Traffic Noise Analysis Report

Landing Boulevard Extension and NASA 1 Bypass Extension

From FM 518 to I-45
CSJ: 0912-00-519
Galveston and Harris Counties, Texas

August 2018

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by the Texas Department of Transportation (TxDOT) pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by the Federal Highway Administration and TxDOT.

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Table of Contents

1.0 PROJECT DESCRIPTION 1

2.0 SOUND/NOISE FUNDAMENTALS 1

3.0 TRAFFIC MODELING RESULTS 3

A. Existing Noise Levels 4

B. Predicted Future Noise Levels 5

4.0 MITIGATION 6

5.0 REFERENCES 7

List of Tables

Table 1. FHWA Noise Abatement Criteria 2

Table 2. Modeled Traffic Noise Levels 4

Table 3. Decibel Addition 5

Table 4. Predicted 2040 Noise Impact Contour 6

Appendices

Appendix A: Exhibits

Appendix B: Traffic Data

Appendix C: Field Data Sheets

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1.0 Project Description

The City of League City and Texas Department of Transportation (TxDOT) propose the extension of Landing Boulevard and the NASA Road 1 Bypass (NASA 1) from FM 518 (West Main Street) in League City, Galveston County, to Interstate Highway 45 (I-45) in Webster, Harris County. The project length is approximately 1.7 miles and a project location map is provided in **Appendix A**. The proposed Build Alternative would extend Landing Boulevard northward beyond its existing terminus north of FM 518 as a four-lane, divided roadway to a proposed roundabout with the proposed NASA 1 Bypass extension, which would connect to the existing NASA 1 Bypass at I-45.

The Build Alternative would include two travel lanes in each direction. The inside travel lane would be 12 feet wide and the outside travel lane, designated as a shared-use lane, would be 15 feet wide. The raised median would vary from 4 feet to 16 feet. The proposed Landing Boulevard would be elevated over Clear Creek and Newport Ditch (a tributary of Clear Creek) with a bridge approximately 2,800 feet long. The proposed NASA 1 would be elevated over a drainage channel with a 100-foot-long bridge. Northbound and westbound right-turn lanes would be added at Landing Boulevard and FM 518. Southbound Landing Boulevard would be expanded to include two through lanes, a left-turn lane and a right-turn lane at FM 518. Left-turn bays would be provided for a median cut on Landing approximately 700 feet north of FM 518 to provide access to adjacent commercial properties. The NASA 1 Bypass at the I-45 frontage road intersection would include one through lane, one left-turn lane and one through lane with optional left in each direction, and an eastbound right-turn lane. An eastbound right-turn lane would be added to the southbound I-45 frontage road.

The No Build Alternative would leave existing Landing Boulevard north of FM 518 as a cul-de-sac and provide no new facilities.

The topography in the proposed project area is flat, lying within the Gulf coastal plain. Land use in the vicinity of the proposed project is urban. The proposed project lies within the city limits of League City (south of Clear Creek) and Webster (north of Clear Creek). Dominant land uses adjacent to the project area include commercial uses (zoned for general commercial use) near the existing Landing Boulevard and single-family residences to the east and west within League City. A utility corridor and undeveloped land lie north along the proposed project with public parks to the east (Myrtle Park) and west (Challenger 7 Memorial Park) and a privately-owned cemetery (Forest Park Cemetery) to the east. Undeveloped land within the League City proposed project area is currently zoned for public use or open space and in Webster is zoned for planned unit development. The proposed project is consistent with local planning efforts.

2.0 Sound/Noise Fundamentals

This analysis was accomplished in accordance with TxDOT's (Federal Highway Administration [FHWA] approved) Guidelines for Analysis and Abatement of Roadway Traffic Noise (2011).

Sound from highway traffic is generated primarily from a vehicle's tires, engine and exhaust. It is commonly measured in decibels and is expressed as "dB."

Sound occurs over a wide range of frequencies. However, not all frequencies are detectable by the human ear; therefore, an adjustment is made to the high and low frequencies to approximate the way an average person hears traffic sounds. This adjustment is called A-weighting and is expressed as "dB(A)".

Also, because traffic sound levels are never constant due to the changing number, type and speed of vehicles, a single value is used to represent the average or equivalent sound level and is expressed as "Leq".

The traffic noise analysis typically includes the following elements:

- Identification of land use activity areas that might be impacted by traffic noise.
- Determination of existing noise levels.
- Prediction of future noise levels.
- Identification of possible noise impacts.
- Consideration and evaluation of measures to reduce noise impacts.

