



Oklahoma Department of Transportation

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DATE: **September 25, 2019**

TO: Kirsten McCullough, Garver

FROM: Alex Peta, ODOT

SUBJECT: **Approved Traffic Noise Assessment for I-44 from I-244 interchange, E to Arkansas River, Tulsa County, JP 32728(04).**

Attached is the approved Traffic Noise Assessment completed for the subject project. The results of the noise study are summarized as follows:

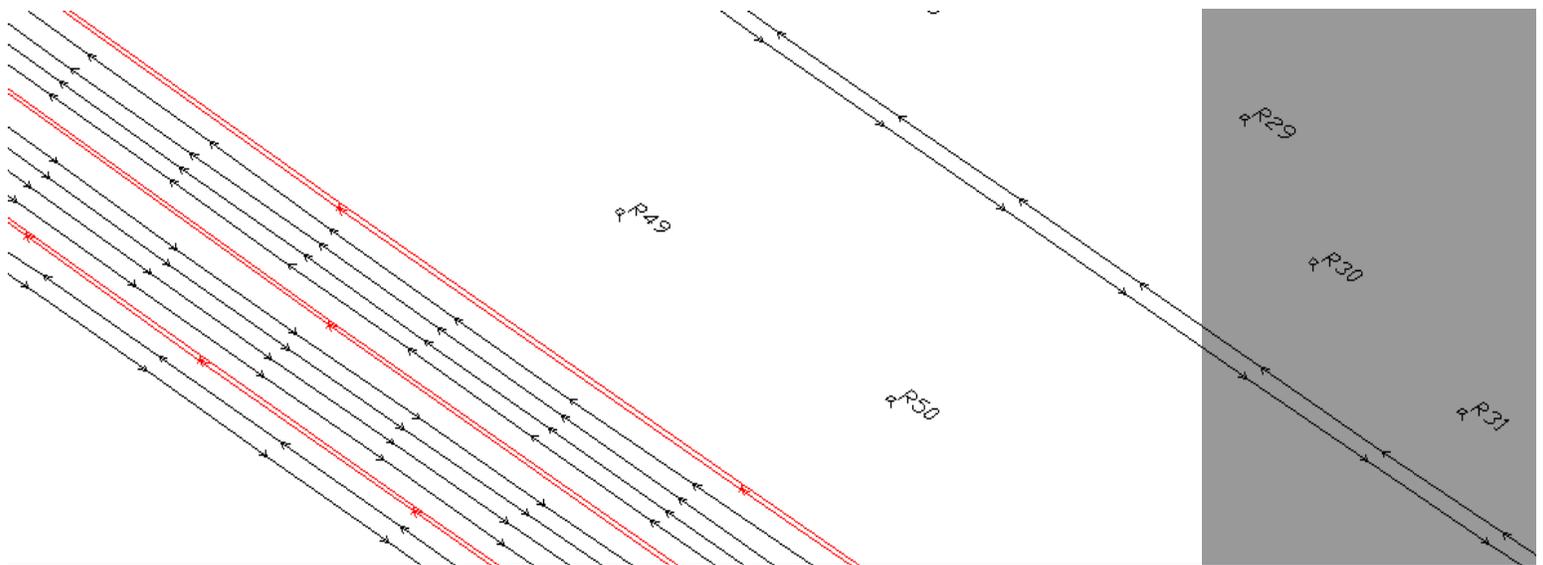
The updated analysis utilized the FHWA Traffic Noise Model version 2.5 in accordance with FHWA 23 CFR 772 and complies with the ODOT Noise Policy dated July 13, 2011. The existing and proposed roadway design characteristics depicted on the preliminary project plans dated March 27, 2017 were incorporated in the modelling effort. Noise measurements were performed at three (3) locations consisting of four (4) readings along existing I-44 and US-75 within the project extent for purposes in validating the noise model which proved satisfactory. A total of 168 model receiver sites were analyzed representing 236 residential dwellings (single and multi-family), 2-places of worship, 2-parks, 3-trail systems, 1-library, 1-commercial establishment, 3-hotels, 1-nursing home and 1-music recording studio. Based on the proposed project and the 2045 design year traffic volumes, 127-residential dwellings, 34-multi-family dwellings, 1-neighborhood park, and portions of the 2-trail systems will approach, meet, or exceed the 67 dB(A) $L_{EQ}(h)$ for NAC Categories B and C. Interior analyses was conducted for the Carbondale Church of Christ, Sherwood Manor Nursing Home, Tulsa City-County Library, Crossroads Tabernacle and Drapp music recording studio; these receivers were evaluated as NAC Activity Category D in which only the Drapp music recording studio is impacted under future conditions. No receivers will experience a substantial increase (15 dB) over the existing sound levels; the highest increase is 5.5 dB.

The Department is committed in considering noise abatement measures for those impacted receivers identified. The project is programmed to be completed in phases. As detailed project plans become available for each phase a barrier analysis will be performed. Should mitigation be determined feasible and reasonable then public involvement will be included as part of the mitigation process.

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Traffic Noise Assessment

I-44/US-75 Interchange – JP 32728(04)

Proposed Reconstruction



Prepared For:

Oklahoma Department of Transportation

September 23, 2019



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Executive Summary

This Traffic Noise Assessment Report examines the potential noise impacts associated with proposed reconstruction of approximately 10 miles of US-75 and I-44. Reconstruction is proposed on US-75 from approximately 3,000 feet north W. 71st Street, extending north through the I-44 interchange 2.0 miles and on I-44 beginning at the junction of I-244, extending east through the US-75 interchange approximately 2.85 miles to just east of the Arkansas River in the City of Tulsa, Tulsa County, Oklahoma. The project includes reconstruction of the I-44/US-75 interchange. The noise analysis utilized conceptual design plans dated March 22, 2017 and the FHWA's computer model Traffic Noise Model (TNM) version 2.5 in accordance with the FHWA 23 CFR 772 and complies with the ODOT Policy Directive Highway Noise Abatement C-201-3 dated July 13, 2011.

The land uses within the project extents primarily contain residential housing, undeveloped woodland and cleared lots, and a few commercial and industrial properties. A few churches, a park, and trails are also present in the vicinity of the proposed improvements. The noise sensitive land uses for this project are considered to be the residential dwellings, churches, library, trails, parks and hotels. One-hundred sixty-eight (168) model receiver sites were analyzed representing two hundred thirty six (236) residential dwellings (single and multi-family), two (2) places-of-worship, two (2) parks, one hundred sixty nine (169) trail receivers, one (1) library, one (1) commercial establishment, three (3) hotels, one (1) nursing home, and one (1) recording studio. Under current conditions, sixty-four (64) residential dwellings, twenty (20) multi-family dwellings, one (1) park, and one (1) trail are impacted (66 dB(A) Leq(h) or greater). Based on the proposed project and the 2045 design year traffic volumes, one hundred twenty seven (127) residential dwellings, thirty four (34) multi-family residential dwellings, one (1) neighborhood park and two (2) trails (119 receivers) will approach, meet, or exceed the 67 dB(A) Leq(h) for NAC Categories B and C. Interior analyses was conducted for the Carbondale Church of Christ, Sherwood Manor Nursing Home, Tulsa City-County Library, Crossroads Tabernacle and Drapp music recording studio; these receivers were evaluated as NAC Activity Category D in which only the Drapp music recording studio is impacted under future conditions.

The project will be completed in phases and when detailed plans become available, will include necessary barrier analyses as required.





1.0 Introduction

This Traffic Noise Assessment Report examines the potential noise impacts associated with proposed reconstruction of approximately 10 miles of US-75 and I-44 in the City of Tulsa, Tulsa County. The proposed improvements consist of a 6 or 8-lane facility and reconstructed interchange that was approved in the original Environmental Assessment (EA) prepared by the Oklahoma Department of Transportation (ODOT) in June 17, 2002 and approved by the Federal Highway Administration (FHWA) with a Finding of No Significant Impact (FONSI) December 20, 2002. Proposed improvements described in the EA include US-75 from SH-67 (151st Street) to I-44 in Tulsa County, a distance of approximately 10 miles, and included reconstruction of the I-44/US-75 interchange. The EA evaluated widening of US-75 from 4 to 6 or 8 lanes (depending on location) and included the reconstruction of the I-44/US-75 interchange as a fully directional interchange with direction connection, flyover ramps. This reevaluation considered widening of US-75 from 4 to 6 lanes between W. 61st Street and W. 41st Street, widening of I-44 from 4 to 6 lanes between I-244 and the Arkansas River, and reconstruction of the I-44/US-75 interchange.

The typical section of the future I-44 will include three 12-foot wide driving lanes in each direction, with 12-foot outside shoulders, and 13-foot inside shoulders separated by a concrete median barrier. In addition, 12-foot wide auxiliary lanes will be constructed on each highway to provide exit or entry lanes to and from interchange ramps. W. Skelly Drive will be reconstructed with two 12-foot-wide driving lanes on an offset alignment to the south to accommodate the additional highway width and new ramp configuration. W. 51st Street will be extended east and constructed across US-75 with a new span bridge over, with two 12-foot driving lanes with curb and gutter and will be constructed on a slight offset alignment to the south from Olympia Avenue to Indiana Avenue to better align with intersections.

The typical section of the future US-75 will include four 12-foot wide driving lanes in each direction, with 12-foot outside shoulders, and 13-foot inside shoulders separated by a concrete median barrier. Initially, US-75 will be striped for 3 lanes in each direction until such time as the remainder of the corridor is widened to 8 lanes. The US-75 interchange with W. 61st Street will be modified, and a frontage road will be constructed with two 12-foot driving lanes on the east side of US-75 extending north from W. 61st Street approximately 0.85-mile, intersecting with W. Skelly Drive. **Appendix A** depicts the project location.

The analysis of this project relies on aerial maps, conceptual design plans, a field survey, and traffic data as provided to the Environmental Programs Division of the Oklahoma Department of Transportation (ODOT). The noise analysis was completed in accordance with the FHWA 23 CFR 772, *Procedures for Noise Abatement of Highway Traffic Noise and Construction* and complies





with the ODOT Policy Directive Highway Noise Abatement C-201-3 (ODOT Noise Policy) dated July 13, 2011.

2.0 Terminology and Sound Theory

Noise, defined as unwanted or excessive sound, is an undesirable by-product of our modern way of life. From these known effects of noise, criteria have been established to help protect the public health and safety and prevent disruption of certain human activities. These criteria are based on such known impacts of noise on people as speech interference, sleep interference, physiological responses, hearing loss, and annoyance. Highway traffic noise is a major contributor to overall transportation noise and is considered to be a line source of energy from which the energy levels dissipate vertically and laterally from the roadway. Traffic noise is not constant. It varies as each vehicle passes a point. The time-varying characteristics of environmental noise are analyzed statistically to determine the duration and intensity of noise exposure. In an urban environment, noise is made up of two distinct parts. One is ambient or background noise. Wind noise and distant traffic noise make up the acoustical environment surrounding the project. These sounds are not readily recognized, but combine to produce a nonirritating ambient sound level. This background sound level varies throughout the day, being lowest at night and highest during the day. The other component of urban noise is intermittent and louder than the background noise. Transportation noise and local industrial noise are examples of this type of noise. It is for these reasons that environmental noise is analyzed statistically.

Sound from highway traffic is generated primarily from a vehicle's tires, engine, and exhaust. It is commonly measured in decibels (dB) and is a logarithmic unit, as opposed to the more common linear unit of measurement such as temperature. Sound is composed of many frequencies measured in Hertz (Hz). The healthy young adult ear generally responds to sound in the range of 20 to 20,000 Hz. For highway traffic noise, since humans are not equally sensitive to all frequencies, noise is adjusted or weighted using an A-weighted scale. The A weighting scale is widely used in environmental analysis because it closely resembles the nonlinearity of human hearing. The unit of A-weighted noise is dB(A). Because highway traffic sounds fluctuate over time, an equivalent sound level is used to represent a single number to describe varying traffic sound levels. The term $L_{eq}(h)$ refers to the steady-state sound level, which in a stated period of time, contains the same acoustic energy as the time-varying sound level during the same period. All traffic noise levels in this analysis will be expressed in dB(A) $L_{eq}(h)$.

3.0 Methodology

Traffic noise analysis consists of a comparison of physically measured or modeled noise levels for the existing condition with projected noise levels for the future condition. The analysis was performed using the FHWA's Traffic Noise Model version 2.5 (TNM 2.5) to model existing and





future noise levels based on traffic data, roadway geometry, and receiver site locations. A receiver is a location, usually representing a dwelling unit, where frequent exterior human activity occurs. The chosen receiver is modeled for noise levels and evaluated for noise impacts. Conceptual Design Plans dated March 2017 were utilized for TNM modeling. Refer to Section 4.1 for a discussion of the traffic data. These plans are conceptual in nature, which are not generally utilized in evaluating noise impacts; however, ODOT has determined the use of these plans is necessary for planning purposes, given the phased approach of the project.

