55.9	61.5	58.5	53.7	389045	Y	1	
24	8:38:00 AM	55.8	60.6	57.7	53.8	380189	Y	1	
25	8:39:00 AM	55.4	57.2	56.5	53.7	346737	Y	1	
26	8:40:00 AM	56.4	58.8	57.1	55.4	436516	Y	1	
27	8:41:00 AM	54.6	56.3	55.8	52.8	288403	Y	1	
28	8:42:00 AM	56.3	57.3	57	54.9	426580	Y	1	
29	8:43:00 AM	55.2	58.7	56.1	53.7	331131	Y	1	
30	8:44:00 AM	55.1	59.8	57.6	50.8	323594	Y	1	
31	8:45:00 AM	56.3	58.1	57.1	54.3	426580	Y	1	
32	8:46:00 AM	58.5	61.4	60.5	56.4	707946	Y	1	
33	8:47:00 AM	60.7	63.5	62.7	58	1174898	Y	1	
34	8:48:00 AM	55.9	57.7	57.4	52.7	389045	Y	1	
35	8:49:00 AM	57.8	60.1	58.9	56.5	602560	Y	1	
36	8:50:00 AM	56.9	58.2	57.6	55.9	489779	Y	1	
37	8:51:00 AM	57.2	58.4	57.9	55.5	524807	Y	1	
38	8:52:00 AM	59.3	62.4	60.8	57.3	851138	Y	1	
39	8:53:00 AM	58.2	59.2	58.7	57.7	660693	Y	1	
40	8:54:00 AM	60	63.6	61.5	57.8	1000000	Y	1	
41	8:55:00 AM	59	60.9	59.9	57.9	794328	Y	1	
42	8:56:00 AM	57.1	59	58.7	55.7	512861	Y	1	
43	8:57:00 AM	57.2	59.3	58.5	55.6	524807	Y	1	
44	8:58:00 AM	59.8	64.4	61.2	58.1	954993	Y	1	
45	8:59:00 AM	59.3	64.4	60.8	56.6	851138	Y	1	
46	9:00:00 AM	59.5	61.7	60.6	57.8	0	N	0	
Energy Sum						21192548		45	
<b>Leq</b>						<b>56.7</b>			

**LA21, St. Tammany Parrish  
Noise Measurements**

**Date:** 05/09/07  
**Site:** Baptist Church  
**Description:** peak PM  
**Filename:** AU2\_2175

<u>Period #</u>	<u>Time Start</u>	<u>Leq</u>	<u>Lmax</u>	<u>L10</u>	<u>L90</u>	<u>Energy</u>	<u>Keep?</u>	<u>Count</u>	<u>Note</u>
1	5/9/2007 16:30	54	56.1	55.5	51.7	251189	Y	1	
2	5/9/2007 16:31	55	60	58.1	51.5	316228	Y	1	
3	5/9/2007 16:32	52.4	56.4	54.7	48.7	173780	Y	1	
4	5/9/2007 16:33	53.5	56.2	55	51.6	223872	Y	1	
5	5/9/2007 16:34	56.7	62.4	58.9	53.2	467735	Y	1	
6	5/9/2007 16:35	70.9	81.1	77.2	51.8	0	N	0	Ambulance
7	5/9/2007 16:36	53.9	57.5	55.3	52.5	245471	Y	1	
8	5/9/2007 16:37	53.9	56.4	54.9	52.3	245471	Y	1	
9	5/9/2007 16:38	55	59.6	57.4	52.6	316228	Y	1	
10	5/9/2007 16:39	54.3	58.8	56.1	51.2	269153	Y	1	
11	5/9/2007 16:40	54.6	59.5	56.8	51.3	288403	Y	1	
12	5/9/2007 16:41	53.8	56.3	55.5	51.6	239883	Y	1	
13	5/9/2007 16:42	53.8	54.8	54.6	52.8	239883	Y	1	
14	5/9/2007 16:43	52.6	54.8	54.2	50.2	181970	Y	1	
15	5/9/2007 16:44	54.2	55.8	55.2	53.3	263027	Y	1	
16	5/9/2007 16:45	53.8	57.1	56.3	51.1	239883	Y	1	
17	5/9/2007 16:46	52.4	54.2	53.4	50.9	173780	Y	1	
18	5/9/2007 16:47	52.1	54.4	53.4	50.5	162181	Y	1	
19	5/9/2007 16:48	51.2	53.6	52.8	49	131826	Y	1	
20	5/9/2007 16:49	53.7	59.7	56	50	234423	Y	1	
21	5/9/2007 16:50	50.4	52.4	51.4	48.9	109648	Y	1	
22	5/9/2007 16:51	51.1	53.8	51.8	49.8	128825	Y	1	
23	5/9/2007 16:52	51.7	57.9	55	45.4	147911	Y	1	
24	5/9/2007 16:53	51.1	55.5	53.2	48.6	128825	Y	1	
25	5/9/2007 16:54	53.9	55.6	54.5	53.1	245471	Y	1	
26	5/9/2007 16:55	56.1	62.3	59.8	51.8	407380	Y	1	
27	5/9/2007 16:56	51.8	53.6	53	50.1	151356	Y	1	
28	5/9/2007 16:57	52.5	56.6	55.5	46.9	177828	Y	1	
29	5/9/2007 16:58	52.9	55.9	54.6	51.8	194984	Y	1	
30	5/9/2007 16:59	51.2	53.2	52.6	49.9	131826	Y	1	
31	5/9/2007 17:00	53.2	57.8	55.3	50.7	0	N	0	
Energy Sum						6488440		29	
<b>Leq</b>						<b>53.5</b>			



**Forest Manor Nursing Home, looking northeast**



**Forest Manor Nursing Home, looking southwest**

**LA21, St. Tammany Parrish  
Noise Measurements**

*Date:* 05/08/07  
*Site:* Nursing Home  
*Description:* off peak  
*Filename:* AU2\_2162

<u>Period #</u>	<u>Time Start</u>	<u>Leq</u>	<u>Lmax</u>	<u>Energy</u>	<u>Keep?</u>	<u>Count</u>	<u>Note</u>
1	3:35:00 PM	59.3	65.3	851138	Y	1	
2	3:36:00 PM	60.2	64.1	1047129	Y	1	
3	3:37:00 PM	64.2	71.2	2630268	Y	1	
4	3:38:00 PM	62.1	68.1	1621810	Y	1	
5	3:39:00 PM	60.8	67.6	1202264	Y	1	
6	3:40:00 PM	62	66.1	1584893	Y	1	
7	3:41:00 PM	62.9	66.9	1949845	Y	1	
8	3:42:00 PM	61.9	69.8	1548817	Y	1	
9	3:43:00 PM	61.9	66.9	1548817	Y	1	
10	3:44:00 PM	62.9	71.5	1949845	Y	1	
11	3:45:00 PM	61	64.8	1258925	Y	1	
12	3:46:00 PM	68.6	80.4	0	N	0	Car horn
13	3:47:00 PM	69.6	80.2	0	N	0	Car horn
14	3:48:00 PM	65.4	70.6	3467369	Y	1	
15	3:49:00 PM	67.2	70.2	5248075	Y	1	
16	3:50:00 PM	64.9	67.8	3090295	Y	1	
17	3:51:00 PM	66.4	69.5	4365158	Y	1	
18	3:52:00 PM	65.5	69.3	3548134	Y	1	
19	3:53:00 PM	65	68.2	3162278	Y	1	
20	3:54:00 PM	62.8	67.5	1905461	Y	1	
21	3:55:00 PM	65.9	68.2	3890451	Y	1	
22	3:56:00 PM	68.7	77.3	7413102	Y	1	
23	3:57:00 PM	66.5	71.1	4466836	Y	1	
24	3:58:00 PM	65.6	70.3	3630781	Y	1	
25	3:59:00 PM	67	72.2	5011872	Y	1	
26	4:00:00 PM	65.4	67.9	3467369	Y	1	
27	4:01:00 PM	66.3	71.5	4265795	Y	1	
28	4:02:00 PM	65.9	69.3	3890451	Y	1	
29	4:03:00 PM	66	70.6	3981072	Y	1	
30	4:04:00 PM	66.6	70.4	4570882	Y	1	
31	4:05:00 PM	66.5	67.9	0	N	0	
		Energy Sum		86569131			28
		<b>Leq</b>		<b>64.9</b>			

**LA21, St. Tammany Parrish  
Noise Measurements**

**Date:** 05/09/07  
**Site:** Nursing Home  
**Description:** peak AM  
**Filename:** AU2\_2167

<u>Period #</u>	<u>Time Start</u>	<u>Leq</u>	<u>Lmax</u>	<u>L10</u>	<u>L90</u>	<u>Energy</u>	<u>Keep?</u>	<u>Count</u>	<u>Note</u>
1	8:15:00 AM	65.6	69.8	67	62.6	3630781	Y	1	
2	8:16:00 AM	66	69.6	68	61.2	3981072	Y	1	
3	8:17:00 AM	69.9	74.2	72.7	65.2	0	N	0	Weedwacker
4	8:18:00 AM	71.5	73.9	73	65.4	0	N	0	Weedwacker
5	8:19:00 AM	70.1	75	73	65.7	0	N	0	Weedwacker
6	8:20:00 AM	67.9	70.4	69.3	66.5	0	N	0	Weedwacker
7	8:21:00 AM	67.5	69.6	69	65.3	0	N	0	Weedwacker
8	8:22:00 AM	66.2	69	67.6	64.4	0	N	0	Weedwacker
9	8:23:00 AM	66.9	71	68.7	64.7	0	N	0	Weedwacker
10	8:24:00 AM	65.5	68.6	67.9	59.8	0	N	0	Weedwacker
11	8:25:00 AM	67.2	73.6	70	59.9	0	N	0	Weedwacker
12	8:26:00 AM	68.9	71.6	70.5	67.5	0	N	0	Weedwacker
13	8:27:00 AM	67.3	71.2	69.5	62.6	0	N	0	Weedwacker
14	8:28:00 AM	65.5	67.6	67	63.7	0	N	0	Weedwacker
15	8:29:00 AM	65.1	68.4	67.5	60.2	0	N	0	Weedwacker
16	8:30:00 AM	66.6	69.3	68.1	63.4	4570882	Y	1	
17	8:31:00 AM	67	74.4	69.7	62.1	5011872	Y	1	HT
18	8:32:00 AM	67	74.3	68.6	61.3	5011872	Y	1	MC
19	8:33:00 AM	64.6	67.7	66.9	59.3	2884032	Y	1	
20	8:34:00 AM	68.7	77.6	72.1	60.7	7413102	Y	1	
21	8:35:00 AM	70.7	81	74	63.2	11748976	Y	1	HT jake brake
22	8:36:00 AM	66.4	70.3	68.5	63.6	4365158	Y	1	
23	8:37:00 AM	69	81.1	68.1	65.3	7943282	Y	1	HT
24	8:38:00 AM	71.2	83.9	70.9	64.1	13182567	Y	1	HT
25	8:39:00 AM	67.1	70.5	69.3	64.3	5128614	Y	1	
26	8:40:00 AM	67.7	70.7	69.5	64.8	5888437	Y	1	
27	8:41:00 AM	66.1	69.5	67.7	62.9	4073803	Y	1	
28	8:42:00 AM	68	70.6	69.5	65.3	6309573	Y	1	
29	8:43:00 AM	67.4	69.6	69	65.1	5495409	Y	1	
30	8:44:00 AM	66.5	74.1	68.8	61.7	4466836	Y	1	HT
31	8:45:00 AM	67	69.4	68.4	64.8	5011872	Y	1	
32	8:46:00 AM	67.7	73.1	70.7	62.9	5888437	Y	1	
33	8:47:00 AM	67.5	70.1	69.2	65.3	5623413	Y	1	
34	8:48:00 AM	69.9	72.4	71.4	68	0	N	0	Lawnmower
35	8:49:00 AM	72	74.6	73.3	70	0	N	0	Lawnmower
36	8:50:00 AM	69.1	72	71.4	65.5	0	N	0	Lawnmower
37	8:51:00 AM	67.5	70.4	68.9	65.7	5623413	Y	1	
38	8:52:00 AM	68.7	76.3	71.2	64.8	7413102	Y	1	
39	8:53:00 AM	68	73.2	70.1	64.6	6309573	Y	1	
40	8:54:00 AM	66.9	73	68.8	61	4897788	Y	1	
41	8:55:00 AM	68.5	75.9	70.6	64.9	7079458	Y	1	
42	8:56:00 AM	69.5	72.2	71.4	65.7	0	N	0	Lawnmower
43	8:57:00 AM	69.1	71.9	71.1	65.9	0	N	0	Lawnmower
44	8:58:00 AM	70.1	78.7	71.9	66.6	0	N	0	Lawnmower
45	8:59:00 AM	67.8	74.1	70.7	63.1	0	N	0	Lawnmower
46	9:00:00 AM	67	68.6	68.4	65.7	0	N	0	
Energy Sum						#####		25	
<b>Leq</b>						<b>67.8</b>			

LA21, St. Tammany Parrish  
Noise Measurements

Date: 05/08/07  
Site: Nursing Home  
Description: PM peak  
Filename: AU2\_2181

<u>Period #</u>	<u>Time Start</u>	<u>Leq</u>	<u>Lmax</u>	<u>L10</u>	<u>L90</u>	<u>Energy</u>	<u>Keep?</u>	<u>Count</u>	<u>Note</u>
1	4:30:00 PM	65.1	70.5	68.8	58.5	3235937	Y	1	
2	4:31:00 PM	65.8	71	68.3	60.9	3801894	Y	1	
3	4:32:00 PM	64.6	71.8	68	56.8	2884032	Y	1	
4	4:33:00 PM	65	67.9	66.5	61.7	3162278	Y	1	
5	4:34:00 PM	64.8	70.5	66.5	62.1	3019952	Y	1	
6	4:35:00 PM	82.4	96.3	84.3	64.5	0	N	0	Ambulance
7	4:36:00 PM	66.1	72	67.7	63.5	4073803	Y	1	
8	4:37:00 PM	66	69.4	68.1	62.1	3981072	Y	1	
9	4:38:00 PM	66.8	71.3	69.8	62.4	4786301	Y	1	
10	4:39:00 PM	65.3	70	67.7	61.3	3388442	Y	1	
11	4:40:00 PM	65.6	69.9	67.6	62.2	3630781	Y	1	
12	4:41:00 PM	65.7	69	68	62.4	3715352	Y	1	
13	4:42:00 PM	66.4	68.8	67.9	63.4	4365158	Y	1	
14	4:43:00 PM	63.7	67.5	66.6	60.5	2344229	Y	1	
15	4:44:00 PM	66.8	68.4	67.7	65.4	4786301	Y	1	
16	4:45:00 PM	66.5	70.9	68.9	62.5	4466836	Y	1	
17	4:46:00 PM	63.5	66.4	65.6	59.5	2238721	Y	1	
18	4:47:00 PM	64.4	67.2	66.3	58.5	2754229	Y	1	SM congested after 4:47
19	4:48:00 PM	62.4	65.4	64.5	58	1737801	Y	1	
20	4:49:00 PM	64.6	70.3	67.3	58.3	2884032	Y	1	
21	4:50:00 PM	62	66.5	64.3	56.7	1584893	Y	1	
22	4:51:00 PM	63.4	65.7	64.9	59.9	2187762	Y	1	
23	4:52:00 PM	64.8	74	66.7	50.5	3019952	Y	1	
24	4:53:00 PM	62.5	66.8	64.5	56.7	1778279	Y	1	
25	4:54:00 PM	65.3	69.8	68.2	59.5	3388442	Y	1	
26	4:55:00 PM	67.5	76.6	69.6	62	5623413	Y	1	HT NB
27	4:56:00 PM	63.2	67	65.4	59	2089296	Y	1	
28	4:57:00 PM	62.7	68.6	65.6	54.6	1862087	Y	1	
29	4:58:00 PM	64.9	68.5	66.9	61.1	3090295	Y	1	
30	4:59:00 PM	62.7	66	64.9	58.7	1862087	Y	1	
31	5:00:00 PM	59.5	62.3	61.4	56.8	0	N	0	
Energy Sum						91743654		29	
Leq						65.0			



**W. 7th Ave, looking west**



**W. 7th Ave, looking north**

**LA21, St. Tammany Parrish  
Noise Measurements**

**Date:** 05/09/07  
**Site:** 519 7th Ave  
**Description:** off-peak  
**Filename:** AU2\_2174

<u>Period #</u>	<u>Time Start</u>	<u>Leq</u>	<u>Lmax</u>	<u>Energy</u>	<u>Keep?</u>	<u>Count</u>	<u>Note</u>
1	11:10:00 AM	53.3	58.3	213796	Y	1	
2	11:11:00 AM	50.7	56	117490	Y	1	
3	11:12:00 AM	50.6	56.2	114815	Y	1	car turns on to harrison
4	11:13:00 AM	49.3	51.7	85114	Y	1	
5	11:14:00 AM	54.8	65.1	301995	Y	1	local vehicle
6	11:15:00 AM	50.2	53.3	104713	Y	1	
7	11:16:00 AM	56	63.9	0	n	0	Hospital Shuttle
8	11:17:00 AM	50.7	55.6	117490	Y	1	
9	11:18:00 AM	52	57.2	158489	Y	1	local traffic
10	11:19:00 AM	51.8	57.3	151356	Y	1	
11	11:20:00 AM	57.3	67.2	0	n	0	Hospital Shuttle
12	11:21:00 AM	55.2	66	331131	Y	1	
13	11:22:00 AM	58.1	67.6	0	n	0	Hospital Shuttle
14	11:23:00 AM	57.6	70.1	0	n	0	Pickup on 7th
15	11:24:00 AM	57.9	67.6	0	n	0	Hospital Shuttle
16	11:25:00 AM	50.5	59.4	112202	Y	1	
17	11:26:00 AM	49.5	52.7	89125	Y	1	
18	11:27:00 AM	50.5	57	112202	Y	1	
19	11:28:00 AM	54.8	63.7	0	n	0	Hospital Shuttle
20	11:29:00 AM	56.8	66.6	0	n	0	Hospital Shuttle
21	11:30:00 AM	51.5	54.7	141254	Y	1	
22	11:31:00 AM	55.7	65	371535	Y	1	HT SB
23	11:32:00 AM	51.1	52.3	128825	Y	1	
24	11:33:00 AM	49.4	52	87096	Y	1	
25	11:34:00 AM	55.1	64.1	0	n	0	Hospital Shuttle
26	11:35:00 AM	58.7	68.1	0	n	0	Hospital Shuttle
27	11:36:00 AM	51	65	125893	Y	1	
28	11:37:00 AM	53	62.6	199526	Y	1	
29	11:38:00 AM	49.2	51.4	83176	Y	1	
30	11:39:00 AM	54.8	63.7	0	n	0	Hospital Shuttle
31	11:40:00 AM	48.8	49.5	0	N	0	
				Energy Sum	3147224	20	
				<b>Leq</b>	<b>52.0</b>		



**St. Tammany Parish Hospital, looking southwest**



**St. Tammany Parish Hospital, looking north**

**LA21, St. Tammany Parrish  
Noise Measurements**

**Date:** 05/09/07  
**Site:** Hospital  
**Description:** off-peak  
**Filename:** AU2\_2169

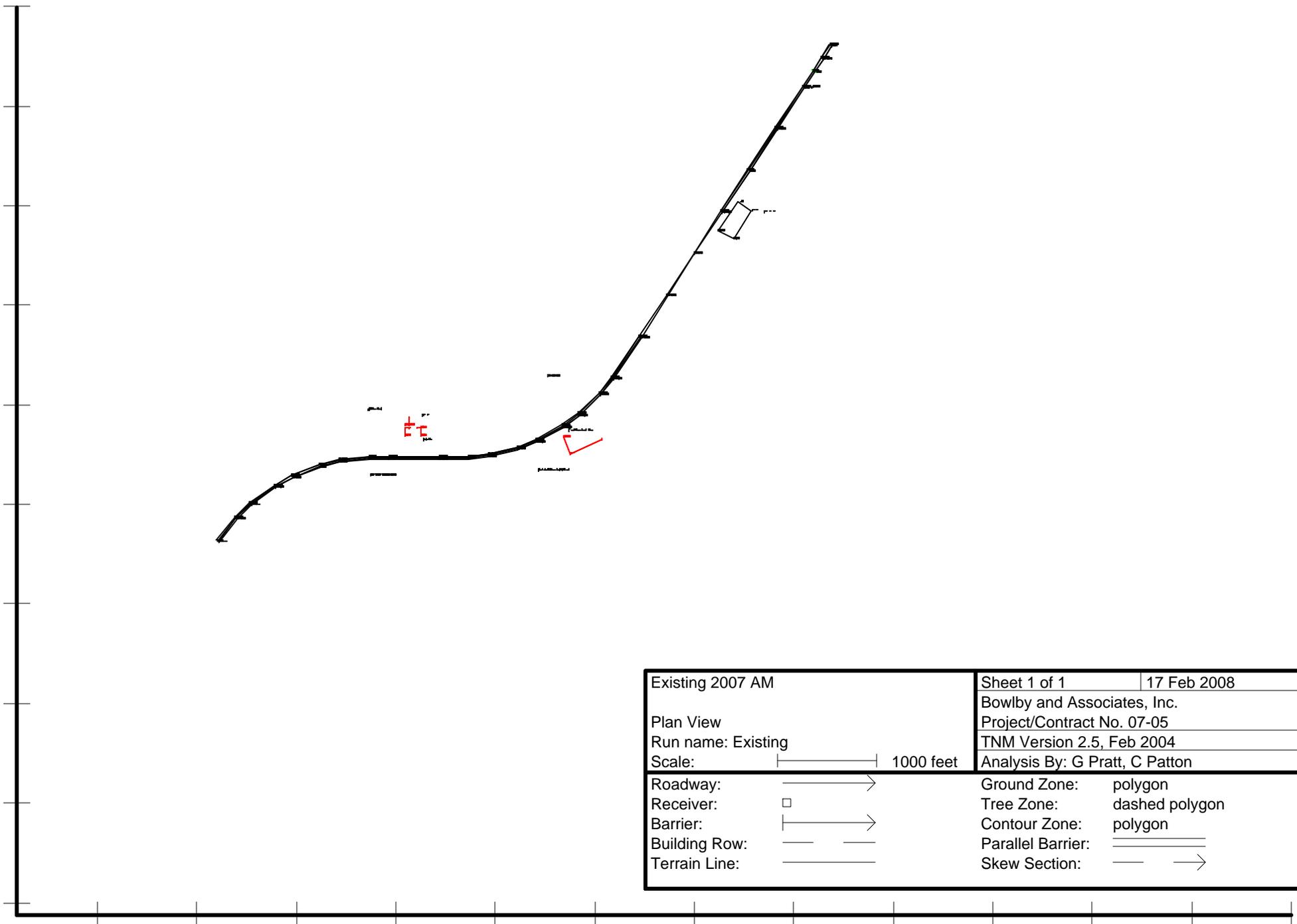
<u>Period #</u>	<u>Time Start</u>	<u>Leq</u>	<u>Lmax</u>	<u>Energy</u>	<u>Keep?</u>	<u>Count</u>	<u>Note</u>
1	10:21:00 AM	62.3	67.1	1698244	Y	1	
2	10:22:00 AM	61.9	64.6	1548817	Y	1	
3	10:23:00 AM	61.7	66.3	1479108	Y	1	
4	10:24:00 AM	63.9	69.9	2454709	Y	1	
5	10:25:00 AM	63.6	72.4	2290868	Y	1	
6	10:26:00 AM	61.6	65.8	1445440	Y	1	
7	10:27:00 AM	63.1	67.3	2041738	Y	1	
8	10:28:00 AM	60.4	63.2	1096478	Y	1	
9	10:29:00 AM	64.7	69.4	2951209	Y	1	
10	10:30:00 AM	62.6	66.3	1819701	Y	1	
11	10:31:00 AM	63.8	71.4	2398833	Y	1	
12	10:32:00 AM	68.3	76.9	6760830	Y	1	
13	10:33:00 AM	65.4	70	3467369	Y	1	
14	10:34:00 AM	66.5	75.4	4466836	Y	1	
15	10:35:00 AM	60.2	64.1	1047129	Y	1	
16	10:36:00 AM	62.2	66.1	1659587	Y	1	
17	10:37:00 AM	61.4	66	1380384	Y	1	
18	10:38:00 AM	62.7	68.6	1862087	Y	1	
19	10:39:00 AM	61.4	64	1380384	Y	1	
20	10:40:00 AM	59.5	64	891251	Y	1	
21	10:41:00 AM	61	66.8	1258925	Y	1	
22	10:42:00 AM	71.8	80	15135612	Y	1	HT
23	10:43:00 AM	61.8	67.2	1513561	Y	1	
24	10:44:00 AM	62.8	69.4	1905461	Y	1	
25	10:45:00 AM	61.9	67.8	1548817	Y	1	
26	10:46:00 AM	62.9	69.1	1949845	Y	1	
27	10:47:00 AM	65.9	74.7	3890451	Y	1	
28	10:48:00 AM	63.4	70.4	2187762	Y	1	
29	10:49:00 AM	62	65.3	1584893	Y	1	
30	10:50:00 AM	63.3	68.8	2137962	Y	1	
31	10:51:00 AM	60.5	63.4	0	N	0	
		Energy Sum		77254290			30
		<b>Leq</b>		<b>64.1</b>			

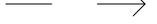
LA21, St. Tammany Parrish  
Noise Measurements