FHWA has established the following (**Table 1**) Noise Abatement Criteria (NAC) for various land use activity areas that are used as one of two means to determine when a traffic noise impact would occur.

Table 1. FHWA Noise Abatement Criteria

FHWA Noise Abatement Criteria (NAC)		
Activity Category	**dB(A) Leq**	**Description of Land Use Activity Areas**
A	57 (exterior)	Lands on which serenity and quiet are of extra-ordinary 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	67 (exterior)	Residential
C	67 (exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools , television studios, trails, and trail crossings
D	52 (interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios
E	72 (exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A-D or F
F	--	Agricultural, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing
G	--	Undeveloped lands that are not permitted

Source: TxDOT, 2011

A noise impact occurs when either the absolute or relative criterion is met:

Absolute criterion - the predicted noise level at a receiver approaches, equals or exceeds the NAC. "Approach" is defined as one dB(A) below the NAC. For example: a noise impact would occur at a Category B residence if the noise level is predicted to be 66 dB(A) or above.

Relative criterion - the predicted noise level substantially exceeds the existing noise level at a receiver even though the predicted noise level does not approach, equal or exceed the NAC. “Substantially exceeds” is defined as more than 10 dB(A). For example: a noise impact would occur at a Category B residence if the existing level is 54 dB(A) and the predicted level is 65 dB(A).

When a traffic noise impact occurs, noise abatement measures must be considered. A noise abatement measure is any positive action taken to reduce the impact of traffic noise on an activity area.

The FHWA TNM® Version 2.5 software was used to calculate existing and predicted traffic noise levels. The model primarily considers the number, type and speed of vehicles; highway alignment and grade; cuts, fills and natural berms; surrounding terrain features; and the locations of activity areas likely to be impacted by the associated traffic noise.

3.0 Traffic Modeling Results

Existing and predicted traffic noise levels were modeled at receiver locations that represent the land use activity areas adjacent to the proposed project that might be impacted by traffic noise and potentially benefit from feasible and reasonable noise abatement, if needed.

There were 12 representative receivers included in the TNM® model for potential noise impacts representing one cemetery, two parks, one private park, and approximately 26 residences (**Exhibit 3**).

Table 2. Modeled Traffic Noise Levels

Site ID	No. Receiver(s) Represented	NAC Category	NAC Level	Existing (2018) dB(A) Leq	Build Alternative (2040) dB(A)	Change (+/-)	Noise Impact
R-1 (Residence)	5	B	67	50*	53**	+3	No
R-2 (Residence)	7	B	67	50*	52	+2	No
R-3 (Residence)	3	B	67	53	60	+7	No
R-4 (Private Park)	1	C	67	53	59	+6	No
R-5 (Residence)	3	B	67	49	53	+4	No
R-6 (Residence)	4	B	67	49	57	+8	No
R-7 (Residence)	2	B	67	49	56	+7	No
R-8 (Residence)	2	B	67	49	52	+3	No
R-9 (Park)	1	B	67	56	57***	+1	No
R-10 (Cemetery)	1	C	67	59	60***	+1	No
R-11 (Cemetery)	1	C	67	59	62****	+3	No
R-12 (Park)	1	C	67	53	59	+6	No

*Estimated noise levels based on distance from receiver.

** The logarithmic function of decibel addition was used to determine the Build Alternative noise level because this receiver had the same existing noise levels as the TNM results for the Build Alternative.

***The logarithmic function of decibel addition was used to determine the Build Alternative noise level because the measured existing noise levels were higher than the TNM results for the Build Alternative.

****The logarithmic function of decibel addition was used to determine the Build Alternative noise level because this receiver shared the similar environment and proximity to I-45 as R-10.

A. Existing Noise Levels

The measured ambient noise levels for the existing conditions along the proposed location of the roadway in the proposed project area range from 49 to 59 dB(A) Leq as shown in **Table 2**, and the receiver locations are shown in **Exhibit 3**. Since there is not an existing roadway along the proposed alignment, current ambient noise from traffic sources include high-speed traffic on I-45 east of the proposed project area, roadway traffic on FM 518 and FM 528 on the southern and northern end of the proposed project area, respectively, and local traffic on residential streets in adjacent neighborhoods on the southern end of the proposed project. Besides the ambient noise from traffic, additional noise sources at the time of the ambient readings included birds throughout the area, children playing at park facilities within Challenger 7 Memorial Park, and construction/landscaping occurring at Forest Park Cemetery. Based on the current noise sources, the measured noise levels at the receivers were dependent upon the proximity of the receivers to existing roadways in the area, the amount of physical shielding provided by buildings, vegetation, topography, and the presence of non-traffic-related noise. **Table 2** shows that none of the receivers evaluated exceeded FHWA/TxDOT NAC limits (NAC Level). Of note, the ambient noise levels for two of the

receiver locations (R-1 and R-2) were estimated at 50 dB(A) Leq based on the distance to the residential receivers from the accessible utility corridor at those locations.