The FHWA has seven noise activity categories based on land use and sound levels, each of which has its own Noise Abatement Criteria (NAC). The NAC categories are listed in Table 1. If a project would result in higher Leq(h) values than the NAC values for a given location, then noise abatement or mitigation measures must be evaluated. This noise study does include an interior analysis of two places-of-worship, one nursing home, one library, and one music recording studio where no frequent outside activity area exists. All five of the structures are of building type described as Masonry with at least single glazed windows. No interior sound level meter measurements were conducted; however, in accordance with the ODOT Noise Policy the interior sound level predictions were computed by subtracting a 25 dB noise reduction factor from the predicted exterior levels for the building in question. For either exterior or interior evaluations, an impact occurs when, at a given receiver, future noise levels approach by one dB(A), meet or exceed the FHWA NAC for its activity category. An impact also occurs when the future noise levels exceed existing noise levels by 15 dB(A) at a given receiver. Once an impact is identified, then noise abatement is considered for the impacted area. Only those areas for which mitigation is determined to be feasible and reasonable as defined by ODOT Noise Policy will be recommended.

TABLE 1-Federal Highway Administration Noise Abatement Criteria (NAC)		
<i>Hourly A-Weighted Sound Level, decibels dB(A)</i>		
Activity Category	Activity Criteria ¹ Leq(h) ²	Activity Description
A	57 (Exterior)	Lands 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 ³	67 (Exterior)	Residential



TABLE 1-Federal Highway Administration Noise Abatement Criteria (NAC) <i>Hourly A-Weighted Sound Level, decibels dB(A)</i>		
C ³	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, recreational 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 or nonprofit institutional structures, radio studios, recording studios, schools, and television studios
E ³	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	--	Agriculture, 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

¹ The Leq(h) Activity Criteria values are for impact determination only, and are not design standards for noise abatement measures.

² The equivalent steady-state sound level which in a stated period of time contains the same acoustic energy as the time-varying sound level during the same time period, with Leq(h) being the hourly value of Leq.

³ Includes undeveloped lands permitted for this activity category.

4.0 Traffic Noise Analysis

4.1 Traffic Data

Traffic noise calculations based on existing year 2016 and future design year 2045 traffic volumes were performed using the FHWA TNM 2.5 model. Traffic data was obtained from the Design Traffic Volumes developed by Garver and approved by ODOT on October 26 and 31, 2016. The unit of measure for roadway traffic is the average annual daily traffic (AADT), which is defined as the estimate of traffic volumes in vehicles per day on a roadway, averaged from the seven annual average days of the week, for a calendar year. TNM utilizes the design hourly volume (DHV) to determine the existing traffic noise levels and calculates the predicted noise levels that occur when the highest volume for an hour is combined with the highest speeds and considered as the “worst hour for noise.” DHV data is based on the percentage of hourly vehicular traffic present on the facility at the design capacity consisting of cars, medium trucks, and heavy trucks. **Table 2** depicts the DHV values utilized in the modeling. The modeling assumed all vehicles were traveling at 60 mph during existing conditions on I-44 and 65 mph during existing conditions on US-75, and 65 mph for future design year conditions on both I-44 and US-75.



TABLE 2 – Noise Model Traffic Volumes I-44/US-75, Tulsa County - JP 32728(04)					
	AADT	DHV	Cars	Medium Trucks	Heavy Trucks
1 I-44 – EB through I-244 Interchange					
Existing (2016)	16,450	1,645	1,415	68	163
Future (2045)	22,350	2,235	1,922	92	221
2 I-44 WB through I-244 interchange					
Existing (2016)	16,850	1,685	1,449	69	167
Future (2045)	22,850	2,285	1,965	94	226
3 I-44 WB to Gilcrease WB					
Existing (2016)	8,250	826	710	34	82
Future (2045)	14,000	1,400	1,204	58	138
4 I-44 WB Ramp to I-244 NB					
Existing (2016)	400	40	34	2	4
Future (2045)	1,400	140	120	6	14
5a I-44 WB Between I-244 & 33rd St.					
Existing (2016)	25,500	2,550	2,193	105	252
Future (2045)	38,250	3,825	3,290	158	378
5b I-44 EB Between I-244 & 33rd St.					
Existing (2016)	25,100	2,510	2,159	103	248
Future (2045)	37,750	3,775	3,247	155	373
6 Skelly West of 33rd St.					
Existing (2016)	2,800	308	283	15	10
Future (2045)	3,600	396	364	19	13
7 Skelly east of 33rd St.					
Existing (2016)	5,250	578	531	28	18
Future (2045)	6,810	749	689	36	24
8 33rd St. On-ramp to I-44 WB					
Existing (2016)	1,300	130	112	5	13
Future (2045)	1,690	169	145	7	17
9 I-44 WB Off-ramp to 33rd St.					
Existing (2016)	3,450	345	338	7	0
Future (2045)	4,460	446	437	9	0
10 I-44 EB Off-ramp to Skelly Dr.					
Existing (2016)	900	99	91	5	3
Future (2045)	1,190	131	120	6	4
11 I-44 EB On-ramp East of 33rd St.					
Existing (2016)	3,450	345	297	14	34
Future (2045)	4,460	446	384	18	44





TABLE 2 – Noise Model Traffic Volumes I-44/US-75, Tulsa County - JP 32728(04)					
	AADT	DHV	Cars	Medium Trucks	Heavy Trucks
13 Skelly East of Ramps					
Existing (2016)	1,200	132	121	6	4
Future (2045)	1,560	172	158	8	5
14 I-44 Between 33rd St. & Union Ave.					
Existing (2016)	55,300	5,530	4,756	228	546
Future (2045)	82,040	8,204	7,055	338	811
15 I-44 EB Off-ramp to EB CD Road					
Existing (2016)	4,300	430	788	22	11
Future (2045)	1,470	146	138	4	4
16 I-44 EB CD Road Off-ramp to Skelly before Union Ave.					
Existing (2016)	800	88	81	4	3
Future (2045)	N/A				
17 EB On-ramp from Skelly to CD Road					
Existing (2016)	2,900	319	293	15	10
Future (2045)	N/A				
18 Skelly West of CD Road Ramps					
Existing (2016)	2,100	231	213	11	7
Future (2045)	2,700	297	273	14	10
20 I-44 EB Ramp to US-75					
Existing (2016)	6,400	640	550	26	63
Future (2045)	N/A				
21 Skelly West of Union Ave.					
Existing (2016)	4,700	517	476	25	17
Future (2045)	4,040	444	409	21	14
22 Skelly East of Union Ave.					
Existing (2016)	1,700	187	172	9	6
Future (2045)	5,370	591	543	28	19
23 I-44 WB Ramp from 9th St.					
Existing (2016)	4,300	430	370	18	42
Future (2045)	N/A				
24 9th St. On-Ramp to I-44 WB					
Existing (2016)	800	88	81	4	3
Future (2045)	1,470	162	149	8	5
25 I-44 WB Off-ramp to 9th St.					
Existing (2016)	2,900	319	293	15	10





TABLE 2 – Noise Model Traffic Volumes I-44/US-75, Tulsa County - JP 32728(04)					
	AADT	DHV	Cars	Medium Trucks	Heavy Trucks
Future (2045)	N/A				
26 I-44 WB CD Road West of Union Ave.					
Existing (2016)	6,400	704	648	34	23
Future (2045)	N/A				
27 I-44 On-ramp from US-75 SB					
Existing (2016)	1,000	110	101	5	4
Future (2045)	920	101	93	5	3
28 I-44 WB Ramp to US-75 SB					
Existing (2016)	9,200	920	791	38	91
Future (2045)	11,180	1,118	961	46	110
29 I-44 EB Ramp to US-75 SB					
Existing (2016)	3,500	350	301	14	35
Future (2045)	4,830	483	415	20	48
30 US-75 SB Ramp to I-44 EB					
Existing (2016)	5,800	580	499	24	57
Future (2045)	5,520	552	475	23	55
31 US-75 Between I-44 & 61st					
Existing (2016)	64,000	6,400	6016	192	192
Future (2045)	90,140	9,014	8,473	270	270
32 US-75 South of 61st					
Existing (2016)	61,900	6,190	5,819	186	186
Future (2045)	92,580	9,258	8,703	278	278
32b US-75 within 61st interchange					
Existing (2016)	59,200	5,920	5,565	178	178
Future (2045)	83,940	8,394	7,890	252	252
33 US-75 SB Off-ramp to 61st					
Existing (2016)	2,400	240	226	7	7
Future (2045)	3,100	310	291	9	9
34 US-75 SB On-ramp from 61st					
Existing (2020)	1,350	135	127	4	4
Future (2045)	4,320	432	406	13	13
35 US-75 NB On-ramp from 61st					
Existing (2016)	2,400	240	226	7	7
Future (2045)	N/A				
36 US-75 NB Off-ramp to 61st					





TABLE 2 – Noise Model Traffic Volumes I-44/US-75, Tulsa County - JP 32728(04)					
	AADT	DHV	Cars	Medium Trucks	Heavy Trucks
Existing (2016)	1,350	135	127	4	4
Future (2045)	4,320	432	406	13	13
37 I-44 EB Ramp to US-75 NB					
Existing (2016)	1,000	100	94	3	3
Future (2045)	920	92	86	3	3
38 US-75 NB Off-ramp to I-44 EB					
Existing (2016)	9,200	920	865	28	28
Future (2045)	11,180	1,118	1,051	34	34
39 I-44 EB CD Road					
Existing (2016)	16,900	1,690	1,487	58	145
Future (2045)	N/A				
40 I-44 EB On-ramp from CD Road					
Existing (2016)	15,700	1,570	1,382	54	135
Future (2045)	N/A				
41 I-44 Off-ramp to Skelly					
Existing (2016)	1,200	132	121	6	4
Future (2045)	N/A				
42 Skelly West of Ramp					
Existing (2016)	1,900	209	192	10	7
Future (2045)	N/A				
43 Skelly East of Ramp					
Existing (2016)	2,800	308	283	15	10
Future (2045)	4,965	546	502	26	17
44 I-44 EB On-ramp					
Existing (2016)	3,200	352	324	17	11
Future (2045)	5,620	618	569	30	20
45 Skelly East of Ramp					
Existing (2016)	4,000	440	405	21	14
Future (2045)	5,005	551	507	26	18
46 Skelly East of Elwood					
Existing (2016)	4,000	440	405	21	14
Future (2045)	5,005	551	507	26	18
47 W. 51st Street West of Elwood					
Existing (2016)	4,800	528	486	25	17





TABLE 2 – Noise Model Traffic Volumes I-44/US-75, Tulsa County - JP 32728(04)					
	AADT	DHV	Cars	Medium Trucks	Heavy Trucks
Future (2045)	5,575	613	564	29	20
48 I-44 WB Off-ramp to Elwood					
Existing (2016)	3,200	352	324	17	11
Future (2045)	5,620	618	569	30	20
49 W. 51st Street West of Ramp					
Existing (2016)	2,800	308	283	15	10
Future (2045)	4,495	494	455	24	16
50 I-44 over AR River					
Existing (2016)	84,500	8,450	7,436	290	724
Future (2045)	112,240	11,224	9,877	385	962
51 I-44 West of AR River					
Existing (2016)	78,100	7,810	6,873	268	669
Future (2045)	101,000	10,100	8,888	346	866
52 I-44 WB Off-ramp to CD Road					
Existing (2016)	15,700	1,727	1,520	59	148
Future (2045)	N/A				
53 51st St. On-ramp to I-44 WB					
Existing (2016)	1,200	132	121	6	4
Future (2045)	N/A				
55 I-44 WB CD Road					
Existing (2016)	16,900	1,859	1,710	89	59
Future (2045)	16,700	1,837	1,690	88	59
56 I-44 WB to US-75 NB On-ramp					
Existing (2016)	5,800	580	545	17	17
Future (2045)	5,520	552	519	17	17
57 US-75 NB ramp to I-44 WB					
Existing (2016)	3,500	350	329	11	11
Future (2045)	4,830	483	454	14	14
58 US-75 NB North of Interchange					
Existing (2016)	52,200	5,220	4,907	157	157
Future (2045)	71,000	7,100	6,674	213	213
58b US-75 NB North of Interchange 2					
Existing (2016)	52,200	5,220	4,907	157	157
Future (2045)	71,000	7,100	6,674	213	213
59 US-75 SB On-ramp from W. 41st Street					
Existing (2016)	2,750	275	259	8	8