Date: 05/09/07  
Site: Hospital  
Description: peak  
Filename: AU2\_2166

<u>Period #</u>	<u>Time Start</u>	<u>Leq</u>	<u>Lmax</u>	<u>Energy</u>	<u>Keep?</u>	<u>Count</u>	<u>Note</u>
1	7:05:00 AM	67	69.7	5011872	Y	1	
2	7:06:00 AM	66	70.9	3981072	Y	1	
3	7:07:00 AM	65.8	71.6	3801894	Y	1	
4	7:08:00 AM	66.6	69.9	4570882	Y	1	
5	7:09:00 AM	61.8	70.8	1513561	Y	1	
6	7:10:00 AM	65.1	67.7	3235937	Y	1	
7	7:11:00 AM	63.7	67.3	2344229	Y	1	
8	7:12:00 AM	65.1	67.7	3235937	Y	1	
9	7:13:00 AM	65.5	69.4	3548134	Y	1	
10	7:14:00 AM	64.8	70.5	3019952	Y	1	
11	7:15:00 AM	64.5	68.9	2818383	Y	1	
12	7:16:00 AM	63.3	66.7	2137962	Y	1	
13	7:17:00 AM	67.6	72.7	5754399	Y	1	
14	7:18:00 AM	63.6	67.4	2290868	Y	1	
15	7:19:00 AM	64.3	69.1	2691535	Y	1	
16	7:20:00 AM	65.4	72.7	3467369	Y	1	
17	7:21:00 AM	63.2	65.8	2089296	Y	1	
18	7:22:00 AM	68.2	77.2	6606934	Y	1	
19	7:23:00 AM	70.4	81.6	10964782	Y	1	
20	7:24:00 AM	65.1	68.4	3235937	Y	1	
21	7:25:00 AM	62.4	66.4	1737801	Y	1	
22	7:26:00 AM	61.2	65.3	1318257	Y	1	
23	7:27:00 AM	63.1	67.6	2041738	Y	1	
24	7:28:00 AM	67.6	73.3	5754399	Y	1	
25	7:29:00 AM	64.2	68	2630268	Y	1	
26	7:30:00 AM	61.7	66.8	1479108	Y	1	
27	7:31:00 AM	65.3	67.5	3388442	Y	1	
28	7:32:00 AM	62.3	68	1698244	Y	1	
29	7:33:00 AM	62.9	66.8	1949845	Y	1	
30	7:34:00 AM	64.3	66.5	2691535	Y	1	
31	7:35:00 AM	60.5	61.9	0	N	0	
		Energy Sum		101010569			30
		<b>Leq</b>		<b>65.3</b>			

## **Appendix B: TNM Input Data and Prediction Results**



Existing 2007 AM		Sheet 1 of 1	17 Feb 2008
Plan View		Bowlby and Associates, Inc.	
Run name: Existing		Project/Contract No. 07-05	
Scale:  1000 feet		TNM Version 2.5, Feb 2004	
Analysis By: G Pratt, C Patton			
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

3658000 3659000 3660000 3661000 3662000 3663000 3664000 3665000 3666000 3667000 3668000 3669000 3670000





**INPUT: ROADWAYS**

**07-05**

		SB 110+00	52	3,659,932.8	714,303.4	24.00				Average
		SB 108+00	53	3,659,755.2	714,205.2	25.00				Average
		SB 105+00	54	3,659,513.2	714,026.4	26.00				Average
		SB 103+00	55	3,659,366.8	713,884.8	26.00				Average
		SB 100+00	56	3,659,179.2	713,649.3	23.00				
NB LA 21 8th-11th	13.0	point60	60	3,664,538.8	717,360.9	17.00	Signal	0.00	30	Average
		NB 175+00	24	3,664,812.5	717,779.2	20.00				Average
		NB 180+00	25	3,665,087.0	718,196.5	20.00				Average
		NB 181+90	26	3,665,190.2	718,355.5	20.00				
SB LA 21 Bootlegger to 8th	13.0	point61	61	3,664,516.8	717,375.0	17.00	Signal	0.00	30	Average
		SB 165+00	35	3,664,243.0	716,956.8	17.00				Average
		SB 160+00	36	3,663,975.0	716,534.7	17.00				Average
		SB 155+00	37	3,663,701.0	716,116.5	18.00				Average
		SB 150+00	38	3,663,421.5	715,702.1	18.00				Average
		SB 145+00	39	3,663,147.2	715,286.5	24.00				Average
		SB 143+00	40	3,663,022.5	715,129.9	24.00				Average
		SB 140+00	41	3,662,808.0	714,923.9	24.00				Average
		SB 138+00	42	3,662,646.0	714,804.5	24.00				Average
		SB 135+00	43	3,662,386.5	714,661.5	24.00				Average
		SB 133+00	44	3,662,199.5	714,588.5	24.00				Average
		SB 130+00	45	3,661,909.8	714,517.8	24.00				Average
		SB 128+00	46	3,661,712.0	714,496.0	24.00				Average
		SB 125+00	47	3,661,411.8	714,493.7	24.00				Average
		SB 120+00	48	3,660,912.0	714,496.2	23.00				Average
		SB 118+00	49	3,660,710.2	714,495.8	23.00				Average
		SB 115+00	50	3,660,411.5	714,462.5	24.00				Average
		SB 113+00	51	3,660,213.5	714,414.2	24.00				
NB LA 21 N of 11th	13.0	point62	62	3,665,190.2	718,355.5	20.00	Signal	0.00	30	Average
		NB 183+50	27	3,665,277.8	718,488.0	19.00				Average
		NB 185+00	28	3,665,360.8	718,616.1	19.00				
SB LA 21 8th-11th Avenue	13.0	point63	63	3,665,168.5	718,370.0	20.00	Signal	0.00	30	Average
		SB 180+00	32	3,665,064.5	718,211.6	20.00				Average
		SB 175+00	33	3,664,790.8	717,793.1	20.00				Average
		SB 170+00	34	3,664,516.8	717,375.0	17.00				
SB LA 21 N of 11th	13.0	SB 185+00	29	3,665,339.0	718,630.2	19.00				Average
		SB 183+50	57	3,665,255.8	718,502.1	19.00				Average
		SB 181+90	31	3,665,168.5	718,370.0	20.00				

Bowlby and Associates, Inc.		17 February 2008										
G Pratt, C Patton		TNM 2.5										
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:		07-05										
RUN:		Existing 2007 AM										
Roadway	Points											
Name	Name	No.	Segment		MTrucks		HTrucks		Buses		Motorcycles	
			Autos		V	S	V	S	V	S	V	S
			V	S	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
NB LA 21 South of Bootlegger	NB 100+00	1	865	45	23	45	13	45	0	0	0	0
	NB 103+00	2	865	45	23	45	13	45	0	0	0	0
	NB 105+00	3	865	45	23	45	13	45	0	0	0	0
	NB 108+00	4	865	45	23	45	13	45	0	0	0	0
	NB 110+00	5	865	45	23	45	13	45	0	0	0	0
	NB 113+00	6										
NB LA 21 Bootlegger to 8th	point58	58	1225	45	25	45	13	45	0	0	0	0
	NB 115+00	7	1225	45	25	45	13	45	0	0	0	0
	NB 118+00	8	1225	45	25	45	13	45	0	0	0	0
	NB 120+00	9	1225	45	25	45	13	45	0	0	0	0
	NB 125+00	10	1225	45	25	45	13	45	0	0	0	0
	NB 128+00	11	1225	45	25	45	13	45	0	0	0	0
	NB 130+00	12	1225	45	25	45	13	45	0	0	0	0
	NB 133+00	13	1225	45	25	45	13	45	0	0	0	0
	NB 135+00	14	1225	45	25	45	13	45	0	0	0	0
	NB 138+00	15	1225	45	25	45	13	45	0	0	0	0
	NB 140+00	16	1225	45	25	45	13	45	0	0	0	0
	NB 143+00	17	1225	45	25	45	13	45	0	0	0	0
	NB 145+00	18	1225	45	25	45	13	45	0	0	0	0
	NB 150+00	19	1225	45	25	45	13	45	0	0	0	0
	NB 155+00	20	1225	45	25	45	13	45	0	0	0	0
	NB 160+00	21	1225	45	25	45	13	45	0	0	0	0
	NB 165+00	22	1225	45	25	45	13	45	0	0	0	0

**INPUT: TRAFFIC FOR LAeq1h Volumes**

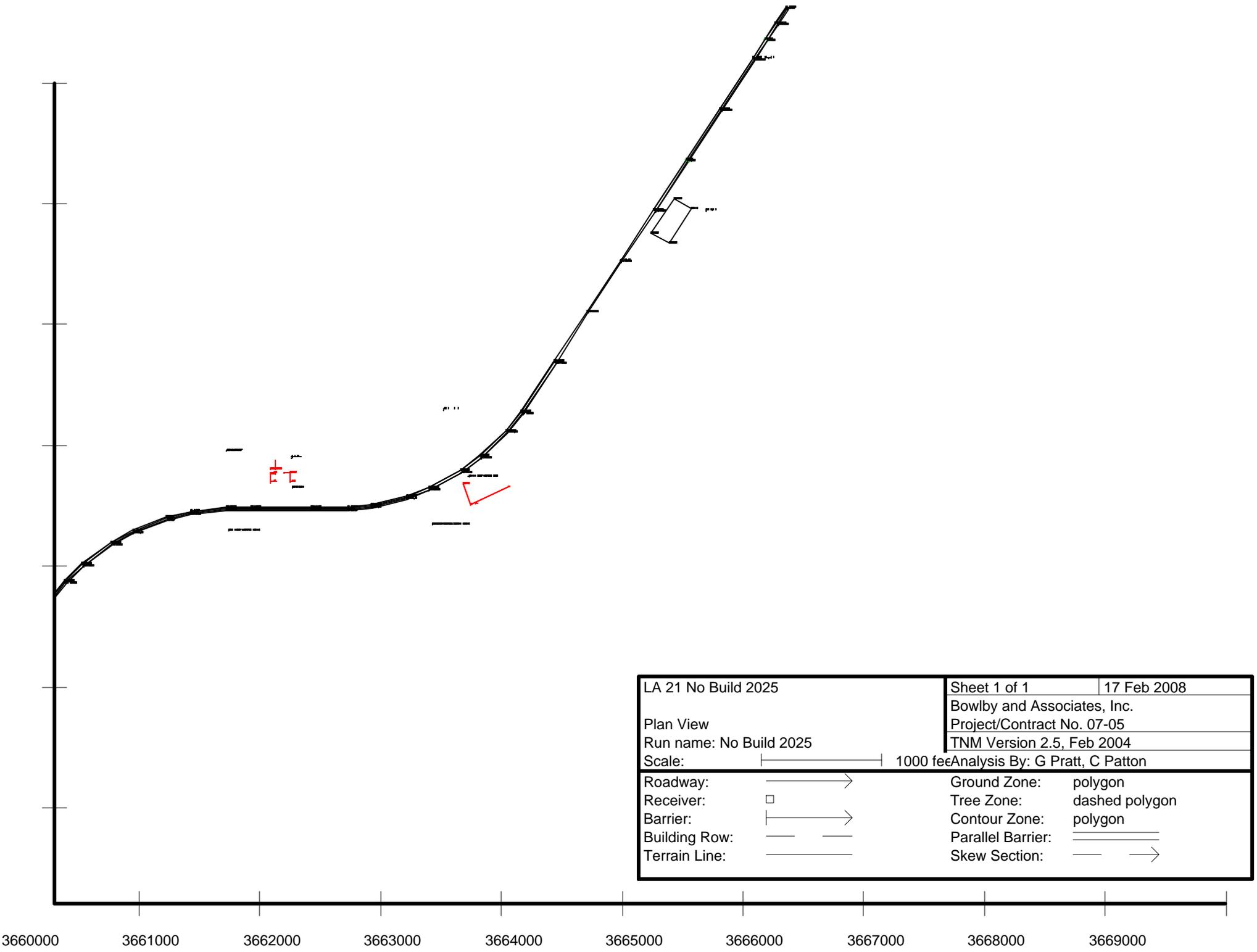
**07-05**

	NB 170+00	23										
SB LA 21 South of Bootlegger	point59	59	1086	45	22	45	11	45	0	0	0	0
	SB 110+00	52	1086	45	22	45	11	45	0	0	0	0
	SB 108+00	53	1086	45	22	45	11	45	0	0	0	0
	SB 105+00	54	1086	45	22	45	11	45	0	0	0	0
	SB 103+00	55	1086	45	22	45	11	45	0	0	0	0
	SB 100+00	56										
NB LA 21 8th-11th	point60	60	779	25	16	25	8	25	0	0	0	0
	NB 175+00	24	779	25	16	25	8	25	0	0	0	0
	NB 180+00	25	779	25	16	25	8	25	0	0	0	0
	NB 181+90	26										
SB LA 21 Bootlegger to 8th	point61	61	1036	45	21	45	11	45	0	0	0	0
	SB 165+00	35	1036	45	21	45	11	45	0	0	0	0
	SB 160+00	36	1036	45	21	45	11	45	0	0	0	0
	SB 155+00	37	1036	45	21	45	11	45	0	0	0	0
	SB 150+00	38	1036	45	21	45	11	45	0	0	0	0
	SB 145+00	39	1036	45	21	45	11	45	0	0	0	0
	SB 143+00	40	1036	45	21	45	11	45	0	0	0	0
	SB 140+00	41	1036	45	21	45	11	45	0	0	0	0
	SB 138+00	42	1036	45	21	45	11	45	0	0	0	0
	SB 135+00	43	1036	45	21	45	11	45	0	0	0	0
	SB 133+00	44	1036	45	21	45	11	45	0	0	0	0
	SB 130+00	45	1036	45	21	45	11	45	0	0	0	0
	SB 128+00	46	1036	45	21	45	11	45	0	0	0	0
	SB 125+00	47	1036	45	21	45	11	45	0	0	0	0
	SB 120+00	48	1036	45	21	45	11	45	0	0	0	0
	SB 118+00	49	1036	45	21	45	11	45	0	0	0	0
	SB 115+00	50	1036	45	21	45	11	45	0	0	0	0
	SB 113+00	51										
NB LA 21 N of 11th	point62	62	678	25	14	25	14	25	0	0	0	0
	NB 183+50	27	678	25	14	25	14	25	0	0	0	0
	NB 185+00	28										
SB LA 21 8th-11th Avenue	point63	63	793	25	16	25	8	25	0	0	0	0
	SB 180+00	32	793	25	16	25	8	25	0	0	0	0
	SB 175+00	33	793	25	16	25	8	25	0	0	0	0
	SB 170+00	34										

**INPUT: TRAFFIC FOR LAeq1h Volumes****07-05**

SB LA 21 N of 11th	SB 185+00	29	736	25	15	25	15	25	0	0	0	0
	SB 183+50	57	736	25	15	25	15	25	0	0	0	0
	SB 181+90	31										







Bowlby and Associates, Inc.		17 February 2008	
G Pratt, C Patton		TNM 2.5	
INPUT: ROADWAYS		Average pavement type shall be used unless	
PROJECT/CONTRACT: 07-05		a State highway agency substantiates the use	
RUN: LA 21 No Build 2025		of a different type with the approval of FHWA	

Roadway Name	Width	Points			Coordinates (pavement)			Flow Control			Segment		
		Name	No.		X	Y	Z	Control Device	Speed Constraint	Percent Vehicles Affected		Pvmt Type	On Struct?
	ft				ft	ft	ft		mph	%			
NB LA 21 South of Bootlegger	13.0	NB 100+0	1		3,659,200.8	713,634.6	23.00				Average		
		NB 103+0	2		3,659,387.0	713,868.7	26.00				Average		
		NB 105+0	3		3,659,530.5	714,007.1	26.00					Average	
		NB 108+0	4		3,659,769.5	714,183.4	25.00					Average	
		NB 110+0	5		3,659,944.5	714,280.0	24.00					Average	
NB LA 21 Bootlegger to 8th	13.0	NB 113+0	6		3,660,220.8	714,389.3	24.00						
		point58	58		3,660,220.8	714,389.3	24.00					Average	
		NB 115+0	7		3,660,414.8	714,436.5	23.00					Average	
		NB 118+0	8		3,660,711.0	714,469.8	21.00					Average	
		NB 120+0	9		3,660,911.8	714,470.1	22.00					Average	
		NB 125+0	10		3,661,411.8	714,467.5	23.00					Average	
		NB 128+0	11		3,661,712.0	714,469.9	22.00					Average	
		NB 130+0	12		3,661,915.0	714,492.3	23.00					Average	
		NB 133+0	13		3,662,205.8	714,563.4	23.00					Average	
		NB 135+0	14		3,662,394.0	714,636.8	23.00					Average	
		NB 138+0	15		3,662,661.0	714,783.2	24.00					Average	
		NB 140+0	16		3,662,822.0	714,901.8	24.00					Average	
		NB 143+0	17		3,663,040.5	715,111.5	24.00					Average	
		NB 145+0	18		3,663,166.5	715,268.9	24.00					Average	
NB 150+0	19		3,663,443.0	715,687.8	18.00					Average			
NB 155+0	20		3,663,711.2	716,110.1	18.00					Average			
NB 160+0	21		3,663,985.0	716,528.4	17.00					Average			
NB 165+0	22		3,664,265.0	716,942.9	17.00					Average			
NB 170+0	23		3,664,538.8	717,360.9	17.00								
SB LA 21 South of Bootlegger	13.0	point59	59		3,660,213.5	714,414.2	24.00	Signal	0.00	50	Average		

**INPUT: ROADWAYS**

**07-05**

		SB 110+00	52	3,659,932.8	714,303.4	24.00				Average
		SB 108+00	53	3,659,755.2	714,205.2	25.00				Average
		SB 105+00	54	3,659,513.2	714,026.4	26.00				Average
		SB 103+00	55	3,659,366.8	713,884.8	26.00				Average
		SB 100+00	56	3,659,179.2	713,649.3	23.00				
NB LA 21 8th-11th	13.0	point60	60	3,664,538.8	717,360.9	17.00	Signal	0.00	30	Average
		NB 175+00	24	3,664,812.5	717,779.2	20.00				Average
		NB 180+00	25	3,665,087.0	718,196.5	20.00				Average
		NB 181+90	26	3,665,190.2	718,355.5	20.00				
SB LA 21 Bootlegger to 8th	13.0	point61	61	3,664,516.8	717,375.0	17.00	Signal	0.00	30	Average
		SB 165+00	35	3,664,243.0	716,956.8	17.00				Average
		SB 160+00	36	3,663,975.0	716,534.7	17.00				Average
		SB 155+00	37	3,663,701.0	716,116.5	18.00				Average
		SB 150+00	38	3,663,421.5	715,702.1	18.00				Average
		SB 145+00	39	3,663,147.2	715,286.5	24.00				Average
		SB 143+00	40	3,663,022.5	715,129.9	24.00				Average
		SB 140+00	41	3,662,808.0	714,923.9	24.00				Average
		SB 138+00	42	3,662,646.0	714,804.5	24.00				Average
		SB 135+00	43	3,662,386.5	714,661.5	24.00				Average
		SB 133+00	44	3,662,199.5	714,588.5	24.00				Average
		SB 130+00	45	3,661,909.8	714,517.8	24.00				Average
		SB 128+00	46	3,661,712.0	714,496.0	24.00				Average
		SB 125+00	47	3,661,411.8	714,493.7	24.00				Average
		SB 120+00	48	3,660,912.0	714,496.2	23.00				Average
		SB 118+00	49	3,660,710.2	714,495.8	23.00				Average
		SB 115+00	50	3,660,411.5	714,462.5	24.00				Average
		SB 113+00	51	3,660,213.5	714,414.2	24.00				
NB LA 21 N of 11th	13.0	point62	62	3,665,190.2	718,355.5	20.00	Signal	0.00	30	Average
		NB 183+50	27	3,665,277.8	718,488.0	19.00				Average
		NB 185+00	28	3,665,360.8	718,616.1	19.00				
SB LA 21 8th-11th Avenue	13.0	point63	63	3,665,168.5	718,370.0	20.00	Signal	0.00	30	Average
		SB 180+00	32	3,665,064.5	718,211.6	20.00				Average
		SB 175+00	33	3,664,790.8	717,793.1	20.00				Average
		SB 170+00	34	3,664,516.8	717,375.0	17.00				
SB LA 21 N of 11th	13.0	SB 185+00	29	3,665,339.0	718,630.2	19.00				Average
		SB 183+50	57	3,665,255.8	718,502.1	19.00				Average
		SB 181+90	31	3,665,168.5	718,370.0	20.00				

Bowlby and Associates, Inc.		17 February 2008										
G Pratt, C Patton		TNM 2.5										
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:		07-05										
RUN:		LA 21 No Build 2025										
Roadway	Points											
Name	Name	No.	Segment		MTrucks		HTrucks		Buses		Motorcycles	
			Autos		V	S	V	S	V	S	V	S
			V	S	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
NB LA 21 South of Bootlegger	NB 100+00	1	1291	45	27	45	13	45	0	0	0	0
	NB 103+00	2	1291	45	27	45	13	45	0	0	0	0
	NB 105+00	3	1291	45	27	45	13	45	0	0	0	0
	NB 108+00	4	1291	45	27	45	13	45	0	0	0	0
	NB 110+00	5	1291	45	27	45	13	45	0	0	0	0
	NB 113+00	6										
NB LA 21 Bootlegger to 8th	point58	58	1480	35	31	35	15	35	0	0	0	0
	NB 115+00	7	1480	35	31	35	15	35	0	0	0	0
	NB 118+00	8	1480	35	31	35	15	35	0	0	0	0
	NB 120+00	9	1480	35	31	35	15	35	0	0	0	0
	NB 125+00	10	1480	35	31	35	15	35	0	0	0	0
	NB 128+00	11	1480	35	31	35	15	35	0	0	0	0
	NB 130+00	12	1480	35	31	35	15	35	0	0	0	0
	NB 133+00	13	1480	35	31	35	15	35	0	0	0	0
	NB 135+00	14	1480	35	31	35	15	35	0	0	0	0
	NB 138+00	15	1480	35	31	35	15	35	0	0	0	0
	NB 140+00	16	1480	35	31	35	15	35	0	0	0	0
	NB 143+00	17	1480	35	31	35	15	35	0	0	0	0
	NB 145+00	18	1480	35	31	35	15	35	0	0	0	0
	NB 150+00	19	1480	35	31	35	15	35	0	0	0	0
	NB 155+00	20	1480	35	31	35	15	35	0	0	0	0
	NB 160+00	21	1480	35	31	35	15	35	0	0	0	0
	NB 165+00	22	1480	35	31	35	15	35	0	0	0	0

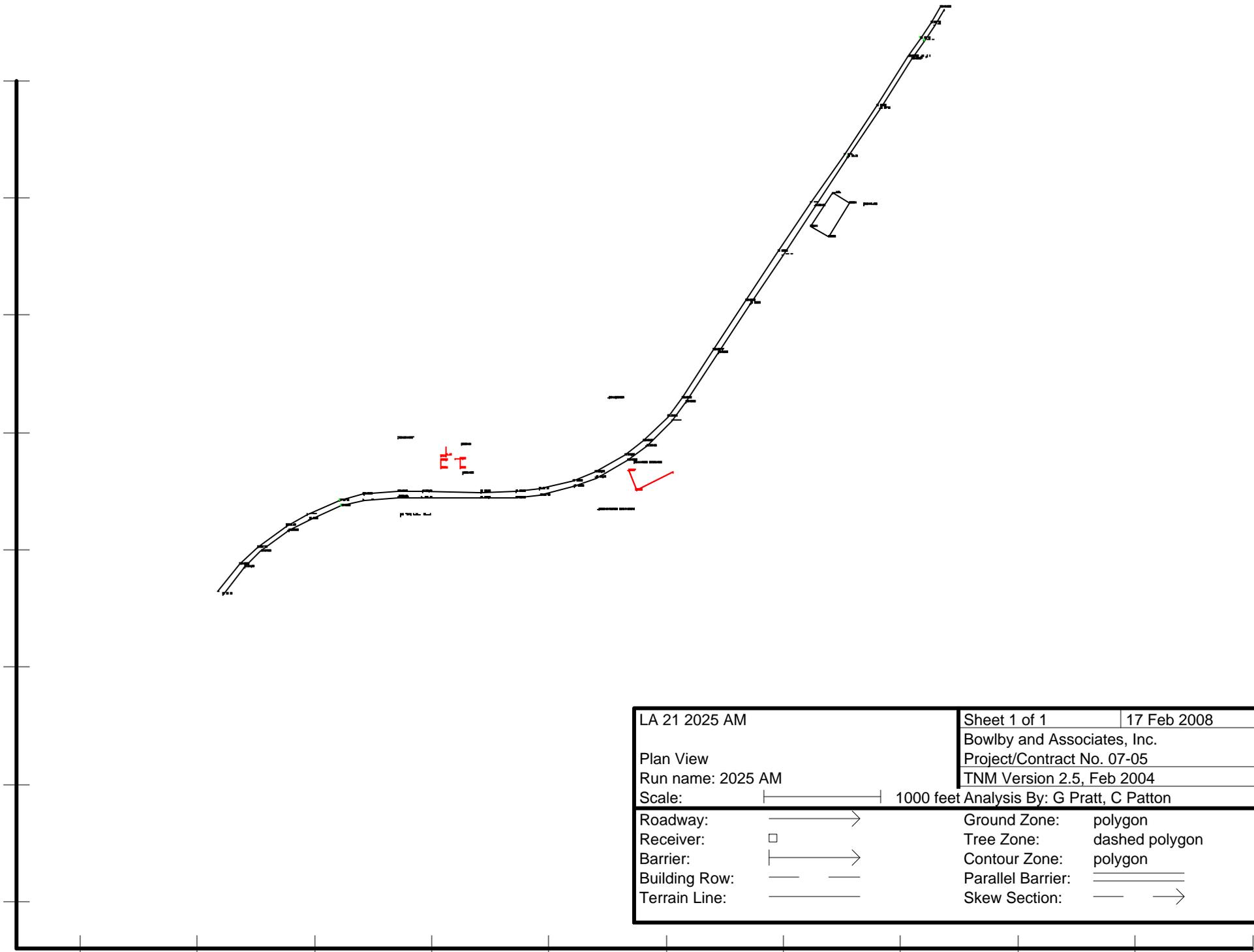
**INPUT: TRAFFIC FOR LAeq1h Volumes**

**07-05**

	NB 170+00	23										
SB LA 21 South of Bootlegger	point59	59	1312	45	27	45	14	45	0	0	0	0
	SB 110+00	52	1312	45	27	45	14	45	0	0	0	0
	SB 108+00	53	1312	45	27	45	14	45	0	0	0	0
	SB 105+00	54	1312	45	27	45	14	45	0	0	0	0
	SB 103+00	55	1312	45	27	45	14	45	0	0	0	0
	SB 100+00	56										
NB LA 21 8th-11th	point60	60	941	25	19	25	10	25	0	0	0	0
	NB 175+00	24	941	25	19	25	10	25	0	0	0	0
	NB 180+00	25	941	25	19	25	10	25	0	0	0	0
	NB 181+90	26										
SB LA 21 Bootlegger to 8th	point61	26	1251	35	26	35	13	35	0	0	0	0
	SB 165+00	35	1251	35	26	35	13	35	0	0	0	0
	SB 160+00	36	1251	35	26	35	13	35	0	0	0	0
	SB 155+00	37	1251	35	26	35	13	35	0	0	0	0
	SB 150+00	38	1251	35	26	35	13	35	0	0	0	0
	SB 145+00	39	1251	35	26	35	13	35	0	0	0	0
	SB 143+00	40	1251	35	26	35	13	35	0	0	0	0
	SB 140+00	41	1251	35	26	35	13	35	0	0	0	0
	SB 138+00	42	1251	35	26	35	13	35	0	0	0	0
	SB 135+00	43	1251	35	26	35	13	35	0	0	0	0
	SB 133+00	44	1251	35	26	35	13	35	0	0	0	0
	SB 130+00	45	1251	35	26	35	13	35	0	0	0	0
	SB 128+00	46	1251	35	26	35	13	35	0	0	0	0
	SB 125+00	47	1251	35	26	35	13	35	0	0	0	0
	SB 120+00	48	1251	35	26	35	13	35	0	0	0	0
	SB 118+00	49	1251	35	26	35	13	35	0	0	0	0
	SB 115+00	50	1251	35	26	35	13	35	0	0	0	0
	SB 113+00	51										
NB LA 21 N of 11th	point62	62	819	25	17	25	17	25	0	0	0	0
	NB 183+50	27	819	25	17	25	17	25	0	0	0	0
	NB 185+00	28										
SB LA 21 8th-11th Avenue	point63	63	958	25	20	25	10	25	0	0	0	0
	SB 180+00	32	958	25	20	25	10	25	0	0	0	0
	SB 175+00	33	958	25	20	25	10	25	0	0	0	0
	SB 170+00	34										

