TRAFFIC NOISE ANALYSIS

I-39, US 20, and Harrison Avenue Reconstruction

Winnebago County, Illinois

Sections (201-3)K & (4-1,5)R
Job No.: D-92-064-19

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Revised February 2023

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ADDENDUM TO TRAFFIC NOISE ANALYSIS REPORT

I-39, US 20, AND HARRISON AVENUE RECONSTRUCTION
WINNEBAGO COUNTY, ILLINOIS
SECTIONS (201-3)L & (4-1,5)R

Design refinements in the Phase 2 process along the Perryville Road reconstruction project were identified to have potential impacts on isolated portions of the I-39/US 20 traffic noise analysis. To assess and address these impacts to the noise study, revised Traffic Noise Model Version 2.5 (TNM 2.5) models were developed and the results analyzed. This analysis identifies a revised alignment and profile for Barrier 8-10, 21 than that presented in the original traffic noise analysis report.

REVISED ANALYSIS DOCUMENTATION

Proposed Perryville Geometry: More advanced geometry was entered for the proposed Perryville Road design, which is being reconstructed on the existing alignment but raised several feet at the I-39 crossing.

Existing and No Build Models: The Perryville Road design updates are not applicable to the Existing and No Build noise models.

Future Build Model: A revised Future Build noise model was developed to assess and establish updated predicted future noise levels. The results of this model indicate that the Perryville roadway profile configuration update makes minor differences in future noise levels in CNE 10, which exhibits an average change in noise levels of -0.4 dB(A). Several other CNEs exhibited noise levels with a variance of -0.1 db(A) to +0.1 db(A) from their original Future Build values. All CNEs and individual receptors maintained their original Noise Impact Determination.

Barrier Models: As no revisions to Noise Impact Determination occurred, no additional barrier warrant analysis is required. CNE 10, represented in Barrier 8-10, 21, is the only area requiring a revised abatement analysis. This barrier was deemed reasonable and feasible with cost averaging in the original Barrier Wall Analysis.

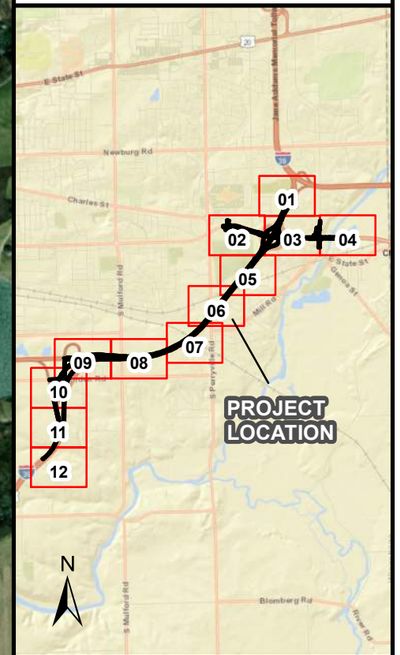
Barrier 8-10, 21: Incorporating the design updates to Perryville Road, two revised alignments and base profiles of Barrier 8-10, 21 were analyzed. One of the revised alignments omits the portion of the barrier parallel to Perryville Road present in the original analysis. Iterations of each with wall heights varying between 12 and 14 feet were included in the analysis. Heights outside of this range reflected higher cost-benefits and were subsequently omitted from the results.

The most cost-effective barrier design identified is a 5,809-foot continuous wall with a constant height of 13 feet. It achieves 5 receptors meeting the design goal reduction, benefits 83 receptors, and its cost per benefited receptor is $27,295. This barrier is shorter in length, benefits more receptors, and achieves a more economical cost per benefited receptor than its predecessor. Its alignment is continuous and does not include the portion parallel to Perryville Road. The original version of Barrier 8-10, 21 had a length of 6,482 feet including the portion parallel to Perryville Road, benefited 82 receptors, and cost $30,829 per benefited receptor. A map of this revised alignment is attached for reference.

Representative Receptor
Existing Wall
Feasible and Reasonable
Feasible and Reasonable (with cost-averaging)
Not Cost-Effective
Does not meet design goal
Design EOP and Shoulder
CNE

Barrier 8-10, 21
Alternate Alignment

I-39 Reconstruction -
US 20 to Harrison Ave.



