APPENDIX F: Traffic Noise

TOPIC: Traffic Noise Study

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1.0 INTRODUCTION

As part of the National Environmental Policy Act (NEPA), impacts and measures to mitigate adverse impacts must be identified, including identification of impacts for which no or only partial mitigation is possible. As the project is federally funded and involves the addition of through driving lanes to physically alter the existing roadway, it is classified as a Type I transportation improvement and a traffic noise analysis is required for the entire project. This noise analysis presents the existing and future acoustical environment at noise sensitive receptors along the project and is in compliance with Title 23 Code of Federal Regulations, Part 772, U.S. Department of Transportation, Federal Highway Administration (FHWA), *Procedures of Abatement of Highway Traffic Noise and Construction Noise.* The purpose of the noise study is to determine potential traffic noise impacts and discuss abatement measures as appropriate for the project.

1.1 Project Description

Kansas Department of Transportation (KDOT) is proposing improvements to US 54/US 400/East Kellogg or "East Kellogg" from Interstate 35 (I-35) to Prairie Creek Road, in the cities of Wichita and Andover, Kansas. The study area represents the NEPA Clearance Boundary for the project, as shown in Figure 1.

Figure 1: Study Area

Source: Project Team

The existing roadway consists of a four-lane divided urban expressway with two travel lanes in each direction, a grassed median, and right-and left-turn lanes at major signalized at-grade intersections. The existing urban expressway occupies a right-of-way (ROW) width ranging from approximately 170 to 230 feet. The proposed project consists of a six-lane divided access-controlled freeway with three travel lanes and one-way two-lane frontage roads in each direction. In addition, six-foot-wide sidewalks are proposed on the outside of the frontage roads. The proposed freeway would require a ROW ranging in width of approximately 300 to 375 feet.

1.2 Purpose

The purpose of the project is to provide a cost-effective, environmentally sustainable, and safe transportation facility that improves mobility and connectivity to support current and forecasted increases in travel demand.

1.3 Characteristics of Noise

Sound is created when an object moves, causing vibration or waves in air molecules. When vibrations reach our ears, we hear sound. Sound levels are measured in units called decibels (dB). Sound levels cannot be added with simple arithmetic because the decibel is a representation of a large value measured on the logarithmic scale.

The degree of disturbance or annoyance from exposure to unwanted sounds depends upon a variety of factors, including the amount, nature, and duration of the intruding noise, the relationship between the intruding noise and the existing (ambient) sound environment, and the situation in which the disturbing noise is heard. Traffic noise levels do not normally reach levels that result in hearing damage, and what constitutes an "annoyance" or hindrance to sleep is difficult to quantify on a large scale. Speech impairment is applied as a condition that reflects a compromise between noise levels that are desirable and those that are achievable.

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)". Generally, the human ear perceives changes in sound levels as follows:

- 1 dB(A) – no perceptible change;
- 3 dB(A) – barely perceptible change;
- 5 dB(A) – readily perceptible change;
- 10 dB(A) – perceived as twice as loud.

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. An hourly equivalent sound level, or Leq(h), is the constant, average sound level that contains the same amount of sound energy over the time period as does the varying levels of actual traffic noise. Leq(h) is reported using dB(A) as the unit of measurement.

The primary sources of highway traffic sound are tires, engines, and exhaust. These sources are further influenced by the overall number of vehicles, type of vehicles, distance between traffic and receptor(s), speed, and topography. Additional, more complicated factors affecting traffic sound may include elevated or depressed highway/terrain, dense vegetation, and shielding from existing buildings and walls.

This highway traffic noise analysis aims to provide a comprehensive investigation of these factors to determine noise impacts using the methodology outlined below.

2.0 METHODOLOGY

2.1 Existing Land Use and Noise Abatement Criteria

Existing land use in the vicinity of the East Kellogg project is mostly residential and some commercial interspersed with large undeveloped lands. Businesses and public areas along the project include, but are not limited to, restaurants, a grocery store, a pharmacy, hotels, gas stations, a YMCA, and a golf course. Both multi-family apartment complexes and single-family residential homes are found along the project.

For the purposes of noise analysis, a receptor is a discrete or representative location that may be impacted by changes is noise levels. Receptors are classified according to their activity category as defined in the FHWA Noise Abatement Criteria (NAC), outlined in Table 1. Sound levels are modeled at sites that represent area(s) of frequent use along a project. Primary consideration is for exterior areas of human use. For interior evaluation locations, sound levels are calculated by subtracting a noise reduction factor according to the building type and window condition, as outlined in the KDOT noise policy and FHWA guidelines. No interior evaluations were completed for this project.

Table 1: FHWA Noise Abatement Criteria (NAC)

Hourly Equivalent A-Weighted Sound Level – dB(A)			
Activity Category	Activity Criteria[1] $L_{eq(h)}$[2]	Evaluation Location	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
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, 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[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.

Source: Kansas Department of Transportation Highway Traffic Noise Policy and Guidance (effective 06/23/2022)
[1]The $L_{eq(h)}$ 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 $L_{eq(h)}$ being the hourly value of L_{eq}.
[3]Includes undeveloped lands permitted for this activity category.

2.2 Noise Sensitive Areas

For the purpose of this traffic noise study, the project was segmented into 14 geographical areas, each identified as a Noise Sensitive Area (NSA) to group noise-sensitive receptors influenced by similar sources, such as traffic volumes, traffic mix and speed, and topographic features. Beyond these areas, noise impacts and any benefits provided by noise abatement are not anticipated. The NSAs are defined as follows and are shown in Attachment A:

NSA 1 – located at the southwest corner of the project, NSA 1 surrounds the Lincoln Court cul-de-sac of Woodland Lakes Estates, located between S. 127th Street East and E. Lincoln Street. Single-family dwelling units exist in NSA 1.

NSA 2 – located at the northwest corner of the project, NSA 2 represents the newly-developed Cottages at Crestview apartment complex at the intersection of E. Douglas Avenue and N. 127th Street E. Only multi-family dwelling units exist in NSA 2.

NSA 3 – located adjacent to eastbound US 54/US 400/East Kellogg, NSA 3 represents the Springdale Lakes subdivision located approximately between Clear Creek Circle and Springdale Drive. Only single-family dwelling units exist in NSA 3.

NSA 4 – located adjacent to eastbound US 54/US 400/East Kellogg, NSA 4 represents the Springdale Estates subdivision located approximately between Springdale Drive and S. Stagecoach Street. Only single-family dwelling units exist in NSA 4.

NSA 5 – located adjacent to S. 143rd Street East and behind MoreStor Storage, NSA 5 represents the Park East subdivision on S. Cardinal Lane and S. Hillsdale Drive. Only single-family dwelling units exist in NSA 5

NSA 6 – located adjacent to eastbound US 54/US 400/East Kellogg, NSA 6 represents the Springdale East subdivision approximately between S. Stagecoach Street and S. Cactus Street. Only single-family dwelling units exist in NSA 6.

NSA 7 – located adjacent to westbound US 54/US 400/East Kellogg, NSA 7 represents the Green Valley subdivision, Andover Municipal Golf Course, and multi-family residences on Onewood Place, approximately between S. 159th Street East and Onewood Drive. Single-family dwelling units, multi-family dwelling units, and one golf course (public recreational facility) exist in NSA 7.

NSA 8 – located adjacent to eastbound US 54/US 400/East Kellogg, NSA 8 represents some commercial businesses and the Cottonwood Point, Mecca Acres, and Chelsea Square subdivisions. NSA 8 is located approximately between the Sedgwick/Butler County line (SW County Line Road/159th Street) and S. Frey Road. Single-family dwelling units, multi-family dwelling units, and a trampoline park (Jumpy Jump Land, public recreational facility) exist in this NSA.

NSA 9 – located adjacent to westbound US 54/US 400/East Kellogg, NSA 9 represents undeveloped lands, commercial businesses, the Andover Village subdivision, and the Course at Green Valley Greens subdivision approximately between S. Onewood Road and S. Andover Road. Single-family dwelling units, multi-family dwelling units, and one hotel (Days Inn, NAC E) exist in NSA 9. The majority of dwelling units are single-family.

NSA 10 – located adjacent to eastbound US 54/US 400/East Kellogg, NSA 10 represents undeveloped lands commercial businesses, and an isolated residence located approximately between S. Frey Road and Riverview Street. One pet cemetery (Pet Rest, NAC C), one single-family dwelling unit, and one hotel (Holiday Inn, NAC D [interior reading]) exist in NSA 10.

NSA 11 – located southwest of the intersection of Yorktown Street and Cloud Avenue south of US 54/US 400/East Kellogg, NSA 11 represents the SunSTONE Apartment Homes at Marketplace. Only multi-family dwelling units exist in NSA 11.

NSA 12 – located northeast of the intersection of US 54/US 400/East Kellogg and Yorktown Road, NSA 12 represents undeveloped lands and some isolated residences. Only single-family dwelling units exist in NSA 12.

NSA 13 – located adjacent to westbound US 54/US 400/East Kellogg, NSA 13 represents isolated residences and the Schmidt subdivision with a few commercial businesses approximately between S. Archer Drive and S. Prairie Creek Road. Only single-family dwelling units exist within NSA 13.

NSA 14 – located adjacent to eastbound US 54/US 400/East Kellogg, NSA 14 represents a YMCA, some small commercial businesses, the Highlands subdivision, and some isolated residences located approximately between Yorktown Street and S. Prairie Creek Road. Single-family dwelling units, multi-family dwelling units, and a YMCA pool (public recreational facility) exist within NSA 14.

2.3 Existing Sound Levels and Model Validation

In accordance with FHWA requirements, detailed computer models were created using FHWA TNM 2.5 software to understand existing noise levels within each NSA. 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 sensitive noise receptors likely to be impacted by the associated traffic noise.

To develop the existing TNM model, the loudest-hour equivalent traffic noise levels were used, which includes the use of average annual daily traffic. 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, heavy trucks, buses, and motorcycles. For existing noise levels, traffic noise calculations based on 2023 Year AADT traffic volumes and the existing speed limit for the facility main lanes (60 mph) were performed using the FHWA TNM v2.5 model. This traffic data was provided by the Bureau of Transportation Planning.

Model validation was performed in order to ensure that traffic noise is the main source of noise and to verify that the existing model accurately predicts existing traffic noise based on current conditions. Model validation compares field-collected sound level measurements to traffic noise levels calculated in an existing condition model that used field-collected traffic parameters. Noise measurement data was collected over 15-minute periods at 4 validation sites along the project corridor using a sound level meter complying with acoustic instrumentation as required by FHWA. Field measurements are required to be within ±3 dB(A) of the TNM predicted noise levels for the same location and documented traffic conditions for the existing condition TNM model to be considered valid. Differences between the measured and calculated levels for this project were within the ±3 dB(A) tolerance allowed by the FHWA. Therefore, the existing noise model is considered validated for this project. The results of TNM model validation are shown in Table 2. The sound level meter used for this project is calibrated yearly, and its documentation can be provided upon request. Field measurement data may also be provided upon request.