**INPUT: TRAFFIC FOR LAeq1h Volumes****07-05**

SB LA 21 N of 11th	SB 185+00	29	890	25	19	25	19	25	0	0	0	0
	SB 183+50	57	890	25	19	25	19	25	0	0	0	0
	SB 181+90	31										



LA 21 2025 AM		Sheet 1 of 1	17 Feb 2008
Plan View		Bowlby and Associates, Inc.	
Run name: 2025 AM		Project/Contract No. 07-05	
Scale: 		TNM Version 2.5, Feb 2004	
Analysis By: G Pratt, C Patton			
Roadway:		Ground Zone:	polygon
Receiver:		Tree Zone:	dashed polygon
Barrier:		Contour Zone:	polygon
Building Row:		Parallel Barrier:	
Terrain Line:		Skew Section:	

3658000 3659000 3660000 3661000 3662000 3663000 3664000 3665000 3666000 3667000 3668000





**INPUT: ROADWAYS**

**07-05**

		SB 118+00	49	3,660,710.2	714,506.2	23.00				Average
		SB 115+00	50	3,660,408.8	714,482.9	24.00				Average
		SB 113+00	51	3,660,207.2	714,433.8	24.00				
SB LA 21 S of Bootlegger	28.0	SB 113+00	61	3,660,207.2	714,433.8	24.00	Signal	0.00	30	Average
		SB 110+00	52	3,659,927.8	714,313.1	24.00				Average
		SB 108+00	53	3,659,749.2	714,214.5	25.00				Average
		SB 105+00	54	3,659,506.0	714,034.7	26.00				Average
		SB 103+00	55	3,659,358.0	713,891.5	26.00				Average
		SB 100+00	56	3,659,170.2	713,655.6	23.00				
NB LA 21 N of 11th	39.0	NB 181+90	65	3,665,195.2	718,352.4	20.00	Signal	0.00	30	Average
		NB 183+50	27	3,665,282.0	718,485.0	19.00				Average
		NB 185+00	28	3,665,365.8	718,612.9	19.00				
SB LA 21 Between 8th and 11th Street	39.0	SB 181+90	66	3,665,163.2	718,373.2	20.00	Signal	0.00	30	Average
		SB 180+00	32	3,665,059.5	718,214.7	20.00				Average
		SB 175+00	33	3,664,787.2	717,795.3	20.00				Average
		SB 170+00	34	3,664,511.2	717,378.5	17.00				
NB LA 21 Bootlegger - 8th	28.0	NB 113+00	62	3,660,221.2	714,387.9	24.00	Signal	0.00	30	Average
		NB 115+00	7	3,660,415.2	714,435.3	23.00				Average
		NB 118+00	8	3,660,711.5	714,458.3	21.00				Average
		NB 120+00	9	3,660,912.0	714,457.3	22.00				Average
		NB 125+00	10	3,661,412.0	714,454.7	23.00				Average
		NB 128+00	11	3,661,712.2	714,456.2	22.00				Average
		NB 130+00	12	3,661,917.8	714,478.0	23.00				Average
		NB 133+00	13	3,662,209.0	714,549.8	23.00				Average
		NB 135+00	14	3,662,397.5	714,624.3	23.00				Average
		NB 138+00	15	3,662,666.5	714,775.1	24.00				Average
		NB 140+00	67	3,662,827.0	714,896.9	24.00				Average
		NB 143+00	17	3,663,041.8	715,110.4	24.00				Average
		NB 145+00	18	3,663,164.5	715,270.7	24.00				Average
		NB 150+00	19	3,663,439.5	715,690.0	18.00				Average
		NB 155+00	20	3,663,713.5	716,108.5	18.00				Average
		NB 160+00	21	3,663,987.5	716,526.7	17.00				Average
		NB 165+00	22	3,664,264.2	716,943.2	17.00				Average
		NB 170+00	23	3,664,543.2	717,358.1	17.00				
SB LA 21 North of 11th Street	39.0	SB 185+00	29	3,665,333.8	718,633.4	19.00				Average
		SB 183+50	57	3,665,250.2	718,505.6	19.00				Average
		SB 181+90	31	3,665,163.2	718,373.2	20.00				

Bowlby and Associates, Inc.		17 February 2008										
G Pratt, C Patton		TNM 2.5										
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:		07-05										
RUN:		LA 21 2025 AM										
Roadway	Points											
Name	Name	No.	Segment		MTrucks		HTrucks		Buses		Motorcycles	
			Autos									
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
NB LA 21 S of Bootlegger	NB 100+00	1	1556	45	32	45	16	45	0	0	0	0
	NB 103+00	2	1556	45	32	45	16	45	0	0	0	0
	NB 105+00	3	1556	45	32	45	16	45	0	0	0	0
	NB 108+00	4	1556	45	32	45	16	45	0	0	0	0
	NB 110+00	5	1556	45	32	45	16	45	0	0	0	0
	NB 113+00	6										
NB LA 21 Between 8th & 11th Street	NB 170+00	58	1369	25	28	25	14	25	0	0	0	0
	NB 175+00	24	1369	25	28	25	14	25	0	0	0	0
	NB 180+00	25	1369	25	28	25	14	25	0	0	0	0
	NB 181+90	26										
SB LA 21 Bootlegger- 8th Street	SB 170+00	59	1470	45	30	45	15	45	0	0	0	0
	SB 165+00	35	1470	45	30	45	15	45	0	0	0	0
	SB 160+00	36	1470	45	30	45	15	45	0	0	0	0
	SB 155+00	37	1470	45	30	45	15	45	0	0	0	0
	SB 150+00	38	1470	45	30	45	15	45	0	0	0	0
	SB 145+00	39	1470	45	30	45	15	45	0	0	0	0
	SB 143+00	40	1470	45	30	45	15	45	0	0	0	0
	SB 140+00	41	1470	45	30	45	15	45	0	0	0	0
	SB 138+00	42	1470	45	30	45	15	45	0	0	0	0
	SB 135+00	43	1470	45	30	45	15	45	0	0	0	0
	SB 133+00	44	1470	45	30	45	15	45	0	0	0	0
	SB 130+00	45	1470	45	30	45	15	45	0	0	0	0
	SB 128+00	46	1470	45	30	45	15	45	0	0	0	0

**INPUT: TRAFFIC FOR LAeq1h Volumes**

**07-05**

	SB 125+00	47	1470	45	30	45	15	45	0	0	0	0
	SB 120+00	48	1470	45	30	45	15	45	0	0	0	0
	SB 118+00	49	1470	45	30	45	15	45	0	0	0	0
	SB 115+00	50	1470	45	30	45	15	45	0	0	0	0
	SB 113+00	51										
SB LA 21 S of Bootlegger	SB 113+00	61	1359	45	28	45	14	45	0	0	0	0
	SB 110+00	52	1359	45	28	45	14	45	0	0	0	0
	SB 108+00	53	1359	45	28	45	14	45	0	0	0	0
	SB 105+00	54	1359	45	28	45	14	45	0	0	0	0
	SB 103+00	55	1359	45	28	45	14	45	0	0	0	0
	SB 100+00	56										
NB LA 21 N of 11th	NB 181+90	65	1281	25	27	25	27	25	0	0	0	0
	NB 183+50	27	1281	25	27	25	27	25	0	0	0	0
	NB 185+00	28										
SB LA 21 Between 8th an 11th Street	SB 181+90	66	942	25	19	25	10	25	0	0	0	0
	SB 180+00	32	942	25	19	25	10	25	0	0	0	0
	SB 175+00	33	942	25	19	25	10	25	0	0	0	0
	SB 170+00	34										
NB LA 21 Bootlegger - 8th	NB 113+00	62	1593	45	33	45	16	45	0	0	0	0
	NB 115+00	7	1593	45	33	45	16	45	0	0	0	0
	NB 118+00	8	1593	45	33	45	16	45	0	0	0	0
	NB 120+00	9	1593	45	33	45	16	45	0	0	0	0
	NB 125+00	10	1593	45	33	45	16	45	0	0	0	0
	NB 128+00	11	1593	45	33	45	16	45	0	0	0	0
	NB 130+00	12	1593	45	33	45	16	45	0	0	0	0
	NB 133+00	13	1593	45	33	45	16	45	0	0	0	0
	NB 135+00	14	1593	45	33	45	16	45	0	0	0	0
	NB 138+00	15	1593	45	33	45	16	45	0	0	0	0
	NB 140+00	67	1593	45	33	45	16	45	0	0	0	0
	NB 143+00	17	1593	45	33	45	16	45	0	0	0	0
	NB 145+00	18	1593	45	33	45	16	45	0	0	0	0
	NB 150+00	19	1593	45	33	45	16	45	0	0	0	0
	NB 155+00	20	1593	45	33	45	16	45	0	0	0	0
	NB 160+00	21	1593	45	33	45	16	45	0	0	0	0
	NB 165+00	22	1593	45	33	45	16	45	0	0	0	0
	NB 170+00	23										

**INPUT: TRAFFIC FOR LAeq1h Volumes****07-05**

SB LA 21 North of 11th Stree	SB 185+00	29	896	25	19	25	19	25	0	0	0	0
	SB 183+50	57	896	25	19	25	19	25	0	0	0	0
	SB 181+90	31										

**LA 2 | Widening Environmental Assessment**

State Project No. 736-52-0043

Federal Aid Project No. STP 5204 (508)

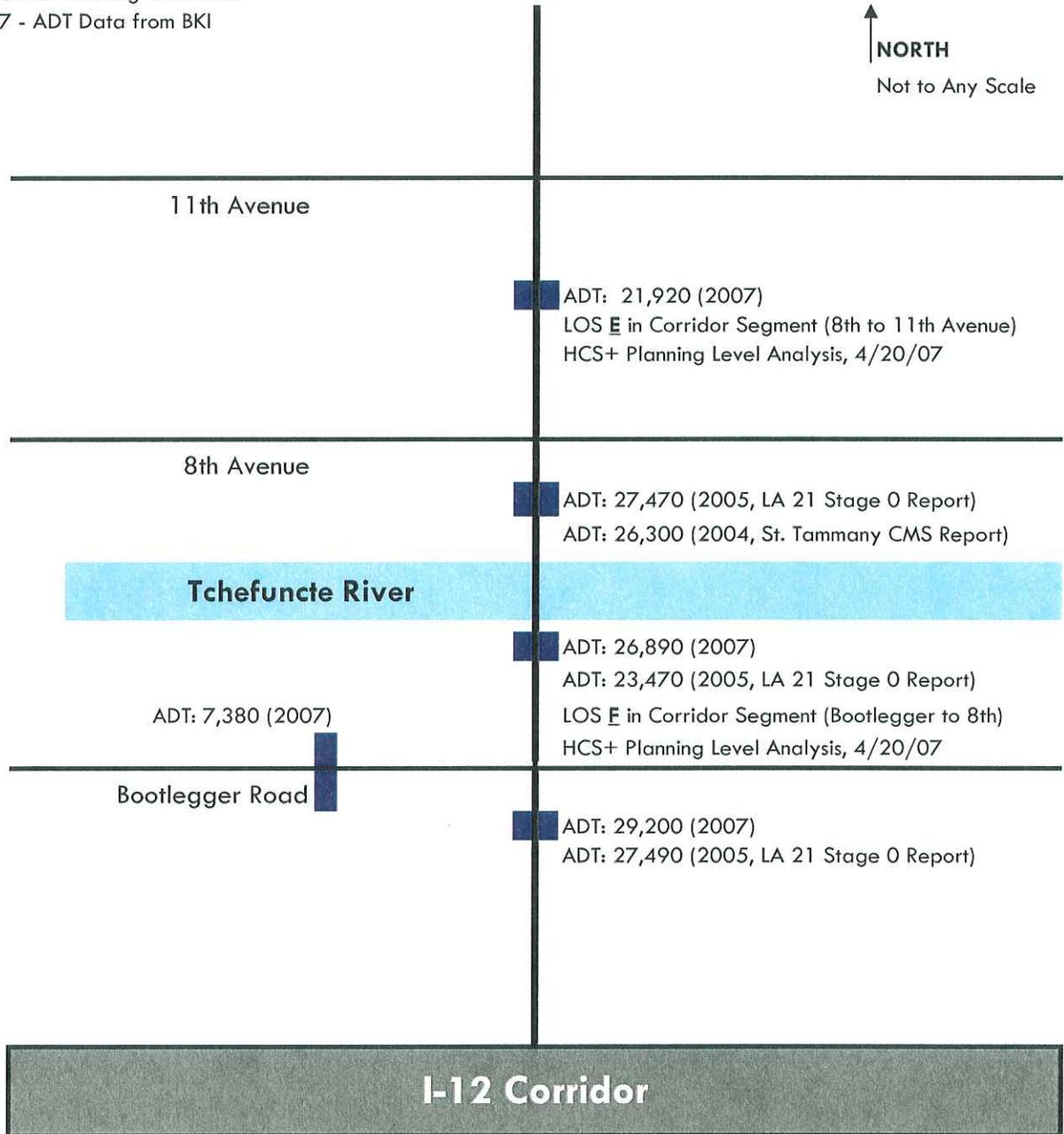
RPC Project No. 0043-ST

# A2. Traffic Analysis

**Roadway Capacity - Analysis using Average Daily Traffic + Existing Geometrics**

Analysis Period: Existing Conditions

Year 2007 - ADT Data from BKI



Data Sources:

- (1) Data collected during March 2007 by Burk-Kleinpeter, Inc.
- (2) Values shown rounded to the closest 10 vehicles
- (3) Urban Streets Analysis Release 4.1 f, HCS 2000, April 2007.

Compiled by Burk-Kleinpeter, Inc., 2007.

Planning Department  
Burk-Kleinpeter, Inc.  
4176 Canal Street

Phone: (504) 486-5901  
E-Mail: pwaidhas@bkusa.com

Fax: (504) 488-1714

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PLANNING ANALYSIS

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Analyst: LA 21 Highest Peak Analysis  
Agency/Co.: Planning Level Analysis  
Date Performed: 4/20/07  
Analysis Time Period: Highest Peak  
Urban Street: LA 21 Seg 1 8th to 11th  
Direction of Travel:  
Jurisdiction: Covington, LA  
Analysis Year: 2007  
Project ID: BKI Data with Factor - DOTD TSI (10343)

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Traffic Characteristics

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Annual average daily traffic, AADT	21920	vpd
Planning analysis hour factor, K	0.100	
Directional distribution factor, D	0.530	
Peak-hour factor, PHF	0.850	
Adjusted saturation flow rate	1750	pcphgpl
Percent turns from exclusive lanes	3	%

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Roadway Characteristics

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Number of through lanes one direction, N	1	
Free flow speed, FFS	30	mph
Urban class	4	
Section length	0.22	miles
Median	No	
Left-turn bays	Yes	

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Signal Characteristics

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Signalized intersections	2	
Arrival type, AT	2	
Signal type (k = 0.5 for planning)	Actuated	
Cycle length, C	140.0	sec
Effective green ratio, g/C	0.785	

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Results

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Annual average daily traffic, AADT	21920	vpd
Two-way hourly volume	2192	vph
Hourly directional volume	1161	vph
Through-volume 15-min. flow rate	1324	v
Running time	38.0	sec
v/c ratio	1.02	
Through capacity	1304	vph
Progression factor, PF	2.061	
Uniform delay	15.1	sec
Filtering/metering factor, I	0.090	
Incremental delay	11.7	sec
Control delay	42.8	sec/v

Total travel speed, Sa  
Total urban street LOS

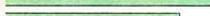
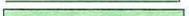
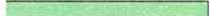
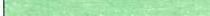
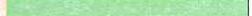
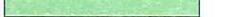
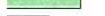
6.3  
F

mph

JAMAR Technologies, Inc.  
 151 Keith Valley Road  
 Horsham, PA 19044  
 Change These in the Preferences Screen

Site Code: 1  
 Station ID: 793  
 LA 21 NB

South of 11th Avenue  
 Latitude: 0' 0.000 Undefined

Start Time	Mon 19-Mar-07	Tue 20-Mar-07	Wed 21-Mar-07	Thu 22-Mar-07	Fri 23-Mar-07	Average Day	Sat 24-Mar-07	Sun 25-Mar-07	Week Average
12:00 AM	*	24	36	38	*	33	*	*	33 
01:00	*	9	22	20	*	17	*	*	17 
02:00	*	26	20	22	*	23	*	*	23 
03:00	*	15	10	28	*	18	*	*	18 
04:00	*	30	16	32	*	26	*	*	26 
05:00	*	99	92	102	*	98	*	*	98 
06:00	*	334	316	285	*	312	*	*	312 
07:00	*	742	732	718	*	731	*	*	731 
08:00	*	<b>784</b>	<b>824</b>	<b>778</b>	*	<b>795</b>	*	*	<b>795</b> 
09:00	*	658	631	676	*	655	*	*	655 
10:00	*	626	696	688	*	670	*	*	670 
11:00	*	706	762	755	*	741	*	*	741 
12:00 PM	*	788	800	762	*	783	*	*	783 
01:00	*	818	726	736	*	760	*	*	760 
02:00	*	878	877	880	*	878	*	*	878 
03:00	*	878	840	915	*	878	*	*	878 
04:00	*	<b>898</b>	894	920	*	904	*	*	904 
05:00	*	888	<b>906</b>	<b>927</b>	*	<b>907</b>	*	*	<b>907</b> 
06:00	*	742	710	724	*	725	*	*	725 
07:00	*	539	548	504	*	530	*	*	530 
08:00	*	338	378	352	*	356	*	*	356 
09:00	*	290	247	312	*	283	*	*	283 
10:00	*	153	168	174	*	165	*	*	165 
11:00	*	77	86	95	*	86	*	*	86 
Day Total	0	11340	11337	11443	0	11374	0	0	11374
% Avg. WkDay	0.0%	99.7%	99.7%	100.6%	0.0%				
% Avg. Week	0.0%	99.7%	99.7%	100.6%	0.0%	100.0%	0.0%	0.0%	
AM Peak Vol.		08:00 784	08:00 824	08:00 778		08:00 795			08:00 795
PM Peak Vol.		16:00 898	17:00 906	17:00 927		17:00 907			17:00 907
Grand Total	0	11340	11337	11443	0	11374	0	0	11374
ADT		ADT 11,373		AADT 11,373					

JAMAR Technologies, Inc.  
 151 Keith Valley Road  
 Horsham, PA 19044  
 Change These in the Preferences Screen

Site Code: 2  
 Station ID: 794  
 LA 21 SB  
 South of 11th

Latitude: 0' 0.000 Undefined

Start Time	Mon 19-Mar-07	Tue 20-Mar-07	Wed 21-Mar-07	Thu 22-Mar-07	Fri 23-Mar-07	Average Day	Sat 24-Mar-07	Sun 25-Mar-07	Week Average
12:00 AM	*	20	24	32	*	25	*	*	25
01:00	*	13	9	18	*	13	*	*	13
02:00	*	10	11	12	*	11	*	*	11
03:00	*	31	30	37	*	33	*	*	33
04:00	*	90	75	82	*	82	*	*	82
05:00	*	185	166	173	*	175	*	*	175
06:00	*	502	540	504	*	515	*	*	515
07:00	*	810	<b>786</b>	804	*	800	*	*	800
08:00	*	<b>872</b>	776	<b>876</b>	*	<b>841</b>	*	*	<b>841</b>
09:00	*	730	726	794	*	750	*	*	750
10:00	*	714	669	664	*	682	*	*	682
11:00	*	704	691	686	*	694	*	*	694
12:00 PM	*	674	720	740	*	711	*	*	711
01:00	*	714	710	742	*	722	*	*	722
02:00	*	<b>786</b>	<b>749</b>	724	*	<b>753</b>	*	*	<b>753</b>
03:00	*	704	722	<b>762</b>	*	729	*	*	729
04:00	*	686	720	665	*	690	*	*	690
05:00	*	652	684	640	*	659	*	*	659
06:00	*	602	505	534	*	547	*	*	547
07:00	*	419	379	444	*	414	*	*	414
08:00	*	356	309	308	*	324	*	*	324
09:00	*	204	186	238	*	209	*	*	209
10:00	*	100	106	137	*	114	*	*	114
11:00	*	50	59	63	*	57	*	*	57
Day Total	0	10628	10352	10679	0	10550	0	0	10550
% Avg. WkDay	0.0%	100.7%	98.1%	101.2%	0.0%				
% Avg. Week	0.0%	100.7%	98.1%	101.2%	0.0%	100.0%	0.0%	0.0%	
AM Peak		08:00	07:00	08:00		08:00			08:00
Vol.		872	786	876		841			841
PM Peak		14:00	14:00	15:00		14:00			14:00
Vol.		786	749	762		753			753
Grand Total	0	10628	10352	10679	0	10550	0	0	10550
ADT		ADT 10,553		AADT 10,553					

Planning Department  
 Burk-Kleinpeter, Inc.  
 4176 Canal Street

Phone: (504) 486-5901  
 E-Mail: pwaidhas@bkusa.com

Fax: (504) 488-1714

-----  
 PLANNING ANALYSIS  
 -----

Analyst: LA 21 Highest Peak Analysis  
 Agency/Co.: Planning Level Analysis  
 Date Performed: 04/20/07  
 Analysis Time Period: Highest Peak  
 Urban Street: LA 21 - Bootlegger to 8th  
 Direction of Travel:  
 Jurisdiction: St. Tammany Parish  
 Analysis Year: 2007 - Existing  
 Project ID: DOTD Data with Factor - Existing TSI (10343-01)

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 Traffic Characteristics  
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Annual average daily traffic, AADT	26890	vpd
Planning analysis hour factor, K	0.100	
Directional distribution factor, D	0.500	
Peak-hour factor, PHF	0.850	
Adjusted saturation flow rate	1850	pcphgpl
Percent turns from exclusive lanes	3	%

-----  
 Roadway Characteristics  
 -----

Number of through lanes one direction, N	1	
Free flow speed, FFS	45	mph
Urban class	2	
Section length	1.21	miles
Median	No	
Left-turn bays	Yes	

-----  
 Signal Characteristics  
 -----

Signalized intersections	2	
Arrival type, AT	2	
Signal type (k = 0.5 for planning)	Actuated	
Cycle length, C	140.0	sec
Effective green ratio, g/C	0.785	

-----  
 Results  
 -----

Annual average daily traffic, AADT	26890	vpd
Two-way hourly volume	2689	vph
Hourly directional volume	1344	vph
Through-volume 15-min. flow rate	1533	v
Running time	104.6	sec
v/c ratio	1.11	
Through capacity	1379	vph
Progression factor, PF	2.061	
Uniform delay	15.1	sec
Filtering/metering factor, I	0.090	
Incremental delay	51.4	sec
Control delay	82.4	sec/v

Total travel speed, Sa  
Total urban street LOS

16.2  
E

mph

JAMAR Technologies, Inc.  
 151 Keith Valley Road  
 Horsham, PA 19044  
 Change These in the Preferences Screen

Site Code: 6  
 Station ID: 499

LA 21

South of the Bridge

Latitude: 0' 0.000 Undefined

Start Time	20-Mar-07		21-Mar-07		22-Mar-07		23-Mar-07		24-Mar-07		25-Mar-07		26-Mar-07		Week Average	
	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
12:00 AM	24	25	25	35	37	34	*	*	*	*	*	*	*	*	29	31
01:00	15	8	11	26	21	23	*	*	*	*	*	*	*	*	16	19
02:00	11	30	17	25	17	25	*	*	*	*	*	*	*	*	15	27
03:00	33	12	28	10	35	27	*	*	*	*	*	*	*	*	32	16
04:00	94	37	70	18	93	30	*	*	*	*	*	*	*	*	86	28
05:00	173	123	155	119	157	134	*	*	*	*	*	*	*	*	162	125
06:00	482	488	520	506	494	448	*	*	*	*	*	*	*	*	499	481
07:00	1001	1170	993	1178	1045	1128	*	*	*	*	*	*	*	*	1013	1159
08:00	1010	965	910	1015	1033	979	*	*	*	*	*	*	*	*	984	986
09:00	863	755	864	766	904	799	*	*	*	*	*	*	*	*	877	773
10:00	828	711	780	782	778	777	*	*	*	*	*	*	*	*	795	757
11:00	853	833	808	873	848	871	*	*	*	*	*	*	*	*	836	859
12:00 PM	783	863	860	862	880	878	*	*	*	*	*	*	*	*	841	868
01:00	864	914	833	818	837	832	*	*	*	*	*	*	*	*	845	855
02:00	985	1035	948	1013	948	1030	*	*	*	*	*	*	*	*	960	1026
03:00	1016	1041	1087	1009	1093	1093	*	*	*	*	*	*	*	*	1065	1048
04:00	965	1088	990	1036	967	1155	*	*	*	*	*	*	*	*	974	1093
05:00	892	1112	925	1122	884	1236	*	*	*	*	*	*	*	*	900	1157
06:00	699	913	625	886	654	973	*	*	*	*	*	*	*	*	659	924
07:00	527	581	528	575	562	563	*	*	*	*	*	*	*	*	539	573
08:00	509	346	371	410	424	418	*	*	*	*	*	*	*	*	435	391
09:00	297	325	246	292	357	375	*	*	*	*	*	*	*	*	300	331
10:00	127	154	136	182	214	191	*	*	*	*	*	*	*	*	159	176
11:00	73	73	90	82	83	100	*	*	*	*	*	*	*	*	82	85
Total Day	13124	13602	12820	13640	13365	14119	0	0	0	0	0	0	0	0	13103	13788
AM Peak Vol.	1010	1170	993	1178	1045	1128									1013	1159
PM Peak Vol.	1016	1112	1087	1122	1093	1236									1065	1157