B. Predicted Future Noise Levels

The Build Alternative (Year 2040) modeled noise levels were predicted to range from 52 to 62 dB(A) Leq, as shown in **Table 2**, which are between +1 to +8 dB(A) Leq higher than existing conditions. The increase is attributed to the addition of the proposed new roadway to the area. The Build Alternative is not predicted to approach or exceed the NAC at any receivers.

The predicted noise levels are based only on future traffic modeled for the proposed roadway. Other roadways or noise sources, such as I-45, were not modeled. However, to compare existing and future conditions, the logarithmic function of decibel addition was used to incorporate non-modeled noise sources when the predicted future noise levels were lower or the same as the existing condition ambient measurements. Logarithmic function of decibel addition is the addition of decibels based on the difference in sound levels between two sources. Basically, since decibels are on a logarithmic scale (based on the powers of 10), sound levels cannot be added by ordinary arithmetic means (TxDOT 2011). Therefore, to get a more precise predicted sound level for the receiver locations, the predicted noise levels are logarithmically added to the ambient noise measurements, resulting in the Build Alternative noise levels represented in **Table 2**. The logarithmic addition used for the proposed project was based on the representative examples presented in TxDOT guidance (2011) as shown in **Table 3**.

*Table 3. Decibel Addition**

Decibel Addition			
Difference Between Two Sources	**For Example**	**Add to the Higher Level**	**Resultant Sound Level****
0 dB	60 and 60 dB	3 dB	63 dB
1 dB	60 and 61 dB		64 dB
2 dB	60 and 62 dB	2 dB	64 dB
3 dB	60 and 63 dB		65 dB
4-9 dB	60 and 65 dB	1 dB	66 dB
10 dB or more	60 and 70 dB	0 dB	70 dB

* This table only represents approximations of the logarithmic function of decibel addition.
** Accurate within 1 dB

Source: TxDOT, 2011

Specifically, the modeled noise levels at two of the receiver locations (R-9 and R-10) were lower (52 and 53 dB(A) Leq, respectively) than the measured ambient noise levels for the existing conditions (56 and 59 dB(A) Leq, respectively). The R-9 location deviation was attributed to the receiver and measurement being placed

near a playground at the Challenger 7 Memorial Park, which was in use at the time of the measurement, and other ambient noise sources such as distant traffic and birds. The R-10 location deviation was attributed to traffic noise from the existing I-45 (an 8-lane facility with frontage roads) that is located approximately 1,500 feet east/northeast from the receiver at its closest point, and construction/landscaping occurring on the cemetery grounds. The flat topography and lack of shielding at this location likely attributed to the measured ambient noise level as well. Because of these deviations with the modeled noise levels for the Build conditions, the logarithmic function of decibel addition was used to determine the Build Alternative modeled noise levels for R-9 and R-10 reflected in **Table 2** (TxDOT 2011).

Additional differences with existing and future conditions included the readings at the R-1 and R-11 locations. The R-1 location had the same reading for the existing conditions as it did for the Build Alternative (50 dB(A) Leq). The existing reading is likely attributed to the receiver's proximity to FM 518 located approximately 350 feet to the south. Additionally, the R-11 location has similar conditions to R-10 including the receiver's proximity to I-45 and has existing level readings (59 dB(A) Leq) similar to the modeled level readings (59 dB(A) Leq). Because of these similar ambient readings with the modeled noise levels for the Build Alternative, the logarithmic function of decibel addition was used to determine the Build Alternative modeled noise levels for R-1 and R-10 and is reflected in **Table 2** (TxDOT 2011).

4.0 Mitigation

As indicated in **Table 2**, the proposed project would not result in an absolute or relative traffic noise impact. However, to avoid noise impacts that may result from future development of properties adjacent to the project, local officials responsible for land use control programs must ensure, to the maximum extent possible, no new activities are planned or constructed along or within the predicted (2040) noise impact contours presented in **Table 4**.