Table 2: Field Measured (Model Validation) Existing Noise Levels

Measurement Number	Location Notes	TNM – Predicted $L_{eq(h)}$ dB(A)[1]	Measured $L_{eq(h)}$ dB(A)[1]	Validation Delta (Pred. – Meas.)[1]
MV1	E of S Stagecoach, top of ditch even with drain	74.2	74.2	0
MV2	Culdesac, 2nd utility pole from end	71.4	71.5	-0.1
MV3	S Highlands Dr behind culvert	70.1	67.8	+2.3
MV4	W of Onewood Drive on little dirt road	71.3	71.8	-0.5

Source: Project Team, FHWA TNM v2.5
[1]Hourly equivalent noise levels, $L_{eq(h)}$, are expressed to the nearest one-tenth decibels to ensure that TNM-predicted levels validate to within +/- 3.0 dB(A) of measured noise levels without the benefits of rounding.

2.4 Procedure for Predicting Future Noise Levels

The project will occur in two phases, with the first construction phase limits extending from I-35 to Ruth Avenue, and the second phase from Ruth Avenue to Prairie Creek Road. Phase 2 is currently being considered for two future design build options, a depressed roadway option and an elevated roadway option. As traffic noise levels will vary between the two designs, two separate noise analyses were conducted.

Within each NSA, future sound levels were forecasted using FHWA TNM v2.5, according to FHWA requirements. In addition to modeling existing noise levels, the validated model was utilized to compare sound levels for three future (year 2042) scenarios:

- Future no-build – representing design year acoustic environment, if project is not constructed;
- Future elevated build condition – representing design year acoustic environment if project is constructed using the elevated Phase 2 option for East Kellogg east of Ruth Avenue.
- Future depressed build condition – representing design year acoustic environment if project is constructed using the depressed Phase 2 option for East Kellogg east of Ruth Avenue.

The proposed speed limit for the facility's main lanes will remain at 60 mph, as was incorporated into the future model. Relative impacts are determined by comparing existing sound levels with future build conditions, and absolute impacts are determined by comparing future build conditions with the NAC.

3.0 RESULTS & DISCUSSION

3.1 Traffic Noise Impacts

FHWA defines a noise impact as occurring when [a] receptor noise levels approach or exceed the NAC (with "approach" defined in the KDOT *Highway Traffic Noise Policy and Guidance* as reaching 1 dB(A) below the levels shown for the activity category in question) and/or [b] future receptor noise levels substantially exceed existing sound levels by equal to or greater than 10 dBA. Receptors are grouped within their respective NSA, and then are assessed for noise impacts by NAC activity category. One impacted NAC B receptor (R-0612) was identified in the 2023 Base-Year existing model in NSA 6.

As shown in **Table 3**, traffic noise is predicted to result in 2 total receptor impacts due to the 2042 Design Year Elevated Build scenario. The affected receptors are two residences located in NSA 6 (R-0607 and R-0612), one of which was impacted in the 2023 Base-Year existing model. Traffic noise impacts are not anticipated to differ between the elevated build alternative and the depressed build alternative; the affected receptors are located in the Phase I vicinity of the project. By contrast, 7 impacted receptors were identified in the 2042 No-Build scenario. Refer to **Attachment A** for the location of each NSA and **Attachment B** for a detailed map of noise-sensitive receptors that are impacted. 2023 Base Year, 2042 No-Build, and 2042 Build hourly equivalent traffic noise levels for individual receptors are listed in **Attachment C**.

One NAC C receptor (R-0722) is located within NSA 7 at the Andover Municipal Golf Course. This receptor is not impacted in either the existing condition or either of the build scenarios. Note that the depressed build scenario is quieter than the existing base year condition. The 66 dB(A) contour is located entirely within the existing right of way, approximately 40 feet outside of the golf course property line and approximately 20 feet from the nearest lane of travel on the access road adjacent to the property. Refer to **Section 3.4** for more information on noise level contours.

Table 3: Traffic Noise Impact Summary for 2042 Build Alternatives

Design Alternative	Absolute Impact[1]							Relative Impact[2]	Total Highway Traffic Noise Impacts
	A	B	C	D	E	F[3]	G[4]		
2042 No-Build	n/a	7	1	0	n/a	--	--	0	**7**
2042 Design Year Build (Elevated)	n/a	2	0	0	n/a	--	--	0	**2**
2042 Design Year Build (Depressed)	n/a	2	0	0	n/a	--	--	0	**2**

Source: Project Team, FHWA TNM v2.5
[1]Based on NAC criteria described in Section 3.1[a].
[2]Based on substantial increase criteria described in Section 3.1[b].
[3]There are no impact criteria for land use facilities in this activity category and no analysis of noise impacts is required.
[4]There are no impact criteria for undeveloped lands, but some noise levels may need to be provided to local officials to aid them in future land use planning efforts.

3.2 Consideration of Abatement Measures

FHWA and KDOT require that feasible and reasonable noise abatement measures be considered and evaluated for the benefit of all predicted build-condition traffic noise impacts. Feasibility and reasonableness are distinct and separate considerations. Feasibility criteria include:

- **Safety** – the noise barrier shall not excessively restrict sight distances, restrict drainage, or exacerbate potential flooding
- **Maintenance** – access is needed to both sides of the barrier

- **Acoustic Considerations** – the noise barrier must have a minimum of three first row impacted receptors and must achieve at least a 5 dB(A) highway traffic noise reduction for 80% of first row impacted receptors.

Reasonableness criteria refers to many factors to be considered if mitigation is fair and affordable. Reasonableness criteria include:

- **Insertion Loss** – a minimum of 5 dB(A) insertion loss per receptor is counted as one benefitted receptor. Other receptors not impacted but receiving a 5 dBA benefit are counted in the evaluation. The benefitted receptors are used in calculations for cost-effectiveness.
- **Noise Reduction Design Goal** – the noise barrier must achieve a minimum of 7 dB(A) insertion loss for the majority (>50%) of benefitted receptors OR a minimum of 8 dB(A) insertion loss for at least one impacted Activity Category B receptor that will benefit from the noise barrier.
- **Cost Effectiveness** – barrier cost effectiveness shall not exceed 1,200 ft^2 per benefitted receptor. Barrier cost information, in dollars per square foot of wall, will be analyzed and submitted to FHWA every five years.

The following noise abatement measures were considered: traffic management, alteration of horizontal and/or vertical alignments, acquisition of undeveloped property to act as a buffer zone, and the construction of noise barriers within the highway project right-of-way.

R-0607 & R-0612 – These receivers represent two impacted single-family residences in the same subdivision (Springdale East, NSA 6), with backyards adjacent to East Kellogg. However, to be acoustically feasible, a noise barrier must have a minimum of three first row impacted receptors. Therefore, a noise barrier in this location is not feasible.

Noise abatement measures would be neither feasible nor reasonable; therefore, no abatement measures are proposed for this project.

3.3 Construction Noise

The predominant construction activities associated with this project are expected to be earth removal, hauling, grading, and paving. Temporary and localized construction noise impacts to receptors adjacent to the project may occur as a result of these activities. During daytime hours, the predicted effects of these impacts could be temporary speech interference for passers-by and those individuals living or working near the project. During evening and nighttime hours, steady-state construction noise emissions, such as those from paving operations, could be audible and may cause impacts to activities such as sleep. Sporadic evening and nighttime construction equipment noise emissions, such as from backup alarms, lift gate closures ("slamming" of dump truck gates), etc., will be perceived as distinctly louder than the steady-state acoustic environment, and could impact the general peace and usage of noise-sensitive areas – particularly residences.

Construction activities that will produce extremely loud noises should to the extent possible be scheduled during times of the day when such noises will create as minimal disturbance as possible, specifically weekday daytime hours since the primary land use expected to be temporarily impacted by construction noise for the project is residential.

Generally, low-cost and easily implemented construction noise control measures should be incorporated into the project plans and specifications to the extent possible. These measures include, but are not limited to, work-hour limits, equipment exhaust muffler requirements, haul-road locations, elimination of "tail gate banging", ambient-sensitive backup alarms, construction noise complaint mechanisms, and consistent and transparent community communication.

3.4 Local Officials' Statement

A copy of this report will be provided to local officials in the cities of Wichita and Andover. Potential highway traffic noise impacts may occur with future development; in order to assist with noise compatible land-use planning, the distances to the 71 dB(A) and 66 dB(A) noise level contour lines were determined for this project. Table 4 shows contour distances correlating to the traffic noise impact thresholds for FHWA NAC "E" land uses, 71 dB(A), and NAC "B" and "C" land uses, 66 dB(A). It is recommended that any future development proposed in the vicinity of the project be modeled with accurate survey data to avoid creating incompatible land uses adjacent to the project.

Table 4: Predicted 2042 Build Alternative Traffic Noise Level Contours

Build Alternative	Predicted Impact Contour Distances from Edge of Nearest Travel Lane	
	71 dB(A)	66dB(A)
Phase 1	In ROW	60'
Phase 2 – Depressed	In ROW	50'
Phase 2 – Elevated	In ROW	35'

Source: Project Team, FHWA TNM v2.5

4.0 SUMMARY

The East Kellogg project proposes to provide a cost-effective, environmentally sustainable, and safe transportation facility that improves mobility and connectivity to support current and forecasted increases in travel demand from Interstate 35 (I-35) to Prairie Creek Road, in the cities of Wichita and Andover, Kansas. The project will occur in two phases, with Phase II currently being considered for two future design build alternatives, an elevated roadway option and a depressed roadway option. As traffic noise levels will vary between the two designs, two separate forecasted models were analyzed.