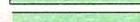
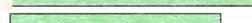
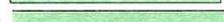
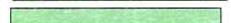
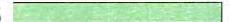
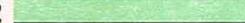
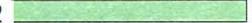
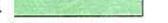
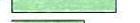
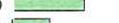
Comb. Total	26726	26460	27484	0	0	0	0	26891
ADT	ADT 26,890	AADT 26,890						

JAMAR Technologies, Inc.  
 151 Keith Valley Road  
 Horsham, PA 19044  
 Change These in the Preferences Screen

Site Code: 5  
 Station ID: 792  
 LA 21 NB

South of Bootlegger  
 Latitude: 0' 0.000 Undefined

Start Time	Mon 19-Mar-07	Tue 20-Mar-07	Wed 21-Mar-07	Thu 22-Mar-07	Fri 23-Mar-07	Average Day	Sat 24-Mar-07	Sun 25-Mar-07	Week Average
12:00 AM	*	36	40	48	*	41	*	*	41
01:00	*	11	32	32	*	25	*	*	25
02:00	*	31	24	50	*	35	*	*	35
03:00	*	12	13	30	*	18	*	*	18
04:00	*	36	18	28	*	27	*	*	27
05:00	*	106	114	123	*	114	*	*	114
06:00	*	538	518	462	*	506	*	*	506
07:00	*	1164	<b>1216</b>	1138	*	<b>1173</b>	*	*	<b>1173</b>
08:00	*	<b>1175</b>	1166	<b>1164</b>	*	1168	*	*	1168
09:00	*	884	888	893	*	888	*	*	888
10:00	*	830	848	815	*	831	*	*	831
11:00	*	852	928	907	*	896	*	*	896
12:00 PM	*	952	920	965	*	946	*	*	946
01:00	*	978	918	982	*	959	*	*	959
02:00	*	1116	1087	1100	*	1101	*	*	1101
03:00	*	<b>1160</b>	1078	1194	*	1144	*	*	1144
04:00	*	1150	1114	<b>1203</b>	*	1156	*	*	1156
05:00	*	1114	<b>1214</b>	1195	*	<b>1174</b>	*	*	<b>1174</b>
06:00	*	1042	986	1004	*	1011	*	*	1011
07:00	*	648	630	638	*	639	*	*	639
08:00	*	398	481	510	*	463	*	*	463
09:00	*	328	326	381	*	345	*	*	345
10:00	*	186	200	210	*	199	*	*	199
11:00	*	84	93	115	*	97	*	*	97
Day Total	0	14831	14852	15187	0	14956	0	0	14956
% Avg. WkDay	0.0%	99.2%	99.3%	101.5%	0.0%				
% Avg. Week	0.0%	99.2%	99.3%	101.5%	0.0%	100.0%	0.0%	0.0%	
AM Peak		08:00	07:00	08:00		07:00			07:00
Vol.		1175	1216	1164		1173			1173
PM Peak		15:00	17:00	16:00		17:00			17:00
Vol.		1160	1214	1203		1174			1174
Grand Total	0	14831	14852	15187	0	14956	0	0	14956
ADT		ADT 14,957		AADT 14,957					

Start Time	Mon 19-Mar-07	Tue 20-Mar-07	Wed 21-Mar-07	Thu 22-Mar-07	Fri 23-Mar-07	Average Day	Sat 24-Mar-07	Sun 25-Mar-07	Week Average
12:00 AM	*	29	31	34	*	31	*	*	31 
01:00	*	14	12	22	*	16	*	*	16 
02:00	*	13	20	36	*	23	*	*	23 
03:00	*	44	34	47	*	42	*	*	42 
04:00	*	118	99	130	*	116	*	*	116 
05:00	*	194	193	185	*	191	*	*	191 
06:00	*	579	590	579	*	583	*	*	583 
07:00	*	1002	<b>1014</b>	<b>1192</b>	*	<b>1069</b>	*	*	<b>1069</b> 
08:00	*	907	883	981	*	924	*	*	924 
09:00	*	920	951	985	*	952	*	*	952 
10:00	*	942	929	901	*	924	*	*	924 
11:00	*	<b>1040</b>	1010	1039	*	1030	*	*	1030 
12:00 PM	*	922	932	971	*	942	*	*	942 
01:00	*	979	893	903	*	925	*	*	925 
02:00	*	1015	975	1002	*	997	*	*	997 
03:00	*	<b>1083</b>	1059	<b>1073</b>	*	<b>1072</b>	*	*	<b>1072</b> 
04:00	*	1038	<b>1099</b>	1035	*	1057	*	*	1057 
05:00	*	1013	1020	1064	*	1032	*	*	1032 
06:00	*	755	687	714	*	719	*	*	719 
07:00	*	547	614	560	*	574	*	*	574 
08:00	*	506	408	456	*	457	*	*	457 
09:00	*	317	272	360	*	316	*	*	316 
10:00	*	123	157	214	*	165	*	*	165 
11:00	*	80	100	87	*	89	*	*	89 
Day Total	0	14180	13982	14570	0	14246	0	0	14246
% Avg. WkDay	0.0%	99.5%	98.1%	102.3%	0.0%				
% Avg. Week	0.0%	99.5%	98.1%	102.3%	0.0%	100.0%	0.0%	0.0%	
AM Peak		11:00	07:00	07:00		07:00			07:00
Vol.		1040	1014	1192		1069			1069
PM Peak		15:00	16:00	15:00		15:00			15:00
Vol.		1083	1099	1073		1072			1072
Grand Total	0	14180	13982	14570	0	14246	0	0	14246
ADT		ADT 14,244		AADT 14,244					

JAMAR Technologies, Inc.  
 151 Keith Valley Road  
 Horsham, PA 19044  
 Change These in the Preferences Screen

Site Code: 4  
 Station ID: 498  
 Bootlegger  
 West of LA 21

Latitude: 0' 0.000 Undefined

Start Time	21-Mar-07		22-Mar-07		23-Mar-07		24-Mar-07		25-Mar-07		26-Mar-07		27-Mar-07		Week Average	
	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB
12:00 AM	12	9	17	4	*	*	*	*	*	*	*	*	*	*	14	6
01:00	7	5	13	6	*	*	*	*	*	*	*	*	*	*	10	6
02:00	6	5	28	22	*	*	*	*	*	*	*	*	*	*	17	14
03:00	3	6	10	18	*	*	*	*	*	*	*	*	*	*	6	12
04:00	1	29	4	38	*	*	*	*	*	*	*	*	*	*	2	34
05:00	14	66	13	69	*	*	*	*	*	*	*	*	*	*	14	68
06:00	77	224	77	234	*	*	*	*	*	*	*	*	*	*	77	229
07:00	131	376	149	394	*	*	*	*	*	*	*	*	*	*	140	385
08:00	177	319	202	331	*	*	*	*	*	*	*	*	*	*	190	325
09:00	173	324	174	316	*	*	*	*	*	*	*	*	*	*	174	320
10:00	157	290	143	254	*	*	*	*	*	*	*	*	*	*	150	272
11:00	174	313	145	270	*	*	*	*	*	*	*	*	*	*	160	292
12:00 PM	183	246	179	257	*	*	*	*	*	*	*	*	*	*	181	252
01:00	187	248	170	217	*	*	*	*	*	*	*	*	*	*	178	232
02:00	215	293	176	278	*	*	*	*	*	*	*	*	*	*	196	286
03:00	250	229	222	245	*	*	*	*	*	*	*	*	*	*	236	237
04:00	249	265	274	316	*	*	*	*	*	*	*	*	*	*	262	290
05:00	374	294	332	303	*	*	*	*	*	*	*	*	*	*	353	298
06:00	230	291	229	298	*	*	*	*	*	*	*	*	*	*	230	294
07:00	190	266	152	175	*	*	*	*	*	*	*	*	*	*	171	220
08:00	130	122	142	140	*	*	*	*	*	*	*	*	*	*	136	131
09:00	71	68	101	81	*	*	*	*	*	*	*	*	*	*	86	74
10:00	45	30	51	29	*	*	*	*	*	*	*	*	*	*	48	30
11:00	24	19	25	15	*	*	*	*	*	*	*	*	*	*	24	17
Total Day	3080	4337	3028	4310	0	0	0	0	0	0	0	0	0	0	3055	4324
AM Peak	08:00	07:00	08:00	07:00											08:00	07:00
Vol.	177	376	202	394											190	385
PM Peak	17:00	17:00	17:00	16:00											17:00	17:00
Vol.	374	294	332	316											353	298

Comb. Total      7417                      7338                      0                      0                      0                      0                      0                      7379

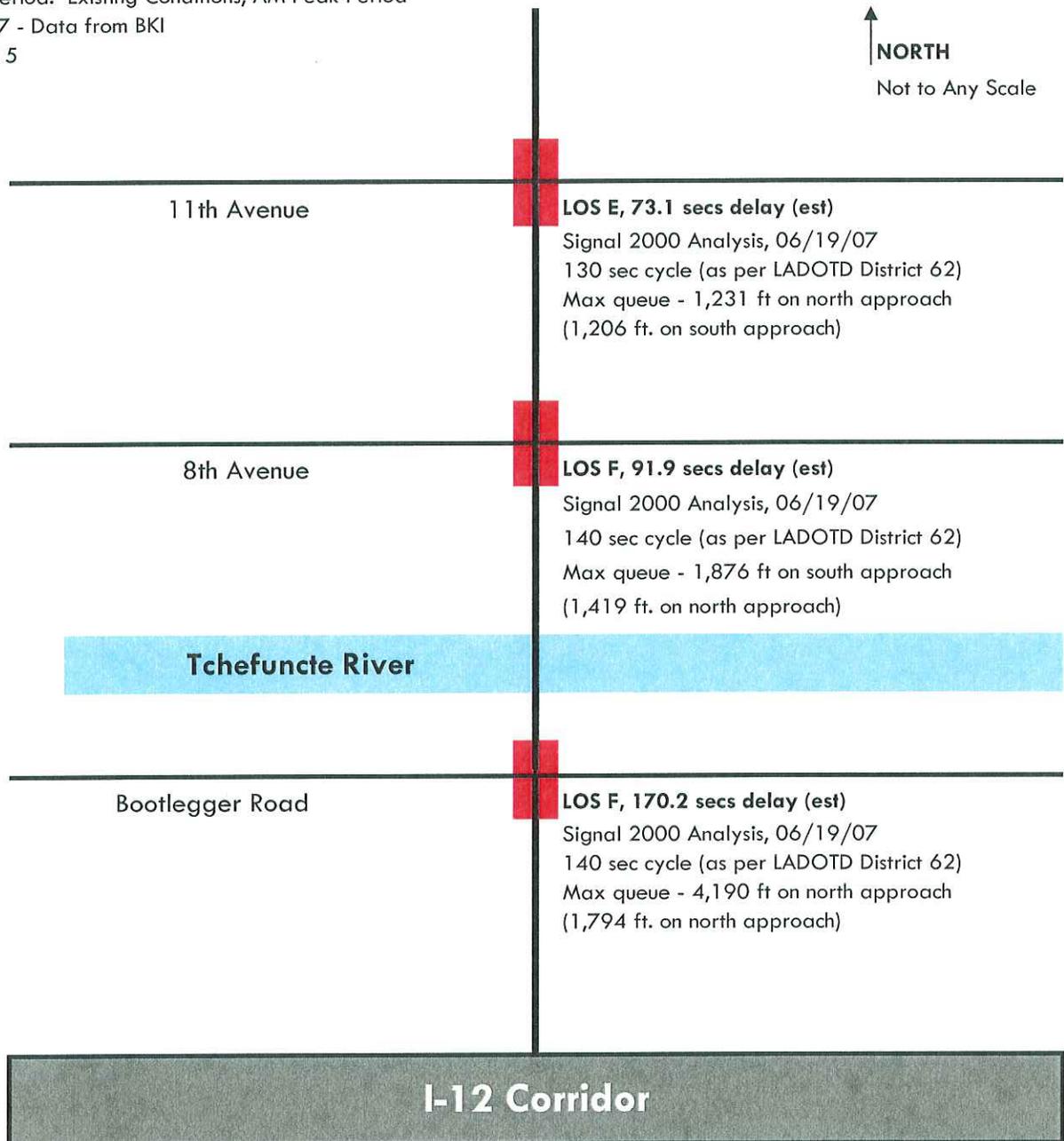
ADT                      ADT 7,378                      AADT 7,378

**Roadway Capacity - Analysis using Peak-Hour Traffic + Existing Geometrics**

Analysis Period: Existing Conditions, AM Peak Period

Year 2007 - Data from BKI

0715-0815



Data Sources:

- (1) Data collected during March 2007 by Burk-Kleinpeter, Inc.
- (2) LOS value for all approaches. See detailed reports for LOS and queue lengths by approach.
- (3) Signal 2000/TEAPAC V 1.11.16 - Capacity Analysis Module

Compiled by Burk-Kleinpeter, Inc., 2007.

### Peak-Hour Traffic Count Summary Sheet

Job Name: LA Highway 21 Widening

Job No.: 10343



Count Date: 4.05.07

Peak Period: AM

Start: 7:15 AM

End: 8:15 AM

NS Street: LA 21

EW Street: 11th Avenue

SB EXITING VOL:	706
SB ENTERING VOL:	767

	TOTAL	Buses	Trucks	Autos
TOTAL	6	723	38	
Buses	0	2	0	
Trucks	0	20	0	
Autos	6	701	38	
	<b>R</b>	<b>T</b>	<b>L</b>	

TOTAL	Buses	Trucks	Autos	
20	0	0	20	L
14	0	0	14	T
52	0	0	52	R

Peds	0	
Peds		Peds
0		0
Peds	0	

	Autos	Trucks	Buses	TOTAL
<b>R</b>	18	1	1	20
<b>T</b>	17	1	1	19
<b>L</b>	51	0	0	51

EB ENTERING VOL:	86
EB EXITING VOL:	57

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

	L	T	R
Autos	32	655	28
Trucks	0	6	0
Buses	0	5	0
TOTAL	32	666	28

NB ENTERING VOL:	726
NB EXITING VOL:	826

WB ENTERING VOL:	90
WB EXITING VOL:	80

<b>K</b>	=	0.97	All Approaches
<b>Peak Hr</b>		0.90	NB Approach
<b>Factor</b>		0.89	SB Approach
		0.80	EB Approach
		0.90	WB Approach

<b>% of</b>	=	2%	All Approaches
<b>HV</b>		2%	NB Approach
<b>@ Peak</b>		3%	SB Approach
		0%	EB Approach
		4%	WB Approach

TOTAL INTERSECTION TRAFFIC VOLUME: 1,669      1,669

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 3 - 11th and Tyler

Sq	0	Phase 1	Phase 2	Phase 3
**/**				
.		+ + +	^	+
/ \		+ + +	++++	+
		<+ + +>	<++++	+>
		v	++++	
		^	++++	v
North		<+ + +>	++++>	<+
		+ + +	++++	+
		+ + +	v	+
		G/C=0.643	G/C=0.179	G/C=0.071
		G= 90.0"	G= 25.0"	G= 10.0"
		Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"
		OFF= 0.0%	OFF=67.9%	OFF=89.3%

C=140 sec G=125.0 sec = 89.3% Y=15.0 sec = 10.7% Ped= 0.0 sec = 0.0%

MVMT TOTALS	N Approach			E Approach			S Approach			W Approach			Int
Param:Units	RT	TH	LT	Total									
AdjVol: vph	7	812	43	22	21	57	31	740	36	65	17	25	1876
Wid/Ln:ft/#	0/0	12/1	12/1	0/0	12/1	0/0	0/0	12/1	12/1	0/0	12/1	0/0	
g/C Rqd@C:%	0	100	6	0	43	0	0	100	11	0	32	0	
g/C Used: %	0	64	7	0	18	0	0	64	7	0	18	0	
SV @E: vph	0	837	300	0	176	0	0	831	268	0	246	0	2658
Svc Lvl:LOS		E	C		E+			E	D+		D		E
Deg Sat:v/c	0.00	0.69	0.13	0.00	0.42	0.00	0.00	0.65	0.12	0.00	0.37	0.00	0.62
HCM Del:s/v	0.0	78.6	34.5	0.0	58.9	0.0	0.0	75.8	37.4	0.0	52.3	0.0	73.1
Tot Del:min	0	268	6	0	25	0	0	243	6	0	23	0	571
# Stops:veh	0	132	3	0	22	0	0	118	3	0	24	0	302
Queue 1:veh	0	48	3	0	8	0	0	48	2	0	7	0	48
Queue 1: ft	0	1231	68	0	212	0	0	1206	58	0	184	0	1231

APPR TOTALS	N Approach			E Approach			S Approach			W Approach			Int
Param:Units													Total
AdjVol: vph	862			100			807			107			1876
Svc Lvl:LOS	E			E+			E			D			E
Deg Sat:v/c	0.66			0.42			0.62			0.37			0.62
HCM Del:s/v	76.4			58.9			74.1			52.3			73.1
Tot Del:min	274			25			249			23			571
# Stops:veh	135			22			121			24			302
Queue 1:veh	48			8			48			7			48
Queue 1: ft	1231			212			1206			184			1231

### Peak-Hour Traffic Count Summary Sheet

Job Name: LA Highway 21 Widening

Job No.: 10343

NS Street: LA 21



Count Date: 4.04.2007

Peak Period: AM

Start: 7:15 AM

End: 8:15 AM

SB EXITING VOL:	803
SB ENTERING VOL:	818

	TOTAL				
	Buses				
	Trucks				
EW Street: <u>8th Avenue</u>	Autos				
TOTAL	Buses	Trucks	Autos		

3	0	0	3	L
6	0	0	6	T
70	0	0	70	R

EB ENTERING VOL:	79
EB EXITING VOL:	31

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2	792	24
0	1	0
0	15	0
2	776	24
R	T	L

Peds	0	
Peds		Peds
0		0
Peds	0	

L	T	R
24	774	411
2	7	1
0	3	3
26	784	415

NB ENTERING VOL:	1,225
NB EXITING VOL:	1,120

TOTAL INTERSECTION TRAFFIC VOLUME: 2,399      2,399

	Autos	Trucks	Buses	TOTAL
R	16	0	0	16
T	3	0	0	3
L	256	1	1	258

WB ENTERING VOL:	277
WB EXITING VOL:	445

	=	0.97	All Approaches
<b>Peak Hr Factor</b>		0.94	NB Approach
		0.93	SB Approach
		0.68	EB Approach
		0.81	WB Approach

	=	1%	All Approaches
<b>% of HV @ Peak</b>		1%	NB Approach
		2%	SB Approach
		0%	EB Approach
		1%	WB Approach

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 2 - 8th and Tyler

Sq	0	Phase 1	Phase 2	Phase 3
**/**				
.		* * +	^	+
/ \		* * +	****	+
		<* * +>	<****>	+>
		v	****	
		^	++++	v
North		<+ + +>	++++>	<+
		+ + +	++++	+
		+ + +	v	+
-----				
		G/C=0.564	G/C=0.257	G/C=0.071
		G= 79.0"	G= 36.0"	G= 10.0"
		Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"
		OFF= 0.0%	OFF=60.0%	OFF=89.3%

C=140 sec G=125.0 sec = 89.3% Y=15.0 sec = 10.7% Ped= 0.0 sec = 0.0%

MVMT TOTALS	N Approach			E Approach			S Approach			W Approach			Int
Param:Units	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
AdjVol: vph	2	852	26	20	4	319	441	834	28	103	9	4	2642
Wid/Ln:ft/#	0/0	12/1	12/1	0/0	12/1	0/0	12/1	12/1	12/1	0/0	12/1	0/0	
g/C Rqd@C:%	0	100	20	0	44	0	56	100	22	0	32	0	
g/C Used: %	0	56	7	0	26	0	56	56	7	0	26	0	
SV @E: vph	0	770	193	0	263	0	883	557	181	0	400	0	3247
-----													
Svc Lvl:LOS		F	D		F		C	F	D		D+		F
Deg Sat:v/c	0.00	0.81	0.11	0.00	1.18	0.00	0.49	0.79	0.13	0.00	0.27	0.00	0.76
HCM Del:s/v	0.0	87.1	46.0	0.0	163.8	0.0	34.6	107.3	47.8	0.0	41.9	0.0	91.9
Tot Del:min	0	310	5	0	234	0	64	373	6	0	20	0	1012
# Stops:veh	0	170	3	0	85	0	66	163	3	0	23	0	513
-----													
Queue 1:veh	0	56	2	0	34	0	25	75	2	0	7	0	75
Queue 1: ft	0	1419	38	0	850	0	641	1876	42	0	165	0	1876

APPR TOTALS	N Approach			E Approach			S Approach			W Approach			Int
Param:Units													Total
AdjVol: vph	880			343			1303			116			2642
-----													
Svc Lvl:LOS	F			F			F			D+			F
Deg Sat:v/c	0.79			1.18			0.67			0.27			0.76
HCM Del:s/v	85.9			163.8			81.4			41.9			91.9
Tot Del:min	315			234			443			20			1012
# Stops:veh	173			85			232			23			513
-----													
Queue 1:veh	56			34			75			7			75
Queue 1: ft	1419			850			1876			165			1876

### Peak-Hour Traffic Count Summary Sheet

Job Name: LA Highway 21 Widening

Job No.: 10343



Count Date: 3.28.07

NS Street: LA 21

Peak Period: AM

Start: 7:15 AM

End: 8:15 AM

SB EXITING VOL:	1,263
SB ENTERING VOL:	1,068

	TOTAL				
	Buses				
	Trucks				
EW Street: <u>Bootlegger</u>	Autos				
<b>TOTAL</b>	Buses	Trucks	Autos		

226	0	5	221	L
0	0	0	0	T
139	1	3	135	R

EB ENTERING VOL:	365
EB EXITING VOL:	152

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

	87	981	0
Buses	1	3	0
Trucks	3	42	0
Autos	83	936	0
	<b>R</b>	<b>T</b>	<b>L</b>

Peds	0	
Peds		Peds
0		0
Peds	0	

	L	T	R
Autos	61	1018	0
Trucks	4	15	0
Buses	0	4	0
<b>TOTAL</b>	65	1,037	0

NB ENTERING VOL:	1,102
NB EXITING VOL:	1,120

TOTAL INTERSECTION TRAFFIC VOLUME: 2,535      2,535

	Autos	Trucks	Buses	TOTAL
<b>R</b>	0	0	0	0
<b>T</b>	0	0	0	0
<b>L</b>	0	0	0	0

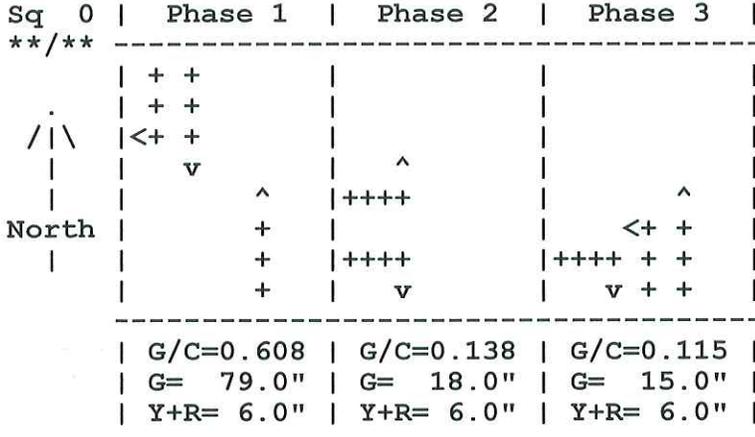
WB ENTERING VOL:	0
WB EXITING VOL:	0

<b>K</b>	=	0.90	All Approaches
<b>Peak Hr</b>		0.94	NB Approach
<b>Factor</b>		0.84	SB Approach
		0.91	EB Approach
		#DIV/0!	WB Approach

<b>% of</b>	=	3%	All Approaches
<b>HV</b>		2%	NB Approach
<b>@ Peak</b>		5%	SB Approach
		2%	EB Approach
		#DIV/0!	WB Approach

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 1 - LA 21 at Bootlegger



C=130 sec G=112.0 sec = 86.2% Y=18.0 sec = 13.8% Ped= 0.0 sec = 0.0%

MVMT TOTALS	N Approach			E Approach			S Approach			W Approach			Int
Param:Units	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
AdjVol: vph	104	1168	0	0	0	0	0	1103	69	153	0	248	2845
Wid/Ln:ft/#	0/0	12/1	0/0	0/0	0/0	0/0	0/0	12/1	12/1	11/1	0/0	11/1	
g/C Rqd@D:%	0	100	0	0	0	0	0	100	32	24	0	26	
g/C Used: %	0	61	0	0	0	0	0	77	12	30	0	14	
SV @E: vph	0	685	0	0	0	0	0	965	100	382	0	100	2232
Svc Lvl:LOS	F						F	E	D+			F	F
Deg Sat:v/c	0.00	1.17	0.00	0.00	0.00	0.00	0.00	0.77	0.34	0.33	0.00	1.05	0.94
HCM Del:s/v	0.02	237.8	0.0	0.0	0.0	0.0	0.0	91.4	73.5	43.8	0.02	279.0	170.2
Tot Del:min	0	1261	0	0	0	0	0	420	21	28	0	288	2018
# Stops:veh	0	318	0	0	0	0	0	156	16	30	0	62	582
Queue 1:veh	0	163	0	0	0	0	0	71	6	11	0	35	163
Queue 1: ft	0	4190	0	0	0	0	0	1794	162	267	0	893	4190

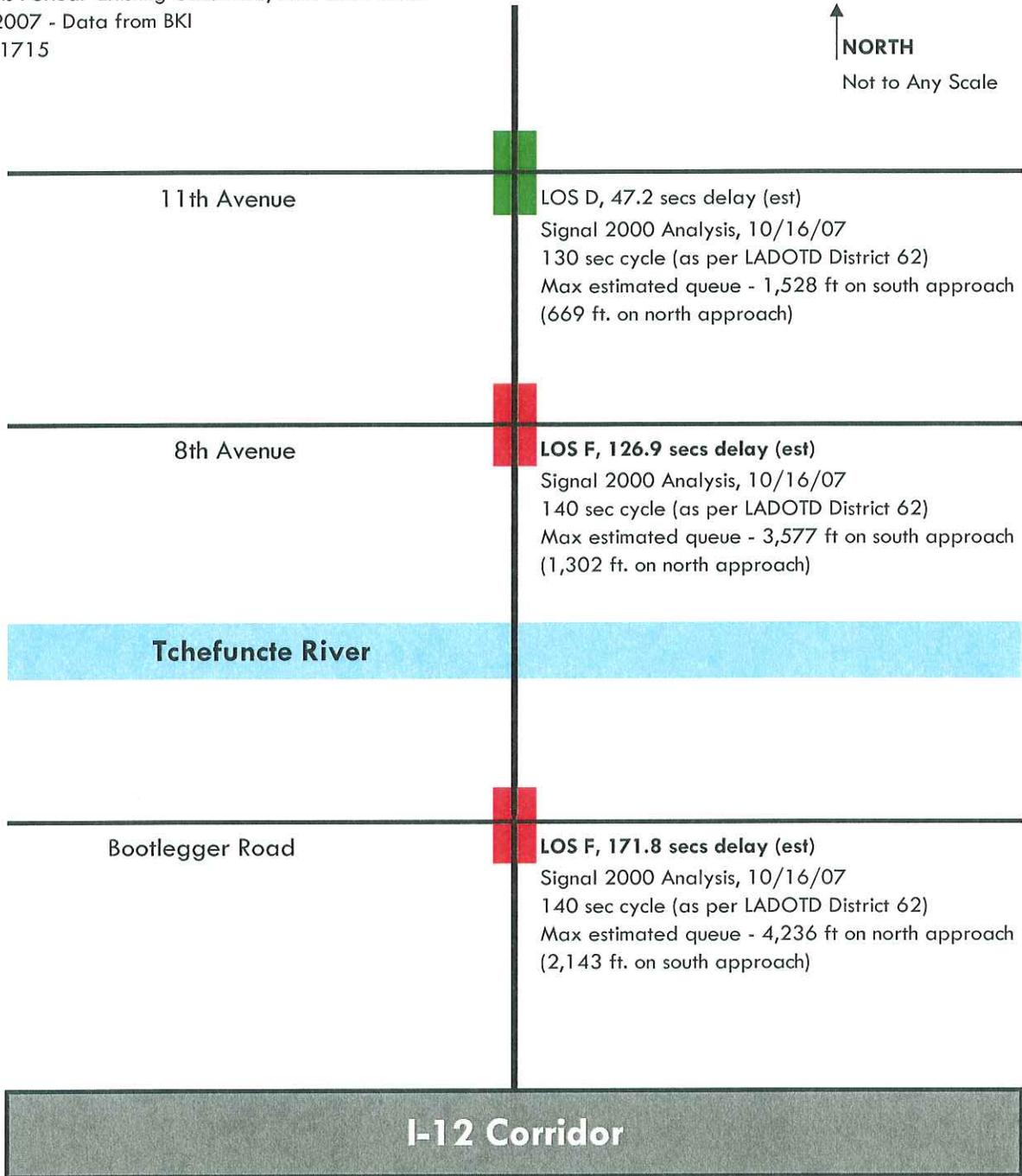
APPR TOTALS	N Approach			E Approach			S Approach			W Approach			Int
Param:Units													Total
AdjVol: vph	1272			0			1172			401			2845
Svc Lvl:LOS	F						F			F			F
Deg Sat:v/c	1.17			0.00			0.75	0.77		0.94			
HCM Del:s/v	237.8			0.0			90.3	189.3		170.2			
Tot Del:min	1261			0			441	316		2018			
# Stops:veh	318			0			172	92		582			
Queue 1:veh	163			0			71	35		163			
Queue 1: ft	4190			0			1794	893		4190			

**Roadway Capacity - Analysis using Peak-Hour Traffic + Existing Geometrics**

Analysis Period: Existing Conditions, PM Peak Period

Year 2007 - Data from BKI

1645-1715



Data Sources:

- (1) Data collected during March 2007 by Burk-Kleinpeter, Inc.
- (2) LOS value for all approaches. See detailed reports for LOS and queue lengths by approach.
- (3) Signal 2000/TEAPAC V 1.11.16 - Capacity Analysis Module

Compiled by Burk-Kleinpeter, Inc., 2007.



SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 3 - 11th at Tyler

Sq	0	Phase 1	Phase 2	Phase 3
**/**				
.		+	^	+
/ \		+	++++	+
		<+ + +>	<++++	+>
		v	++++	
		^	++++	v
North		<+ + +>	++++>	<+
		+ + +	++++	+
		+ + +	v	+
-----				
		G/C=0.643	G/C=0.179	G/C=0.071
		G= 90.0"	G= 25.0"	G= 10.0"
		Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"
		OFF= 0.0%	OFF=67.9%	OFF=89.3%

C=140 sec G=125.0 sec = 89.3% Y=15.0 sec = 10.7% Ped= 0.0 sec = 0.0%

MVMT TOTALS	N Approach			E Approach			S Approach			W Approach			Int
Param:Units	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
AdjVol: vph	12	599	19	33	15	72	40	788	49	29	16	51	1723
Wid/Ln:ft/#	0/0	12/1	12/1	0/0	12/1	0/0	0/0	12/1	12/1	0/0	12/1	0/0	
g/C Rqd@C:%	0	52	1	0	42	0	0	80	0	0	32	0	
g/C Used: %	0	64	7	0	18	0	0	64	7	0	18	0	
SV @E: vph	0	1151	308	0	10	0	0	971	537	0	214	0	3191
-----													
Svc Lvl:LOS		B	C		F			E+	B+		D		D
Deg Sat:v/c	0.00	0.51	0.06	0.00	0.50	0.00	0.00	0.70	0.09	0.00	0.38	0.00	0.58
HCM Del:s/v	0.0	19.2	28.6	0.0	114.2	0.0	0.0	59.9	14.1	0.0	52.6	0.0	47.2
Tot Del:min	0	49	2	0	57	0	0	207	3	0	21	0	339
# Stops:veh	0	81	1	0	27	0	0	135	4	0	21	0	269
-----													
Queue 1:veh	0	27	0	0	17	0	0	60	2	0	7	0	60
Queue 1: ft	0	669	11	0	423	0	0	1528	49	0	168	0	1528

APPR TOTALS	N Approach			E Approach			S Approach			W Approach			Int
Param:Units													Total
AdjVol: vph	630			120			877			96			1723
-----													
Svc Lvl:LOS	B			F			E+			D			D
Deg Sat:v/c	0.49			0.50			0.67			0.38			0.58
HCM Del:s/v	19.5			114.2			57.4			52.6			47.2
Tot Del:min	51			57			210			21			339
# Stops:veh	82			27			139			21			269
-----													
Queue 1:veh	27			17			60			7			60
Queue 1: ft	669			423			1528			168			1528

### Peak-Hour Traffic Count Summary Sheet

Job Name: LA Highway 21 Widening

Job No.: 10343

NS Street: LA 21



Count Date: 4.04.2007

Peak Period: PM

Start: 4:45 PM

End: 5:45 PM

EW Street: 8th Avenue

SB EXITING VOL:	906
SB ENTERING VOL:	737

TOTAL	Buses	Trucks	Autos	
9	0	0	9	L
3	0	0	3	T
32	0	0	32	R

TOTAL	Buses	Trucks	Autos	
2	0	0	2	
711	1	3	707	
24	0	2	22	
R	T	L		

Peds	0	
Peds		Peds
0		0
Peds	0	

	Autos	Trucks	Buses	TOTAL
R	18	0	0	18
T	3	0	0	3
L	204	1	0	205

EB ENTERING VOL:	44
EB EXITING VOL:	46

L	T	R
41	867	295
0	11	1
0	1	0
41	879	296

WB ENTERING VOL:	226
WB EXITING VOL:	323

	K =	0.97	All Approaches
Peak Hr		0.96	NB Approach
Factor		0.95	SB Approach
		0.52	EB Approach
		0.81	WB Approach

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

NB ENTERING VOL:	1,216
NB EXITING VOL:	948

	% of =	1%	All Approaches
HV		1%	NB Approach
@ Peak		1%	SB Approach
		0%	EB Approach
		0%	WB Approach

TOTAL INTERSECTION TRAFFIC VOLUME: 2,223      2,223

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 2 - 8th at Tyler

Sq	0	Phase 1	Phase 2	Phase 3
**/**				
.		+++	^	+
/ \		<+ + +>	<++++>	+>
		v	^	++++
		^	++++	v
North		<+ + +>	++++>	<+
		+++	++++	+
		+++	v	+
-----				
		G/C=0.564	G/C=0.257	G/C=0.071
		G= 79.0"	G= 36.0"	G= 10.0"
		Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"
		OFF= 0.0%	OFF=60.0%	OFF=89.3%

C=140 sec G=125.0 sec = 89.3% Y=15.0 sec = 10.7% Ped= 0.0 sec = 0.0%

MVMT TOTALS	N Approach			E Approach			S Approach			W Approach			Int
Param:Units	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
AdjVol: vph	2	748	25	22	4	253	308	916	43	62	6	17	2406
Wid/Ln:ft/#	0/0	12/1	12/1	0/0	12/1	0/0	12/1	12/1	12/1	0/0	12/1	0/0	
g/C Rqd@C:%	0	100	26	0	43	0	61	100	11	0	31	0	
g/C Used: %	0	56	7	0	26	0	56	56	7	0	26	0	
SV @E: vph	0	716	160	0	293	0	745	346	248	0	386	0	2894
-----													
Svc Lvl:LOS		F	D		E		D+	F	D+		D+		F
Deg Sat:v/c	0.00	0.71	0.12	0.00	0.86	0.00	0.34	0.86	0.15	0.00	0.21	0.00	0.70
HCM Del:s/v	0.0	82.5	50.5	0.0	72.3	0.0	39.7	223.5	39.0	0.0	41.0	0.0	127.0
Tot Del:min	0	258	5	0	84	0	51	853	7	0	15	0	1273
# Stops:veh	0	136	2	0	67	0	42	194	4	0	17	0	462
-----													
Queue 1:veh	0	52	1	0	20	0	21	142	2	0	5	0	142
Queue 1: ft	0	1302	37	0	513	0	526	3577	49	0	119	0	3577

APPR TOTALS	N Approach			E Approach			S Approach			W Approach			Int
Param:Units													Total
AdjVol: vph	775			279			1267			85			2406
-----													
Svc Lvl:LOS	F			E			F			D+			F
Deg Sat:v/c	0.69			0.86			0.71			0.21			0.70
HCM Del:s/v	81.5			72.3			172.6			41.0			127.0
Tot Del:min	263			84			911			15			1273
# Stops:veh	138			67			240			17			462
-----													
Queue 1:veh	52			20			142			5			142
Queue 1: ft	1302			513			3577			119			3577



SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 1 - LA 21 at Bootlegger

Sq	0	Phase 1	Phase 2	Phase 3
**/**				
.		+		
/ \		<+		
		v		
			^	
North		+	++++	+
		+	++++	<+ +
		+	v	v + +
		G/C=0.608	G/C=0.138	G/C=0.115
		G= 79.0"	G= 18.0"	G= 15.0"
		Y+R= 6.0"	Y+R= 6.0"	Y+R= 6.0"

C=130 sec G=112.0 sec = 86.2% Y=18.0 sec = 13.8% Ped= 0.0 sec = 0.0%

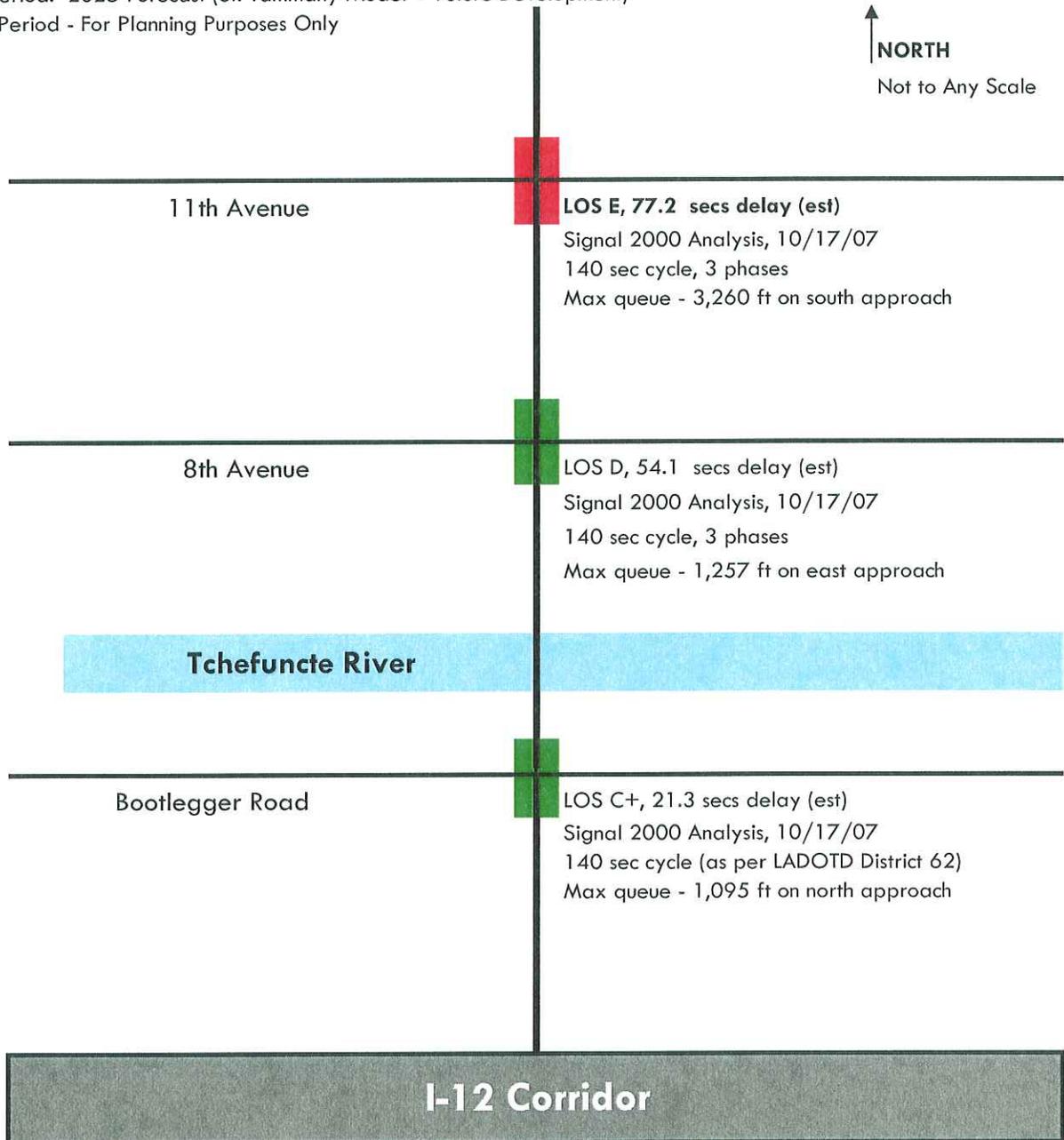
MVMT TOTALS	N Approach			E Approach			S Approach			W Approach			Int
Param:Units	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
AdjVol: vph	143	1040	0	0	0	0	0	1070	243	100	0	173	2769
Wid/Ln:ft/#	0/0	12/1	0/0	0/0	0/0	0/0	0/0	12/1	12/1	11/1	0/0	11/1	
g/C Rqd@C:%	0	100	0	0	0	0	0	100	97	34	0	35	
g/C Used: %	0	61	0	0	0	0	0	77	12	30	0	14	
SV @E: vph	0	472	0	0	0	0	0	817	18	387	0	102	1796
Svc Lvl:LOS	F						F	F	D+	F		F	
Deg Sat:v/c	0.00	1.05	0.00	0.00	0.00	0.00	0.00	0.74	1.17	0.22	0.00	0.72	0.89
HCM Del:s/v	0.02	53.3	0.0	0.0	0.0	0.0	0.01	101.2	350.8	40.6	0.01	18.0	186.9
Tot Del:min	0	1249	0	0	0	0	0	451	355	17	0	85	2157
# Stops:veh	0	295	0	0	0	0	0	143	60	19	0	41	558
Queue 1:veh	0	168	0	0	0	0	0	85	39	8	0	20	168
Queue 1: ft	0	4236	0	0	0	0	0	2143	972	190	0	491	4236

APPR TOTALS	N Approach			E Approach			S Approach			W Approach			Int
Param:Units													Total
AdjVol: vph	1183			0			1313			273			2769
Svc Lvl:LOS	F						F	F		F		F	
Deg Sat:v/c	1.05			0.00			0.82		0.54		0.89		
HCM Del:s/v	253.3			0.0			147.4		89.7		186.9		
Tot Del:min	1249			0			806		102		2157		
# Stops:veh	295			0			203		60		558		
Queue 1:veh	168			0			85		20		168		
Queue 1: ft	4236			0			2143		491		4236		

**Roadway Capacity - Analysis using Peak-Hour Traffic + Proposed Corridor Widening**

Analysis Period: 2025 Forecast (St. Tammany Model + Future Development)

AM Peak Period - For Planning Purposes Only



Data Sources:

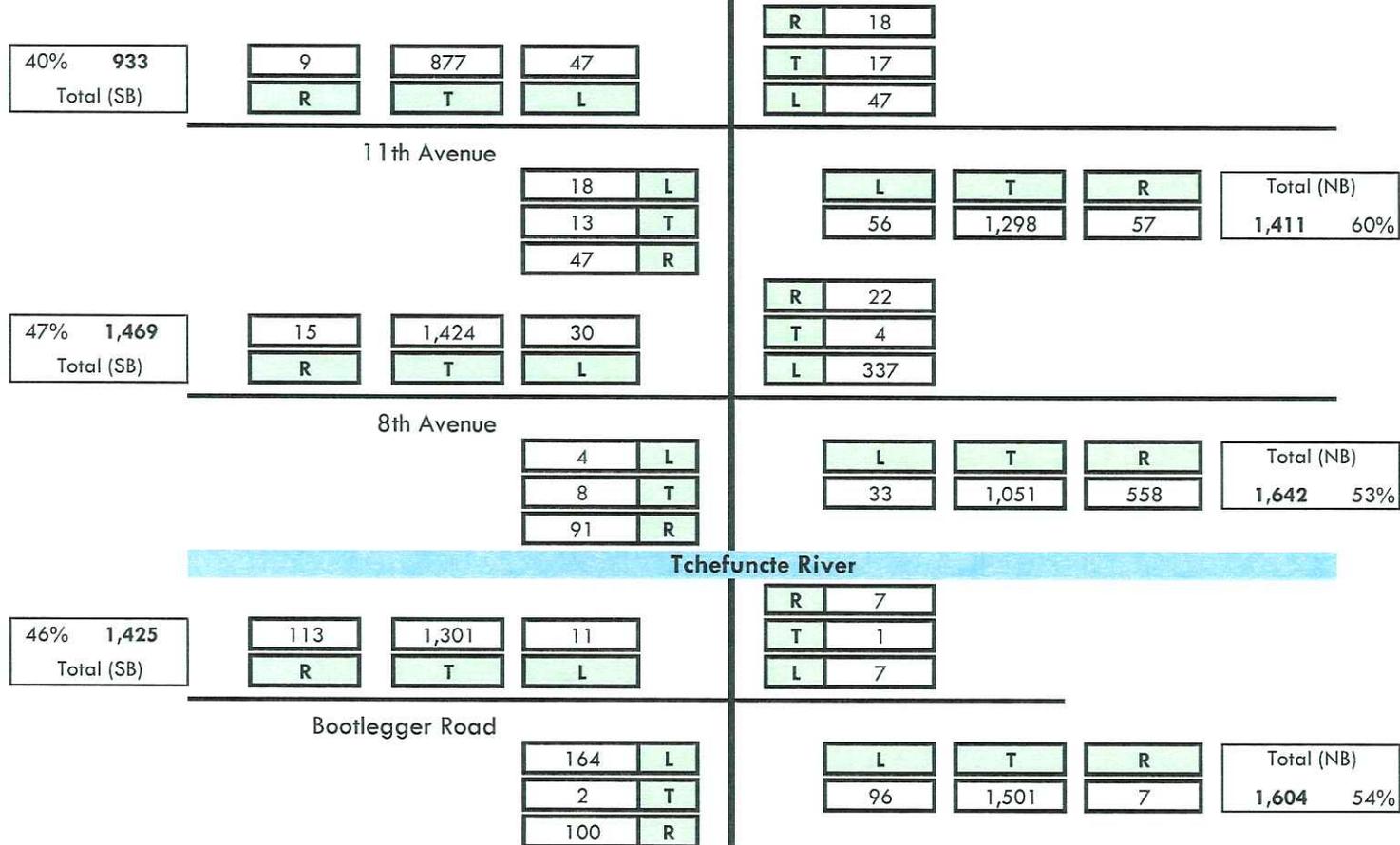
- (1) Analysis completed in October 2007.
- (2) Signal timing based upon LADOTD TSI from LA DOTD District 62.
- (3) Assumes implementation of the asymmetrical alignment.

Compiled by Burk-Kleinpeter, Inc., 2007.

**LA 21 Corridor**  
**11th Avenue to Bootlegger Road**  
 Peak Hour Traffic Count Summary

**Analysis Period: AM Peak**  
 Year 2025 with Additional Development

↑  
**NORTH**  
 Not to Any Scale



Data Sources:

- (1) Baseline 2025 Data from St. Tammany Parish Traffic Model. Trips added to network for proposed developments.
  - (2) Peak-hour traffic volumes assumed to be same as found currently within corridor.
  - (3) 2025 Trip Distributions (from new development) from announced retail, residential and hospital development in corridor, April 2007. Rates applied from Trip Generation Manual, 7th Edition, ITE.
  - (4) Directional split shown for peak-hour period only, based upon projected traffic volume on LA 21 NB and SB during defined peak. Information for Planning Purposes Only.
- Compiled by Burk-Kleinpeter, Inc., 2007.

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 3 - 11th and Tyler

Sq	0	Phase 1	Phase 2	Phase 3
**/**				
.		+	^	+
/ \		+	++++	+
		<+ + +>	<++++	+>
		v	^	++++
		^	++++	v
North		<* + +>	++++>	<+
		* + +	++++	+
		* + +	v	+
-----				
		G/C=0.643	G/C=0.179	G/C=0.071
		G= 90.0"	G= 25.0"	G= 10.0"
		Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"
		OFF= 0.0%	OFF=67.9%	OFF=89.3%

C=140 sec G=125.0 sec = 89.3% Y=15.0 sec = 10.7% Ped= 0.0 sec = 0.0%

MVMT TOTALS	N Approach			E Approach			S Approach			W Approach			Int
Param:Units	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
AdjVol: vph	10	974	52	20	19	52	63	1442	62	52	14	20	2780
Wid/Ln:ft/#	0/0	12/1	14/1	0/0	12/1	0/0	12/1	12/1	14/1	0/0	12/1	0/0	
g/C Rqd@C:%	0	59	30	0	32	0	31	78	31	0	31	0	
g/C Used: %	0	64	75	0	18	0	64	64	75	0	18	0	
SV @E: vph	0	1184	1444	0	218	0	1038	1197	1444	0	252	0	6777
-----													
Svc Lvl:LOS		C+	A		D		A	F	A		D		E
Deg Sat:v/c	0.00	0.83	0.04	0.00	0.36	0.00	0.06	1.21	0.04	0.00	0.30	0.00	0.94
HCM Del:s/v	0.0	24.3	4.5	0.0	51.3	0.0	9.3	125.2	4.5	0.0	50.5	0.0	77.2
Tot Del:min	0	100	1	0	19	0	2	752	1	0	18	0	893
# Stops:veh	0	189	3	0	20	0	6	360	4	0	19	0	601
-----													
Queue 1:veh	0	49	1	0	6	0	2	129	1	0	5	0	129
Queue 1: ft	0	1259	25	0	146	0	43	3260	30	0	134	0	3260

APPR TOTALS	N Approach			E Approach			S Approach			W Approach			Int
Param:Units													Total
AdjVol: vph	1036			91			1567			86			2780
-----													
Svc Lvl:LOS	C+			D			F			D			E
Deg Sat:v/c	0.79			0.36			1.11			0.30			0.94
HCM Del:s/v	23.3			51.3			115.8			50.5			77.2
Tot Del:min	101			19			755			18			893
# Stops:veh	192			20			370			19			601
-----													
Queue 1:veh	49			6			129			5			129
Queue 1: ft	1259			146			3260			134			3260

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 2 - 8th and Tyler

Sq	0	Phase 1	Phase 2	Phase 3
**/**				
.		+	^	+
/ \		+	++++	+
		<+	<++++	>+
		v	++++	
		^	v	
North		+ > ++++>		<+
		+ +  ++++		+
		+ +   v		+
-----				
		G/C=0.564	G/C=0.257	G/C=0.071
		G= 79.0"	G= 36.0"	G= 10.0"
		Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"
		OFF= 0.0%	OFF=60.0%	OFF=89.3%
-----				

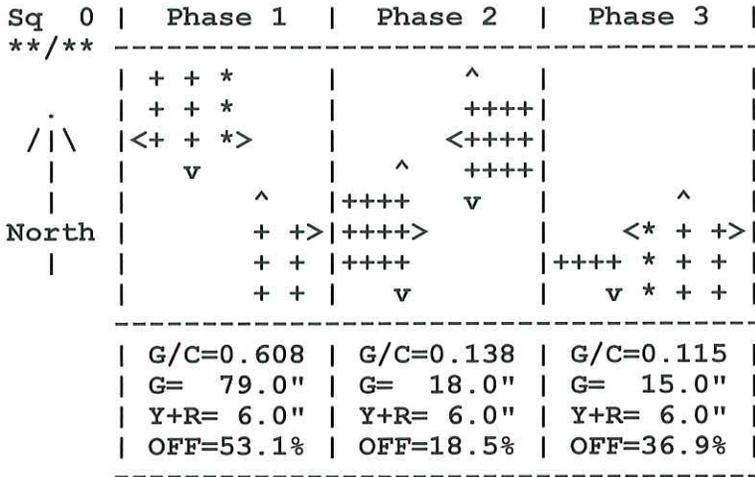
C=140 sec G=125.0 sec = 89.3% Y=15.0 sec = 10.7% Ped= 0.0 sec = 0.0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
AdjVol: vph	16	1531	32	27	5	416	594	1118	35	134	12	6	3926
Wid/Ln:ft/#	0/0	24/2	14/1	0/0	12/1	12/1	12/1	24/2	14/1	0/0	12/1	12/1	
g/C Rqd@C:%	0	51	30	0	30	49	48	50	30	0	33	29	
g/C Used: %	0	56	7	0	26	26	56	56	7	0	26	26	
SV @E: vph	0	2014	99	0	402	257	902	1913	98	0	396	334	6415
-----													
Svc Lvl:LOS		C+	E+		D+	F	C+	C+	E+		D+	D+	D
Deg Sat:v/c	0.00	0.77	0.23	0.00	0.08	1.47	0.66	0.55	0.26	0.00	0.35	0.02	0.73
HCM Del:s/v	0.0	26.7	62.2	0.0	39.5	279.5	22.9	26.3	62.5	0.0	42.9	38.8	54.1
Tot Del:min	0	172	8	0	5	484	57	122	9	0	26	1	884
# Stops:veh	0	297	8	0	6	104	103	177	8	0	30	1	734
-----													
Queue 1:veh	0	43	2	0	2	50	28	30	2	0	8	0	50
Queue 1: ft	0	1087	56	0	44	1257	693	754	62	0	210	8	1257
=====													