Table 4. Predicted 2040 Noise Impact Contour

Land Use	Impact Contour	Distance from Right of Way
NAC Category B & C	66 dB(A)	75 feet
NAC Category E	71 dB(A)	25 feet

Noise associated with the construction of the project is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. However, construction normally occurs during daylight hours when occasional loud noises are more tolerable. None of the receivers are expected to be exposed to construction noise for a long duration; therefore, any extended disruption of normal activities is not expected. Provisions will be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper maintenance of muffler systems.

A copy of this traffic noise analysis will be available to local officials. On the date of approval of this document (Date of Public Knowledge), FHWA and TxDOT are no longer responsible for providing noise abatement for new development adjacent to the project.

5.0 References

U.S. Department of Transportation, Federal Highway Administration. 1973. *Fundamentals and Abatement of Highway Traffic Noise*. Washington, D.C.

U.S. Department of Transportation, Federal Highway Administration. 1982. "Procedures for Abatement of Highway Traffic Noise and Construction Noise," *Federal-Aid Highway Program Manual*. Volume 7, Chapter 7, Section 3. Washington, D.C.

U.S. Department of Transportation, Federal Highway Administration, 1996. *Measurement of Highway-Related Noise*. Washington, D.C.

U.S. Department of Transportation, Federal Highway Administration. 1998, 2004. *FHWA Traffic Noise Model User's Guide*. Washington, D.C.

U.S. Department of Transportation, Federal Highway Administration. 2006. *FHWA Highway Construction Noise Handbook and Roadway Construction Noise Model* (RCNM, ver. 1.0). Washington, D.C.

U.S. Department of Transportation, Federal Transit Administration. 1995. *Transit Noise and Vibration Impact Assessment*. Washington, DC.

U.S. Environmental Protection Agency. 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. Report Number 550/9-74-004.

Texas Department of Transportation, Environmental Affairs Division. 2011. *Guidelines for Analysis and Abatement of Highway Traffic Noise*. Austin, Texas.