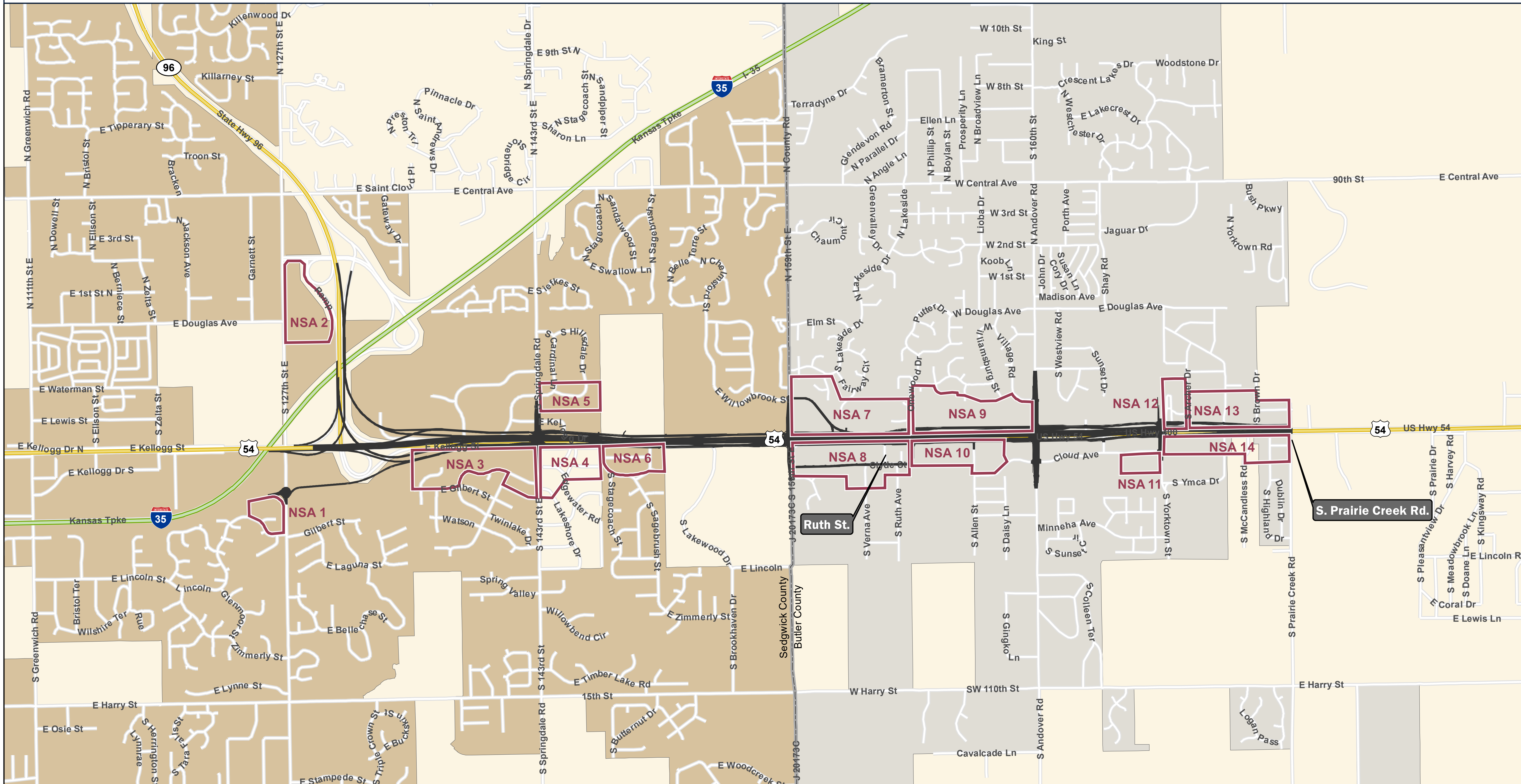
Traffic noise impacts and temporary construction noise impacts can be a consequence of transportation projects, especially for noise-sensitive land uses near high-volume and/or high-speed existing steady-state traffic noise sources. This traffic noise study utilized computer models created with the FHWA TNM v2.5 software, validated with field-collected traffic noise measurement data, to determine existing, and to predict future, loudest-hour equivalent noise levels and identify impacted receptors resulting from the East Kellogg project.

In the vicinity of the project, a total of 277 receptors across 14 noise-sensitive areas were analyzed for noise impacts. The receptors were comprised of residences, apartments, hotels, and public recreational facilities. Of the total receptors, 7 impacted receptors were identified in the 2042 No-Build scenario, and 2 impacted receptors were identified in the 2042 Build scenarios. The number and location of receptor impacts did not change between the elevated and depressed build alternatives. In fact, no impacted receptors were identified along Phase 2 of the project. The 2042 Build scenario sound level results have been determined to be slightly lower than the No-Build scenario for receptors R-0726, R-0727, and R-0728. This is primarily due to the incorporation of a depressed mainline section of East Kellogg in the 2042 Build scenario where future projected traffic would be approximately 18 feet lower in elevation compared to the elevation of these receptors. As there are fewer impacted receptors forecasted in the Build scenario than the No-Build scenario, the execution of this project stands to benefit the study area with regard to traffic noise.

As is required in KDOT's 2022 *Highway Traffic Noise Policy and Guidance*, consideration for noise abatement measures was given to all impacted receptors for the East Kellogg project. Noise abatement measures suggested by KDOT, including noise walls, were not found to be feasible and reasonable for use in this project, therefore no abatement is proposed.

Attachment A
Noise Sensitive Areas

NOISE SENSITIVE AREAS (NSA)



▭	Noise Sensitive Area (NSA)
■	Project Limits
▭	County
■	Andover
■	Wichita

N

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Feet

US 54/East Kellogg EA
KDOT - IKE Program

Kansas Department of Transportation

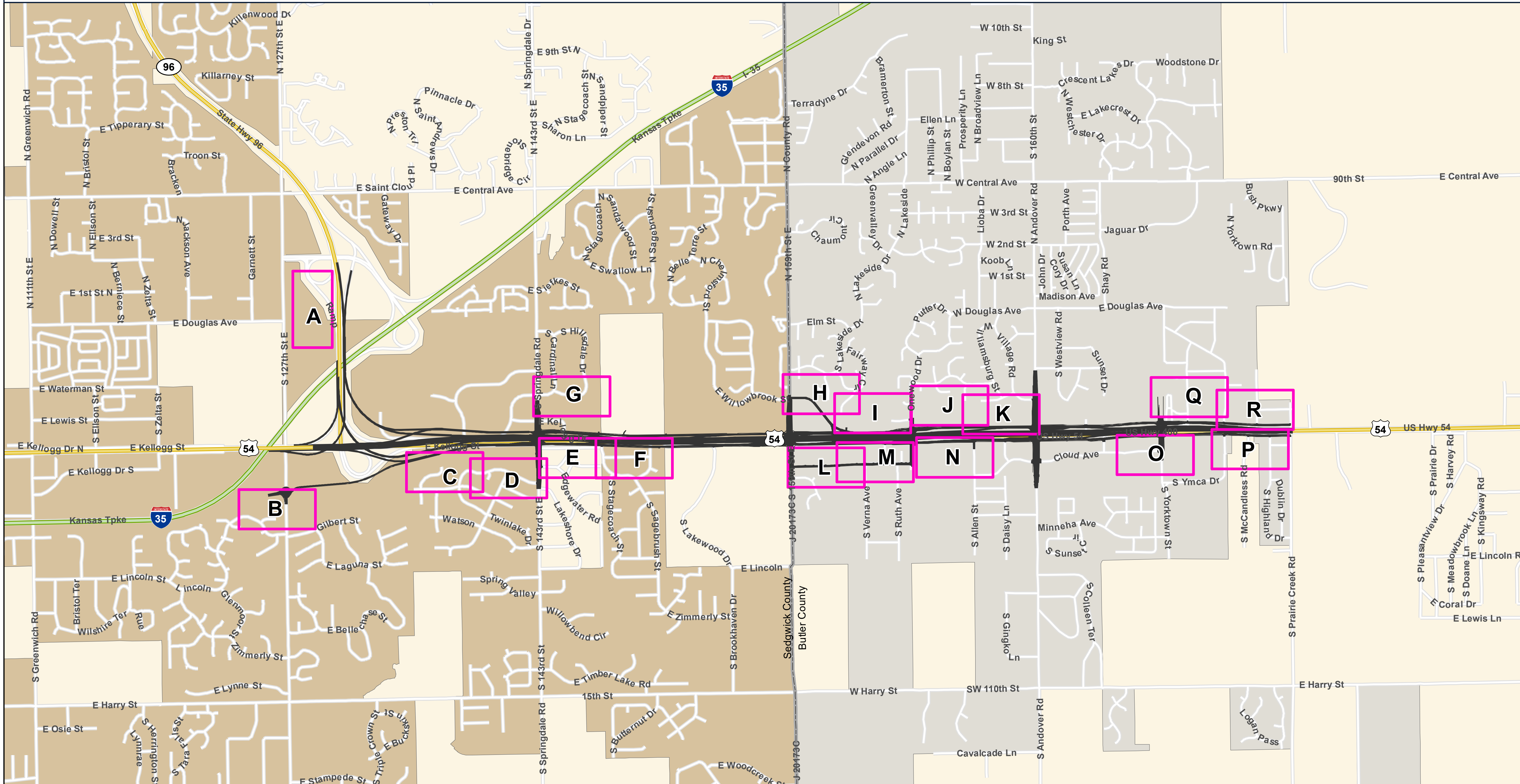
EAST KELLOGG K-96 to 159th Street

KDOT IKE THE EISENHOWER LEGACY TRANSPORTATION PROGRAM

Attachment B

Noise Sensitive Receptor Locations

NOISE SENSITIVE RECEPTOR LOCATIONS **PAGE NUMBER INDEX**



Page Number Index
Project Limits
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US 54/East Kellogg EA
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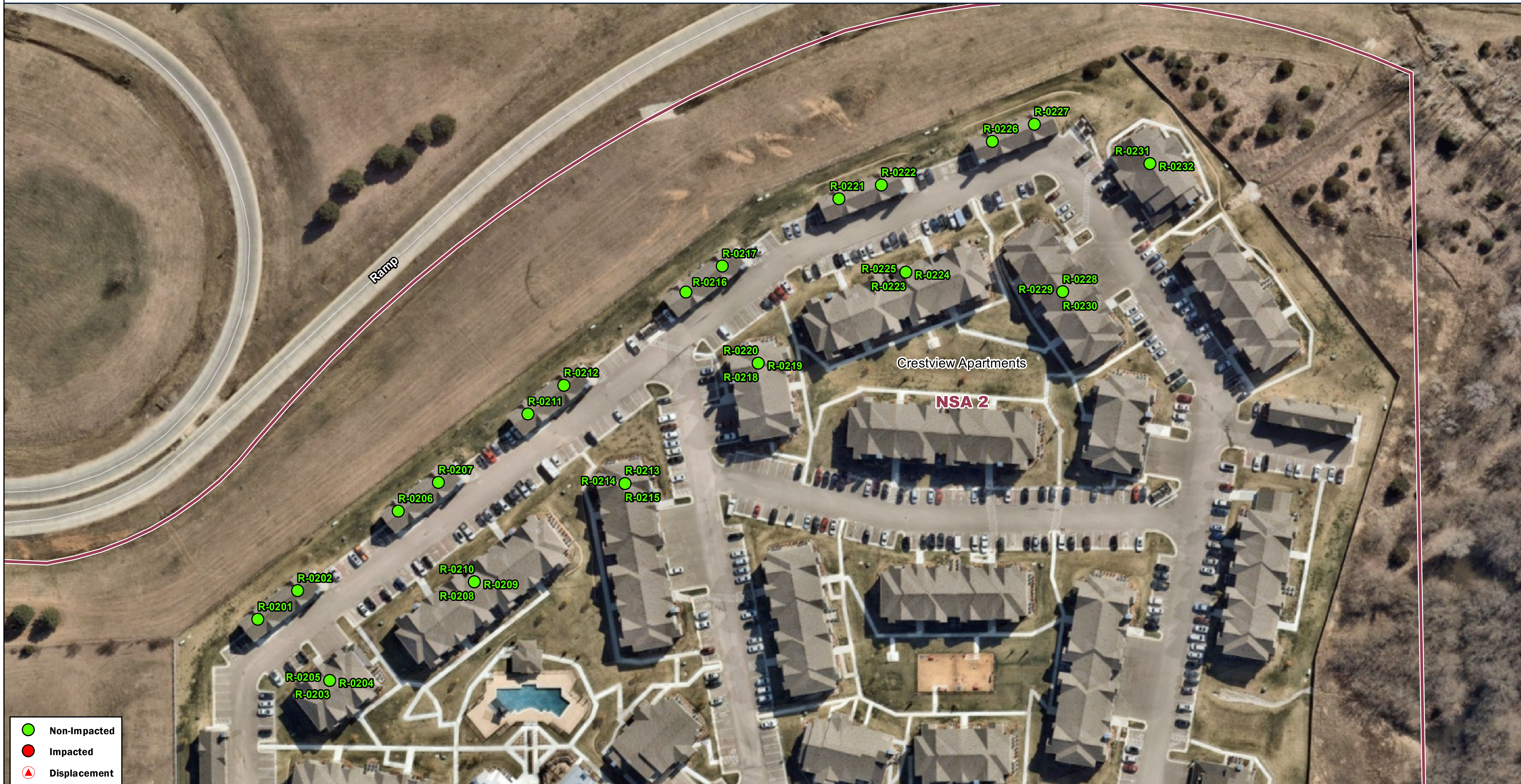
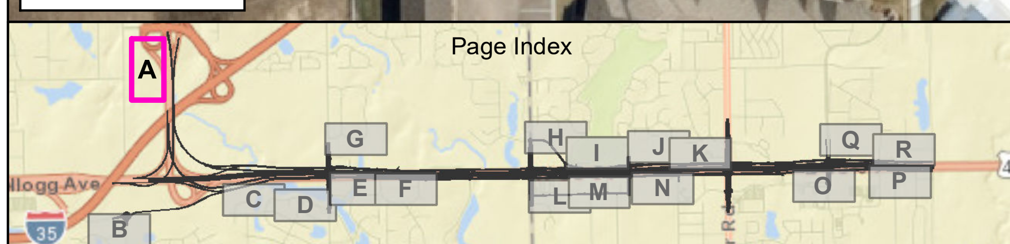
NOISE SENSITIVE RECEPTOR LOCATIONS