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	1579			448			1747			152			3926
-----													
Svc Lvl:LOS	C+			F			C+			D+			D
Deg Sat:v/c	0.76			1.37			0.58			0.33			0.73
HCM Del:s/v	27.4			262.4			25.9			42.7			54.1
Tot Del:min	180			489			188			27			884
# Stops:veh	305			110			288			31			734
-----													
Queue 1:veh	43			50			30			8			50
Queue 1: ft	1087			1257			754			210			1257
=====													

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 1 - LA 21 at Bootlegger



C=130 sec G=112.0 sec = 86.2% Y=18.0 sec = 13.8% Ped= 0.0 sec = 0.0%

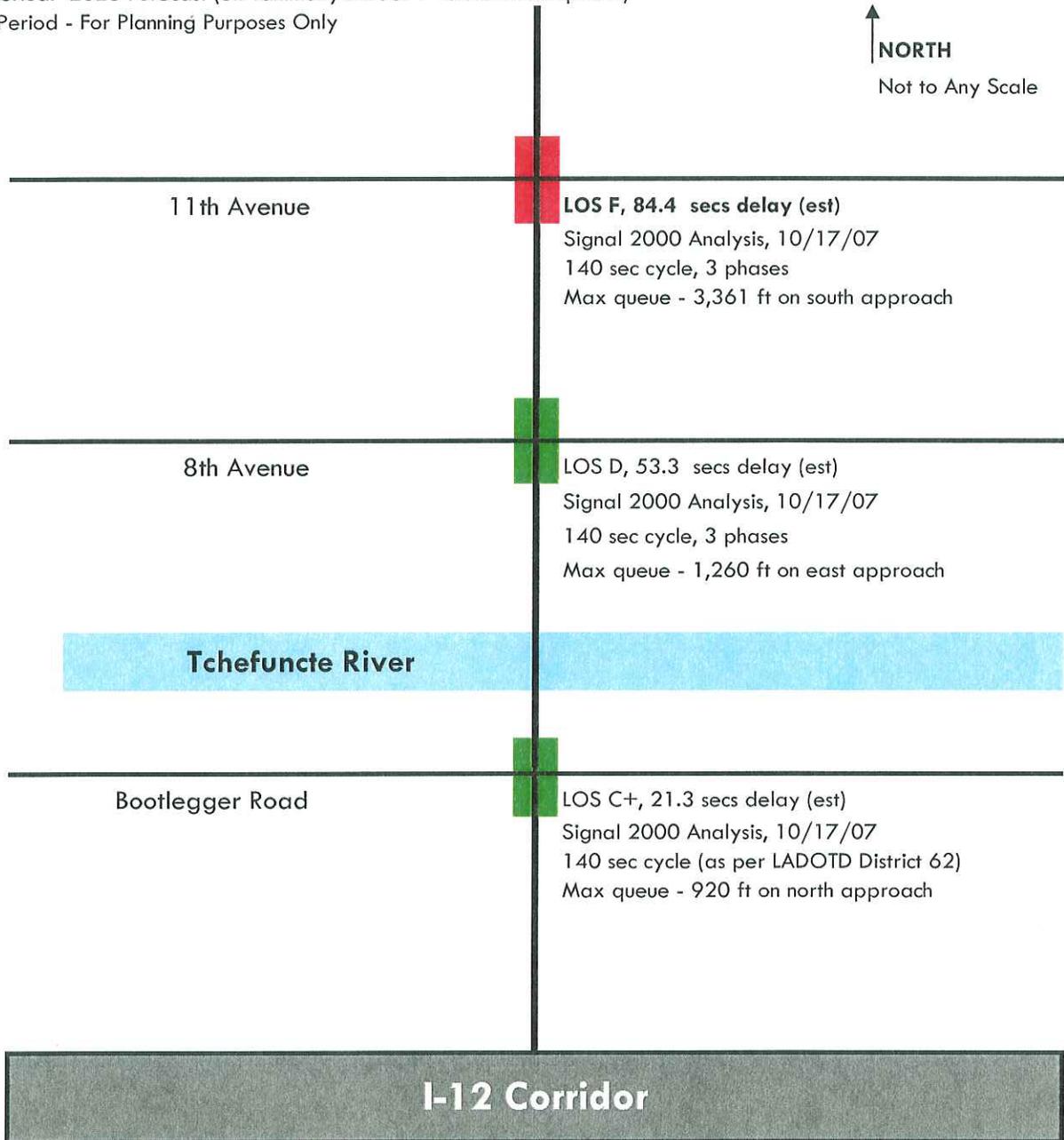
MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
AdjVol: vph	135	1549	13	8	1	8	8	1597	102	110	2	180	3713
Wid/Ln:ft/#	0/0	24/2	14/1	0/0	12/1	0/0	0/0	24/2	26/2	12/1	12/1	0/0	
g/C Rqd@D:%	0	50	11	0	9	0	0	46	10	13	20	0	
g/C Used: %	0	61	61	0	14	0	0	77	12	30	14	0	
SV @E: vph	0	2064	186	0	171	0	0	2721	371	464	153	0	6130
Svc Lvl:LOS		C+	B+		D			A	D	C	F		C+
Deg Sat:v/c	0.00	0.82	0.07	0.00	0.08	0.00	0.00	0.59	0.25	0.23	0.98	0.00	0.69
HCM Del:s/v	0.0	22.5	10.6	0.0	49.0	0.0	0.0	6.7	52.7	34.5	117.1	0.0	21.6
Tot Del:min	0	158	1	0	3	0	0	45	22	16	89	0	334
# Stops:veh	0	328	1	0	4	0	0	170	23	21	45	0	592
Queue 1:veh	0	43	0	0	1	0	0	23	3	5	15	0	43
Queue 1: ft	0	1095	10	0	25	0	0	581	82	139	378	0	1095

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	1697			17			1707			292			3713
Svc Lvl:LOS	C+			D			A			F			C+
Deg Sat:v/c	0.81			0.08			0.57			0.70			0.69
HCM Del:s/v	22.4			49.0			9.4			86.0			21.6
Tot Del:min	159			3			67			105			334
# Stops:veh	329			4			193			66			592
Queue 1:veh	43			1			23			15			43
Queue 1: ft	1095			25			581			378			1095

**Roadway Capacity - Analysis using Peak-Hour Traffic + Proposed Corridor Widening**

Analysis Period: 2025 Forecast (St. Tammany Model + Future Development)

PM Peak Period - For Planning Purposes Only



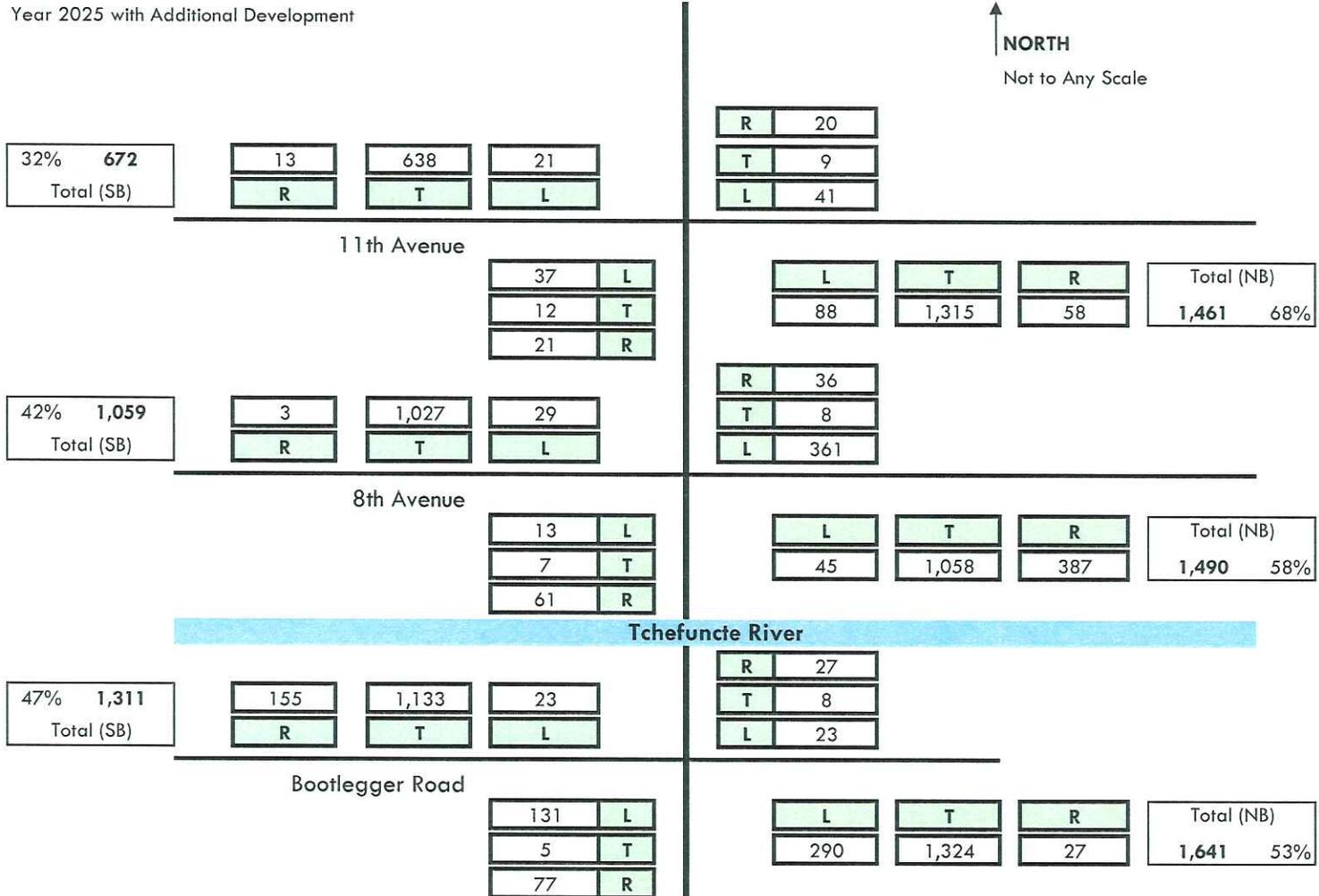
Data Sources:

- (1) Analysis completed in October 2007.
- (2) Signal timing based upon LADOTD TSI from LA DOTD District 62.
- (3) Assumes implementation of the asymmetrical alignment.

Compiled by Burk-Kleinpeter, Inc., 2007.

**LA 21 Corridor**  
**11th Avenue to Bootlegger Road**  
 Peak Hour Traffic Count Summary

**Analysis Period: PM Peak**  
 Year 2025 with Additional Development



**Data Sources:**

- (1) Baseline 2025 Data from St. Tammany Parish Traffic Model. Trips added to network for proposed developments.
- (2) Peak-hour traffic volumes assumed to be same as found currently within corridor.
- (3) 2025 Trip Distributions (from new development) from announced retail, residential and hospital development in corridor, April 2007. Rates applied from Trip Generation Manual, 7th Edition, ITE.
- (4) Directional split shown for peak-hour period only, based upon projected traffic volume on LA 21 NB and SB during defined peak.

Information for Planning Purposes Only.  
 Compiled by Burk-Kleinpeter, Inc., 2007.

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 3 - 11th and Tyler

Sq	0	Phase 1	Phase 2	Phase 3
**/**				
.		+ + *	^	+
/ \		+ + *	++++	+
		<+ + *>	<++++	+>
		v	++++	
		^	v	
North		<+ + +>	++++>	<*
		+ + +	++++	*
		+ + +	v	*
-----				
		G/C=0.643	G/C=0.179	G/C=0.071
		G= 90.0"	G= 25.0"	G= 10.0"
		Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"
		OFF= 0.0%	OFF=67.9%	OFF=89.3%

C=140 sec G=125.0 sec = 89.3% Y=15.0 sec = 10.7% Ped= 0.0 sec = 0.0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
AdjVol: vph	14	709	23	22	10	46	64	1461	98	23	13	41	2524
Wid/Ln:ft/#	0/0	12/1	14/1	0/0	12/1	0/0	12/1	12/1	14/1	0/0	12/1	0/0	
g/C Rqd@C:%	0	49	30	0	31	0	31	79	31	0	31	0	
g/C Used: %	0	64	75	0	18	0	64	64	75	0	18	0	
SV @E: vph	0	1183	1444	0	225	0	1038	1197	1444	0	234	0	6765
-----													
Svc Lvl:LOS		B	A		D		A	F	A		D		F
Deg Sat:v/c	0.00	0.61	0.02	0.00	0.30	0.00	0.06	1.22	0.07	0.00	0.28	0.00	0.90
HCM Del:s/v	0.0	15.6	4.4	0.0	50.5	0.0	9.3	132.0	4.6	0.0	50.4	0.0	84.4
Tot Del:min	0	47	0	0	16	0	2	803	2	0	16	0	886
# Stops:veh	0	106	1	0	17	0	6	365	6	0	17	0	518
-----													
Queue 1:veh	0	28	0	0	5	0	2	133	2	0	5	0	133
Queue 1: ft	0	718	11	0	124	0	44	3361	48	0	120	0	3361

APPR TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT										
AdjVol: vph	746			78			1623			77			2524
-----													
Svc Lvl:LOS	B			D			F			D			F
Deg Sat:v/c	0.59			0.30			1.11			0.28			0.90
HCM Del:s/v	15.3			50.5			119.4			50.4			84.4
Tot Del:min	47			16			807			16			886
# Stops:veh	107			17			377			17			518
-----													
Queue 1:veh	28			5			133			5			133
Queue 1: ft	718			124			3361			120			3361

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 2 - 8th and Tyler

Sq	0	Phase 1	Phase 2	Phase 3
**/**				
.		+	^	+
/ \		+	++++	+
		<+	<++++	>+
		v	++++	
		^	v	
North		+ >	++++>	<+
		+ +	++++	+
		+ +	v	+
		G/C=0.564	G/C=0.257	G/C=0.071
		G= 79.0"	G= 36.0"	G= 10.0"
		Y+R= 5.0"	Y+R= 5.0"	Y+R= 5.0"
		OFF= 0.0%	OFF=60.0%	OFF=89.3%

C=140 sec G=125.0 sec = 89.3% Y=15.0 sec = 10.7% Ped= 0.0 sec = 0.0%

MVMT TOTALS	N Approach			E Approach			S Approach			W Approach			Int
Param:Units	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
AdjVol: vph	3	1104	31	44	10	446	412	1126	48	90	10	19	3343
Wid/Ln:ft/#	0/0	24/2	14/1	0/0	12/1	12/1	12/1	24/2	14/1	0/0	12/1	12/1	
g/C Rqd@C:%	0	44	30	0	31	47	41	50	30	0	32	30	
g/C Used: %	0	56	7	0	26	26	56	56	7	0	26	26	
SV @E: vph	0	2016	99	0	404	298	902	1913	98	0	398	327	6455
Svc Lvl:LOS		C+	E+		D+	F	B	C+	E+		D+	D+	D
Deg Sat:v/c	0.00	0.55	0.22	0.00	0.13	1.37	0.46	0.56	0.35	0.00	0.24	0.05	0.63
HCM Del:s/v	0.0	20.5	62.2	0.0	40.1	237.9	18.3	26.4	63.5	0.0	41.4	39.2	53.3
Tot Del:min	0	94	8	0	9	442	31	124	13	0	17	3	741
# Stops:veh	0	175	7	0	10	111	60	179	11	0	20	4	577
Queue 1:veh	0	26	2	0	3	50	17	30	3	0	6	1	50
Queue 1: ft	0	649	54	0	75	1260	417	761	85	0	141	26	1260

APPR TOTALS	N Approach			E Approach			S Approach			W Approach			Int
Param:Units													Total
AdjVol: vph	1138			500			1586			119			3343
Svc Lvl:LOS	C+			F			C+			D+			D
Deg Sat:v/c	0.54			1.24			0.53			0.21			0.63
HCM Del:s/v	21.6			216.6			25.4			41.1			53.3
Tot Del:min	102			451			168			20			741
# Stops:veh	182			121			250			24			577
Queue 1:veh	26			50			30			6			50
Queue 1: ft	649			1260			761			141			1260

SIGNAL2000/TEAPAC[Ver 1.11.16] - Evaluation of Intersection Performance

Intersection # 1 - LA 21 at Bootlegger

Sq	0	Phase 1	Phase 2	Phase 3
**/**				
.		+ + *	^	
/ \		+ + *	++++	
		<+ + *>	<++++	
		v	++++	
		^	v	^
North		+ +>	++++>	<* + +>
		+ +	++++	++++ * + +
		+ +	v	v * + +
-----				
		G/C=0.608	G/C=0.138	G/C=0.115
		G= 79.0"	G= 18.0"	G= 15.0"
		Y+R= 6.0"	Y+R= 6.0"	Y+R= 6.0"
		OFF= 0.0%	OFF=65.4%	OFF=83.8%

C=130 sec G=112.0 sec = 86.2% Y=18.0 sec = 13.8% Ped= 0.0 sec = 0.0%

MVMT TOTALS	N Approach			E Approach			S Approach			W Approach			Int
Param:Units	RT	TH	LT	Total									
AdjVol: vph	185	1349	27	30	9	26	30	1409	309	85	5	144	3608
Wid/Ln:ft/#	0/0	24/2	14/1	0/0	12/1	0/0	0/0	24/2	26/2	12/1	12/1	0/0	
g/C Rqd@D:%	0	46	16	0	12	0	0	42	14	12	18	0	
g/C Used: %	0	61	61	0	14	0	0	77	12	30	14	0	
SV @E: vph	0	2052	224	0	148	0	0	2715	371	464	153	0	6127
-----													
Svc Lvl:LOS		B	B+		D			A	E+		C	E	C+
Deg Sat:v/c	0.00	0.75	0.12	0.00	0.36	0.00	0.00	0.53	0.76	0.18	0.81	0.00	0.64
HCM Del:s/v	0.0	19.9	11.0	0.0	52.1	0.0	0.0	6.0	63.6	33.8	76.6	0.0	21.3
Tot Del:min	0	127	1	0	14	0	0	36	82	12	48	0	320
# Stops:veh	0	276	3	0	15	0	0	140	75	16	36	0	561
-----													
Queue 1:veh	0	36	1	0	4	0	0	19	11	4	11	0	36
Queue 1: ft	0	920	21	0	101	0	0	486	277	106	268	0	920

APPR TOTALS	N Approach			E Approach			S Approach			W Approach			Int
Param:Units													Total
AdjVol: vph	1561			65			1748			234			3608
-----													
Svc Lvl:LOS	B			D			B			E+			C+
Deg Sat:v/c	0.74			0.36			0.57			0.58			0.64
HCM Del:s/v	19.7			52.1			16.2			61.1			21.3
Tot Del:min	128			14			118			60			320
# Stops:veh	279			15			215			52			561
-----													
Queue 1:veh	36			4			19			11			36
Queue 1: ft	920			101			486			268			920

**LA 2 | Widening Environmental Assessment**

State Project No. 736-52-0043

Federal Aid Project No. STP 5204 (508)

RPC Project No. 0043-ST

**A3. Wetlands Findings and Endangered Species Survey**

**REGIONAL PLANNING COMMISSION,  
STATE OF LOUISIANA  
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT,  
AND THE FEDERAL HIGHWAY ADMINISTRATION**

**LOUISIANA HWY 21 WIDENING  
ST. TAMMANY PARISH, LOUISIANA**

**RPC PROJECT NO. 0043-ST  
STATE PROJECT NO. 736-52-0043  
FEDERAL AID PROJECT NO. STP-5204(508)**

**WETLANDS FINDINGS  
AND  
THREATENED AND ENDANGERED SPECIES  
SURVEY**



May 2007

CEI Project No. 27014

**REGIONAL PLANNING COMMISSION,  
STATE OF LOUISIANA  
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT,  
AND THE FEDERAL HIGHWAY ADMINISTRATION**

**LOUISIANA HWY 21 WIDENING  
ST. TAMMANY PARISH, LOUISIANA**

**RPC PROJECT NO. 0043-ST  
STATE PROJECT NO. 736-52-0043  
FEDERAL AID PROJECT NO. STP-5204(508)**

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**Prepared for:**

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**Federal Highway Administration  
5304 Flanders Drive  
Baton Rouge, LA 70808**

**May 2007**  
CEI Project No. 27014

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                    Threatened and Endangered Species Locations..... D-1



## INTRODUCTION

Under a subcontract with Burk-Kleinpeter, Inc., prime contractor to the Regional Planning Commission for the LA HWY 21 Widening Project, Coastal Environments, Inc. (CEI) prepared a wetlands findings report on the corridor of the proposed project. The project would include a new four-lane bridge crossing the Tchefuncte River in addition to the widening of the existing LA HWY 21 from two lanes to four lanes. The total length of the project is 1.44 miles.

The corridor for the LA HWY 21 Widening Project includes the existing road and rights-of-way and narrow strips of land adjacent to LA HWY 21 and sections of Bootlegger Road and Bricker Road along with the bridge crossing the Tchefuncte River.

The southern termini of this project, the intersection of Bootlegger Road and LA HWY 21, will connect the proposed improvement with an ongoing St. Tammany Parish sponsored widening project from the I-12 interchange to Bootlegger Road. The end of the project, at the major intersection of LA HWY 21 and West 11<sup>th</sup> Avenue, is located just north of St. Tammany Hospital. This project would widen an existing state highway in order to improve traffic operations and roadway capacity, enhance access for emergency vehicles to the hospital, increase capacity across the Tchefuncte River bridge, and add access from points west to points northeast.

## METHODOLOGY

Prior to the field investigation to delineate wetland areas information on the project area was initially gathered from aerial color infrared, 2004 U.S. Geological Survey (USGS) digital ortho quarter quads (DOQQ) and true color aerial photography flown by 3001, Inc. between Feb. and May 2005. The USGS Covington and Madisonville, LA, 7.5-minute quadrangle maps, and the USDA Soil Conservation Service Soil Survey Geographic (SSURGO) data provided additional information on the project site. The original footprints for the Existing right-of-way (ROW), Symmetrical Alignment ROW, and Asymmetrical Alignment ROW were downloaded from the Burk-Kleinpeter ftp site for the project. Criteria (wetland plants, hydric soils, and wetland hydrology) outlined in the 1987 *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) were used to characterize sites as either wet or non-wet.

On May 15, 2007, scientists with Coastal Environments, Inc. (CEI) conducted field investigations to delineate jurisdictional wetlands within the corridor of the LA HWY 21 widening project. Field inspections were conducted along the proposed project site and on-site inspections were conducted where the owner granted property access. Where property access was granted, vegetative composition, soil characteristics, and local hydrology were observed, characterized, and recorded. Sample plots were recorded on Corps of Engineers Standard Wetland Delineation Data Forms (Appendix A).

Ground photographs were taken to document soils, vegetation habitats, and wetland types found at the sample plots and at sites representative of the project area (Appendix B). Locations of the sample plots and documented wetlands were recorded using a Trimble Pro XR Global Positioning System.

The following discussion is a summary of the findings of the May 15, 2007 field investigation.

## FINDINGS

### Site Description

The project area is located south of Covington, LA and approximately 1 mile North of I-12 in St. Tammany Parish. More specifically, it begins at the intersection of Bootlegger Road and LA HWY 21 and ends at the intersection of West 11<sup>th</sup> Avenue and LA HWY 21. It follows the existing road right-of-way of LA HWY 21. A large portion of the project area is commercially and residentially developed. The project area also includes maintained vacant land, drainage ditches and forestland adjacent to maintained rights-of-way. The largest portion of undeveloped forest is located along both sides of is surrounding the Tchefuncte River.

### Vegetation

Although the majority of the proposed project corridor outside the existing road and maintained right-of-way is covered by commercial development, there are intermittent areas of vegetation including: maintained vacant land, scrub-shrub, mixed pine hardwood wetlands, mixed pine hardwood uplands, and bottomland hardwoods.

The maintained vacant land in the project area is dominated by grasses such as Bermuda grass (*Cynodon dactylon*), several small vines including common greenbrier (*Smilax rotundifolia*) and blackberry (*Rubus argutus*), and several trees including water oak (*Quercus nigra*) and live oak (*Quercus virginiana*), and southern magnolia (*Magnolia grandiflora*) (Appendix B, Figure 11).

The scrub/shrub plant community is on the west side of LA HWY 1085/Bootlegger Road adjacent to ditches along the maintained right-of-way and forestland on the opposite side. Species observed in this scrub/shrub community included: wax myrtle (*Morella cerifera* (L.) Small), post oak (*Quercus stellata*), loblolly pine (*Pinus taeda*), yaupon (*Ilex vomitoria*), baccharis (*Baccharis halimifolia*), water oak (*Quercus nigra*), persimmon (*Diospyros virginiana*), trumpet-creeper (*Campsis radicans*), and panic grass (*Dichanthelium acuminatum*) (Appendix B, Figure 2).

The mixed pine hardwood upland communities are located at a higher elevation than the wetland mixed pine hardwood habitat. Although the vegetation in both mixed pine hardwood communities are similar in species composition, several OBL, FACW+, and FACW species were present in the mixed pine hardwood wetlands but were absent in the upland mixed pine hardwood areas. The mixed pine hardwood wetland had a dominant overstory of slash pine (*Pinus elliottii*), Chinese tallow (*Sapium sebiferum*), and red maple (*Acer rubrum*). The understory was dominated by Virginia creeper (*Parthenocissus quinquefolia*), netted chainfern (*Woodwardia areolata*), red maple (*Acer rubrum*), Chinese tallow (*Sapium sebiferum*), common green brier (*Smilax rotundifolia*), globe flatsedge (*Cyperus echinatus* (L.) Wood), climbing hempweed (*Mikania scandens*), giant golden-rod (*Solidago gigantea*), and many-flower pennywort (*Hydrocotyle umbellata*) (Appendix B, Figure 4).

The bottomland hardwoods are located around the Tchefuncte River. There is a dominant overstory of bald cypress (*Taxodium distichum*), black willow (*Salix nigra*), and American elm (*Ulmus americana*). The understory is dominated by buttonbush (*Cephalanthus occidentalis*), lizard's tail (*Saururus cemuus*), soft rush (*Juncus effusus*), netted chainfern (*Woodwardia areolata*), southern dewberry (*Rubus trivialis*) and bearded sedge (*Carex comosa*) (Appendix B, Figures 6 and 10).