TABLE 2 – Noise Model Traffic Volumes I-44/US-75, Tulsa County - JP 32728(04)					
	AADT	DHV	Cars	Medium Trucks	Heavy Trucks
Future (2045)	3,540	354	333	11	11
60 US-75 NB Off-ramp at 41st St.					
Existing (2016)	2,750	275	259	8	8
Future (2045)	3,540	354	333	11	11
101 I-44 near 9th & Union					
Existing (2016)	N/A				
Future (2045)	79,100	7,910	6,803	326	782
102 I-44 WB On-ramp from US-75 SB & NB					
Existing (2016)	N/A				
Future (2045)	5,750	633	582	30	20
103 I-44 Between Union & US-75					
Existing (2016)	N/A				
Future (2045)	68,520	6,852	5,893	282	677
104 Off-ramp from US-75 SB					
Existing (2016)	N/A				
Future (2045)	6,440	708	652	34	23
105 I-44 EB & WB Ramp to US-75 SB					
Existing (2016)	N/A				
Future (2045)	16,010	1,601	1,377	66	158
106 US-75 NB On-ramp from 61st Street					
Existing (2016)	N/A				
Future (2045)	3,100	310	291	9	9
107 NB & SB on New Connector Rd. North of US-75 NB On Ramp					
Existing (2016)	N/A				
Future (2045)	4,305	431	405	13	13
108 NB & SB New Connector North of 61st					
Existing (2016)	N/A				
Future (2045)	7,405	741	696	22	22
110 I-44 West of US-75 Off-ramps					
Existing (2016)	N/A				
Future (2045)	73,120	7,312	6,435	251	627
110b I-44 West of Off-ramp					
Existing (2016)	N/A				
Future (2045)	44,840	4,484	3,946	154	384
111 US-75 NB Off-ramp to I-44 EB & WB					
Existing (2016)	N/A				





TABLE 2 – Noise Model Traffic Volumes I-44/US-75, Tulsa County - JP 32728(04)					
	AADT	DHV	Cars	Medium Trucks	Heavy Trucks
Future (2045)	16,010	1,601	1,505	48	48
112 Gilcrease EB Ramp to I-44 EB					
Existing (2016)	8,650	865	822	25	19
Future (2045)	15,400	1,540	1,463	44	33
113 I-44 WB East of Gilcrease					
Existing (2016)	25,100	2,510	2,159	103	248
Future (2045)	N/A				
114 I-44 WB Over 33rd					
Existing (2016)	24,200	2,420	2,081	100	239
Future (2045)	36,560	3,656	3,144	151	361
115 I-44 EB Between 33rd and Skelly Ramps					
Existing (2016)	24,200	2,420	2,081	100	239
Future (2045)	36,560	3,656	3,144	151	361
116 WB CD Road West of Union					
Existing (2016)	3,500	385	354	18	12
Future (2045)	N/A				
117 EB Frontage Rd West of Union					
Existing (2016)	3,500	385	354	18	12
Future (2045)	N/A				
118 I-44 WB Under Union					
Existing (2016)	23,350	2,335	2,008	96	231
Future (2045)	N/A				
119 WB CD Road from US-75					
Existing (2016)	5,400	594	546	29	19
Future (2045)	N/A				
120 WB Frontage Rd Before US-75					
Existing (2016)	11,100	1,221	1,123	59	39
Future (2045)	N/A				
121 WB CD Road Under US-75					
Existing (2016)	14,600	1,606	1,478	77	51
Future (2045)	N/A				
122 EB CD Road West of US-75					
Existing (2016)	2,900	319	293	15	10
Future (2045)	N/A				
123 EB CD Road Under US-75					
Existing (2016)	8,700	957	880	46	31





TABLE 2 – Noise Model Traffic Volumes I-44/US-75, Tulsa County - JP 32728(04)					
	AADT	DHV	Cars	Medium Trucks	Heavy Trucks
Future (2045)	N/A				
124 EB CD Road East of US-75					
Existing (2016)	7,700	847	779	41	27
Future (2045)	N/A				
125 I-44 EB through Interchange					
Existing (2016)	23,350	2,335	2,008	96	231
Future (2045)	N/A				
126 US-75 SB North of Interchange					
Existing (2016)	20,300	2,030	1,908	61	61
Future (2045)	N/A				
127 US-75 NB North of Interchange					
Existing (2016)	20,300	2,030	1,908	61	61
Future (2045)	N/A				
128 US-75 NB South of Interchange					
Existing (2016)	28,500	2,850	2,679	86	86
Future (2045)	29,060	2,906	2,732	87	87
129 US-75 NB South of Interchange					
Existing (2016)	22,800	2,280	2,143	68	68
Future (2045)	29,060	2,906	2,732	87	87
130 US-75 NB Under 41st					
Existing (2016)	46,700	4,670	4,390	140	140
Future (2045)	N/A				
132 US-75 NB through interchange					
Existing (2016)	N/A				
Future (2045)	29,980	2,998	2,818	90	90
133 US-75 SB through interchange					
Existing (2016)	N/A				
Future (2045)	29,060	2,906	2,732	87	87
133b US-75 SB S of interchange					
Existing (2016)	N/A				
Future (2045)	45,070	4,507	4,237	135	135
134 US-75 NB interchange					
Existing (2016)	N/A				
Future (2045)	29,060	2,906	2,732	87	87
135 US-75 NB through interchange					





TABLE 2 – Noise Model Traffic Volumes I-44/US-75, Tulsa County - JP 32728(04)					
	AADT	DHV	Cars	Medium Trucks	Heavy Trucks
Existing (2016)	N/A				
Future (2045)	29,980	2,998	2,818	90	90
136 US-75 under 41st					
Existing (2016)	N/A				
Future (2045)	31,960	3,196	3004	96	96

* Roadway segment numbers not used: 12, 19, 54, 109, 113, 125, 131.

4.2 Existing Conditions and Land Use

Land use in the area is primarily residential housing, commercial developments, undeveloped woodland and cleared lots, and a few commercial and industrial properties. A few churches, one multi-use trail, a sound recording studio, one nursing home, and a library are also present in the vicinity of the proposed improvements. The residential dwellings were evaluated as NAC Activity Category B, the trail was evaluated as NAC Activity Category C, and the hotels and businesses were evaluated as NAC Activity Category E. An interior analysis was conducted for the churches, library, nursing home, and recording studio and were evaluated as NAC Activity Category D. The model receiver locations are shown in **Appendix B**. Evaluation of Activity Category A was not required, modeled, or applied.

4.3 Model Validation

For purposes in validating the noise model, field measurements were performed using a Larson-Davis Model LxT1 precision sound level meter. Sound level meter readings were conducted May 7, 2019 and collected for 15 minutes at 3 locations. A traffic count by vehicle type was collected simultaneously with the sound level readings. TNM 2.5 was calibrated using the existing roadway/traffic, and receiver locations. Traffic volumes counted during the short-term measurement period were scaled up to one hour and entered into TNM 2.5. A summary of the measured and modeled noise levels used for the model calibration is in **Table 3**. Measured versus predicted levels within ±3 dB(A) range are considered to have a reasonable agreement and it indicates that the TNM 2.5 model developed for the study area would provide an acceptably accurate estimate of noise levels under varying future traffic conditions according to ODOT noise policy. The field data, sound meter calibration certificate, and the modeling results are on file with the ODOT Environmental Programs Division and copies available upon request.



TABLE 3-Validation Measurements Field Recorded and Model Noise Levels Comparison I-44/US-75, Tulsa County - JP 32728(04)			
Receiver	Field Record Noise Level dB(A) Leq(h)	TNM Predicted Noise Level dB(A) Leq(h)	Difference (Field - Model)
MV-1A	75.4	76.3	+0.9
MV-1B	75.0	76.9	+1.9
MV-2	74.9	75.9	+1.0
MV-3	73.9	74.5	+0.6

4.4 Existing Noise Levels

One hundred sixty-eight (168) receiver locations were selected for modeling purposes to identify noise levels for the opening and design year conditions. **Appendix C** depicts the location of the modeled and ambient receivers. NAC Activity Categories B, C, D and E were utilized during this modeling effort to identify potential impacts to these receivers. Using the September 2016 design traffic data and the design roadway, the existing noise levels were modeled, and the sound levels summarized in **Appendix D**. The TNM data and results of the existing condition are on file with the ODOT Environmental Programs Division and available upon request.

4.5 Future Noise Levels

Using 2045 future design roadway and traffic data, the future noise levels were modeled for all the receivers and summarized in **Appendix D**. The TNM 2.5 results of the future condition are on file with the ODOT Environmental Programs Division and available upon request.

4.6 Traffic Noise Impacts

Results of the analysis for the future condition indicated that one hundred thirty eight (138) residential receivers, thirty four (34) multi-family residential dwellings, two (2) trails (representing 119 receivers), and one (1) park will approach, meet or exceed the 67 dB(A) Leq(h) for NAC Categories B and C. Interior analyses conducted for the places-of-worship, recording studio, library and nursing home (evaluated as NAC Activity Category D) predicted no future noise impacts, except for the recording studio. Future levels ranged from 0 to 5.3 dB over existing conditions. No receivers will experience a substantial increase.



4.6.1 Noise Assessment Areas

The project was divided into seven (7) noise assessment areas (NAAs) to assist in reporting and discerning land uses along the project corridor. NAAs are depicted in **Appendix B**. Receivers identified within each NAA are recorded in **Appendix D**.

NAA 1

This NAA contains residential neighborhoods, a public library, a music recording studio, a nursing home and a few commercial properties. NAA 1 is located on the north side of I-44 between S. 38th S. Avenue to the I-44 / US-75 interchange. Seventy-three (73) impacted receivers are located within NAA 1. Forty-one (41) of the 73 impacted receivers are considered first row receivers and are located between I-44 and W. 51st Street.

NAA 2

This NAA contains a mix of residential neighborhoods and few commercial properties, including two hotels and an RV park. NAA 2 is located on the south side of I-44 between I-244 and the I-44 / US-75 interchange. Thirty-one (31) impacted receivers are located within NAA2. Seven (7) of the 31 impacted receivers are considered first row receivers.

NAA 3

This NAA contains one public recreation park that is not impacted and Parkview Terrace, a multi-family housing neighborhood. NAA 3 is located on the west side of US-75 between the I-44 / US-75 interchange and W. 61st Street. Thirty-three (33) impacted receivers are located within NAA 3, all of which are considered first row receivers.

NAA 4

This NAA contains mostly wooded, undeveloped areas, one residence, one hotel, and one trail system (Turkey Creek Wilderness Area). NAA 4 is located southeast of the I-44 / US-75 interchange and extends to the east on the south side of US-75 to the first eastbound off-ramp to W. Skelly Drive. Portions of the Turkey Creek Wilderness trails, estimated to represent (69) receptors, would be assigned to the trail at this location and are impacted within NAA 4.

NAA 5

This NAA contains portions of one public recreation trail and located under the I-44 bridge over the Arkansas River. Based on regional trail usage information provided by the Indian Nations Council of Governments, fifty (50) receptors would be assigned to the trail at this location, all of which are considered impacted under NAC Category C for impacts approaching or 66dBA. For





the purposes of this noise study only one (1) receiver was modeled at this location to determine if impacts are anticipated.

NAA 6

This NAA contains residential neighborhoods, scattered residences and portions of one public recreation trail. NAA 6 is located on the east side of US-75 between the I-44 / US-75 interchange and W. 41st Street. Nineteen (19) impacted receivers are located within NAA6. Ten (10) of these 19 impacted receivers are considered first row receivers and are located between I-44 and W. 51st Street.

NAA 7

This NAA contains two places of worship, residential neighborhoods and is located on the west side of US-75 between the I-44 / US-75 interchange and W. 41st Street. Six (6) impacted receivers are located within NAA7, all of which are considered first row receivers.

5.0 Consideration of Abatement

Noise mitigation measures for the impacted areas will be evaluated in future studies as design plans are developed for each construction work package.

6.0 Construction Noise

In general, construction noise related to highway projects is not a major issue. Sources of noise include heavy machinery like backhoes and scrapers, cranes, pile drivers, and trucks transporting materials. Typically, construction noise can be minimized by implementing time of day restrictions for construction operations adjacent to noise sensitive areas. ODOT is concerned about any special noise-sensitive land uses or activities that may be affected by construction noise from the proposed project, and any special measures which are feasible and reasonable will be added to the project plans and specifications. No special noise sensitive land uses or activities that may be affected by construction noise are in proximity to the project with the exception of Bales Baseball Park, portions of the Cherry Creek Trail and Turkey Mountain Wilderness Area trails.

7.0 Coordination with Local Officials

Traffic noises that approach, meet, or exceed the sound levels specified in the ODOT Noise Policy resulting from the proposed I-44/US-75 Interchange Reconstruction project have been identified. To aid in noise compatible land use planning, using TNM 2.5, the approximate distances from the center of the proposed six-lane roadways were used to determine the noise impact contours of 66 dB(A). **Table 4** summarizes the location and distances of the noise impact zones. The





distances vary due primarily to variation in the topography of the receivers to the roadway and the different traffic volumes and vehicle speeds associated with the new highway facility. Throughout the entire project extent, the 66 dB(A) contour predominantly falls outside of the proposed right-of-way on both sides of the proposed I-44 and US-75 highways, except for 0.84 mile of US-75, which falls within the proposed right-of-way. Development within this zone on either side of the proposed reconstructed roadway facility should be compatible with elevated traffic noise levels. Residential and other related land use is discouraged within the designated impact zone(s) due to anticipated future noise levels.

TABLE 4-Noise Contour Impact Zone I-44/US-75, Tulsa County - JP 32728(04)	
Roadway Section	66 dB(A)*
Six-Lane Facility, 65 mph along I-44	460 feet (north) average 479 feet (south) average
Six-Lane Facility, 65 mph along US-75	485 feet (east) average 343 feet (west) average

* Distance from proposed centerline of I-44 and US-75. Distances vary along roadway by location. Above distances occur at approximate average distances from the contour to the proposed roadway centerline. See attached aerial with approximate contour locations.