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US 54/East Kellogg EA

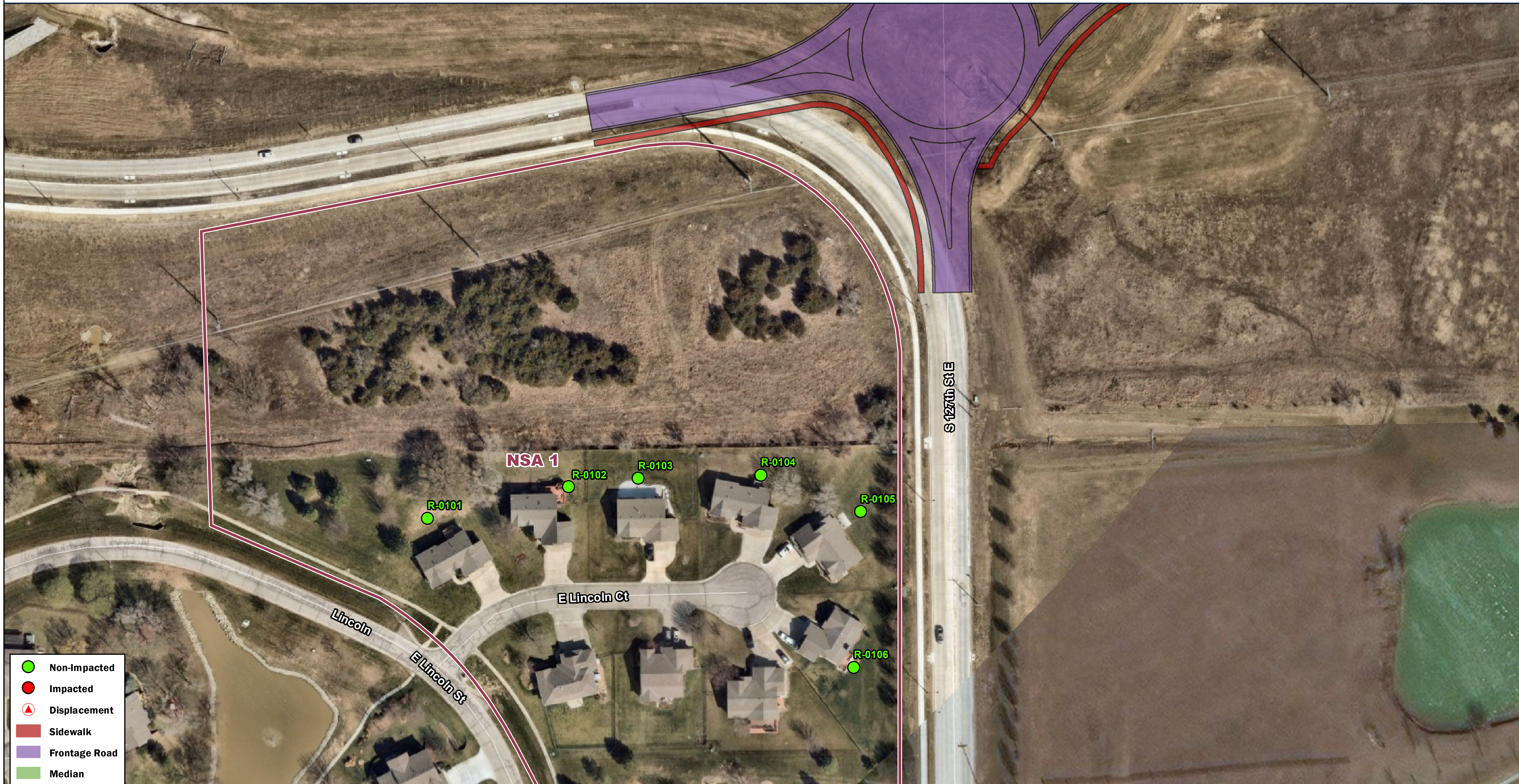
KDOT - IKE Program

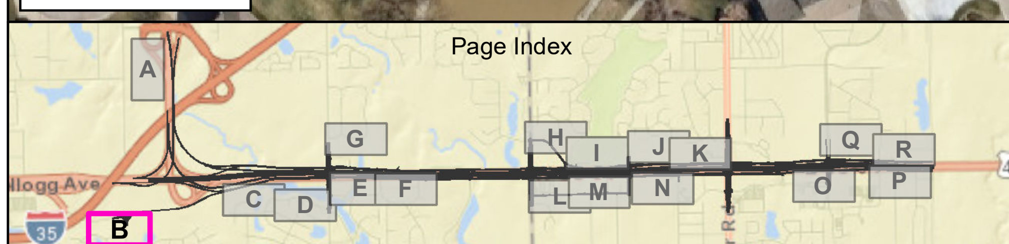
Kansas Department of Transportation

EAST KELLOGG K-96 to 159th Street

IKE THE EISENHOWER LEGACY TRANSPORTATION PROGRAM

NOISE SENSITIVE RECEPTOR LOCATIONS





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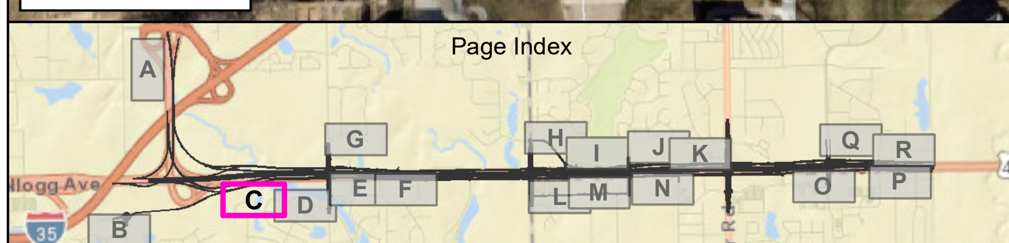
US 54/East Kellogg EA
KDOT - IKE Program

Kansas Department of Transportation

EAST KELLOGG K-96 to 159th Street

IKE THE EISENHOWER LEGACY TRANSPORTATION PROGRAM

NOISE SENSITIVE RECEPTOR LOCATIONS



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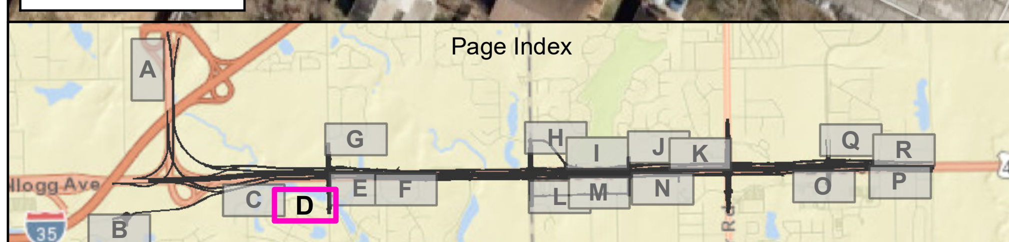
US 54/East Kellogg EA
KDOT - IKE Program

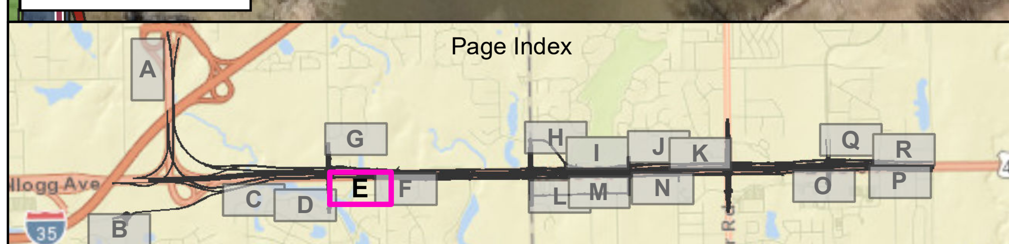
NOISE SENSITIVE RECEPTOR LOCATIONS



US 54/East Kellogg EA
KDOT - IKE Program

Kansas Department of Transportation
EAST KELLOGG K-96 to 159th Street
KDOT IKE THE EISENHOWER LEGACY TRANSPORTATION PROGRAM

NOISE SENSITIVE RECEPTOR LOCATIONS



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US 54/East Kellogg EA
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NOISE SENSITIVE RECEPTOR LOCATIONS

US 54/East Kellogg EA
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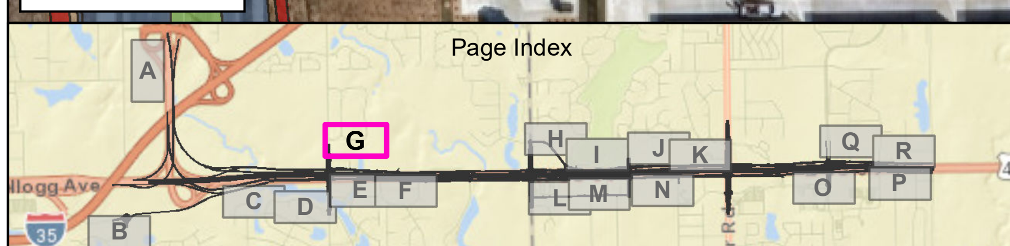
EAST KELLOGG K-96 to 159th Street