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GLOSSARY OF ACRONYMS

ADT	Average Daily Traffic
CFR	Code of Federal Regulations
CNE	Common Noise Environment
dB	Decibel
dB(A)	Decibels, A-Weighted
DHV	Design Hourly Volume
FHWA	Federal Highway Administration
IDOT	Illinois Department of Transportation
mph	Miles per Hour
NAC	Noise Abatement Criteria
TNM	Traffic Noise Model
TNM 2.5	FHWA Traffic Noise Model Version 2.5

1.0 INTRODUCTION

A traffic noise analysis was completed for the proposed improvements to I-39 from north of Blackhawk Road to I-90, US 20 from I-39 to east of the Kishwaukee River, and Harrison Avenue from Bell School Road to I-39. This project is located in the southeast portion of Winnebago County, Illinois within the Village of Cherry Valley and in the City of Rockford. Approximate study limits include I-39 from north of Blackhawk Road (approximately 3,000 feet) to the I-90 tollway interchange, see Exhibit A.

The proposed work includes adding lanes to the joint section of I-39 and US 20, modifications of the I-39/US 20 system interchange, reconstruction of the I-39/Harrison Avenue interchange from a full cloverleaf to a diverging diamond interchange, adding lanes to Harrison Avenue and US 20, and modifications to the intersections on either side of the I-39/Harrison Avenue interchange, which are South Mall Drive and Mill Road. The reconstruction and capacity expansion of I-39 includes 13 bridge structures and 44 culverts. The design year for the proposed project is 2035.

The purpose of this report is to document the selection of sensitive noise receptors, the noise monitoring methodology, the traffic noise impact analysis, and the traffic noise abatement evaluation.

1.1 Existing Land Use

The southern portion of the project area (southern terminus to US 20 interchange) is a mix of single family residential, multi-family residential, agricultural fields, and commercial/industrial. The central portion of the project area (US 20 interchange to Harrison Avenue interchange) is a mix of single family residential, agricultural fields, institutional, recreational, and commercial. The northern portion of the project area (Harrison Avenue interchange to northern terminus) is a mix of single family residential, agricultural fields, institutional, and commercial. Exhibit B, Land Use Map depicts land use based on field reviews and available aerial photography.

1.2 Zoning and Comprehensive Land Use Plan Designations

Winnebago County does not have a comprehensive plan; however, the county has a 2030 Land Resource Management Plan (LRMP) adopted May 28, 2009[1]. This plan does not specifically call out transportation improvement projects. However, the document states creating a Long-Range Transportation Plan as a goal to guide future decisions regarding transportation.

The City of Rockford has a comprehensive plan, Rockford's 2020 Plan, approved by the City Council in 2004; however, they do not mention anything specific to this I-39 project. The Village of Cherry Valley does not have a comprehensive plan.

According to the Region 1 Planning Council's Transportation Improvement Program (TIP) (FY 2021-2024), adopted August 28, 2020, several projects are included in the TIP for this section of I-39[2].

According to the Winnebago County LRMP Future Land Use map, land along the project corridor is planned to be mostly medium density residential, with some high density residential, commercial, future open space/forest preserve, and industrial.

2.0 NOISE BACKGROUND AND REGULATIONS

2.1 Noise Background

Noise is generally defined as unwanted sound and is measured in terms of sound pressure level expressed in decibels (dB) that is composed of different frequencies. The human ear is less sensitive to higher and lower frequencies than mid-range frequencies. To compensate for low-end and high-end frequency insensitivity and render noise levels readings more meaningful, an "A-weighting" scale is used to approximate the response of the human ear. The A-weighted decibel (dB(A)) unit measures perceptible sound energy and factors out low- and high-end fringe frequencies.

Noise decreases with distance from a noise source. The noise level from a line source, such as moving traffic on a road will decrease between 3 and 4.5 dB(A) with every doubling of distance. Research has indicated that a difference of 10 dB(A) is perceived half as loud, or twice as loud, to an average listener. Typically, an observer can barely perceive an increase of sound level of 3 dB(A).

The Federal Highway Administration's (FHWA) Traffic Noise Model Version 2.5 (TNM 2.5) represents noise levels as $L_{eq(h).}$ The L_{eq} is defined as 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 period. The $L_{eq(h)}$ is the hourly value of L_{eq} measured in dB(A). Noise levels referred to in this report are stated as hourly-equivalent sound pressure levels $L_{eq(h)}$ in terms of dB(A).