APPENDICES



R 11 E

R 12 E

R 13 E

R 14 E

T 20 N

T 19 N

T 18 N

OSAGE COUNTY

TULSA COUNTY

TULSA COUNTY

CREEK COUNTY

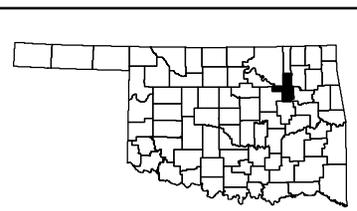
EW 063
EW 064
EW 065
EW 066

PROJECT LOCATION

W. 41st St.
W. 51st St.
W. 61st St.
W. 71st St.

S. 49th W. Ave.
S. 33rd W. Ave.
S. Union Ave.
S. Elwood Ave.
S. Peoria Ave.

Riverside Dr.

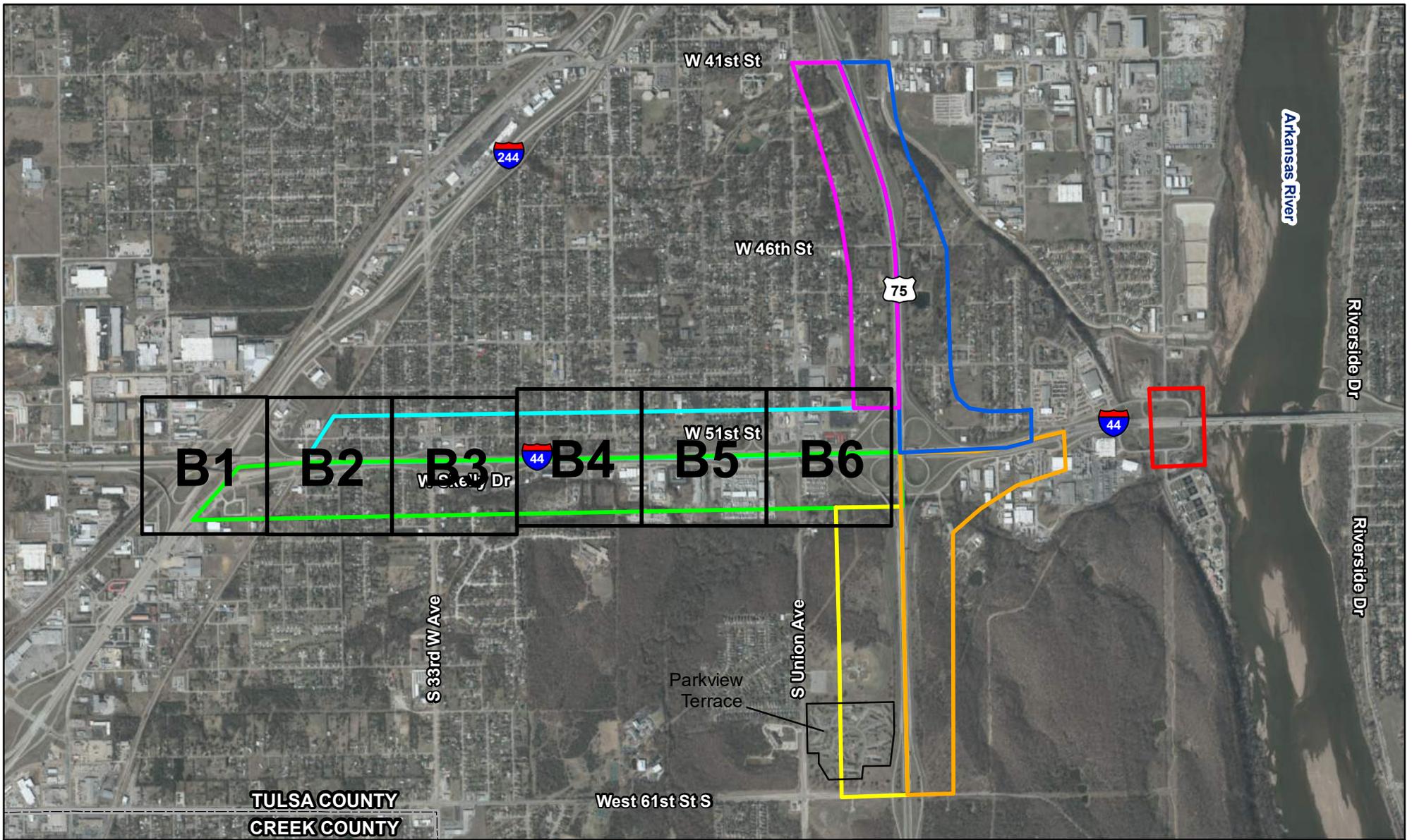


NS 391
NS 392
NS 393
NS 394
NS 395

APPENDIX A - PROJECT LOCATION MAP



Oklahoma Department of Transportation
Project Location Map
Tulsa County
JP 32728(04) I-44 Corridor from I-244
Interchange East to the Arkansas River



Legend

 Appendix B I-44 Model Detailed Exhibits

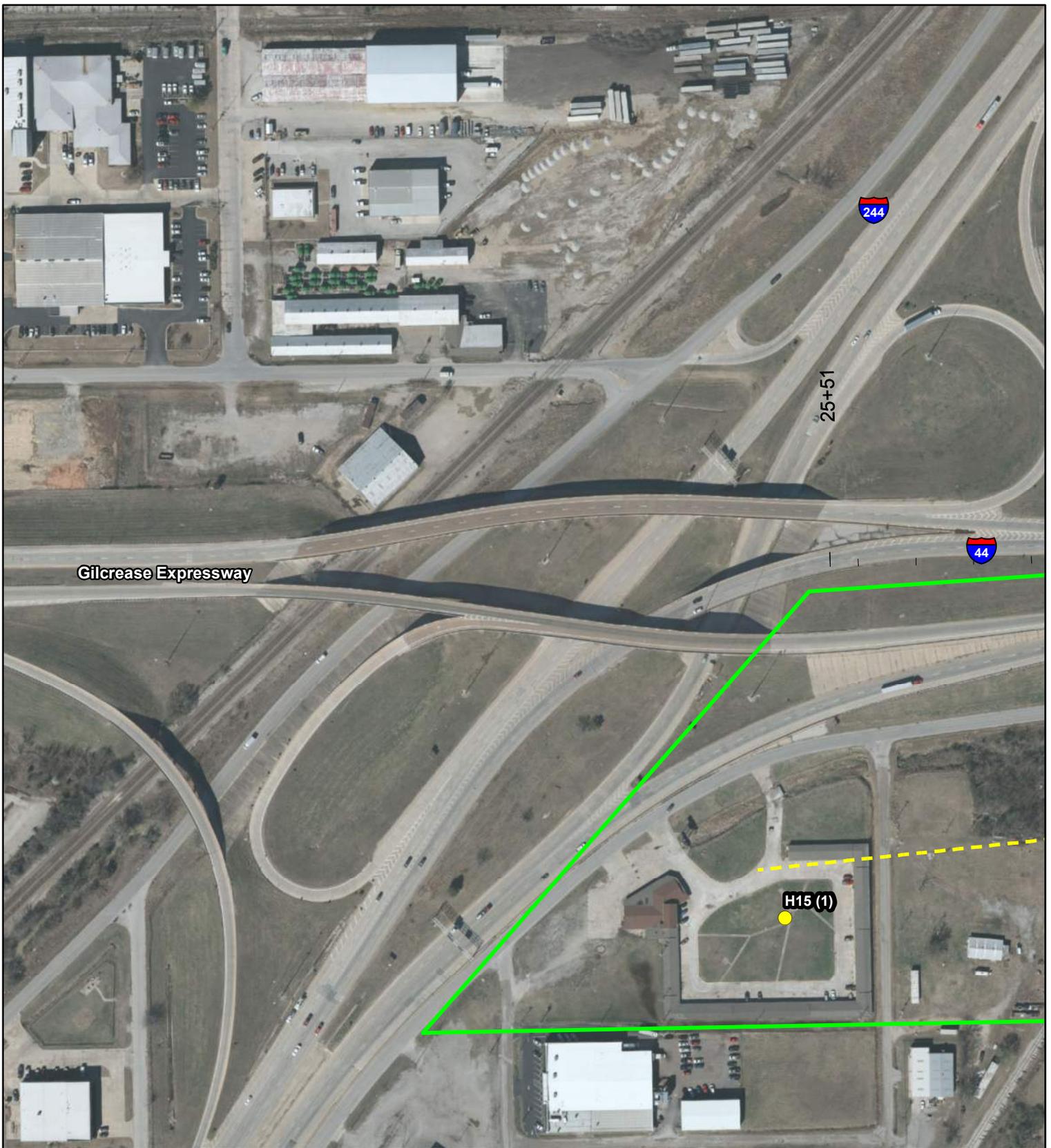
Noise Assessment Area (NAA)
 NAA1

 NAA2	 NAA5
 NAA3	 NAA6
 NAA4	 NAA7

Appendix B - I-44 Model Noise Study Overview Exhibit

JP 32728(04)
 I-44 from I-244 to the Arkansas River
 Tulsa County, Oklahoma





Legend

- Non-Impacted Receiver
- 66dB NAC Impacted Receiver
- Validation Measurement
- 66dB Noise Contour

Noise Assessment Area (NAA)

- | | |
|--|---|
| NAA1 | NAA4 |
| NAA2 | NAA5 |
| NAA3 | NAA6 |
| | NAA7 |

**Appendix B1 - I-44 Model
Detailed Noise Study Exhibits**

JP 32728(04)
I-44 from I-244 to the Arkansas River
Tulsa County, Oklahoma



Source: 2017 ESRI Aerial Image



Legend

- Non-Impacted Receiver
- 66dB NAC Impacted Receiver
- Validation Measurement
- 66dB Noise Contour

Noise Assessment Area (NAA)

- NAA1
- NAA2
- NAA3

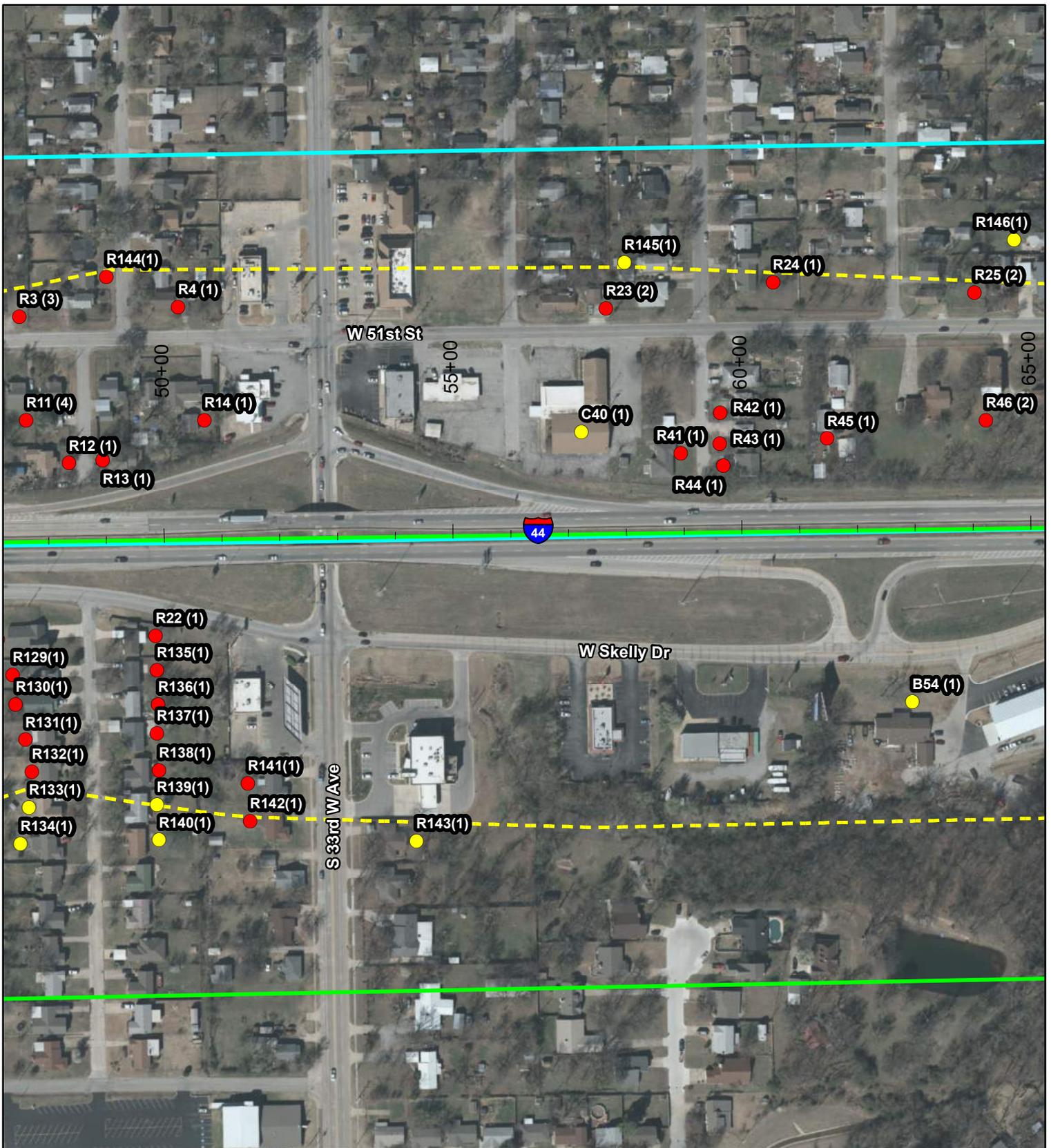
- NAA4
- NAA5
- NAA6
- NAA7

**Appendix B2 - I-44 Model
Detailed Noise Study Exhibits**

JP 32728(04)
I-44 from I-244 to the Arkansas River
Tulsa County, Oklahoma



Source: 2017 ESRI Aerial Image



Legend

- Non-Impacted Receiver
- 66dB NAC Impacted Receiver
- Validation Measurement
- 66dB Noise Contour