APPENDIX A

Exhibits

Exhibit 1. Project Location Map

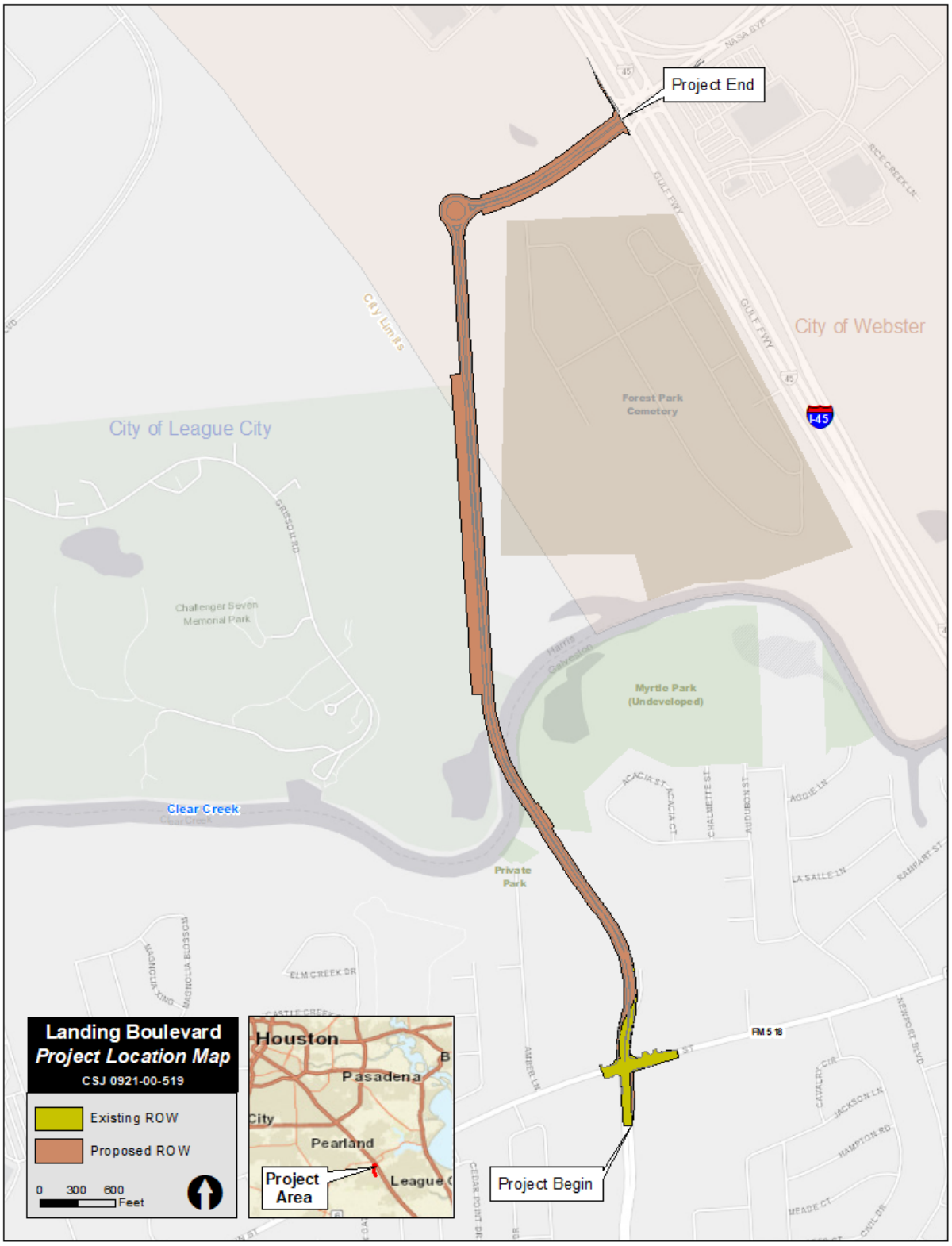


Exhibit 2. Aerial Map with Project Limits

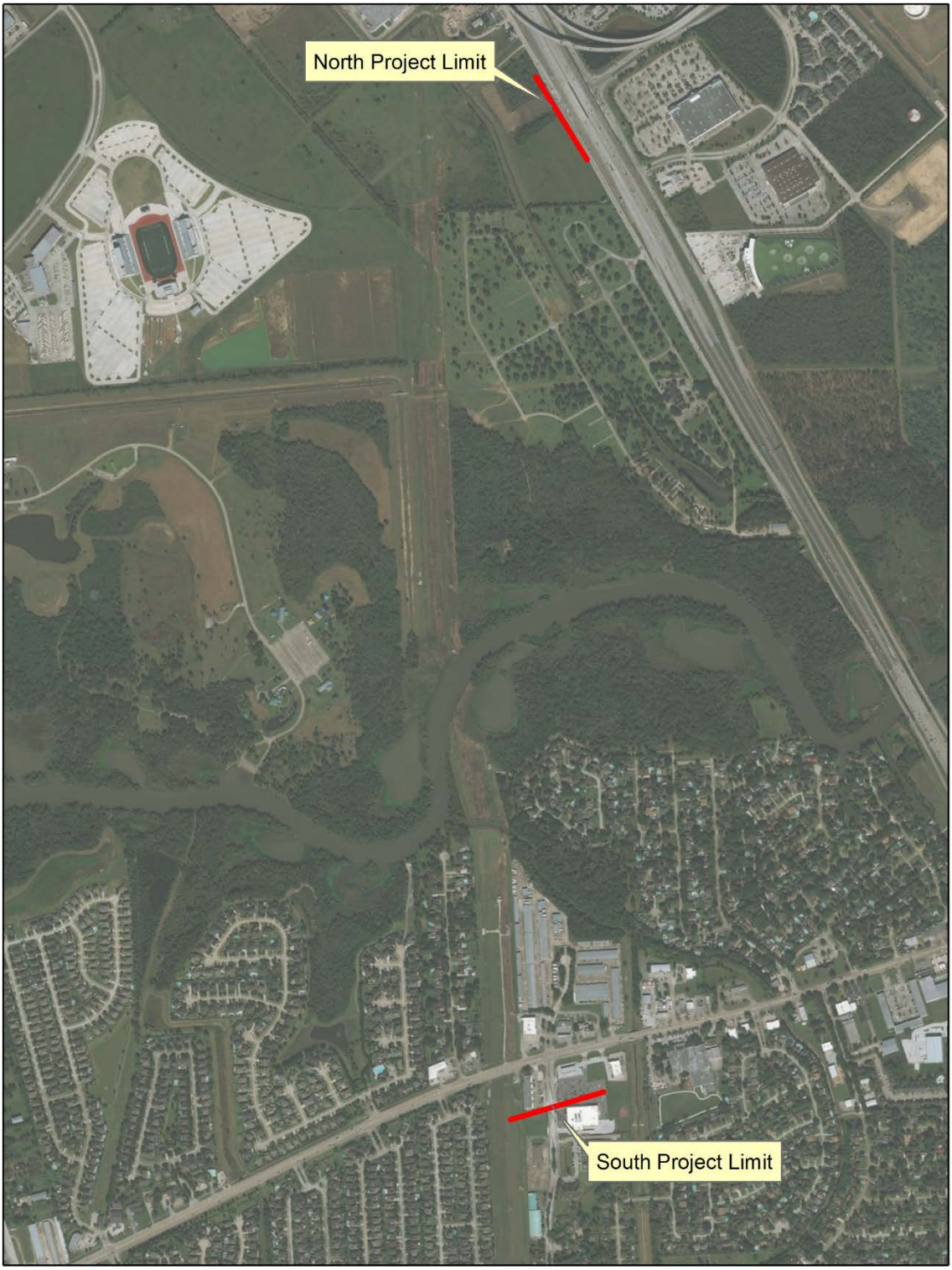


Exhibit 3. Noise Modeling Locations (South End)

Exhibit 3. Noise Modeling Locations (North End)

APPENDIX B

Traffic Data

Section	2040 ADT	K-Factor	Peak Hour Future	Vehicles	Vehicle %	Future
Landing Blvd	34000	0.093	3162	C	0.966	3054
				MT	0.031	98
				HT	0.003	9

Section	2040	2040Per/Direction	2040 Per/Lane
Landing Blvd	3054	1527	764
	98	49	25
	9	5	2

APPENDIX C

Field Data Sheets

PARSONS BRINCKERHOFF

FIELD MEASUREMENT DATA SHEET

Project Name: Landing Blvd **Job #** _____

SITE IDENTIFICATION: #1 **OBSERVER(s):** Huy Luong
START DATE & TIME: 02/02/16 12:35pm **END DATE & TIME:** 02/02/16 12:50pm.
ADDRESS: 380 Amber Ln

ID

TEMP: 68 °F HUMIDITY: 24 % R.H. WIND: CALM LIGHT MODERATE VARIABLE
WINDSPEED: 8 MPH DIR: N NE E SE S SW W NW STEADY GUSTY ____ MPH
SKY: CLEAR SUNNY DARK PARTLY CLOUDY OVRCST FOG DRIZZLE RAIN Other: _____

Weather

INSTRUMENT: BK2238 **TYPE:** 1 2 **SERIAL #:** 2160297
CALIBRATOR: CAL200 **SERIAL #:** 3415

CALIBRATION CHECK: **PRE-TEST** 93.9 **dBA SPL** **POST-TEST** _____ **dBA SPL** **WINDSCREEN** ___