2.2 Federal Regulations

The Federal Aid Highway Act of 1970 required the FHWA to develop noise standards and abatement requirements for highway traffic noise. These standards are contained in Title 23, Code of Federal Regulations (CFR), Part 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise* [3]. This regulation applies to highway construction projects where a state department of transportation has requested Federal funding for participation in the project. FHWA has developed three "project types" to assess noise analysis applicability. Federal regulations apply to all Type I and Type II projects that require FHWA approval and/or receive Federal-aid funding. The implementation of a Type II program is optional and not mandatory. Type II projects are not considered for abatement in Illinois. Type III projects do not require a noise analysis. The proposed I-39 project is classified as a Type I project, as it includes realignment of the roadway and relocation of ramps. Therefore, a traffic noise analysis is required for the project.

The FHWA regulations establish Noise Abatement Criteria (NAC) activity categories based on land use to assess potential traffic noise impacts as defined in 23 CFR 772. The FHWA NAC and description of activity categories are shown in Table 2.1. Traffic noise impacts occur when predicted design year noise levels under the build scenario approach, meet or exceed the NAC, or if there are substantial increases in traffic noise over existing conditions, independent of the NAC.

The FHWA NAC are used to identify locations where traffic noise impacts occur. The NAC are not used as goals for noise attenuation design criteria or design targets.

Table 2.1 – FHWA Noise Criteria Hourly "A-Weighted" Sound Level - Decibels (dB(A))

Activity Category	Noise Abatement Criteria dB(A)	Description of Activity Category
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[1]	67 (Exterior)	Residential.
C[1]	67 (Exterior)	Active sports 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 stations, recording studios, schools, and television studios.
E[1]	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D.
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]Includes undeveloped lands permitted for this activity category.
Source: FHWA, 23 CFR, Part 772[3]

2.3 Illinois Department of Transportation Policy

FHWA has deferred to the State agencies to define the noise level that "approaches" the NAC and to define a substantial increase in traffic noise levels. The Illinois Department of Transportation (IDOT) is the agency responsible for implementing the FHWA traffic noise regulation in Illinois and had developed a policy on highway noise [4]. IDOT defines noise impacts as follows:

- Design-year traffic noise levels are predicted to approach, meet, or exceed the NAC, with approach defined as 1 dB(A) less than the NAC; or
- Design-year traffic noise levels are predicted to substantially increase (15 dB(A) or greater) over the existing traffic generated noise levels.

Based on the approach definition determined by IDOT, Table 2.2 provides the noise levels at which a traffic noise impact would occur and would require consideration of traffic noise abatement for the design year.

Table 2.2 – IDOT Noise Criteria Hourly "A-Weighted" Abatement Evaluation

Activity Category	IDOT Approach Criteria dB(A)	Description of Activity Category
A	56 (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	66 (Exterior)	Residential.
C	66 (Exterior)	Active sports 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	51 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio stations, recording studios, schools, and television studios.
E	71 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D.
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: IDOT Highway Traffic Noise Assessment Manual[4]

3.0 NOISE RECEPTOR SELECTION

IDOT defines a receptor as a discrete or representative location of a common noise environment (CNE) for any of the activities listed in Table 2.2. Primary consideration should be given to exterior areas where frequent human use occurs for activity categories A, B, C, and E. Consideration should be given to activity category D land uses only if no exterior uses are identified.

Sensitive noise receptors with similar characteristics such as land use, topography, and roadway geometrics can be grouped into CNEs. One worst-case noise receptor within each CNE is considered representative of the entire CNE for the purposes of noise impact screening. This receptor is called a representative receptor. Typical CNE groupings include commercial areas, residential areas, recreational areas/lands, and cemeteries.

Existing land uses within the study corridor are generally described in Section 1.1. Land uses within 500 feet of the edges of the project area were reviewed for use as CNEs. This distance of 500 feet is based on FHWA's 2010 performance evaluation of the TNM, which found that highway traffic noise typically does not cause impacts at distances greater than 500 feet from heavily traveled freeways or more than 100 to 200 feet from lightly traveled roads. This traffic noise study grouped the study area into 17 CNEs. A total of 22 representative receptors (labeled R1-X

through R23-X in Table 3.1), were chosen to represent the study area. These were evaluated to determine if the existing conditions represents current geometries, features, and traffic data, the No-Build (2035), and the Build (2035) scenarios. Per IDOT Noise Policy guidance, 25 to 50 percent of representative receptors must be field monitored for TNM model validation; therefore, nine noise sensitive receptors were field monitored (shown in **bold** in Table 3.1). Section 4 of the report discusses the field noise measurements. The location of all the CNEs and the receptor sites are shown on Exhibit C. Table 3.1 lists a description of the representative receptor, the activity category, number of receptors in the CNE, and the IDOT approach criterion associated with each CNE.