Noise Assessment Area (NAA)

- NAA1
- NAA2
- NAA3

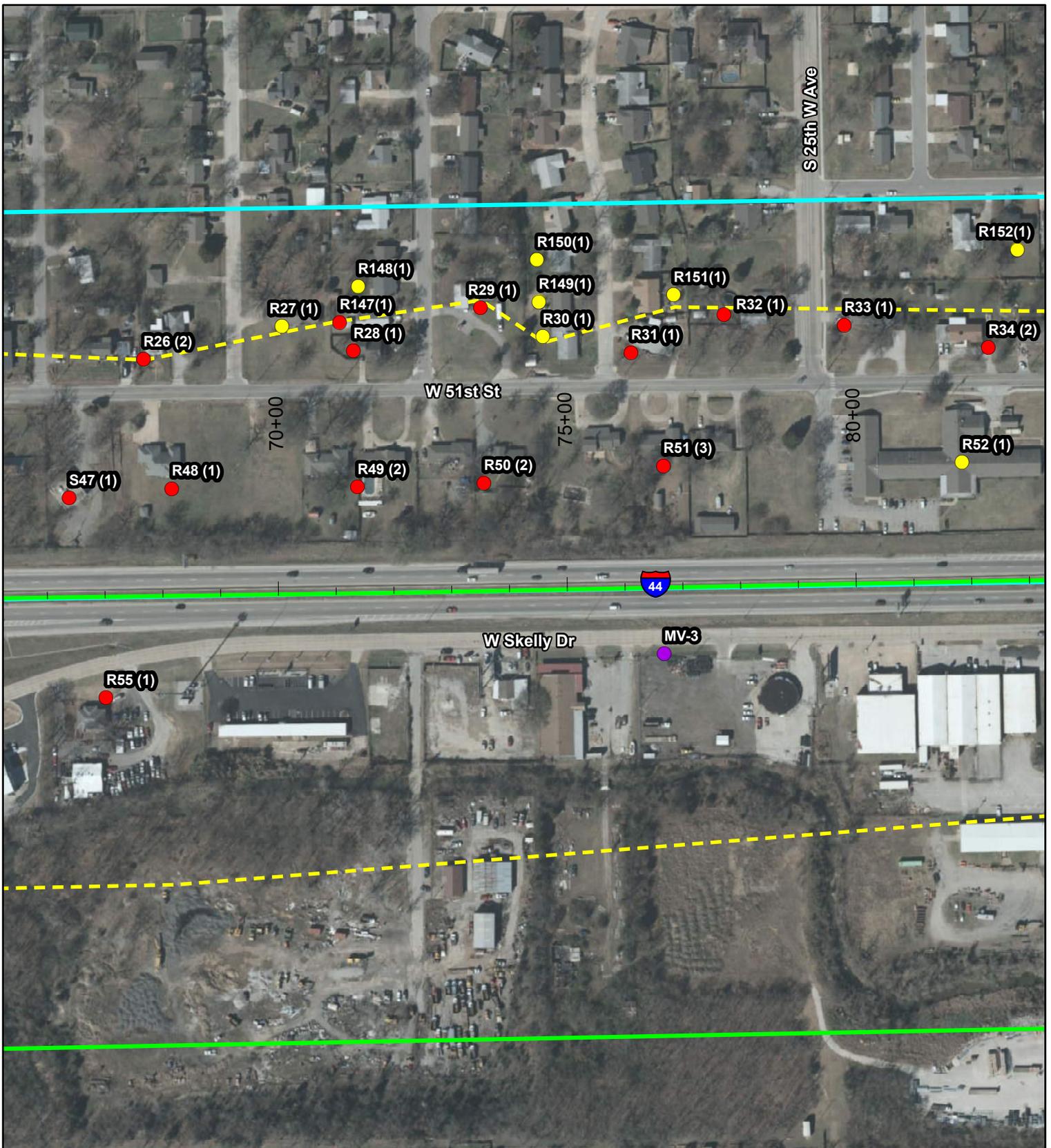
- NAA4
- NAA5
- NAA6
- NAA7

**Appendix B3 - I-44 Model
Detailed Noise Study Exhibits**

JP 32728(04)
I-44 from I-244 to the Arkansas River
Tulsa County, Oklahoma



Source: 2017 ESRI Aerial Image



Legend

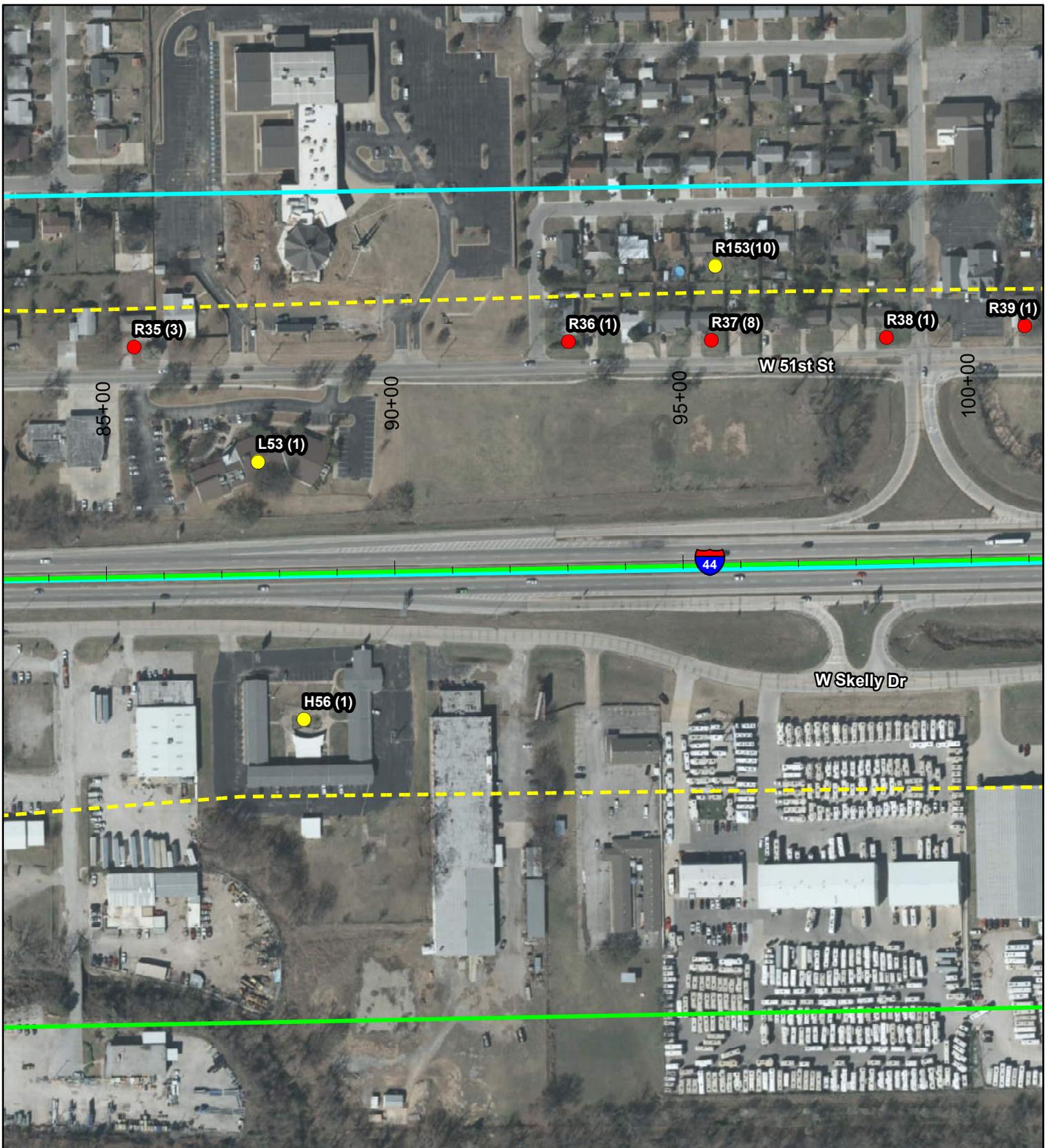
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|------------------------------|------------------------------------|--------|
| ● Non-Impacted Receiver | Noise Assessment Area (NAA) | □ NAA4 |
| ● 66dB NAC Impacted Receiver | □ NAA1 | □ NAA5 |
| ● Validation Measurement | □ NAA2 | □ NAA6 |
| --- 66dB Noise Contour | □ NAA3 | □ NAA7 |

**Appendix B4 - I-44 Model
Detailed Noise Study Exhibits**

JP 32728(04)
I-44 from I-244 to the Arkansas River
Tulsa County, Oklahoma



Source: 2017 ESRI Aerial Image



Legend

- | | | |
|------------------------------|------------------------------------|--------|
| ● Non-Impacted Receiver | Noise Assessment Area (NAA) | □ NAA4 |
| ● 66dB NAC Impacted Receiver | | □ NAA5 |
| ● Validation Measurement | □ NAA1 | □ NAA6 |
| --- 66dB Noise Contour | □ NAA2 | □ NAA7 |
| | □ NAA3 | |

**Appendix B5 - I-44 Model
Detailed Noise Study Exhibits**

JP 32728(04)
I-44 from I-244 to the Arkansas River
Tulsa County, Oklahoma



Source: 2017 ESRI Aerial Image



Legend

- Non-Impacted Receiver
- 66dB NAC Impacted Receiver
- Validation Measurement
- 66dB Noise Contour

Noise Assessment Area (NAA)

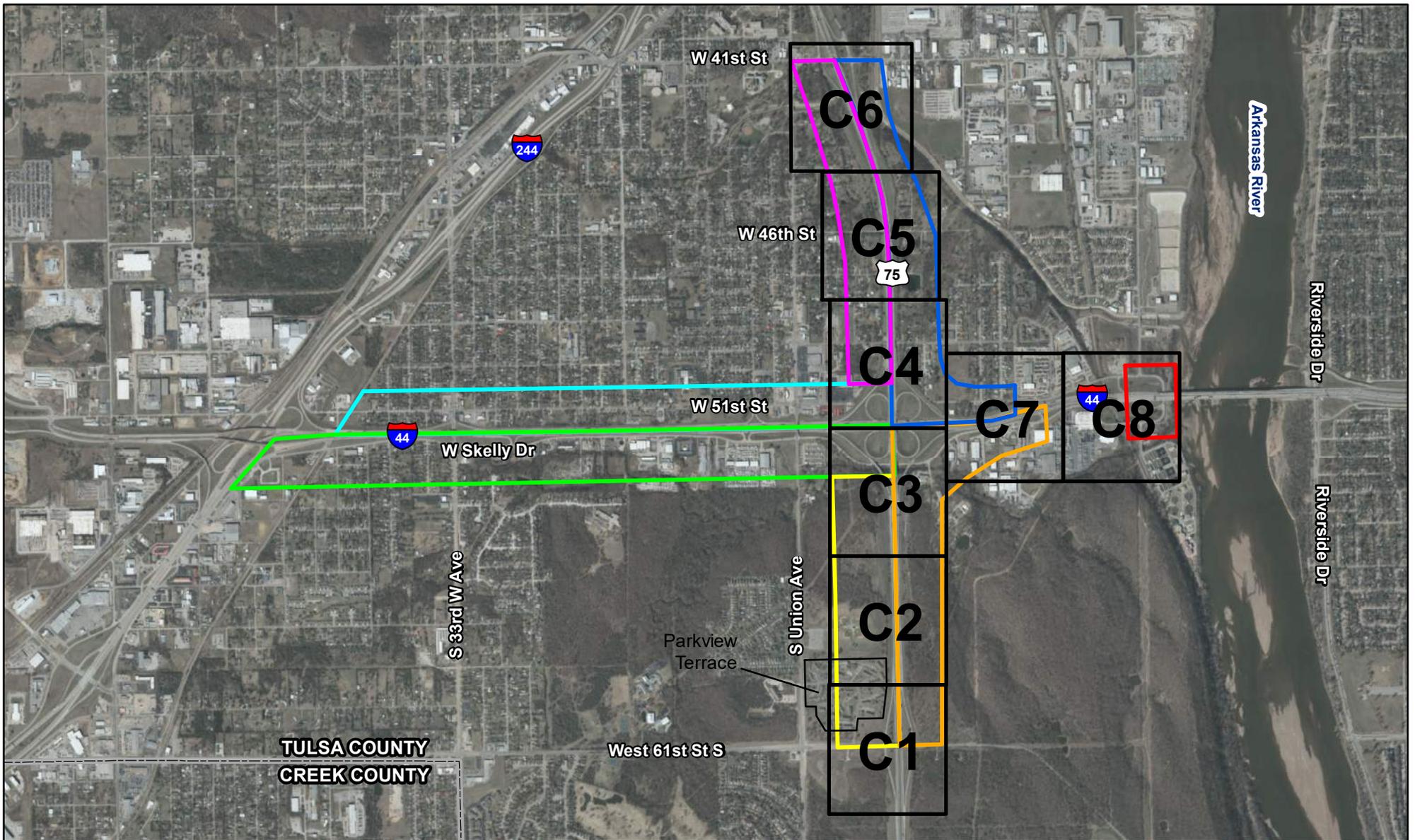
- | | |
|--|--|
| NAA1 | NAA4 |
| NAA2 | NAA5 |
| NAA3 | NAA6 |
| | NAA7 |