SETTINGS: **A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:** _____

Rec # Start Time / End Time

1 / 12:35 / 12:50 : L_{eq} 53.1, L_{max} 85.1, L_{min} 44.1, L_{90} 46.5, L_{50} 49.5, L_{10} 61.5, L_{95} = 46
___/___/___: L_{eq}___, L_{max}___, L_{min}___, L_{90}___, L_{50}___, L_{10}___, _____
___/___/___: L_{eq}___, L_{max}___, L_{min}___, L_{90}___, L_{50}___, L_{10}___, _____
___/___/___: L_{eq}___, L_{max}___, L_{min}___, L_{90}___, L_{50}___, L_{10}___, _____

COMMENTS:

Acoustic Measurements

PRIMARY NOISE(S): **TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER** _____
ROADWAY TYPE: _____

COUNT DURATION: ____ **-MINUTE**

	NB / EB / SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB / SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:	___/___	___/___	___/___	___/___
MED. TRUCKS:	___/___	___/___	___/___	___/___
HVY TRUCKS:	___/___	___/___	___/___	___/___
BUSES:	___/___	___/___	___/___	___/___
MOTORCYCLES:	___/___	___/___	___/___	___/___

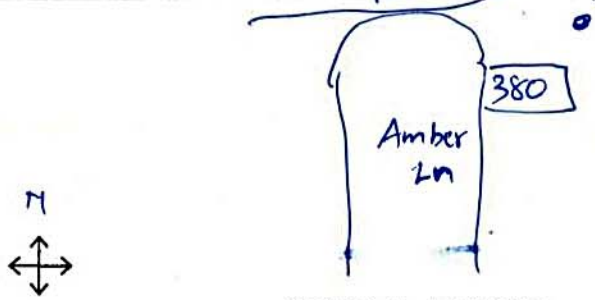
SPEED ESTIMATED BY: **RADAR / DRIVING / OBSERVER**

OTHER NOISE SOURCES: distant **AIRCRAFT** overhead / **RUSTLING LEAVES** / distant **BARKING DOGS** / **BIRDS**
distant **CHILDREN PLAYING** / distant **TRAFFIC** / distant **LANDSCAPING** / distant **TRAINS**