## Soils

There are five major soil types found in the general vicinity of the LA 21 Widening Project. The *St. Tammany Parish Soil Survey* describes the soils in the proposed project area as Abita silt loam 0 to 2 percent slopes, Arat silty clay loam, Myatt fine sandy loam, Myatt fine sandy loam, frequently flooded, and Ouachita and Bibb soils, frequently flooded.

Abita silt loam, 0 to 2 percent slopes is somewhat poorly drained and is found in slightly raised positions on broad stream or marine terraces. It has slow permeability, a moderate shrink-swell potential, and water runs off the surface slowly. This soil is not found on the hydric state soils list. Lands with this soil type are well suited for pasture and woodlands but are poorly suited for urban uses and have low strength for roads. Drainage is needed for construction of roads and building foundations (National Cooperative Soil Survey 1984).

Arat silty clay loam is very poorly drained and very fluid with a slope of less than 1 percent. It has slow permeability and is frequently flooded by freshwater for very long periods. This soil is found on the hydric state soils list. Arat silty clay loam is well suited for use as habitat for wetland wildlife and is poorly suited for timber production and urban uses. It does not have the strength or capacity to support a load. Stumps and logs buried in the soil along with subsidence are problems that may be encountered with the construction of drainage ditches. Construction of large water control structures is the only way to control drainage and flooding (National Cooperative Soil Survey 1984).

Myatt fine sandy loam is a poorly drained soil found on broad flats or stream terraces with slopes of less than 1 percent. It has a moderately slow permeability with very slow runoff and standing water in low areas for long periods after heavy rains. This soil is found on the hydric state soils list. Lands with this soil type are commonly used for woodlands and are well suited to use for pasture or habitat for wetland wildlife. Myatt fine sandy loam is poorly suited for urban uses due to wetness and flooding, however, shallow ditches may be used to remove excess water (National Cooperative Soil Survey 1984).

Myatt fine sandy loam, frequently flooded is a poorly drained soil found on depressional areas on stream terraces and in narrow drainage ways. It has a moderately slow permeability with very slow runoff and is subject to flooding. This soil is found on the hydric state soils list. Myatt fine sandy loam, frequently flooded is moderately well suited to use as woodland and woodland wildlife. It is not suited to urban uses or intensive recreation uses, and roads should be constructed above the expected flood level (National Cooperative Soil Survey 1984).

Ouachita and Bibb soils, frequently flooded are on the flood plains of major drainageways. Ouachita soil is found on convex ridges, while Bibb soil is found in low positions between the ridges. Surface textures can change with floodwater deposits. Ouachita soil has moderately slow permeability and slow runoff. Bibb soil has moderate permeability, very slow runoff, and is subject to brief periods of flooding. Ouachita and Bibb soils, frequently flooded is found on the hydric state soils list. These soils are moderately well suited for woodlands, but are poorly suited for crops and pasture lands. They are not suited for urban use, and use of large flood control structures is the only possible protection from flooding (National Cooperative Soil Survey 1984).

Myatt fine sandy loam covers a majority of the project area with Arat silty clay loam and Myatt fine sandy loam, frequently flooded covering the areas surrounding the Tchefuncte River. There is a small section of Ouachita and Bibb soils, frequently flooded adjacent to the Arat silty clay loam soils leading up to the river. The Abita silt loam, 0 to 2 percent slopes covers two small sections of the project corridor: one in the small section of the project corridor east of Bricker road and one in the northeast section approaching 11<sup>th</sup> Avenue or the end of the project.

On the May 15, 2007 field investigation, five representative sample plots were taken to document the soil observed in the project corridor. Due to the project area being located along or adjacent to existing road right-of-ways, the soils have been disturbed, and therefore, do not match exactly to the descriptions in the soil survey. The soil samples taken at each plot are described in the following paragraphs.

Plot 1, from 0 to 16 inches, was a light brownish gray (10YR6/2) silt loam with brownish yellow (10YR6/6) and brown (10YR5/3) mottles (Appendix B, Figure 1). This soil had gleyed or low chroma colors which is an indicator of hydric soils.

Plot 2 was characterized by a 7-inch very dark grayish brown (10YR3/2) loam surface horizon. The next and last horizon observed, from 7-18 inches, consisted of gray (10YR5/1) silty clay with yellowish brown (10YR5/8) mottles (Appendix B, Figure 3). This soil had gleyed or low chroma colors which is an indicator of hydric soils.

Plot 3 was characterized by a 6-inch gray (10YR6/1) silt loam surface horizon with brownish yellow (10YR6/6) mottles. The next and last horizon observed, from 6-16 inches, consisted of gray (10YR5/1) silty clay loam with brownish yellow (10YR6/8) mottles (Appendix B, Figure 5). This soil had gleyed or low chroma colors which is an indicator of hydric soils.

Plot 4 was characterized by a 4-inch brown (10YR5/3) sandy loam surface horizon with brownish yellow (10YR6/6) mottles. The next and last horizon observed, from 4-16 inches, consisted of light gray (10YR7/1) sandy loam with brownish yellow (10YR6/8) mottles (Appendix B, Figure 7). This soil had gleyed or low chroma colors which is an indicator of hydric soils.

Plot 5 was characterized by a 5-inch dark grayish brown (10YR4/2) loam surface horizon with strong brown (7.5YR4/6) mottles. The next and last horizon observed, from 5-14 inches, consisted of light brownish gray (10YR6/2) silty clay loam with brownish yellow (10YR6/6) and

strong brown (7.5YR4/6) mottles (Appendix B, Figure 9). This soil had gleyed or low chroma colors which is an indicator of hydric soils.

## **Hydrology**

Wetland hydrological indicators were found on the three wetland plots sampled. Wet areas contained both primary and secondary indicators of wetland hydrology; therefore, wetland hydrology is present. Wetland plots 2, 3, and 5 all contained the following wetland hydrological indicators: saturation in the upper 12-inches, oxidized root channels in the upper 12-inches, and a positive FAC-Neutral Test. The upland areas did not contain any primary or secondary indicators and do not contain wetland hydrology.

## **Habitat Values**

Habitat values associated with the well-maintained parish ditches and maintained vacant land within most of the proposed ROW for both the asymmetrical and symmetrical alignments can be considered as marginal due to the frequency of maintenance operations. The wetlands delineated in the asymmetrical and symmetrical ROW constitute very narrow strips of woodland. These small strips of woodland were located between the maintained existing LA HWY 21 right-of-way and larger areas of woodland, the largest expanse being along both banks of the Tchefuncte River.

## **Wetlands**

The asymmetrical alignment contains 0.10 acres of wetlands and 0.07 acres of other waters as depicted on sheet 2 of 5 and sheet 3 of 5 in Appendix C. The symmetrical alignment contains 0.47 acres of wetlands and 0.09 acres of other waters as depicted on sheet 4 of 5 and sheet 5 of 5 in Appendix C. The other waters are primarily associated with the Tchefuncte River.

Although this wetland delineation was performed using guidelines and procedures outlined in the 1987 manual, the final authority for the jurisdictional determination resides with the US Army Corps of Engineers.

## **THREATENED AND ENDANGERED SPECIES**

In response to the March 5, 2007 Solicitation of Views (SOV) letter regarding the widening of LA HWY 21 the Louisiana Department of Wildlife and Fisheries (LDWF), National Heritage Program responded that there are no rare, threatened, or endangered species or critical habitats located in the project area (Lester 2007 Appendix D). In addition, the LDWF stated that there are no other state or federal parks, wildlife refuges, scenic streams, or wildlife management areas known to occur within the project area.

The U.S. Fish and Wildlife Service (USFWS) in response to the March 5, 2007 SOV letter, provided information in accordance with the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) (Boggs 2007). Mr. Boggs (2007) stated that the Gulf Sturgeon

(*Acipenser oxyrhynchus desotoi*), a federally listed threatened species, may occur in the Tchefuncte River.

...The Gulf Sturgeon has been reported at Rigolets Pass, rivers and lakes of the Lake Pontchartrain basin, and adjacent estuarine areas. Spawning occurs in coastal rivers between late winter and early spring. Adults and sub-adults may be found in those rivers and streams until November, and in estuarine or marine waters during the remainder of the year. Sturgeon less than two years old appear to remain in riverine habitats and estuarine areas throughout the year, rather than migrate to marine waters (Boggs 2007).

In order to mitigate potential impact to any sturgeon that may be present in the Tchefuncte River, the USFWS suggested that no in-stream construction work, such as dredging or pile driving, be conducted during the spawning season between November 1 and March 31. If construction activities must occur during this period, the USFWS must be consulted prior to initiation of such activities. Additional mitigation efforts require that construction activities strictly adhere to the Louisiana Department of Environmental Quality's Nonpoint Source (NPS) Management Phase 2 Storm Water Regulations, "...especially regular and post rainfall inspection, and correction of sediment control features (as stated in the Louisiana Department of Transportation and Development Standard Plan EC-01M)" (Boggs 2007).

## CONCLUSIONS

There is no feasible alternative to the proposed widening of LA HWY 21. The asymmetrical alignment would impact 0.10 acres of wetlands and 0.07 acres of other waters. The symmetrical alignment would impact 0.47 acres of wetlands and 0.09 acres of other waters. Unavoidable impacts to wetlands would be mitigated through consultation and compliance with the regulatory agencies.

In an effort to minimize damage from the proposed action, the *Louisiana Standard Specifications for Roads and Bridges*, 2006 edition, further requires that the contractor take certain measures toward reducing environmental damages. The LADOTD will adhere to these measures as described in, but not limited to the following sections:

- Scope of Work – Section 104
- Control of Work – Section 105
- Legal Relations and Responsibility to Public – Section 107
- Clearing and Grubbing – Section 201
- Removal of Structures and Obstructions – Section 202
- Excavation and Embankment – Section 203
- Temporary Erosion Control – Section 204.

The project is not expected to have any significant impact on the Gulf Sturgeon, should any be present in the Tchefuncte River, because there will be no dredging of the river and the USFWS would be contracted prior to bridge construction should such activity occur during the spawning season between November 1 and March 31. Widening of LA HWY 21 would not have

significant impact on the wildlife and fisheries in the project corridor because the area is largely developed or in the process of being developed or in maintained land and transportation infrastructure. The loss of marginal wildlife habitat to construction of project infrastructure will be permanent. Land within the project footprint but not in infrastructure will be maintained similar to conditions that currently exists (e.g., periodic mowing and cleaning of ditches.) The bottomland hardwood forested area along the Tchefuncte River could provide habitat for the displaced species in the near term. None of the habitat that would be impacted by the proposed project is unique or critical to the survival of any known wildlife species.

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Geocommunity

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**APPENDIX A**

**FIELD INSPECTION DATA FORMS**

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

<b>Project/Site:</b> LA 21 Widening	<b>Project No:</b>	<b>Date:</b> 15-May-2007
<b>Applicant/Owner:</b> Regional Planning Commission with LA DOTD and FHWA		<b>County:</b> St. Tammany Parish
<b>Investigators:</b> Randy Ellis and Shelley Meador		<b>State:</b> Louisiana
		<b>Plot ID:</b> 1

<b>Do Normal Circumstances exist on the site?</b> Yes <input type="radio"/> No <input checked="" type="radio"/> <b>Is the site significantly disturbed (Atypical Situation:)?</b> Yes <input type="radio"/> No <input checked="" type="radio"/> <b>Is the area a potential Problem Area?</b> Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on the reverse side)	<b>Community ID:</b> Upland <b>Transect ID:</b> <b>Field Location:</b>
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**VEGETATION** (USFWS Region No. 2)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
<i>Morella cerifera</i> (L.) Small wax myrtle	Shrub	FAC+	<i>Quercus nigra</i> Oak, Water	Shrub	FAC
<i>Quercus stellata</i> Oak, Post	Shrub	FACU	<i>Diospyros virginiana</i> Persimmon, Common	Shrub	FAC
<i>Pinus taeda</i> Pine, Loblolly	Shrub	FAC	<i>Campsis radicans</i> Trumpet-Creeper	Herb	FAC
<i>Ilex vomitoria</i> Yaupon	Shrub	FAC	<i>Dichanthelium acuminatum</i> Grass, Panic	Herb	FAC
<i>Baccharis halimifolia</i> False-Willow, Eastern	Shrub	FAC			

<b>Percent of Dominant Species that are OBL, FACW or FAC:</b> (excluding FAC-) 8/9 = 88.89%	<b>FAC Neutral:</b> 0/1 = 0.00% <b>Numeric Index:</b> 28/9 = 3.11
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**Remarks:**

**HYDROLOGY**

<u>NO</u> Recorded Data(Describe in Remarks): <u>N/A</u> Stream, Lake or Tide Gauge <u>N/A</u> Aerial Photographs <u>N/A</u> Other  <u>YES</u> No Recorded Data  <b>Field Observations</b>  Depth of Surface Water:      N/A (in.) Depth to Free Water in Pit:      N/A (in.) Depth to Saturated Soil:      N/A (in.)	<b>Wetland Hydrology Indicators</b> <b>Primary Indicators</b> <u>NO</u> Inundated <u>NO</u> Saturated in Upper 12 Inches <u>NO</u> Water Marks <u>NO</u> Drift Lines <u>NO</u> Sediment Deposits <u>NO</u> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <u>NO</u> Oxidized Root Channels in Upper 12 Inches <u>NO</u> Water-Stained Leaves <u>NO</u> Local Soil Survey Data <u>NO</u> FAC-Neutral Test <u>NO</u> Other (Explain in Remarks)
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**Remarks:**

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

<b>Project/Site:</b> LA 21 Widening <b>Applicant/Owner:</b> Regional Planning Commission with LA DOTD and FHWA <b>Investigators:</b> Randy Ellis and Shelley Meador	<b>Project No:</b>	<b>Date:</b> 15-May-2007 <b>County:</b> St. Tammany Parish <b>State:</b> Louisiana <b>Plot ID:</b> 1
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> -		<b>Drainage Class:</b> -		<b>Mapped Hydric Inclusion?</b>		
<b>Map Symbol:</b> -				Field Observations Confirm Mapped Type? Yes <input type="radio"/> No <input checked="" type="radio"/>		
<b>Taxonomy (Subgroup):</b>						
<b>Profile Description</b>						
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0-16		10YR6/2	10YR6/6 10YR5/3	Few Common	Distinct Distinct	Silt loam
<b>Hydric Soil Indicators:</b>						
<u>NO</u> Histosol		<u>NO</u> Concretions				
<u>NO</u> Histic Epipedon		<u>NO</u> High Organic Content in Surface Layer in Sandy Soils				
<u>NO</u> Sulfidic Odor		<u>NO</u> Organic Streaking in Sandy Soils				
<u>NO</u> Aquic Moisture Regime		<u>NO</u> Listed on Local Hydric Soils List				
<u>NO</u> Reducing Conditions		<u>NO</u> Listed on National Hydric Soils List				
<u>YES</u> Gleyed or Low Chroma Colors		<u>NO</u> Other (Explain in Remarks)				
<b>Remarks:</b>						

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Wetland Hydrology Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampling Point within the Wetland? <input type="radio"/> Yes <input checked="" type="radio"/> No
<b>Remarks:</b>	

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

<b>Project/Site:</b> LA 21 Widening	<b>Project No:</b>	<b>Date:</b> 15-May-2007
<b>Applicant/Owner:</b> Regional Planning Commission with LA DOTD and FHWA		<b>County:</b> St. Tammany Parish
<b>Investigators:</b> Randy Ellis and Shelley Meador		<b>State:</b> Louisiana
		<b>Plot ID:</b> 2

<b>Do Normal Circumstances exist on the site?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No <b>Is the site significantly disturbed (Atypical Situation:)?</b> <input type="radio"/> Yes <input checked="" type="radio"/> No <b>Is the area a potential Problem Area?</b> <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on the reverse side)	<b>Community ID:</b> Wetland <b>Transect ID:</b> <b>Field Location:</b>
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**VEGETATION (USFWS Region No. 2)**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
<i>Parthenocissus quinquefolia</i> Creeper, Virginia	Vine	FAC	<i>Pinus elliottii</i> Pine, Slash	Tree	FACW
<i>Woodwardia areolata</i> Chainfern, Notted	Herb	OBL	<i>Smilax rotundifolia</i> Greenbrier, Common	Vine	FAC
<i>Acer rubrum</i> Maple, Red	Shrub	FAC	<i>Cyperus echinatus (L.) Wood</i> globe flatsedge	Herb	FAC
<i>Acer rubrum</i> Maple, Red	Tree	FAC	<i>Mikania scandens</i> Hempweed, Climbing	Vine	FACW+
<i>Sapium sebiferum</i> Tallow-Tree, Chinese	Tree	FAC	<i>Solidago gigantea</i> Golden-Rod, Giant	Herb	FACW
<i>Sapium sebiferum</i> Tallow-Tree, Chinese	Shrub	FAC	<i>Hydrocotyle umbellata</i> Penny-Wort, Many-Flower	Herb	OBL

<b>Percent of Dominant Species that are OBL, FACW or FAC:</b> (excluding FAC-) 12/12 = 100.00%	<b>FAC Neutral:</b> 5/5 = 100.00% <b>Numeric Index:</b> 29/12 = 2.42
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**Remarks:**

**HYDROLOGY**

<u>NO</u> Recorded Data(Describe in Remarks): <u>N/A</u> Stream, Lake or Tide Gauge <u>N/A</u> Aerial Photographs <u>N/A</u> Other  <u>YES</u> No Recorded Data  <b>Field Observations</b>  Depth of Surface Water: N/A (in.) Depth to Free Water in Pit: N/A (in.) Depth to Saturated Soil: = 1 (in.)	<b>Wetland Hydrology Indicators</b> <b>Primary Indicators</b> <u>NO</u> Inundated <u>YES</u> Saturated in Upper 12 Inches <u>NO</u> Water Marks <u>NO</u> Drift Lines <u>NO</u> Sediment Deposits <u>NO</u> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <u>YES</u> Oxidized Root Channels in Upper 12 Inches <u>NO</u> Water-Stained Leaves <u>NO</u> Local Soil Survey Data <u>YES</u> FAC-Neutral Test <u>NO</u> Other (Explain in Remarks)
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**Remarks:**

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

<b>Project/Site:</b> LA 21 Widening <b>Applicant/Owner:</b> Regional Planning Commission with LA DOTD and FHWA <b>Investigators:</b> Randy Ellis and Shelley Meador	<b>Project No:</b>  	<b>Date:</b> 15-May-2007 <b>County:</b> St. Tammany Parish <b>State:</b> Louisiana <b>Plot ID:</b> 2
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> -		<b>Drainage Class:</b>		<b>Mapped Hydric Inclusion?</b>		
<b>Map Symbol:</b> -				Field Observations Confirm Mapped Type? Yes <input type="radio"/> No <input checked="" type="radio"/>		
<b>Taxonomy (Subgroup):</b>						
<b>Profile Description</b>						
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0-7		10YR3/2	N/A	N/A	N/A	Loam
7-18		10YR5/1	10YR5/8	Few	Distinct	Silty clay
<b>Hydric Soil Indicators:</b>						
<u>NO</u> Histosol			<u>NO</u> Concretions			
<u>NO</u> Histic Epipedon			<u>NO</u> High Organic Content in Surface Layer in Sandy Soils			
<u>NO</u> Sulfidic Odor			<u>NO</u> Organic Streaking in Sandy Soils			
<u>NO</u> Aquic Moisture Regime			<u>NO</u> Listed on Local Hydric Soils List			
<u>NO</u> Reducing Conditions			<u>NO</u> Listed on National Hydric Soils List			
<u>YES</u> Gleyed or Low Chroma Colors			<u>NO</u> Other (Explain in Remarks)			
<b>Remarks:</b>						

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampling Point within the Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
<b>Remarks:</b>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

<b>Project/Site:</b> LA 21 Widening <b>Applicant/Owner:</b> Regional Planning Commission with LA DOTD and FHWA <b>Investigators:</b> Randy Ellis and Shelley Meador	<b>Project No:</b>   	<b>Date:</b> 15-May-2007 <b>County:</b> St. Tammany Parish <b>State:</b> Louisiana <b>Plot ID:</b> 3
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> -																	
<b>Map Symbol:</b> -			<b>Drainage Class:</b>														
<b>Taxonomy (Subgroup):</b>				<b>Mapped Hydric Inclusion?</b> Field Observations Confirm Mapped Type? Yes <input type="radio"/> No <input checked="" type="radio"/>													
<b>Profile Description</b>																	
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc											
0-6		10YR6/1	10YR6/6	Few	Distinct	Silt loam											
6-16		10YR5/1	10YR6/8	Common	Distinct	Silty clay loam											
<b>Hydric Soil Indicators:</b> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"><u>NO</u> Histosol</td> <td style="width: 50%; border: none;"><u>NO</u> Concretions</td> </tr> <tr> <td style="border: none;"><u>NO</u> Histic Epipedon</td> <td style="border: none;"><u>NO</u> High Organic Content in Surface Layer in Sandy Soils</td> </tr> <tr> <td style="border: none;"><u>NO</u> Sulfidic Odor</td> <td style="border: none;"><u>NO</u> Organic Streaking in Sandy Soils</td> </tr> <tr> <td style="border: none;"><u>NO</u> Aquic Moisture Regime</td> <td style="border: none;"><u>NO</u> Listed on Local Hydric Soils List</td> </tr> <tr> <td style="border: none;"><u>NO</u> Reducing Conditions</td> <td style="border: none;"><u>NO</u> Listed on National Hydric Soils List</td> </tr> <tr> <td style="border: none;"><u>YES</u> Gleyed or Low Chroma Colors</td> <td style="border: none;"><u>NO</u> Other (Explain in Remarks)</td> </tr> </table>						<u>NO</u> Histosol	<u>NO</u> Concretions	<u>NO</u> Histic Epipedon	<u>NO</u> High Organic Content in Surface Layer in Sandy Soils	<u>NO</u> Sulfidic Odor	<u>NO</u> Organic Streaking in Sandy Soils	<u>NO</u> Aquic Moisture Regime	<u>NO</u> Listed on Local Hydric Soils List	<u>NO</u> Reducing Conditions	<u>NO</u> Listed on National Hydric Soils List	<u>YES</u> Gleyed or Low Chroma Colors	<u>NO</u> Other (Explain in Remarks)
<u>NO</u> Histosol	<u>NO</u> Concretions																
<u>NO</u> Histic Epipedon	<u>NO</u> High Organic Content in Surface Layer in Sandy Soils																
<u>NO</u> Sulfidic Odor	<u>NO</u> Organic Streaking in Sandy Soils																
<u>NO</u> Aquic Moisture Regime	<u>NO</u> Listed on Local Hydric Soils List																
<u>NO</u> Reducing Conditions	<u>NO</u> Listed on National Hydric Soils List																
<u>YES</u> Gleyed or Low Chroma Colors	<u>NO</u> Other (Explain in Remarks)																
<b>Remarks:</b>																	

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampling Point within the Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
<b>Remarks:</b>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

<b>Project/Site:</b> LA 21 Widening	<b>Project No:</b>	<b>Date:</b> 15-May-2007
<b>Applicant/Owner:</b> Regional Planning Commission with LA DOTD and FHWA		<b>County:</b> St. Tammany Parish
<b>Investigators:</b> Randy Ellis and Shelley Meador		<b>State:</b> Louisiana
		<b>Plot ID:</b> 4

**SOILS**

<b>Map Unit Name (Series and Phase):</b> -																	
<b>Map Symbol:</b> -			<b>Drainage Class:</b>														
<b>Taxonomy (Subgroup):</b>				<b>Mapped Hydric Inclusion?</b>													
				Field Observations Confirm Mapped Type? Yes <input type="radio"/> No <input checked="" type="radio"/>													
<b>Profile Description</b>																	
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc											
0-4		10YR5/3	10YR6/6	Common	Distinct	Sandy loam											
4-16		10YR7/1	10YR6/8	Common	Distinct	Sandy loam											
<b>Hydric Soil Indicators:</b> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"><u>NO</u> Histosol</td> <td style="width: 50%; border: none;"><u>NO</u> Concretions</td> </tr> <tr> <td style="border: none;"><u>NO</u> Histic Epipedon</td> <td style="border: none;"><u>NO</u> High Organic Content in Surface Layer in Sandy Soils</td> </tr> <tr> <td style="border: none;"><u>NO</u> Sulfidic Odor</td> <td style="border: none;"><u>NO</u> Organic Streaking in Sandy Soils</td> </tr> <tr> <td style="border: none;"><u>NO</u> Aquic Moisture Regime</td> <td style="border: none;"><u>NO</u> Listed on Local Hydric Soils List</td> </tr> <tr> <td style="border: none;"><u>NO</u> Reducing Conditions</td> <td style="border: none;"><u>NO</u> Listed on National Hydric Soils List</td> </tr> <tr> <td style="border: none;"><u>YES</u> Gleyed or Low Chroma Colors</td> <td style="border: none;"><u>NO</u> Other (Explain in Remarks)</td> </tr> </table>						<u>NO</u> Histosol	<u>NO</u> Concretions	<u>NO</u> Histic Epipedon	<u>NO</u> High Organic Content in Surface Layer in Sandy Soils	<u>NO</u> Sulfidic Odor	<u>NO</u> Organic Streaking in Sandy Soils	<u>NO</u> Aquic Moisture Regime	<u>NO</u> Listed on Local Hydric Soils List	<u>NO</u> Reducing Conditions	<u>NO</u> Listed on National Hydric Soils List	<u>YES</u> Gleyed or Low Chroma Colors	<u>NO</u> Other (Explain in Remarks)
<u>NO</u> Histosol	<u>NO</u> Concretions																
<u>NO</u> Histic Epipedon	<u>NO</u> High Organic Content in Surface Layer in Sandy Soils																
<u>NO</u> Sulfidic Odor	<u>NO</u> Organic Streaking in Sandy Soils																
<u>NO</u> Aquic Moisture Regime	<u>NO</u> Listed on Local Hydric Soils List																
<u>NO</u> Reducing Conditions	<u>NO</u> Listed on National Hydric Soils List																
<u>YES</u> Gleyed or Low Chroma Colors	<u>NO</u> Other (Explain in Remarks)																
<b>Remarks:</b>																	

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampling Point within the Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Wetland Hydrology Present? <input type="radio"/> Yes <input checked="" type="radio"/> No	
Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	
<b>Remarks:</b>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
*(1987 COE Wetlands Delineation Manual)*

<b>Project/Site:</b> LA 21 Widening <b>Applicant/Owner:</b> Regional Planning Commission with LA DOTD and FHWA <b>Investigators:</b> Randy Ellis and Shelley Meador	<b>Project No:</b>	<b>Date:</b> 15-May-2007 <b>County:</b> St. Tammany Parish <b>State:</b> Louisiana <b>Plot ID:</b> 5
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> -		<b>Map Symbol:</b> -		<b>Drainage Class:</b>		<b>Mapped Hydric Inclusion?</b>	
<b>Taxonomy (Subgroup):</b>				<b>Field Observations Confirm Mapped Type? Yes <input type="radio"/> No <input checked="" type="radio"/></b>			
<b>Profile Description</b>							
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc	
0-5		10YR4/2	7.5YR4/6	Few	Distinct	Loam	
5-14		10YR6/2	10YR6/6 7.5YR4/6	Common Few	Distinct Distinct	Silty clay loam	
<b>Hydric Soil Indicators:</b>							
<u>NO</u> Histosol				<u>NO</u> Concretions			
<u>NO</u> Histic Epipedon				<u>NO</u> High Organic Content in Surface Layer in Sandy Soils			
<u>NO</u> Sulfidic Odor				<u>NO</u> Organic Streaking in Sandy Soils			
<u>NO</u> Aquic Moisture Regime				<u>NO</u> Listed on Local Hydric Soils List			
<u>NO</u> Reducing Conditions				<u>NO</u> Listed on National Hydric Soils List			
<u>YES</u> Gleyed or Low Chroma Colors				<u>NO</u> Other (Explain in Remarks)			
<b>Remarks:</b>							

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampling Point within the Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
<b>Remarks:</b>	

**APPENDIX B**

**PHOTOGRAPHS OF VEGETATION COMMUNITIES  
AND SOIL PROFILES**



**Figure B-1. Typical view of soil profile from plot 1 LA HWY 21 Widening (CEI 5/15/07).**



**Figure B-2. Typical view of vegetation from plot 1 LA HWY 21 Widening (CEI 5/15/07).**



Figure B-3. Typical view of soil profile from plot 2 LA HWY 21 Widening (CEI 5/15/07).