**Appendix B6 - I-44 Model
Detailed Noise Study Exhibits**

JP 32728(04)
I-44 from I-244 to the Arkansas River
Tulsa County, Oklahoma



Source: 2017 ESRI Aerial Image



Legend

Appendix C US-75 Model Detailed Exhibits

Noise Assessment Area (NAA)

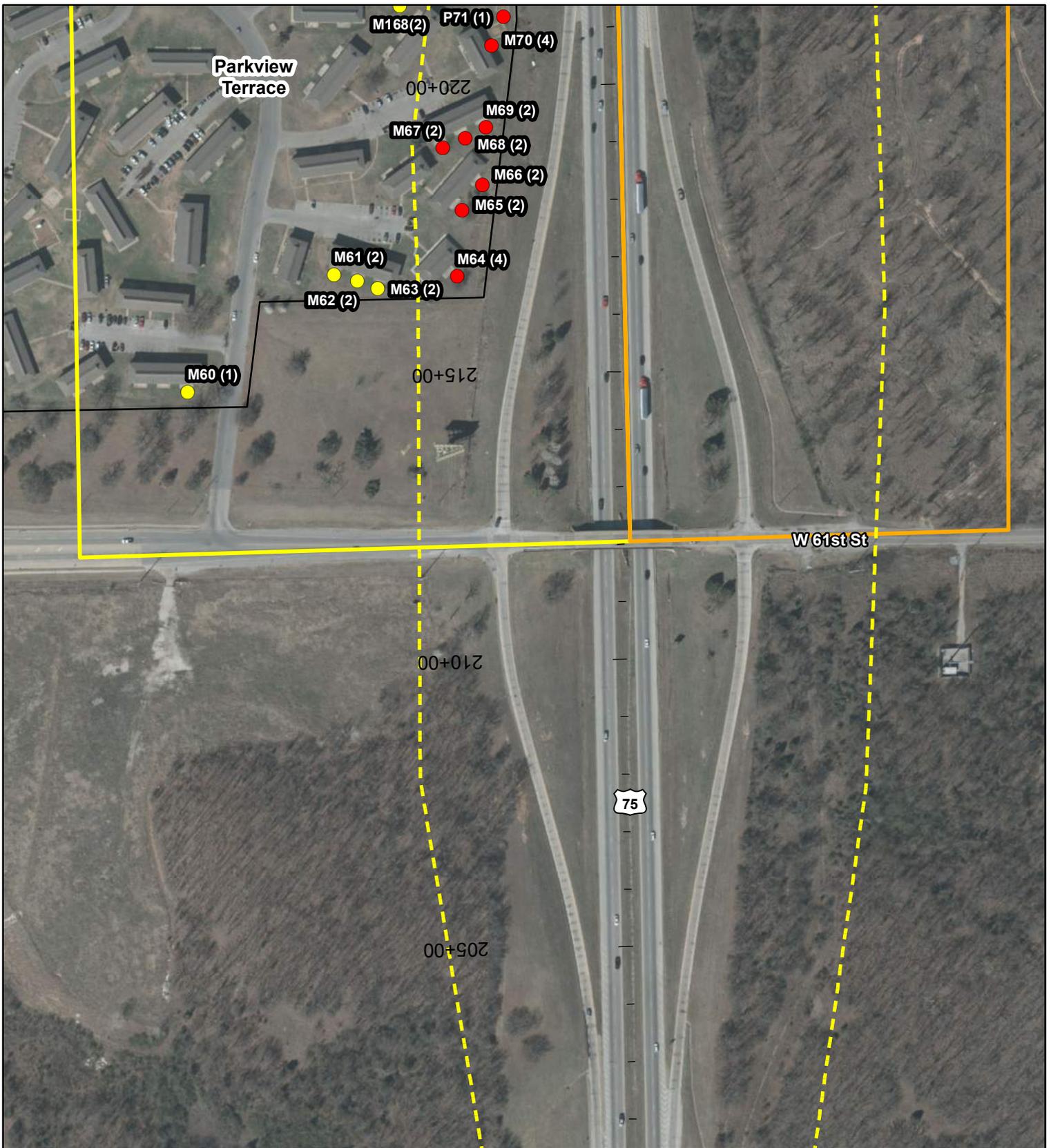
NAA1

- NAA2
- NAA3
- NAA4
- NAA5
- NAA6
- NAA7

Appendix C - US-75 Model Noise Study Overview Exhibit

JP 32728(04)
I-44 from I-244 to the Arkansas River
Tulsa County, Oklahoma





Legend

- Non-Impacted Receiver
- 66dB NAC Impacted Receiver
- Validation Measurement
- 66dB Noise Contour

Noise Assessment Area (NAA)

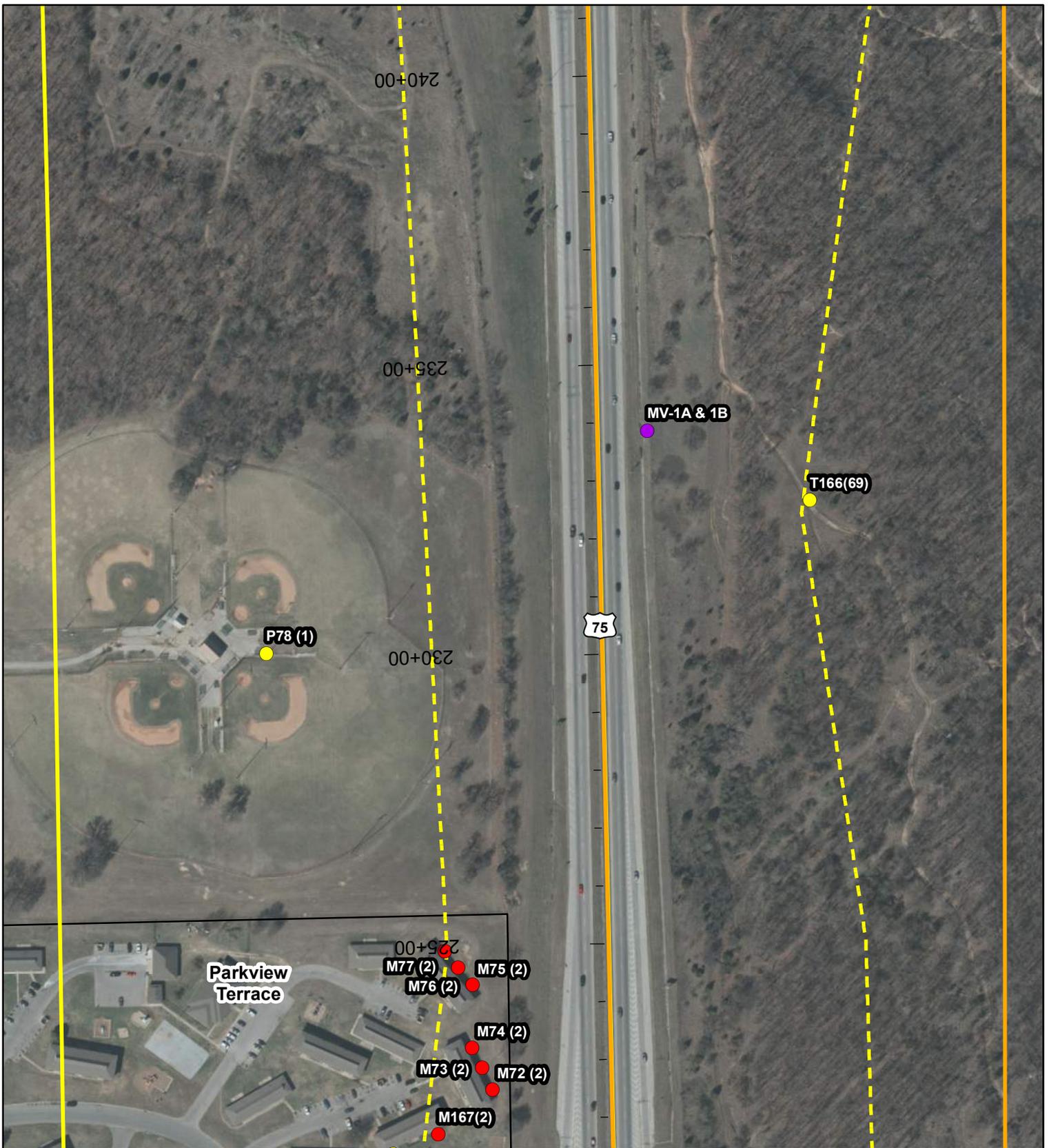
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|--|---|
| NAA1 | NAA4 |
| NAA2 | NAA5 |
| NAA3 | NAA6 |
| | NAA7 |

**Appendix C1 - US-75 Model
Detailed Noise Study Exhibits**

JP 32728(04)
I-44 from I-244 to the Arkansas River
Tulsa County, Oklahoma



Source: 2017 ESRI Aerial Image



Legend

- Non-Impacted Receiver
- 66dB NAC Impacted Receiver
- Validation Measurement
- 66dB Noise Contour

Noise Assessment Area (NAA)

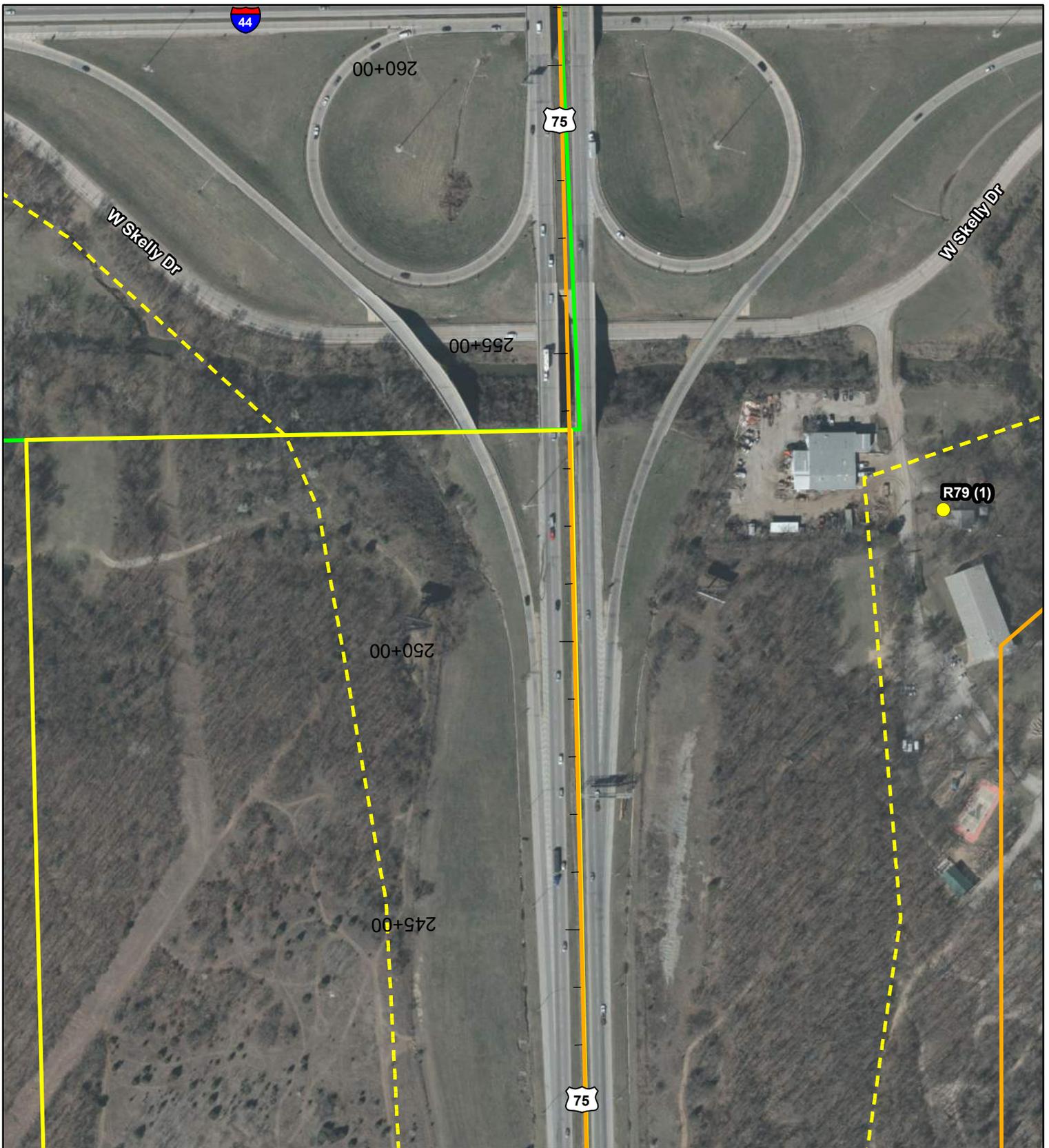
- | | |
|--|---|
| NAA1 | NAA4 |
| NAA2 | NAA5 |
| NAA3 | NAA6 |
| | NAA7 |