Table 3.1 – Noise Receptor Descriptions

CNE / Representative Receptor ID[1,2]	Representative Receptor Description	Activity Category	IDOT Approach Criterion dB(A)	No. of Receptors in CNE/Area[3]
1/R1-1	Church Campground	C	66	2
N/A/R2-1	Residential – Single-Family	B	66	1
3/R3-1	Cemetery	C	66	2
4/R4-1	Residential – Single-Family	B	66	13
5/R5-1	Residential – Single-Family	B	66	19
6/R6-1	Park/Playground	C	66	2
7/R7-1	Residential – Single-Family	B	66	5
8/R8-1	Residential – Single-Family	B	66	13
9/R9-12	Residential – Single-Family	B	66	27
10/R10-1	Residential – Single-Family	B	66	48
N/A/R11-1	Residential – Single-Family	B	66	1
12/R12-7	Residential – Single-Family	B	66	15
N/A/R13-1	Residential – Single-Family	B	66	1
N/A/R14-1	Church	C	66	1
16/R16-24	Residential – Single-Family	B	66	33
N/A/R17-1	Residential – Single-Family	B	66	1
18/R18-2	Residential – Single-Family	B	66	2
19/R19-1	Residential – Single-Family	B	66	8
20/R20-70.3	Residential – Multi-Family/Apartments	B	66	208
21/R21-1	Park/Trail	C	66	2
22/R22-9	Residential – Single-Family	B	66	12
23/R23-1	Water Park	C	66	5

[1] **Bold** indicates noise sensitive receptor field measured for model validation.
[2] N/A denotes an area with only one receptor and is therefore not considered a CNE.
[3] One receptor indicates an area, whereas multiple receptors compile to create a CNE.

4.0 FIELD NOISE MEASUREMENTS

4.1 Purpose

The assessment of traffic noise impacts requires the use of predictive models to quantify the likely noise levels for a variety of scenarios. To use numerical modeling to predict traffic noise levels, it must first be demonstrated that the use of approved noise prediction methods satisfactorily estimates the noise levels. This is accomplished by comparing field measured values to predicted values. The measure of satisfactory comparison is if the measured and predicted values differ by no more than 3 dB(A). A favorable comparison indicates the noise source is predominantly from highways (at least at the time of the measurements), and the model results represent valid predictions suitable for use in assessing impacts. This section describes the field monitoring and model validation conducted for the project.

4.2 Field Noise Measurement Methodology

The current FHWA approved model for prediction of traffic noise, TNM 2.5, was used for the comparison to the measured data, and for all other modeling in the noise study.

Existing noise levels were monitored at ten locations along the study corridor using a Quest SoundPro DL-2-1/3 noise meter. These locations are shown on Exhibit C. Noise monitoring was conducted on November 3 and 4, 2020 between the hours of 8 am to 12 pm and 1 pm to 6 pm to monitor the peak-hour noise conditions.

The $L_{eq(h)}$ levels were recorded for a 15-minute interval. During the noise measurement, the noise meter was tripod-mounted, and the microphone was located approximately five feet above the ground surface. The meter was calibrated with the manufacturer-supplied standard noise calibrator before use and was checked before each sound level measurement session. No adjustments to the calibration were required during any of the monitoring. A foam windscreen (supplied by the manufacturer) was used during all sound measurements.

In addition to noise monitoring, traffic volume and composition during the monitoring period were recorded based on field observation. Noise sources other than traffic noise were also noted. All weather parameters were within acceptable ranges for conducting noise measurements.

4.3 Field Noise Monitoring Results

Measured and predicted noise levels are shown in Table 4.1. The difference in the measured and predicted value noise levels fell within 3 dB(A) for all nine locations. TNM model output files for model validation are presented in Exhibit D. Based on this comparison, the TNM 2.5 model developed for the I-39 noise study area was found to accurately predict highway traffic noise in this area.