KDOT IKE THE EISENHOWER LEGACY TRANSPORTATION PROGRAM

NOISE SENSITIVE RECEPTOR LOCATIONS



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US 54/East Kellogg EA

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EAST KELLOGG K-96 to 159th Street

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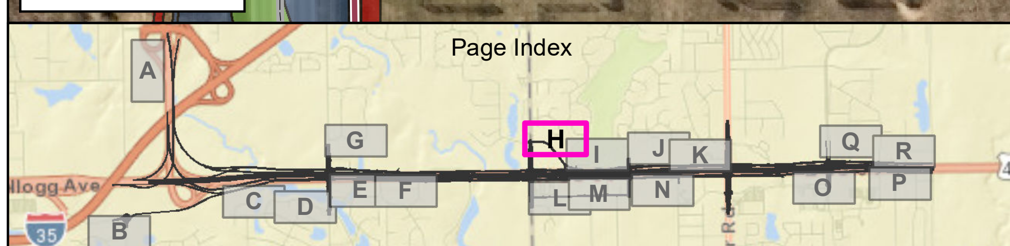
NOISE SENSITIVE RECEPTOR LOCATIONS



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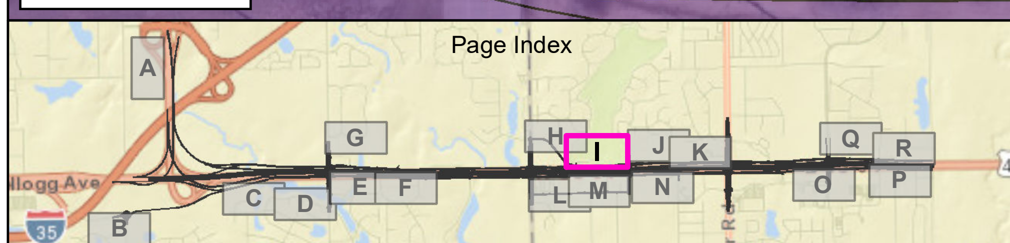
NOISE SENSITIVE RECEPTOR LOCATIONS



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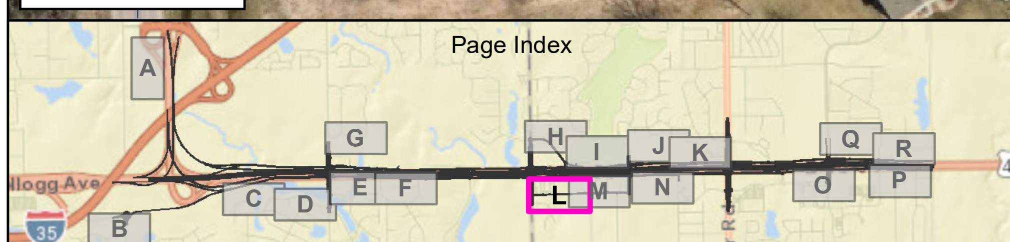
NOISE SENSITIVE RECEPTOR LOCATIONS



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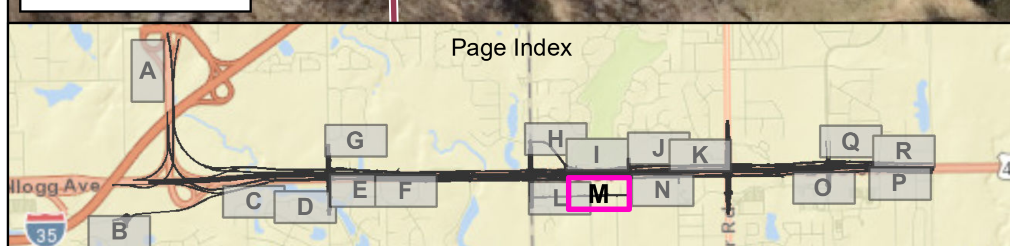

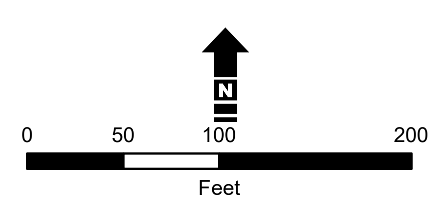

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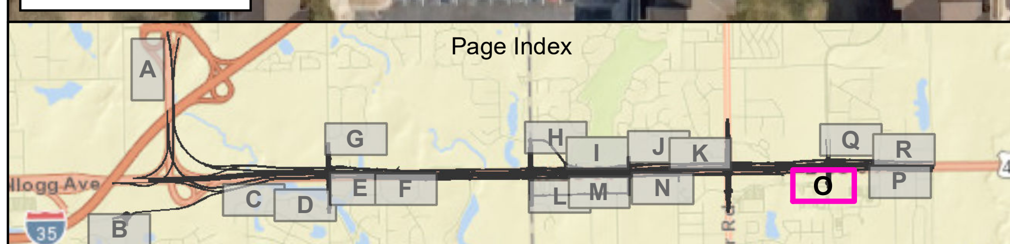

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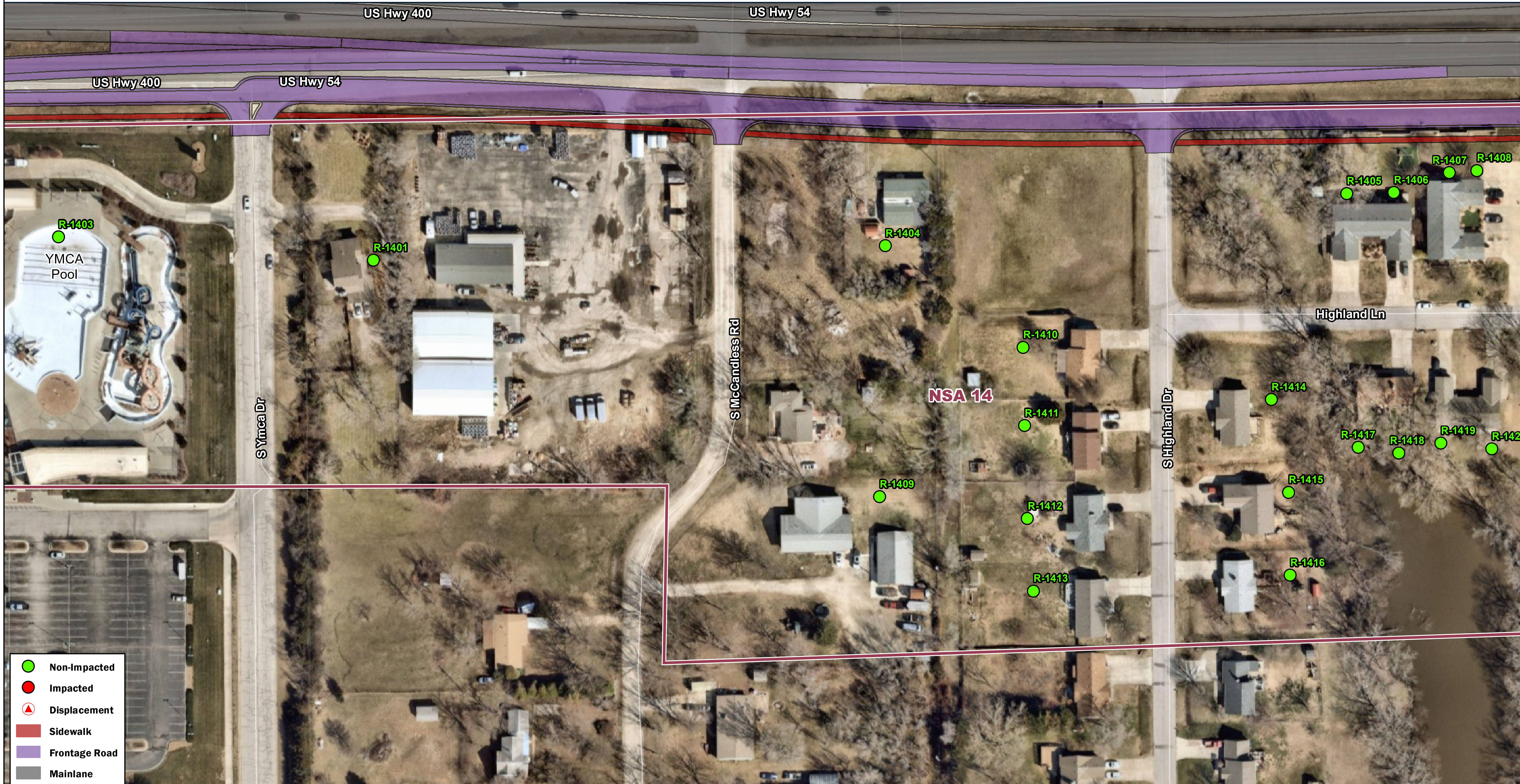
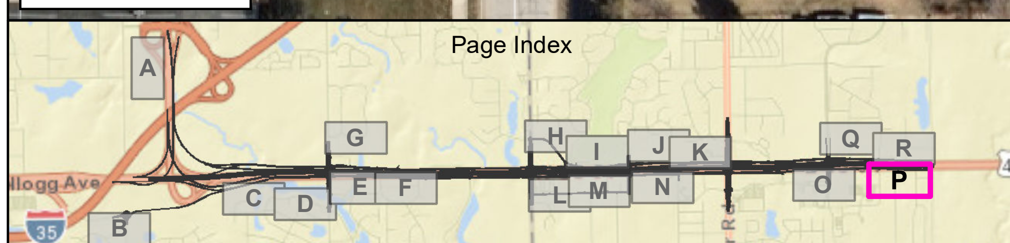
NOISE SENSITIVE RECEPTOR LOCATIONS