**Appendix C2 - US-75 Model
Detailed Noise Study Exhibits**

JP 32728(04)
I-44 from I-244 to the Arkansas River
Tulsa County, Oklahoma



Source: 2017 ESRI Aerial Image



Legend

- Non-Impacted Receiver
- 66dB NAC Impacted Receiver
- Validation Measurement
- 66dB Noise Contour

Noise Assessment Area (NAA)

- NAA1
- NAA2
- NAA3

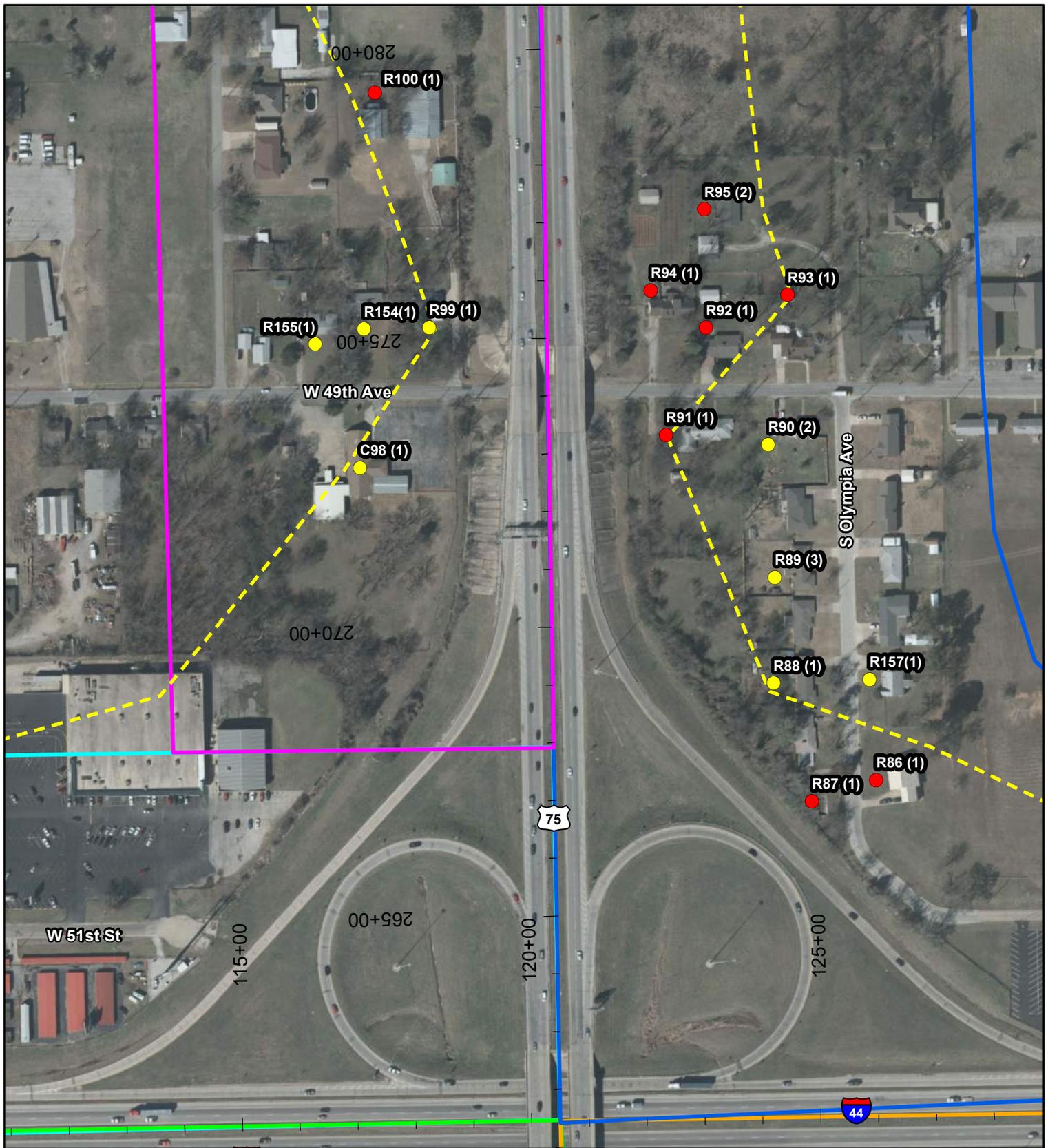
- NAA4
- NAA5
- NAA6
- NAA7

**Appendix C3 - US-75 Model
Detailed Noise Study Exhibits**

JP 32728(04)
I-44 from I-244 to the Arkansas River
Tulsa County, Oklahoma



Source: 2017 ESRI Aerial Image



Legend

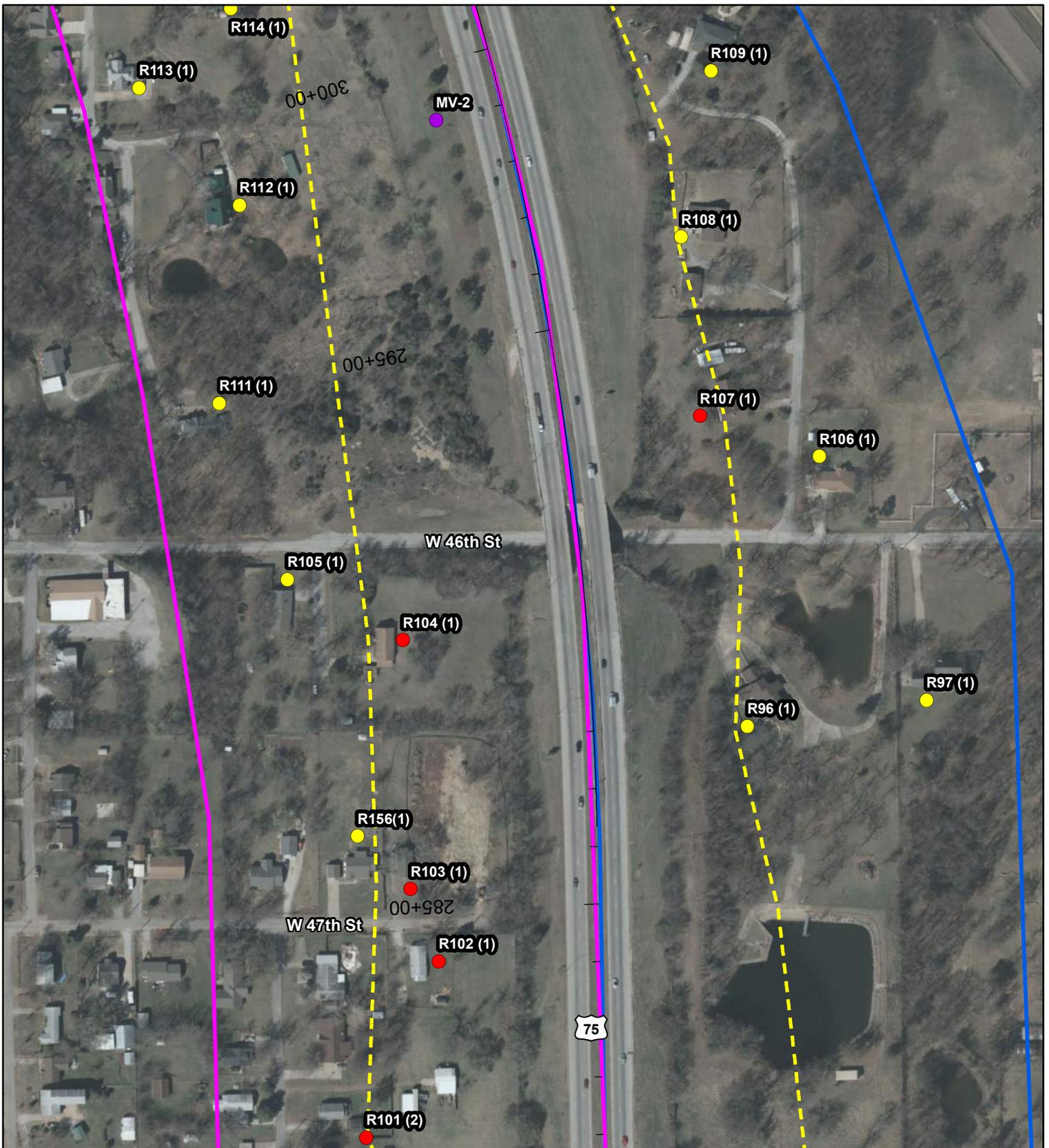
- | | | |
|------------------------------|------------------------------------|--------|
| ● Non-Impacted Receiver | Noise Assessment Area (NAA) | □ NAA4 |
| ● 66dB NAC Impacted Receiver | | □ NAA5 |
| ● Validation Measurement | □ NAA1 | □ NAA6 |
| --- 66dB Noise Contour | □ NAA2 | □ NAA7 |
| | □ NAA3 | |

**Appendix C4 - US-75 Model
Detailed Noise Study Exhibits**

JP 32728(04)
I-44 from I-244 to the Arkansas River
Tulsa County, Oklahoma



Source: 2017 ESRI Aerial Image



Legend

- Non-Impacted Receiver
- 66dB NAC Impacted Receiver
- Validation Measurement
- 66dB Noise Contour

Noise Assessment Area (NAA)

- | | |
|--|--|
| NAA1 | NAA4 |
| NAA2 | NAA5 |
| NAA3 | NAA6 |
| | NAA7 |

**Appendix C5 - US-75 Model
Detailed Noise Study Exhibits**

JP 32728(04)
I-44 from I-244 to the Arkansas River
Tulsa County, Oklahoma



Source: 2017 ESRI Aerial Image



Legend

- Non-Impacted Receiver
- 66dB NAC Impacted Receiver
- Validation Measurement
- 66dB Noise Contour

Noise Assessment Area (NAA)

- NAA1
- NAA2
- NAA3

- NAA4
- NAA5
- NAA6
- NAA7

**Appendix C6 - US-75 Model
Detailed Noise Study Exhibits**

JP 32728(04)
I-44 from I-244 to the Arkansas River
Tulsa County, Oklahoma



Source: 2017 ESRI Aerial Image



Legend

- | | | |
|------------------------------|------------------------------------|--------|
| ● Non-Impacted Receiver | Noise Assessment Area (NAA) | □ NAA4 |
| ● 66dB NAC Impacted Receiver | □ NAA1 | □ NAA5 |
| ● Validation Measurement | □ NAA2 | □ NAA6 |
| - - - 66dB Noise Contour | □ NAA3 | □ NAA7 |

**Appendix C7 - US-75 Model
Detailed Noise Study Exhibits**

JP 32728(04)
I-44 from I-244 to the Arkansas River
Tulsa County, Oklahoma





Legend

- Non-Impacted Receiver
- 66dB NAC Impacted Receiver
- Validation Measurement
- 66dB Noise Contour

Noise Assessment Area (NAA)

- | | |
|--|---|
| NAA1 | NAA4 |
| NAA2 | NAA5 |
| NAA3 | NAA6 |
| | NAA7 |

**Appendix C8 - US-75 Model
Detailed Noise Study Exhibits**

JP 32728(04)
I-44 from I-244 to the Arkansas River
Tulsa County, Oklahoma



Source: 2017 ESRI Aerial Image

Appendix D —Existing and Future Traffic Noise Levels Comparison, dB(A) Leq(h)

I-44/US-75, Tulsa County - JP 32728(04)