Figure B-4. Typical view of vegetation from plot 2 LA HWY 21 Widening (CEI 5/15/07).



Figure B-5. Typical view of soil profile from plot 3 LA HWY 21 Widening (CEI 5/15/07).



Figure B-6. Typical view of vegetation from plot 3 LA HWY 21 Widening (CEI 5/15/07).



**Figure B-7. Typical view of soil profile from plot 4 LA HWY 21 Widening (CEI 5/15/07).**



**Figure B-8. Typical view of vegetation from plot 4 LA HWY 21 Widening (CEI 5/15/07).**



Figure B-9. Typical view of soil profile from plot 5 LA HWY 21 Widening (CEI 5/15/07).



Figure B-10. Typical view of vegetation from plot 5 LA HWY 21 Widening (CEI 5/15/07).



**Figure B-11. Typical view of maintained vacant land (CEI 5/15/07).**



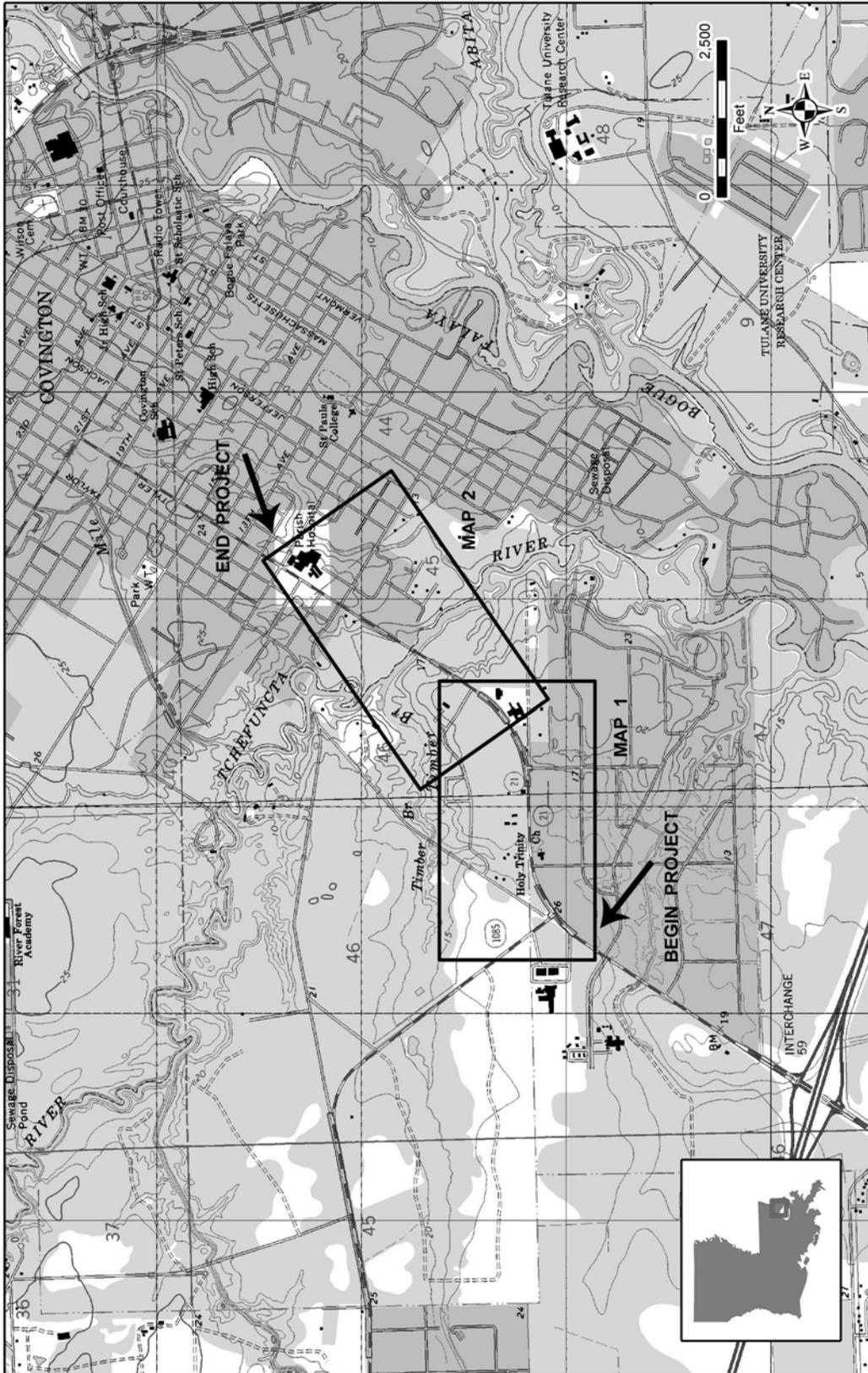
**Figure B-12. Typical view of Tchefuncte River where bridge crosses facing northeast (CEI 5/15/07).**



**Figure B-13. Typical view of Tchefuncte River where bridge crosses facing northwest (CEI 5/15/07).**



**APPENDIX C**  
**WETLAND DELINEATION MAPS**  
**(FIVE SHEETS)**



**LA 21 WIDENING**  
 ENVIRONMENTAL ASSESSMENT (EA)  
 S.P.N. 736-52-0043  
 F.A.P.N. STP-5204(508)

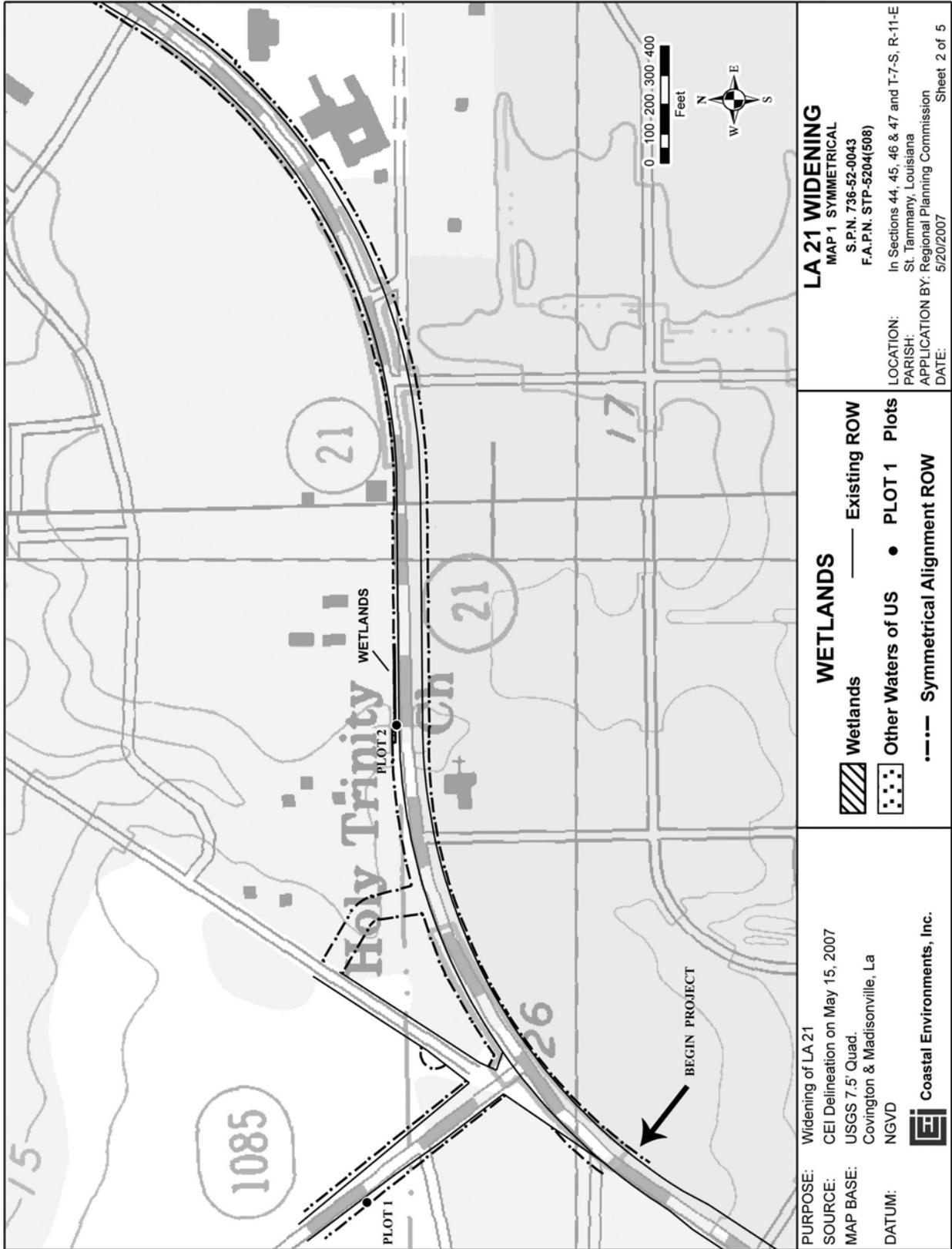
LOCATION: In Sections 44, 45, 46 & 47 and T-7-S, R-11-E  
 PARISH: St. Tammany, Louisiana  
 APPLICATION BY: Regional Planning Commission  
 DATE: 5/20/2007

**PROJECT LOCATION AND INDEX MAP**

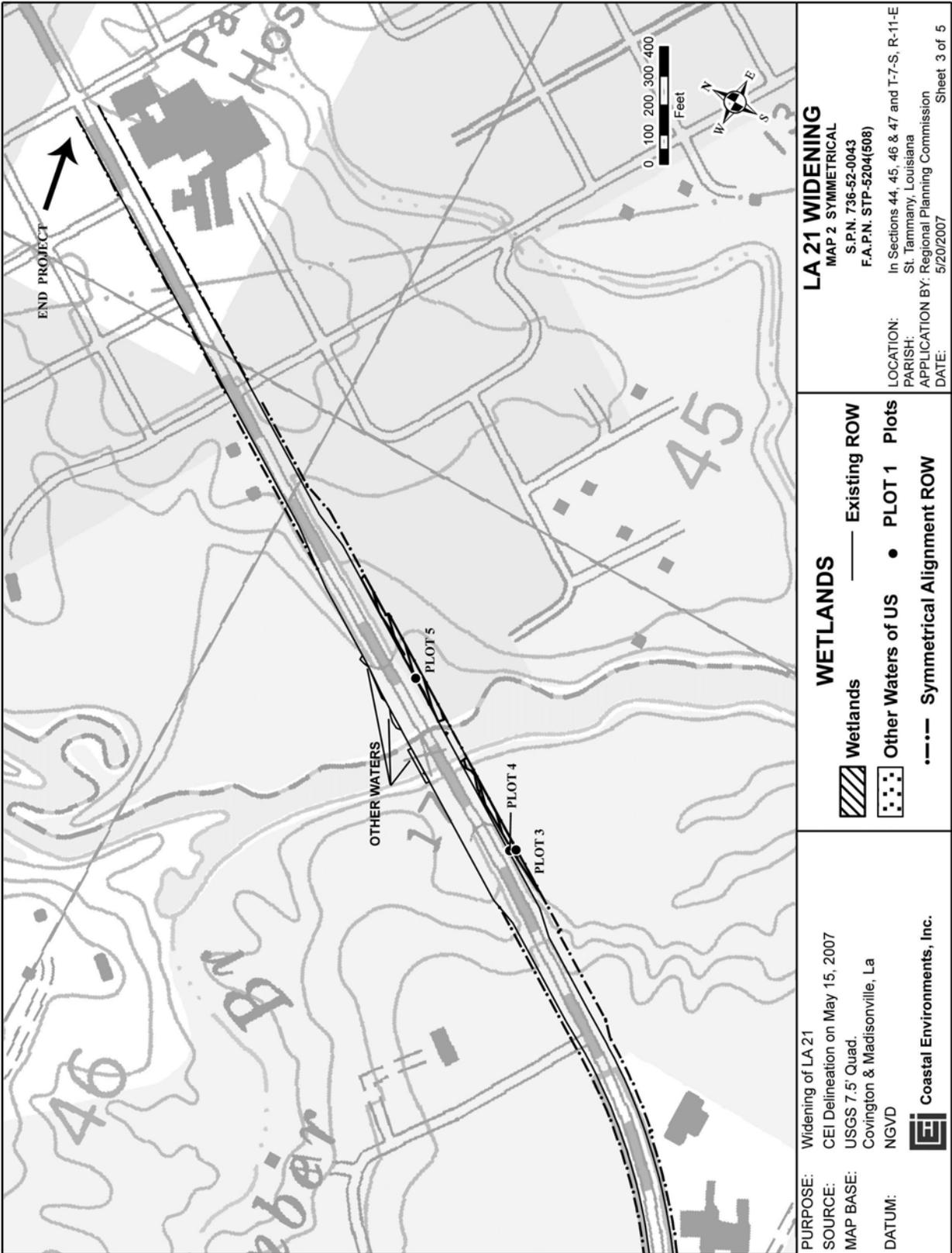
Coastal Environments, Inc.

PURPOSE: Widening of LA 21  
 SOURCE: CEI Delineation on May 15, 2007  
 MAP BASE: USGS 7.5' Quad.  
 DATUM: NGVD









**LA 21 WIDENING**  
 MAP 2 SYMMETRICAL  
 S.P.N. 736-52-0043  
 F.A.P.N. STP-5204(508)

LOCATION: In Sections 44, 45, 46 & 47 and T-7-S, R-11-E  
 PARISH: St. Tammany, Louisiana  
 APPLICATION BY: Regional Planning Commission  
 DATE: 5/20/2007

Sheet 3 of 5

**WETLANDS**

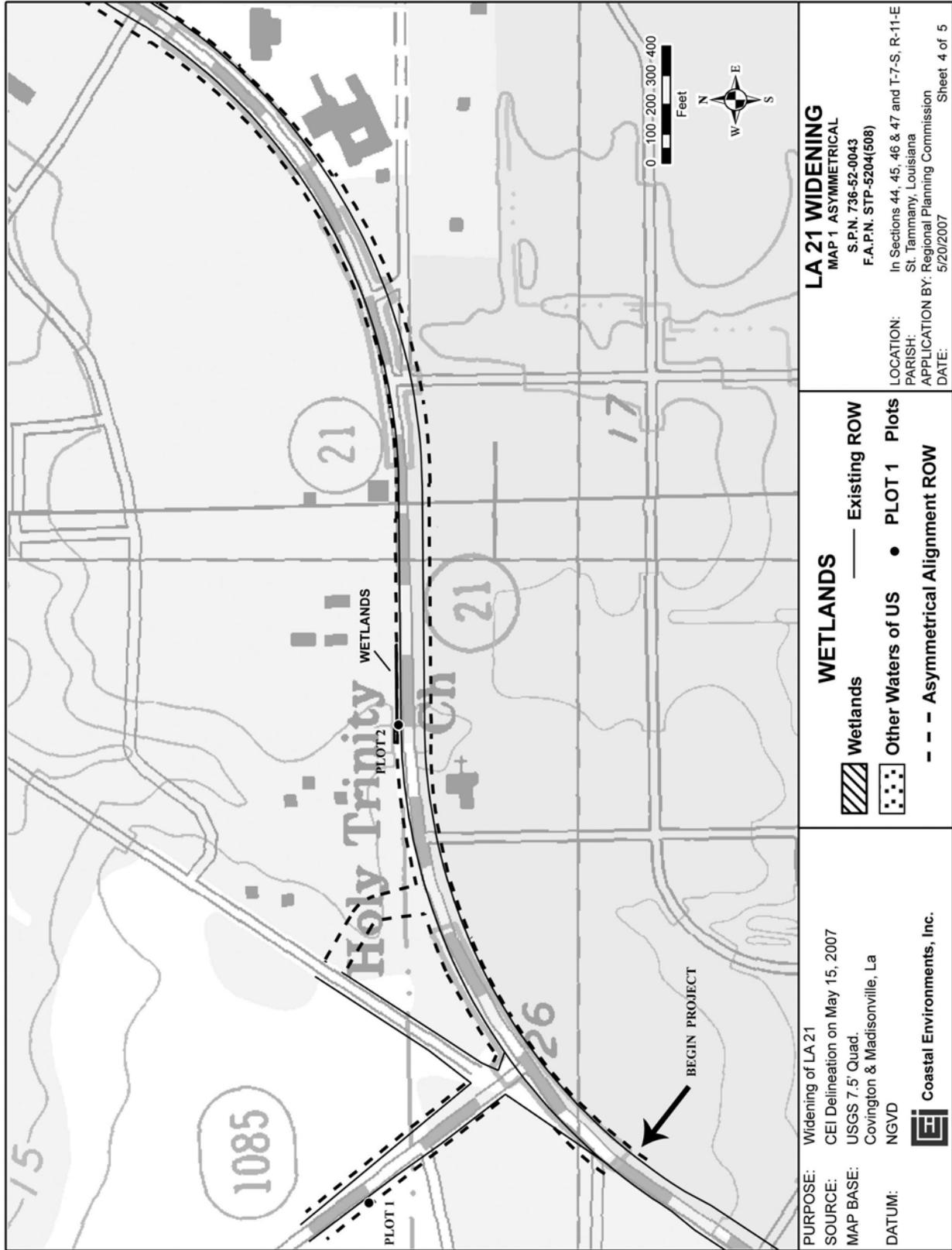
 Wetlands  
 Other Waters of US  
 Symmetrical Alignment ROW

 Existing ROW  
 PLOT 1 Plots

PURPOSE: Widening of LA 21  
 SOURCE: CEI Delineation on May 15, 2007  
 MAP BASE: USGS 7.5' Quad.  
 Covington & Madisonville, La  
 DATUM: NGVD

 Coastal Environments, Inc.





**LA 21 WIDENING**  
 MAP 1 ASYMMETRICAL  
 S.P.N. 736-52-0043  
 F.A.P.N. STP-5204(508)

LOCATION: In Sections 44, 45, 46 & 47 and T-7-S, R-11-E  
 PARISH: St. Tammany, Louisiana  
 APPLICATION BY: Regional Planning Commission  
 DATE: 5/20/2007

**WETLANDS**  
 Wetlands — Existing ROW  
 Other Waters of US • PLOT 1 Plots  
 - - - Asymmetrical Alignment ROW

PURPOSE: Widening of LA 21  
 SOURCE: CEI Delineation on May 15, 2007  
 MAP BASE: USGS 7.5' Quad. Covington & Madisonville, La  
 DATUM: NGVD

Coastal Environments, Inc.





<p><b>PURPOSE:</b> Widening of LA 21  <b>SOURCE:</b> CEI Delineation on May 15, 2007  <b>MAP BASE:</b> USGS 7.5' Quad. Covington &amp; Madisonville, La  <b>DATUM:</b> NGVD</p>  <p><b>Coastal Environments, Inc.</b></p>	<p><b>WETLANDS</b></p> <p> Wetlands</p> <p> Other Waters of US</p> <p> Asymmetrical Alignment ROW</p> <p>— Existing ROW</p> <p>• PLOT 1 Plots</p>	<p><b>LA 21 WIDENING</b>  <b>MAP 2 ASYMMETRICAL</b>  <b>S.P.N.</b> 736-52-0043  <b>F.A.P.N.</b> STP-5204(508)</p> <p><b>LOCATION:</b> In Sections 44, 45, 46 &amp; 47 and T-7-S, R-11-E  <b>PARISH:</b> St. Tammany, Louisiana  <b>APPLICATION BY:</b> Regional Planning Commission  <b>DATE:</b> 5/20/2007</p> <p style="text-align: right;">Sheet 5 of 5</p>
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**APPENDIX D**

**FEDERAL AND STATE AGENCY RESPONSES  
TO REQUESTS FOR THREATENED AND ENDANGERED SPECIES  
INFORMATION**



**State of Louisiana**

KATHLEEN BABINEAUX BLANCO  
GOVERNOR

DEPARTMENT OF WILDLIFE & FISHERIES  
POST OFFICE BOX 98000  
BATON ROUGE, LA 70898-9000  
(225) 765-2800

BRYANT O. HAMMETT, JR.  
SECRETARY

**Date** March 14, 2007

**Name** Jeff Roesel

**Company** Regional Planning Commission

**Street Address** 1340 Poydras Street, Suite 2100

**City, State, Zip** New Orleans, LA 70112

**Project** LA 21 Widening Environmental Assessment  
State Project # 736-52-0043

**Invoice Number** 07031402

Personnel of the Habitat Section of the Fur and Refuge Division have reviewed the preliminary data for the captioned project. In reviewing our database, no rare, threatened, or endangered species or critical habitats were found within the area of the captioned project that lies in Louisiana. The Tchefuncte River and its tributaries, which are designated as Scenic Rivers, are located within the proposed project. Contact Keith Cascio with the Louisiana Department of Wildlife and Fisheries at 318-343-4045 concerning scenic rivers. No other state or federal parks, wildlife refuges, scenic streams, or wildlife management areas are known at the specified site within Louisiana's boundaries.

The Louisiana Natural Heritage Program (LNHP) has compiled data on rare, endangered, or otherwise significant plant and animal species, plant communities, and other natural features throughout the state of Louisiana. Heritage reports summarize the existing information known at the time of the request regarding the location in question. The quantity and quality of data collected by the LNHP are dependent on the research and observations of many individuals. In most cases, this information is not the result of comprehensive or site-specific field surveys; many natural areas in Louisiana have not been surveyed. This report does not address the occurrence of wetlands at the site in question. Heritage reports should not be considered final statements on the biological elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. LNHP requires that this office be acknowledged in all reports as the source of all data provided here. If at any time Heritage tracked species are encountered within the project area, please contact the LNHP Data Manager at 225-765-2643. If you have any questions, or need additional information, please call 225-765-2357.

Sincerely,

Gary Lester, Coordinator  
Natural Heritage Program



## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
646 Cajundome Blvd.  
Suite 400  
Lafayette, Louisiana 70506

March 13, 2007

Mr. Jeff Roesel  
The Regional Planning Commission  
1340 Poydras Street, Suite 2100  
New Orleans, LA 70112

Dear Mr. Roesel:

Please reference your March 5, 2007, letter, requesting our review of the proposed LA 21 widening project (S.P.N. 736-52-0043, and F.A.P.N. STP-5204 (508)) from Bootlegger Road to West 11<sup>th</sup> Avenue in St. Tammany Parish, Louisiana. We have reviewed the information you provided, and offer the following comments in accordance with the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

The proposed project includes a bridge crossing over the Tchefuncte River, where Gulf sturgeon (*Acipenser oxyrinchus desotoi*) may occur. The Gulf sturgeon, federally listed as a threatened species, is an anadromous fish that occurs in many rivers, streams, and estuarine waters along the northern Gulf coast between the Mississippi River and the Suwanee River, Florida. In Louisiana, Gulf sturgeon have been reported at Rigolets Pass, rivers and lakes of the Lake Pontchartrain basin, and adjacent estuarine areas. Spawning occurs in coastal rivers between late winter and early spring (i.e., March to May). Adults and sub-adults may be found in those rivers and streams until November, and in estuarine or marine waters during the remainder of the year. Sturgeon less than two years old appear to remain in riverine habitats and estuarine areas throughout the year, rather than migrate to marine waters. Habitat alterations such as those caused by water control structures that limit and prevent spawning, poor water quality, and over-fishing have negatively affected this species.

If instream construction activities will occur between April 1 and September 30, no further consultation with the Service for this project will be necessary. However, all construction activities associated with this project should adhere to the Louisiana Department of Environmental Quality's Nonpoint Source (NPS) Management Plan's Phase 2 Storm Water Regulations. Strict adherence to those regulations will preclude any indirect affect to the Gulf sturgeon; failure to adhere to those regulations, especially regular and post rainfall inspection, and correction of sediment control features (as stated in the Louisiana Department of Transportation and Development Standard Plan EC-01M), will result in the need to reconsult with the Service regarding impacts to the Gulf sturgeon. If any instream work will occur between November 1 and March 31, please contact this office for further consultation.

The proposed project crosses the Tchefuncte River, which is designated as a Louisiana Natural and Scenic River. Please contact the Louisiana Department of Wildlife and Fisheries, Scenic Rivers Program (318/343-4045) for further information regarding any additional permits that may be required to perform work on the above referenced water body.

The proposed project may impact wetlands. For a complete jurisdictional wetland delineation of the proposed project, please contact Mr. John Bruza (504/862-1288) at the New Orleans District, U.S. Army Corps of Engineers (Corps). If the Corps determines that the proposed project is within their regulatory jurisdiction, official U.S. Fish and Wildlife Service comments will be provided in response to the corresponding Public Notice.

We appreciate the opportunity to provide comments in the planning stages of this proposed activity. If you need further assistance, please contact Seth Bordelon (337/291-3138) of this office.

Sincerely,

A handwritten signature in black ink, appearing to read "James F. Boggs". The signature is written in a cursive style and is positioned above the printed name and title.

James F. Boggs  
Acting Supervisor  
Louisiana Field Office

cc: LADOTD, Noel Ardoin  
Corps of Engineers, New Orleans, LA  
LDWF, Scenic Rivers Program, Baton Rouge, LA