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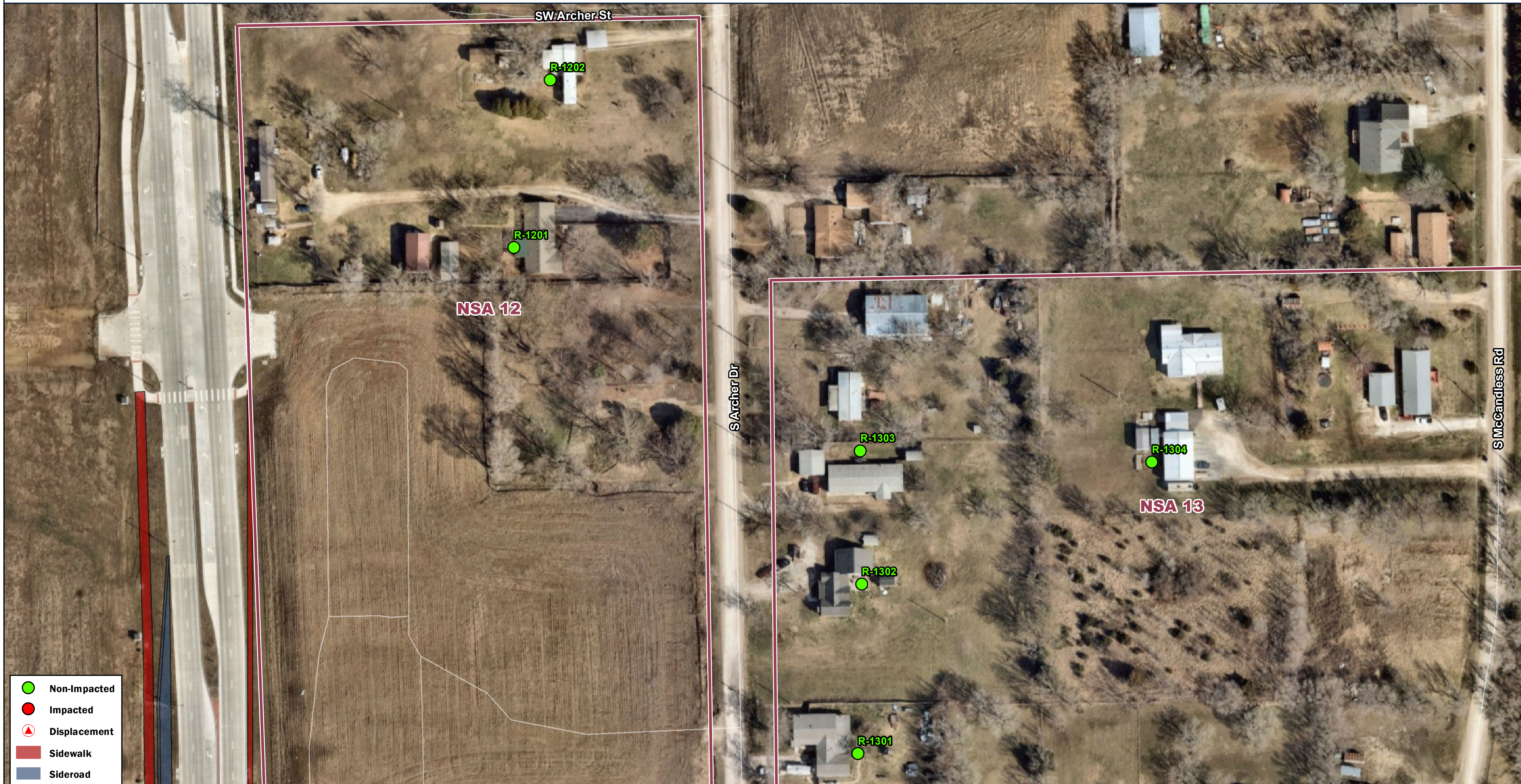
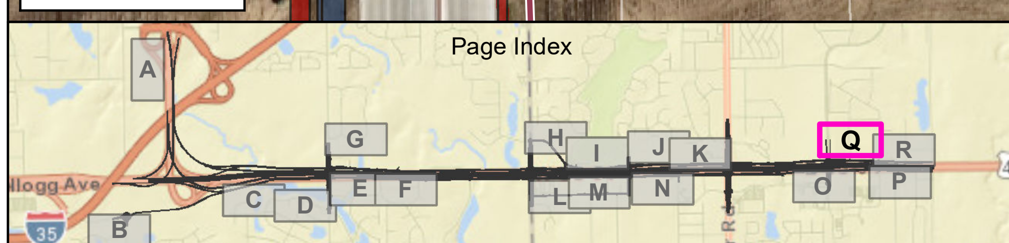
NOISE SENSITIVE RECEPTOR LOCATIONS





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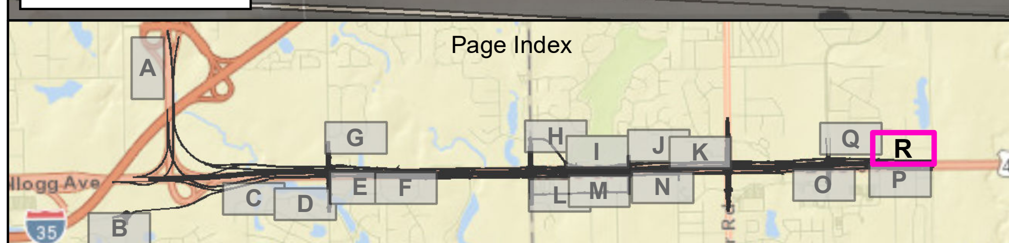
NOISE SENSITIVE RECEPTOR LOCATIONS



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Attachment C
Noise Analysis Results

Table B-1: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels – 2042 Ultimate Build, NSA 1

Receptors					Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Use	NAC Category	NAC Level	DUs	2023 Existing	2042 No-Build	2042 Build	Build – Existing (Δ)
R-0101	Residential	B	67	1	48.3	49.7	49.8	0.9
R-0102	Residential	B	67	1	48.9	50.3	50.2	1.2
R-0103	Residential	B	67	1	49.0	50.4	51.7	1.8
R-0104	Residential	B	67	1	49.9	51.1	55.3	1.7
R-0105	Residential	B	67	1	53.6	54.2	55.3	1.7
R-0106	Residential	B	67	1	52.3	52.9	54.4	2.1
Predicted NSA 1 Traffic Noise Impacts: 0								

Table B-2: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels – 2042 Ultimate Build, NSA 2

Receptors					Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Use	NAC Category	NAC Level	DUs	2023 Existing	2042 No-Build	2042 Build	Build – Existing (Δ)
R-0201	Residential	B	67	1	52.8	54.4	59.6	6.8
R-0202	Residential	B	67	1	53.4	55.0	60.4	7.0
R-0203	Residential	B	67	2	49.8	51.4	54.1	4.3
R-0204	Residential	B	67	2	52.0	53.6	58.3	6.3
R-0205	Residential	B	67	2	53.6	55.2	59.1	5.5
R-0206	Residential	B	67	1	54.6	56.2	61.8	7.2
R-0207	Residential	B	67	1	55.1	56.7	62.1	7.0
R-0208	Residential	B	67	4	51.0	52.6	55.5	4.5
R-0209	Residential	B	67	4	53.5	55.1	59.7	6.2
R-0210	Residential	B	67	4	54.9	56.5	60.4	5.5
R-0211	Residential	B	67	1	56.0	57.6	62.5	6.5
R-0212	Residential	B	67	1	56.6	58.2	62.7	6.1
R-0213	Residential	B	67	2	51.6	53.2	55.7	4.1
R-0214	Residential	B	67	2	54.4	55.9	60.1	5.7
R-0215	Residential	B	67	2	55.9	57.5	61.0	5.1
R-0216	Residential	B	67	1	58.1	59.6	63.5	5.4
R-0217	Residential	B	67	1	58.5	60.1	63.7	5.2
R-0218	Residential	B	67	2	53.3	54.9	57.4	4.1
R-0219	Residential	B	67	2	56.7	58.3	61.6	4.9
R-0220	Residential	B	67	2	57.5	59.1	62.3	4.8
R-0221	Residential	B	67	1	59.6	61.2	64.4	4.8
R-0222	Residential	B	67	1	59.9	61.5	64.5	4.6
R-0223	Residential	B	67	4	54.7	56.3	58.5	3.8
R-0224	Residential	B	67	4	58.2	59.8	62.6	4.4
R-0225	Residential	B	67	4	58.8	60.4	63.2	4.4

Receptors					Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Use	NAC Category	NAC Level	DUs	2023 Existing	2042 No-Build	2042 Build	Build – Existing (Δ)
R-0226	Residential	B	67	1	60.7	62.3	65.0	4.3
R-0227	Residential	B	67	1	61.1	62.7	65.2	4.1
R-0228	Residential	B	67	8	54.2	55.8	57.4	3.2
R-0229	Residential	B	67	8	57.5	59.1	61.3	3.8
R-0230	Residential	B	67	8	58.4	60.0	62.4	4.0
R-0231	Residential	B	67	4	56.9	58.5	60.6	3.7
R-0232	Residential	B	67	4	60.0	61.6	63.8	3.8
Predicted NSA 2 Traffic Noise Impacts: 0								

Table B-3: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels – 2042 Ultimate Build, NSA 3

Receptors					Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Use	NAC Category	NAC Level	DUs	2023 Existing	2042 No-Build	2042 Build	Build – Existing (Δ)
R-0301	Residential	B	67	1	53.1	54.6	54.4	1.3
R-0302	Residential	B	67	1	55.2	56.7	55.7	0.5
R-0303	Residential	B	67	1	57.7	59.1	57.4	-0.3
R-0304	Residential	B	67	1	58.5	59.9	58.4	-0.1
R-0305	Residential	B	67	1	63.3	64.7	62.1	-1.2
R-0306	Residential	B	67	1	58.2	59.6	57.3	-0.8
R-0307	Residential	B	67	1	55.5	56.9	55.3	-0.2
R-0308	Residential	B	67	1	56.9	58.3	56.3	-0.6
R-0309	Residential	B	67	1	58.3	59.7	57.6	-0.7
R-0310	Residential	B	67	1	61.0	62.4	60.0	-1.0
R-0311	Residential	B	67	1	60.9	62.4	59.3	-1.6
R-0312	Residential	B	67	1	60.6	62.0	58.3	-2.3
R-0313	Residential	B	67	1	60.6	62.1	58.4	-2.2
R-0314	Residential	B	67	1	60.4	61.9	58.4	-2.0
R-0315	Residential	B	67	1	60.4	61.9	58.1	-2.3
R-0316	Residential	B	67	1	61.4	62.9	58.9	-2.5
R-0317	Residential	B	67	1	62.4	63.8	59.2	-3.2
R-0318	Residential	B	67	1	61.6	63.1	58.9	-2.7
R-0319	Residential	B	67	1	61.0	62.5	58.7	-2.3
R-0320	Residential	B	67	1	60.8	62.3	58.3	-2.5
R-0321	Residential	B	67	1	60.5	62.1	58.1	-2.4
R-0322	Residential	B	67	1	59.8	61.5	57.9	-1.9
R-0323	Residential	B	67	1	59.7	61.5	57.9	-1.8
R-0324	Residential	B	67	1	59.6	61.5	58.1	-1.5
R-0325	Residential	B	67	1	59.2	61.3	58.3	-0.9
R-0326	Residential	B	67	1	60.8	63.7	61.6	0.8

Receptors					Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Use	NAC Category	NAC Level	DUs	2023 Existing	2042 No-Build	2042 Build	Build – Existing (Δ)
R-0327	Residential	B	67	1	61.3	64.4	63.2	1.9
Predicted NSA 3 Traffic Noise Impacts: 0								

Table B-4: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels – 2042 Ultimate Build, NSA 4