Pg. 1 of 4

Modeled Receiver	Type*	Number of Dwellings Represented	Distance from I-44 or US-75 Centerline	Existing Level	Future Level	Change (+/-)	Noise Impact?
NAA 1							
R1	SFR	1	394' North	64.0	66.4	2.4	Yes
R2	SFR	2	395' North	64.5	67.3	2.8	Yes
R3	SFR	3	393' North	65.1	67.9	2.8	Yes
R4	SFR	1	405' North	64.6	67.2	2.6	Yes
R5	SFR	1	203' North	66.8	68.5	1.7	Yes
R6	SFR	5	224' North	67.9	69.9	2.0	Yes
R7	SFR	1	161' North	72.2	72.9	0.7	Yes
R8	SFR	1	153' North	73.3	75.7	2.4	Yes
R9	SFR	2	216' North	69.9	72.4	2.5	Yes
R10	SFR	3	207' North	70.4	73.6	3.2	Yes
R11	SFR	4	213' North	70.6	73.4	2.8	Yes
R12	SFR	1	137' North	74.7	76.6	1.9	Yes
R13	SFR	1	142' North	74.4	76.2	1.8	Yes
R14	SFR	1	209' North	69.8	71.3	1.5	Yes
NAA 2							
H15	H	1	620' South	61.1	62.0	0.9	No
R16	SFR	2	375' South	66.2	68.6	2.4	Yes
R17	SFR	1	206' South	69.8	71.1	1.3	Yes
R18	SFR	1	146' South	73.2	73.3	0.1	Yes
R19	SFR	1	118' South	74.9	74.9	0.0	Yes
M20	MFR	1	176' South	71.6	72.1	0.5	Yes
R21	SFR	1	166' South	72.2	72.4	0.2	Yes
R22	SFR	1	164' South	70.6	71.5	0.9	Yes
NAA 1							
R23	SFR	2	392' North	64.9	68.0	3.1	Yes
R24	SFR	1	433' North	62.4	66.3	3.9	Yes
R25	SFR	2	410' North	62.7	67.8	5.1	Yes
R26	SFR	2	410' North	62.5	66.0	3.5	Yes
R27	SFR	1	464' North	62.4	65.3	2.9	No
R28	SFR	1	420' North	65.0	67.7	2.7	Yes
R29	SFR	1	490' North	63.4	66.6	3.2	Yes
R30	SFR	1	439' North	62.6	65.2	2.6	No
R31	SFR	1	409' North	63.8	66.8	3.0	Yes
R32	SFR	1	473' North	63.4	66.4	3.0	Yes
R33	SFR	1	451' North	63.3	66.3	3.0	Yes
R34	SFR	2	408' North	64.1	66.6	2.5	Yes
R35	SFR	3	402' North	65.2	68.1	2.9	Yes
R36	SFR	1	396' North	65.2	67.8	2.6	Yes
R37	SFR	8	393' North	65.5	68.2	2.7	Yes
R38	SFR	1	392' North	65.5	68.2	2.7	Yes
R39	SFR	1	407' North	65.4	68.7	3.3	Yes
C40	CH	1	178' North	47.8	50.2	2.4	No
R41	SFR	1	139' North	74.1	77.0	2.9	Yes
R42	SFR	1	208' North	69.5	74.1	4.6	Yes
R43	SFR	1	154' North	72.5	76.3	3.8	Yes
R44	SFR	1	116' North	76.2	78.8	2.6	Yes
R45	SFR	1	161' North	71.3	76.6	5.3	Yes
R46	SFR	2	188' North	71.6	76.4	4.8	Yes
S47	RS	1	172' North	47.6	51.7	4.1	Yes
R48	SFR	1	185' North	71.7	75.2	3.5	Yes
R49	SFR	2	183' North	71.5	72.9	1.4	Yes
R50	SFR	2	187' North	70.9	71.6	0.7	Yes
R51	SFR	3	212' North	69.6	70.9	1.3	Yes
R52	SFR	1	210' North	45.1	46.9	1.8	No
L53	L	1	198' North	46.3	49.5	3.2	No

Appendix D —Existing and Future Traffic Noise Levels Comparison, dB(A) Leq(h)

I-44/US-75, Tulsa County - JP 32728(04)

Pg. 2 of 4

Modeled Receiver	Type*	Number of Dwellings Represented	Distance from I-44 or US-75 Centerline	Existing Level	Future Level	Change (+/-)	Noise Impact?
NAA 2							
B54	COM	1	298' South	63.2	66.4	3.2	No
R55	SFR	1	175' South	71.6	72.6	1.0	Yes
H56	H	1	246' South	68.9	68.9	0.0	No
R57	SFR	3	301' South	56.9	57.5	0.6	No
R58	SFR	5	320' South	58.5	60.0	1.5	No
R59	SFR	5	327' South	59.7	60.5	0.8	No
R118	SFR	2	377' South	66.4	68.8	2.4	Yes
R119	SFR	1	364' South	67.1	69.4	2.3	Yes
R120	SFR	1	265' South	68.1	69.8	1.7	Yes
R121	SFR	1	340' South	66.2	68.7	2.5	Yes
R122	SFR	1	407' South	64.9	67.5	2.6	Yes
R123	SFR	1	492' South	63.5	66.1	2.6	Yes
R124	SFR	1	214' South	70.1	71.4	1.3	Yes
R125	SFR	1	330' South	65.8	68.0	2.2	Yes
R126	SFR	1	404' South	64.3	66.9	2.6	Yes
R127	SFR	1	442' South	64.1	66.7	2.6	Yes
M128	MFR	1	251' South	68.6	70.9	2.3	Yes
R129	SFR	1	231' South	69.5	70.7	1.2	Yes
R130	SFR	1	290' South	67.4	69.3	1.9	Yes
R131	SFR	1	337' South	66.2	68.0	1.8	Yes
R132	SFR	1	392' South	64.9	66.4	1.5	Yes
R133	SFR	1	461' South	63.8	65.4	1.6	No
R134	SFR	1	522' South	62.8	63.6	0.8	No
R135	SFR	1	217' South	69.1	70.7	1.6	Yes
R136	SFR	1	287' South	67.6	69.4	1.8	Yes
R137	SFR	1	339' South	66.4	68.3	1.9	Yes
R138	SFR	1	404' South	65.2	67.0	1.8	Yes
R139	SFR	1	462' South	64.2	65.9	1.7	No
R140	SFR	1	522' South	63.2	64.9	1.7	No
R141	SFR	1	418' South	65.3	67.1	1.8	Yes
R142	SFR	1	478' South	64.2	66.0	1.8	Yes
R143	SFR	1	523' South	63.8	65.5	1.7	No
NAA 1							
R144	SFR	1	459' North	64.6	67.4	2.8	Yes
R145	SFR	1	477' North	62.9	65.8	2.9	No
R146	SFR	1	499' North	61.6	65.4	3.8	No
R147	SFR	1	468' North	63.3	66.3	3.0	Yes
R148	SFR	1	538' North	61.8	64.9	3.1	No
R149	SFR	1	491' North	62.2	65.1	2.9	No
R150	SFR	1	577' North	60.5	63.3	2.8	No
R151	SFR	1	508' North	62.9	65.9	3.0	No
R152	SFR	1	583' North	60.7	62.7	2.0	No
R153	SFR	10	491' North	63.1	65.5	2.4	No

*Types: SFR – Single Family Residential and MFR – Multi-Family Residential evaluated as NAC B; PARK and T - Trail evaluated as NAC C; CH – Church, L – Library and RS - Recording Studio evaluated as NAC D (interior); H – Hotel and COM – Commercial property evaluated as NAC E.

Appendix D —Existing and Future Traffic Noise Levels Comparison, dB(A) Leq(h)

I-44/US-75, Tulsa County - JP 32728(04)

Pg. 3 of 4

Modeled Receiver	Type*	Number of Dwellings Represented	Distance from I-44 or US-75 Centerline	Existing Level	Future Level	Change (+/-)	Noise Impact?
NAA 3							
M60	MFR	1	751' West	55.7	57.7	2.0	No
M61	MFR	2	492' West	59.7	62.2	2.5	No
M62	MFR	2	452' West	60.3	63.2	2.9	No
M63	MFR	2	417' West	60.8	63.9	3.1	No
M64	MFR	4	279' West	64.8	68.5	3.7	Yes
M65	MFR	2	268' West	65.4	69.1	3.7	Yes
M66	MFR	2	232' West	67.5	70.8	3.3	Yes
M67	MFR	2	260' West	64.9	67.7	2.8	Yes
M68	MFR	2	300' West	66.6	69.4	2.8	Yes
M69	MFR	2	224' West	68.4	71.4	3.0	Yes
M70	MFR	4	211' West	69.6	72.1	2.5	Yes
P71	PARK	1	189' West	70.7	73.0	2.3	Yes
M72	MFR	2	196' West	68.5	70.9	2.4	Yes
M73	MFR	2	213' West	67.0	69.2	2.2	Yes
M74	MFR	2	229' West	65.9	68.0	2.1	Yes
M75	MFR	2	226' West	68.7	68.9	0.2	Yes
M76	MFR	2	251' West	67.3	67.4	0.1	Yes
M77	MFR	2	273' West	65.8	66.0	0.2	Yes
P78	PARK	1	571' West	56.9	58.5	1.6	No
NAA 4							
R79	SFR	1	648' East	64.2	64.3	0.1	No
H80	H	1	287' South	69.4	68.1	-1.3	No
NAA 6							
R81	SFR	1	389' North	65.9	66.7	0.8	Yes
R82	SFR	1	358' North	65.8	69.1	3.3	Yes
R83	SFR	1	335' North	66.9	71.0	4.1	Yes
R84	SFR	1	314' North	67.6	71.3	3.7	Yes
NAA 5							
T85	T	50	200' North	71.2	74.3	3.1	Yes
NAA 6							
R86	SFR	1	589' North	65.7	67.2	1.5	Yes
R87	SFR	1	554' North	67.0	68.2	1.2	Yes
R88	SFR	1	384' East	64.5	65.1	0.6	No
R89	SFR	3	390' East	63.7	64.1	0.4	No
R90	SFR	2	383' East	64.0	64.3	0.3	No
R91	SFR	1	207' East	66.9	66.1	-0.8	Yes
R92	SFR	1	279' East	65.7	67.3	1.6	Yes
R93	SFR	1	422' East	63.7	66.2	2.5	Yes
R94	SFR	1	185' East	67.4	68.2	0.8	Yes
R95	SFR	2	280' East	65.1	67.6	2.5	Yes
R96	SFR	1	269' East	60.8	61.8	1.0	No
R97	SFR	1	582' East	58.3	59.4	1.1	No

Appendix D —Existing and Future Traffic Noise Levels Comparison, dB(A) Leq(h)
I-44/US-75, Tulsa County - JP 32728(04)

Modeled Receiver	Type*	Number of Dwellings Represented	Distance from I-44 or US-75 Centerline	Existing Level	Future Level	Change (+/-)	Noise Impact?
C98	CH	1	324' West	41.5	41.2	-0.3	No
R99	SFR	1	199' West	67.5	65.7	-1.8	No
R100	SFR	1	285' West	65.3	66.8	1.5	Yes
R101	SFR	2	409' West	63.8	66.0	2.2	Yes
R102	SFR	1	276' West	67.4	69.4	2.0	Yes
R103	SFR	1	323' West	65.5	67.6	2.1	Yes
R104	SFR	1	319' West	65.9	68.6	2.7	Yes
R105	SFR	1	508' West	59.7	62.0	2.3	No
NAA 6							
R106	SFR	1	433' East	62.0	62.8	0.8	No
R107	SFR	1	238' East	66.4	66.6	0.2	Yes
R108	SFR	1	256' East	64.1	65.7	1.6	No
R109	SFR	1	368' East	61.5	62.3	0.8	No
T110	T	50	401' East	60.0	59.5	-0.5	No
NAA 7							
R111	SFR	1	583' West	58.9	60.3	1.4	No
R112	SFR	1	481' West	60.1	61.8	1.7	No
R113	SFR	1	599' West	56.7	57.3	0.6	No
R114	SFR	1	408' West	61.6	62.6	1.0	No
R115	SFR	1	590' West	55.3	56.1	0.8	No
R116	SFR	1	457' West	58.3	58.9	0.6	No
R117	SFR	1	577' West	54.3	54.4	0.1	No
R154	SFR	1	315' West	64.8	65.4	0.6	No
R155	SFR	1	389' West	63.6	64.7	1.1	No
R156	SFR	1	421' West	62.7	65.0	2.3	No
NAA 6							
R157	SFR	1	555' East	61.7	63.3	1.6	No
R158	SFR	1	473' North	63.7	64.7	1.0	No
R159	SFR	1	535' North	62.2	63.8	1.6	No
R160	SFR	1	598' North	61.1	63.0	1.9	No
R161	SFR	2	424' North	64.9	68.0	3.1	Yes
R162	SFR	2	500' North	63.4	66.2	2.8	Yes
R163	SFR	1	357' North	66.2	69.7	3.5	Yes
R164	SFR	1	434' North	64.5	67.5	3.0	Yes
R165	SFR	1	498' North	63.2	65.8	2.6	No
T166	T	69	384' East	58.6	64.1	5.5	No
R167	MFR	2	294' West	65.2	67.5	2.3	Yes
R168	MFR	2	366' West	63.3	65.1	1.8	No

*Types: SFR – Single Family Residential and MFR – Multi-Family Residential evaluated as NAC B; PARK and T - Trail evaluated as NAC C; CH – Church, L – Library and RS - Recording Studio evaluated as NAC D (interior); H – Hotel and COM – Commercial property evaluated as NAC E.