OTHER: _____

Source Info and Traffic Counts

TERRAIN: **HARD SOFT MIXED FLAT OTHER:** _____
PHOTOS: _____
OTHER COMMENTS / SKETCH: Creek Site #1



Description / Sketch

505 S. Main Street, Suite 900, Orange, CA 92868, 714-835-6886

PARSONS BRINCKERHOFF

FIELD MEASUREMENT DATA SHEET

Project Name: Landing Blvd **Job #** _____

SITE IDENTIFICATION: #2 **OBSERVER(s):** Huy Luong + Laura Lopez
START DATE & TIME: 1/27 - 11:00 **END DATE & TIME:** 1/27 - 11:15
ADDRESS: 2317 Acacia Ct.

ID

TEMP: 50 °F HUMIDITY: 59 % R.H. WIND: **CALM LIGHT MODERATE VARIABLE**
WINDSPEED: 18 MPH DIR: (N) NE E SE S SW W NW **STEADY GUSTY** ____ MPH
SKY: **CLEAR SUNNY DARK PARTLY CLOUDY** (OVRCST) **FOG DRIZZLE RAIN** Other: _____

Weather

INSTRUMENT: BK2238 **TYPE:** 1 2 **SERIAL #:** 2160297
CALIBRATOR: CAL200 **SERIAL #:** 3415

CALIBRATION CHECK: **PRE-TEST** 93.9 **dBA SPL** **POST-TEST** _____ **dBA SPL** **WINDSCREEN** ___

SETTINGS: **A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:** _____

Rec #	Start Time	End Time	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	
1	11:00	11:15	48.6	56.2	45.1	47.0	48.5	50.0	L_{95} = 47.0

COMMENTS:

Acoustic Measurements

PRIMARY NOISE(S): **TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER** _____
ROADWAY TYPE: _____

COUNT DURATION: _____ **-MINUTE**

	NB / EB / SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB / SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:	/	/	/	/
MED. TRUCKS:	/	/	/	/
HVY TRUCKS:	/	/	/	/
BUSES:	/	/	/	/
MOTORCYCLES:	/	/	/	/

SPEED ESTIMATED BY: **RADAR / DRIVING / OBSERVER**

OTHER NOISE SOURCES: distant **AIRCRAFT** overhead / **RUSTLING LEAVES** / distant **BARKING DOGS** (**BIRDS**)
distant **CHILDREN PLAYING** / (distant **TRAFFIC**) distant **LANDSCAPING** / distant **TRAINS**
OTHER: Wind Chimes

Source Info and Traffic Counts

TERRAIN: **HARD SOFT MIXED** (**FLAT**) **OTHER:** _____
PHOTOS: _____
OTHER COMMENTS / SKETCH:

Description / Sketch

PARSONS BRINCKERHOFF

FIELD MEASUREMENT DATA SHEET

Project Name: Lanching Blvd **Job #**

SITE IDENTIFICATION: # 3 **OBSERVER(s):** thuy Luong
START DATE & TIME: 1:10 pm (02/02/16) **END DATE & TIME:** 1:25 pm (02/02/16)
ADDRESS: Challenger memorial park

ID

TEMP: 72 °F HUMIDITY: 20 % R.H. WIND: **CALM LIGHT MODERATE VARIABLE**
WINDSPEED: 8 MPH DIR: **N NE E SE S SW W NW STEADY GUSTY** ____ MPH
SKY: **CLEAR SUNNY DARK PARTLY CLOUDY OVRCST FOG DRIZZLE RAIN** Other: _____

Weather

INSTRUMENT: **BK2238** **TYPE: 1 2** **SERIAL #:** **2160297**
CALIBRATOR: **CAL200** **SERIAL #:** **3415**

CALIBRATION CHECK: **PRE-TEST** _____ **dBA SPL POST-TEST** _____ **dBA SPL WINDSCREEN** ____

SETTINGS: **A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:** _____

Rec #	Start Time	End Time	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	L_{95}
1	1:10 pm	1:25 pm	55.5	76.0	47.8	49.5	51.0	57.5	49.0

COMMENTS:

Acoustic Measurements

PRIMARY NOISE(S): **TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER** _____
ROADWAY TYPE: _____

COUNT DURATION: _____ **-MINUTE**

	NB / EB / SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB / SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:	/	/	/	/
MED. TRUCKS:	/	/	/	/
HVY TRUCKS:	/	/	/	/
BUSES:	/	/	/	/
MOTORCYCLES:	/	/	/	/

SPEED ESTIMATED BY: **RADAR / DRIVING / OBSERVER**

OTHER NOISE SOURCES: distant **AIRCRAFT** overhead / **RUSTLING LEAVES** / distant **BARKING DOGS** / **BIRDS**
distant **CHILDREN PLAYING** / distant **TRAFFIC** / distant **LANDSCAPING** / distant **TRAINS**
OTHER: _____

Source Info and Traffic Counts

TERRAIN: **HARD SOFT MIXED FLAT OTHER:** _____
PHOTOS: _____
OTHER COMMENTS / SKETCH:

Description / Sketch

505 S. Main Street, Suite 900, Orange, CA 92868, 714-835-6886

PARSONS BRINCKERHOFF

FIELD MEASUREMENT DATA SHEET

Project Name: Landing Blvd **Job #** _____

SITE IDENTIFICATION: #4 **OBSERVER(s):** Avy Luong + Laura Lopez
START DATE & TIME: 1/27 - 12:13 pm **END DATE & TIME:** 1/27 - 12:28 pm
ADDRESS: Forest Park East Cemetery, I-45 Frontage Road

ID

TEMP: 52 °F HUMIDITY: 52 % R.H. WIND: CALM LIGHT MODERATE VARIABLE
WINDSPEED: 14 MPH DIR: (N) NE E SE S SW W NW STEADY GUSTY ____ MPH
SKY: CLEAR SUNNY DARK PARTLY CLOUDY (OVRCST) FOG DRIZZLE RAIN Other: _____

Weather

INSTRUMENT: BK2238 **TYPE:** 1 2 **SERIAL #:** 2160297
CALIBRATOR: CAL200 **SERIAL #:** 3415

CALIBRATION CHECK: **PRE-TEST** 93.9 **dBA SPL** **POST-TEST** _____ **dBA SPL** **WINDSCREEN** ____

SETTINGS: **A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:** _____

Rec #	Start Time / End Time	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	L_{95}
1	12:13pm / 12:28	59.1	69.4	46.7	49	55.5	61.5	53.5
	/ /							
	/ /							
	/ /							

COMMENTS:

Acoustic Measurements

PRIMARY NOISE(S): **TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER** _____
ROADWAY TYPE: _____

COUNT DURATION: _____ **-MINUTE**

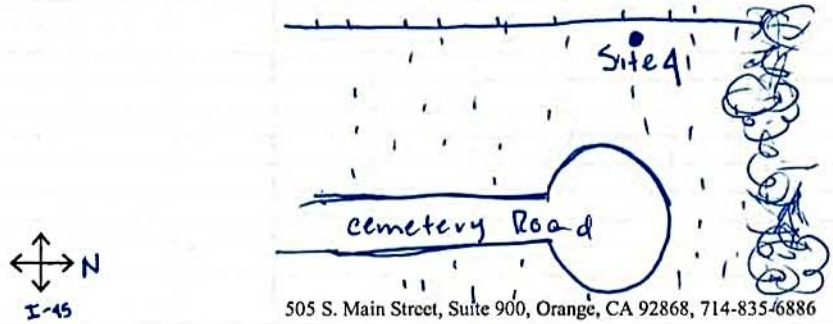
	NB / EB / SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB / SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:	/	/	/	/
MED. TRUCKS:	/	/	/	/
HVY TRUCKS:	/	/	/	/
BUSES:	/	/	/	/
MOTORCYCLES:	/	/	/	/

SPEED ESTIMATED BY: **RADAR / DRIVING / OBSERVER**

OTHER NOISE SOURCES: distant **AIRCRAFT** overhead / **RUSTLING LEAVES** / distant **BARKING DOGS** / (**BIRDS**) distant **CHILDREN PLAYING** / (distant **TRAFFIC**) (distant **LANDSCAPING**) / distant **TRAINS**
OTHER: grave construction (motor noise) going on at time of test.

Source Info and Traffic Counts

TERRAIN: **HARD SOFT MIXED** (**FLAT**) **OTHER:** _____
PHOTOS: _____
OTHER COMMENTS / SKETCH:



Description / Sketch

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