Receptors					Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Use	NAC Category	NAC Level	DUs	2023 Existing	2042 No-Build	2042 Build	Build – Existing (Δ)
R-0401	Residential	B	67	1	60.2	63.2	59.6	-0.6
R-0402	Residential	B	67	1	62.1	63.9	60.2	-1.9
R-0403	Residential	B	67	1	63.9	65.5	61.0	-2.9
R-0404	Residential	B	67	1	62.5	64.2	60.3	-2.2
R-0405	Residential	B	67	1	62.7	64.3	60.4	-2.3
R-0406	Residential	B	67	1	57.5	59.1	56.3	-1.2
R-0407	Residential	B	67	1	55.7	57.4	55.5	-0.2
R-0408	Residential	B	67	1	55.4	57.1	55.6	0.2
R-0409	Residential	B	67	1	55.1	57.4	55.2	0.0
R-0410	Residential	B	67	1	60.0	61.6	59.8	-0.3
R-0411	Residential	B	67	1	60.4	62.0	60.5	0.0
R-0412	Residential	B	67	1	59.9	61.8	60.7	0.8
R-0413	Residential	B	67	1	63.4	64.9	62.5	-0.9
R-0414	Residential	B	67	1	63.8	65.3	63.0	-0.8
R-0415	Residential	B	67	1	63.1	64.7	63.3	0.2
Predicted NSA 4 Traffic Noise Impacts: 0								

Table B-5: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels – 2042 Ultimate Build, NSA 5

Receptors					Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Use	NAC Category	NAC Level	DUs	2023 Existing	2042 No-Build	2042 Build	Build – Existing (Δ)
R-0501	Residential	B	67	1	57.0	59.8	49.1	0.8
R-0502	Residential	B	67	1	54.2	56.0	52.7	-1.7
R-0503	Residential	B	67	1	54.4	56.0	56.5	-0.5
R-0504	Residential	B	67	1	52.4	54.0	53.6	-0.6
R-0505	Residential	B	67	1	56.3	57.9	55.3	-1.9
R-0506	Residential	B	67	1	61.3	64.4	51.3	-1.1
R-0507	Residential	B	67	1	57.5	59.8	59.7	-1.6
R-0508	Residential	B	67	1	56.4	58.4	58.3	0.8
R-0509	Residential	B	67	1	56.2	58.0	57.3	0.9
R-0510	Residential	B	67	1	56.2	57.9	55.9	-0.6
R-0511	Residential	B	67	1	56.5	58.2	56.9	0.7
R-0512	Residential	B	67	1	57.2	58.8	56.4	0.2
Predicted NSA 5 Traffic Noise Impacts: 0								

Table B-6: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels – 2042 Ultimate Build, NSA 6

Receptors					Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Use	NAC Category	NAC Level	DUs	2023 Existing	2042 No-Build	2042 Build	Build – Existing (Δ)
R-0601	Residential	B	67	1	62.5	64.2	63.7	1.2
R-0602	Residential	B	67	1	63.3	64.8	65.3	2.0
R-0603	Residential	B	67	1	62.4	63.9	65.5	3.1
R-0604	Residential	B	67	1	62.6	64.1	65.6	3.0
R-0605	Residential	B	67	1	62.3	63.8	65.1	2.8
R-0606	Residential	B	67	1	63.2	64.7	65.6	2.3
R-0607	Residential	B	67	1	63.8	65.3	66.0	1.9
R-0608	Residential	B	67	1	63.4	64.8	65.2	1.8
R-0609	Residential	B	67	1	63.4	64.8	65.0	1.6
R-0610	Residential	B	67	1	63.9	65.4	65.5	1.6
R-0611	Residential	B	67	1	63.6	65.1	65.2	1.6
R-0612	Residential	B	67	1	67.5	68.9	69.9	2.4
R-0613	Residential	B	67	1	63.1	64.6	65.3	2.2
R-0614	Residential	B	67	1	60.4	61.8	60.7	0.3
R-0615	Residential	B	67	1	58.8	60.3	58.0	-0.8
R-0616	Residential	B	67	1	57.1	58.6	56.1	-1.1
R-0617	Residential	B	67	1	56.7	58.2	55.1	-1.7
R-0618	Residential	B	67	1	58.0	60.2	58.6	0.6
R-0619	Residential	B	67	1	56.7	58.3	58.0	1.3

Receptors					Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Use	NAC Category	NAC Level	DUs	2023 Existing	2042 No-Build	2042 Build	Build – Existing (Δ)
R-0620	Residential	B	67	1	56.7	58.2	58.0	1.2
R-0621	Residential	B	67	1	56.5	58.1	57.7	1.0
R-0622	Residential	B	67	1	56.7	58.2	57.7	0.9
R-0623	Residential	B	67	1	57.0	58.5	57.6	0.5
R-0624	Residential	B	67	1	57.4	58.9	57.9	0.4
R-0625	Residential	B	67	1	57.0	58.5	56.8	-0.4
R-0626	Residential	B	67	1	57.6	59.1	57.0	-0.8
R-0627	Residential	B	67	1	55.6	57.4	55.9	0.2
R-0628	Residential	B	67	1	54.7	56.4	55.1	0.3
R-0629	Residential	B	67	1	54.8	56.5	55.3	0.4
R-0630	Residential	B	67	1	54.5	56.1	55.0	0.4
R-0631	Residential	B	67	1	54.6	56.1	54.9	0.2
R-0632	Residential	B	67	1	55.1	56.7	55.4	0.1
R-0633	Residential	B	67	1	54.0	55.5	54.1	0.0
R-0634	Residential	B	67	1	54.6	56.1	54.4	-0.3
R-0635	Residential	B	67	1	55.5	57.0	55.1	-0.5
R-0636	Residential	B	67	1	56.5	58.0	56.0	-0.6
Predicted NSA 6 Traffic Noise Impacts: 2								

Table B-7: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels – 2042 Ultimate Build, NSA 7

Receptors					Predicted Noise Levels, $L_{eq(h)}$ (dB(A))					
ID #	Use	NAC Category	NAC Level	DUs	2023 Existing	2042 No-Build	2042 Build[E]	Build – Existing (Δ[E])	2042 Build[D]	Build – Existing (Δ[D])
R-0701	Res.	B	67	1	61.7	64.8	60.5	-1.2	60.6	-1.1
R-0702	Res.	B	67	1	55.0	57.7	55.6	0.6	55.6	0.6
R-0703	Res.	B	67	1	52.9	55.2	55.2	2.3	55.1	2.2
R-0704	Res.	B	67	1	52.5	54.7	54.5	2.0	54.3	1.8
R-0705	Res.	B	67	1	52.7	54.7	55.8	3.1	55.6	2.9
R-0706	Res.	B	67	1	52.4	54.2	55.9	3.5	55.2	2.8
R-0707	Res.	B	67	1	52.9	54.7	56.5	3.6	56.1	3.2
R-0708	Res.	B	67	1	53.4	55.1	57.0	3.6	56.3	2.9
R-0709	Res.	B	67	1	54.7	56.3	58.1	3.4	57.4	2.7
R-0710	Res.	B	67	1	55.8	57.4	59.2	3.4	58.3	2.5
R-0711	Res.	B	67	1	52.4	54.0	55.7	3.3	54.4	2.0
R-0712	Res.	B	67	1	53.2	54.8	56.4	3.2	55.1	1.9
R-0713	Res.	B	67	1	53.8	55.4	56.7	2.9	55.5	1.7
R-0714	Res.	B	67	1	54.7	56.2	57.6	2.9	56.5	1.8
R-0715	Res.	B	67	1	55.5	57.1	58.2	2.7	57.2	1.7

Receptors					Predicted Noise Levels, $L_{eq(h)}$ (dB(A))					
ID #	Use	NAC Category	NAC Level	DUs	2023 Existing	2042 No-Build	2042 Build[E]	Build – Existing (Δ^E)	2042 Build[D]	Build – Existing (Δ^D)
R-0716	Res.	B	67	1	56.6	58.1	59.3	2.7	58.5	1.9
R-0717	Res.	B	67	1	58.2	59.6	60.8	2.6	60.3	2.1
R-0718	Res.	B	67	1	61.1	62.6	63.2	2.1	63.1	2.0
R-0719	Res.	B	67	1	60.8	62.2	62.7	1.9	62.4	1.6
R-0720	Res.	B	67	1	58.8	60.2	60.8	2.0	59.6	0.8
R-0721	Res.	B	67	1	56.8	58.3	59.2	2.4	57.7	0.9
R-0722	Golf Course	C	67	1	60.3	61.7	60.8	0.5	58.3	-2.0
R-0723	Res.	B	67	2	64.3	65.7	62.1	-2.2	61.4	-2.9
R-0724	Res.	B	67	2	64.4	65.8	62.5	-1.9	61.6	-2.8
R-0725	Res.	B	67	2	64.5	65.9	63.0	-1.5	62.3	-2.2
R-0726	Res.	B	67	2	64.7	66.1	63.6	-1.1	63.1	-1.6
R-0727	Res.	B	67	2	64.8	66.3	64.5	-0.3	63.9	-0.9
R-0728	Res.	B	67	2	64.7	66.4	65.2	0.5	64.1	-0.6
R-0729	Res.	B	67	2	60.0	61.4	60.6	0.6	57.3	-2.7
R-0730	Res.	B	67	2	60.1	61.7	60.8	0.7	57.5	-2.6
R-0731	Res.	B	67	2	60.3	61.9	61.1	0.8	58.0	-2.3
R-0732	Res.	B	67	2	60.3	62.0	61.4	1.1	58.6	-1.7
R-0733	Res.	B	67	2	60.4	62.4	62.0	1.6	59.6	-0.8
R-0734	Res.	B	67	1	56.4	59.5	60.1	3.7	58.2	1.8
R-0735	Res.	B	67	1	55.7	57.9	58.7	3.0	55.5	-0.2
R-0736	Res.	B	67	1	54.5	56.4	57.6	3.1	53.4	-1.1
R-0737	Res.	B	67	1	53.4	55.4	56.8	3.4	52.6	-0.8
Predicted NSA 7 Traffic Noise Impacts: 0										

[E]Based on the elevated phase II build alternative model.
[D]Based on the depressed phase II build alternative model.

Table B-8: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels – 2042 Ultimate Build, NSA 8

Receptors					Predicted Noise Levels, $L_{eq(h)}$ (dB(A))					
ID #	Use	NAC Category	NAC Level	DUs	2023 Existing	2042 No-Build	2042 Build[E]	Build – Existing (Δ[E])	2042 Build[D]	Build – Existing (Δ[D])
R-0801	Res.	B	67	1	58.5	62.8	61.8	3.3	62.5	4.0
R-0802	Res.	B	67	1	58.3	61.4	61.4	3.1	62.1	3.8
R-0803	Res.	B	67	1	58.2	60.5	61.3	3.1	62.1	3.9
R-0804	Res.	B	67	1	58.0	60.0	61.3	3.3	62.0	4.0
R-0805	Res.	B	67	1	58.3	60.1	61.6	3.3	61.9	3.6
R-0806	Res.	B	67	1	58.2	59.9	61.0	2.8	61.2	3.0
R-0807	Res.	B	67	1	50.5	52.1	52.7	2.2	52.0	1.5
R-0808	Res.	B	67	1	51.7	53.3	53.5	1.8	52.7	1.0
R-0809	Res.	B	67	1	52.0	53.5	53.4	1.4	51.7	-0.3
R-0810	Res.	B	67	1	54.7	56.2	53.9	-0.8	52.8	-1.9
R-0811	Res.	B	67	1	54.7	56.2	53.3	-1.4	51.6	-3.1
R-0812	Res.	B	67	1	54.3	55.7	55.1	0.8	51.8	-2.5
R-0813	Res.	B	67	1	54.9	56.4	55.8	0.9	53.7	-1.2
R-0814	Res.	B	67	1	54.8	56.8	56.5	1.7	53.2	-1.6
R-0815	Res.	B	67	1	58.1	59.5	60.5	2.4	59.3	1.2
R-0816	Res.	B	67	1	58.0	59.4	60.4	2.4	58.8	0.8
R-0817	Res.	B	67	1	58.0	59.5	60.4	2.4	58.3	0.3
R-0818	Res.	B	67	1	58.0	59.5	60.4	2.4	58.0	0.0
R-0819	Res.	B	67	1	58.0	59.5	60.4	2.4	57.8	-0.2
R-0820	Res.	B	67	1	63.2	64.6	62.9	-0.3	59.8	-3.4
R-0821	Res.	B	67	1	62.2	63.6	62.4	0.2	59.2	-3.0
R-0822	Res.	B	67	1	58.6	60.0	61.0	2.4	57.8	-0.8
R-0823	Res.	B	67	1	60.9	62.3	62.0	1.1	58.7	-2.2
R-0824	Res.	B	67	1	60.1	61.6	61.7	1.6	58.7	-1.4
R-0825	Res.	B	67	1	59.2	60.7	61.3	2.1	58.2	-1.0
R-0826	Res.	B	67	2	57.9	59.4	60.9	3.0	58.0	0.1
R-0827	Res.	B	67	1	58.6	60.1	61.2	2.6	57.5	-1.1
R-0828	Res.	B	67	1	60.3	61.8	62.0	1.7	58.1	-2.2
R-0829	Res.	B	67	1	61.0	62.5	62.2	1.2	58.7	-2.3
R-0830	Res.	B	67	1	59.4	60.9	61.5	2.1	57.7	-1.7
R-0831	Res.	B	67	1	62.2	63.7	62.7	0.5	59.4	-2.8
R-0832	Res.	B	67	1	63.7	65.1	63.1	-0.6	60.2	-3.5
R-0833	Res.	B	67	2	58.1	59.6	61.0	2.9	57.3	-0.8
R-0834	Res.	B	67	2	58.2	59.8	60.9	2.7	57.3	-0.9
R-0835	Res.	B	67	2	58.9	61.3	61.9	3.0	58.5	-0.4
R-0836	Res.	B	67	2	58.0	60.6	61.3	3.3	58.1	0.1
R-0837	Res.	B	67	2	60.8	62.9	62.8	2.0	59.2	-1.6

Receptors					Predicted Noise Levels, $L_{eq(h)}$ (dB(A))					
ID #	Use	NAC Category	NAC Level	DUs	2023 Existing	2042 No-Build	2042 Build[E]	Build – Existing (Δ[E])	2042 Build[D]	Build – Existing (Δ[D])
R-0838	Res.	B	67	2	64.4	65.9	64.2	-0.2	60.8	-3.6
R-0801	Res.	B	67	1	58.5	62.8	61.8	3.3	62.5	4.0
Predicted NSA 8 Traffic Noise Impacts: 0										

[E]*Based on the elevated phase II build alternative model.*
[D]*Based on the depressed phase II build alternative model.*

Table B-9: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels – 2042 Ultimate Build, NSA 9

Receptors					Predicted Noise Levels, $L_{eq(h)}$ (dB(A))					
ID #	Use	NAC Category	NAC Level	DUs	2023 Existing	2042 No-Build	2042 Build[E]	Build – Existing (Δ[E])	2042 Build[D]	Build – Existing (Δ[D])
R-0901	Res.	B	67	1	54.9	60.7	59.5	4.6	52.1	-2.8
R-0902	Res.	B	67	1	53.6	57.1	58.4	4.8	53.2	-0.4
R-0903	Res.	B	67	1	53.1	55.2	56.4	3.3	51.1	-2.0
R-0904	Res.	B	67	1	51.5	53.5	55.3	3.8	49.9	-1.6
R-0905	Res.	B	67	1	50.9	52.8	54.6	3.7	49.3	-1.6
R-0906	Res.	B	67	1	51.6	53.4	55.3	3.7	50.0	-1.6
R-0907	Res.	B	67	1	52.1	53.8	55.8	3.7	50.4	-1.7
R-0908	Res.	B	67	2	52.5	54.0	56.1	3.6	50.6	-1.9
R-0909	Res.	B	67	2	52.2	53.7	55.8	3.6	50.9	-1.3
R-0910	Res.	B	67	1	52.5	53.9	56.4	3.9	51.6	-0.9
R-0911	Res.	B	67	1	55.2	56.6	58.4	3.2	54.9	-0.3
R-0912	Res.	B	67	1	55.7	57.0	58.7	3.0	55.2	-0.5
R-0913	Res.	B	67	1	55.7	57.1	58.5	2.8	55.0	-0.7
R-0914	Res.	B	67	1	56.1	57.4	58.5	2.4	54.9	-1.2
R-0915	Res.	B	67	1	56.4	57.7	58.5	2.1	54.7	-1.7
R-0916	Res.	B	67	1	56.7	58.0	58.4	1.7	54.3	-2.4
R-0917	Res.	B	67	1	56.9	58.2	57.9	1.0	53.3	-3.6
R-0918	Res.	B	67	1	56.8	58.0	57.7	0.9	52.9	-3.9
R-0919	Res.	B	67	1	57.1	58.3	57.7	0.6	52.8	-4.3
R-0920	Res.	B	67	1	57.6	58.9	57.9	0.3	52.9	-4.7
R-0921	Hotel Pool	C	67	1	60.1	61.4	60.1	0.0	55.6	-4.5
Predicted NSA 9 Traffic Noise Impacts: 0										

[E]*Based on the elevated phase II build alternative model.*
[D]*Based on the depressed phase II build alternative model.*

Table B-10: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels – 2042 Ultimate Build, NSA 10

Receptors					Predicted Noise Levels, $L_{eq(h)}$ (dB(A))					
ID #	Use	NAC Category	NAC Level	DUs	2023 Existing	2042 No-Build	2042 Build[E]	Build – Existing (Δ[E])	2042 Build[D]	Build – Existing (Δ[D])
R-1001	Pet Cemetery	C	67	2	65.4	66.8	63.6	-1.8	59.2	-6.2
R-1002	Res.	B	67	1	56.7	58.1	59.0	2.3	52.5	-4.2
R-1003	Hotel	D	52	1	56.5	57.9	57.6	1.1	52.2	-4.3
Predicted NSA 10 Traffic Noise Impacts: 0										

[E]*Based on the elevated phase II build alternative model.*
[D]*Based on the depressed phase II build alternative model.*

Table B-11: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels – 2042 Ultimate Build, NSA 11

Receptors					Predicted Noise Levels, $L_{eq(h)}$ (dB(A))					
ID #	Use	NAC Category	NAC Level	DUs	2023 Existing	2042 No-Build	2042 Build[E]	Build – Existing (Δ[E])	2042 Build[D]	Build – Existing (Δ[D])
R-1101	Res.	B	67	4	56.7	58.2	57.0	0.3	55.8	-0.9
R-1102	Res.	B	67	4	59.3	60.8	58.4	-0.9	57.2	-2.1
R-1103	Res.	B	67	1	56.8	58.4	56.9	0.1	55.2	-1.6
R-1104	Res.	B	67	1	56.8	58.3	57.1	0.3	55.2	-1.6
R-1105	Res.	B	67	1	56.7	58.2	57.1	0.4	54.7	-2.0
R-1106	Res.	B	67	1	56.7	58.3	57.3	0.6	54.8	-1.9
R-1107	Res.	B	67	1	57.3	59.9	57.7	0.4	54.3	-3.0
R-1108	Res.	B	67	1	57.5	60.0	57.8	0.3	54.4	-3.1
R-1109	Res.	B	67	4	59.1	61.3	58.9	-0.2	55.7	-3.4
R-1110	Res.	B	67	4	61.1	63.6	60.7	-0.4	57.5	-3.6
R-1111	Res.	B	67	1	58.4	61.0	58.5	0.1	54.9	-3.5
R-1112	Res.	B	67	1	58.5	61.1	58.6	0.1	55.4	-3.1
Predicted NSA 11 Traffic Noise Impacts: 0										

[E]*Based on the elevated phase II build alternative model.*
[D]*Based on the depressed phase II build alternative model.*

Table B-12: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels – 2042 Ultimate Build, NSA 12

Receptors					Predicted Noise Levels, $L_{eq(h)}$ (dB(A))					
ID #	Use	NAC Category	NAC Level	DUs	2023 Existing	2042 No-Build	2042 Build[E]	Build – Existing (Δ[E])	2042 Build[D]	Build – Existing (Δ[D])
R-1201	Res.	B	67	1	51.7	55.8	56.6	4.9	53.3	1.6
R-1202	Res.	B	67	1	50.3	54.3	54.6	4.3	50.9	0.6
Predicted NSA 12 Traffic Noise Impacts: 0										

[E]*Based on the elevated phase II build alternative model.*
[D]*Based on the depressed phase II build alternative model.*

Table B-13: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels – 2042 Ultimate Build, NSA 13

Receptors					Predicted Noise Levels, $L_{eq(h)}$ (dB(A))					
ID #	Use	NAC Category	NAC Level	DUs	2023 Existing	2042 No-Build	2042 Build[E]	Build – Existing (Δ[E])	2042 Build[D]	Build – Existing (Δ[D])
R-1301	Res.	B	67	1	58.1	59.8	60.8	2.7	60.6	2.5
R-1302	Res.	B	67	1	54.5	56.4	58.5	4.0	56.4	1.9
R-1303	Res.	B	67	1	52.4	54.5	57.1	4.7	54.3	1.9
R-1304	Res.	B	67	1	52.2	54.0	56.5	4.3	54.7	2.5
R-1305	Res.	B	67	1	53.8	55.5	57.1	3.3	56.9	3.1
R-1306	Res.	B	67	1	50.7	52.5	54.4	3.7	53.6	2.9
R-1307	Res.	B	67	1	52.1	53.9	55.0	2.9	54.7	2.6
R-1308	Res.	B	67	1	55.5	58.4	58.2	2.7	57.7	2.2
R-1309	Res.	B	67	1	56.3	59.4	58.5	2.2	58.1	1.8
R-1310	Res.	B	67	1	56.7	59.8	58.4	1.7	58.2	1.5
R-1311	Res.	B	67	1	57.0	60.3	58.1	1.1	58.2	1.2
R-1312	Res.	B	67	1	58.4	60.7	62.1	3.7	61.7	3.3
R-1313	Res.	B	67	1	58.5	61.5	61.4	2.9	61.2	2.7
R-1314	Res.	B	67	1	59.0	61.7	61.4	2.4	61.3	2.3
R-1315	Res.	B	67	1	59.6	62.3	61.0	1.4	61.3	1.7
Predicted NSA 13 Traffic Noise Impacts: 0										

[E]*Based on the elevated phase II build alternative model.*
[D]*Based on the depressed phase II build alternative model.*