Table 4.1 – Model Validation Summary

Location[1]	Validation Points	Distance from Existing Edge of Pavement (ft)	General Propagation Path Characteristics	2020 Measured Sound Level / 2020 TNM 2.5 Model Validation Sound Level (dB(A))	Variation (dB(A))
V-4	Side Yard	99[2]	Roadway embankment and some vegetation.	66 / 64	-2
V-6	Vacant Grass	127[3]	No Obstructions	64 / 65	1
V-8	Side Yard	113[3]	Roadway embankment and vegetation.	66 / 69	3
V-9	Back Yard	148[4]	Roadway embankment and trees.	68 / 70	2
V-10	Vacant Side Yard	209[4]	Roadway embankment.	67 / 68	1
V-14	Church Front Yard	162[5]	No Obstructions	63 / 61	-2
V-16	Side Yard	92[2]	Roadway embankment and noise wall.	64 / 63	-1
V-19	Side Yard	130[4]	No Obstructions	66 / 69	3
V-20	Side Yard of Apartment	193[7]	Direct sightline blocked by trees and vegetation.	62 / 65	3

[1]See Exhibit C for model validation location.
[2]From Harrison Avenue edge of pavement.
[3]From NB I-39 to EB Harrison ramp edge of pavement.
[4]From I-39 edge of pavement.
[5]From Mulford Road edge of pavement.
[6]From Linden Road edge of pavement.
[7]From EB US 20 Ramp to SB I-39 edge of pavement.

5.0 NOISE ANALYSIS METHODOLOGY

Traffic noise levels were predicted with FHWA's TNM 2.5, a current approved noise model software for predicting and analyzing traffic noise. Three scenarios, existing conditions, No-Build Alternative, and the Build Alternative were analyzed. The existing condition was defined as current roadway geometry with existing traffic characteristics and the No-Build scenario uses current roadway geometry with forecasted (2035) traffic characteristics. The Build scenario is the prediction of traffic noise levels if the proposed improvements are constructed with projected traffic volumes (2035). Data inputs into TNM 2.5 included roadway geometry, physical features (ground elevation, tree zones, water, buildings, etc.), traffic data and traffic control (stop signs, traffic lights, etc.), receptor locations, and elevations.

5.1 Roadway Geometry and Physical Features

Roadway geometry (existing and proposed) was obtained from aerial photography and project geometric plans. Ground zones, building location, and elevation data were obtained from the Illinois Lidar Inventory, project specific mapping, aerial photography, and field reconnaissance.

5.2 Traffic Volume, Composition, and Speeds

Existing and forecasted (2035) traffic volumes, speeds, and vehicle classifications (automobile, medium truck, and heavy truck) were obtained from forecasts developed for the proposed project. Traffic control devices generally consist of stop signs, traffic signals, speed limits, etc. Traffic

speed was the speed limit posted at various points throughout the study corridor, with the exception of those who were making turns and decelerated.

The IDOT Highway Traffic Noise Assessment Manual states “the objective of the traffic noise analysis is to predict the worst hour traffic noise conditions”. This is typically represented by design hourly volume (DHV). Table 5.1 illustrates the DHV and the composition (cars, medium trucks, and heavy trucks), which was calculated from the average daily traffic (ADT) and used in the TNM 2.5 noise model.

The roadways used in the TNM model include:

- I-39 – Study Limit to US 20 System Interchange
- I-39 – US 20 System Interchange to Harrison Avenue Service Interchange
- I-39 – Harrison Avenue Interchange to I-90 System Interchange
- I-39 and US 20 System Interchange
- I-39 and Harrison Avenue Service Interchange
- I-39 and I-90 System Interchange
- US 20 – Study Limit to I-39 System Interchange
- Harrison Avenue – South Perryville Road to I-39 Service Interchange
- Harrison Avenue – I-39 Service Interchange to Study Limits
- Linden Road – Great Oaks to 1,300 Feet East of Dellview Drive
- Mulford Road – Mistwood Gate to Sandy Hollow Road
- Perryville Road – 1,300 Feet North of I-39 to 300 Feet South of Rye Ridge Trail
- Mill Road – South Perryville Road to 400 Feet East of Kindlewood Trail
- Mill Road – State Street to Davisville Drive
- South Mall Drive – South Cherry Vale Mall Drive to Harrison Avenue

Table 5.1 – Traffic Design Hourly Volume, Composition, and Speed Limit

Roadway Segment / Vehicle Type	Existing DHV		Existing Speed Limit (mph)	Projected DHV (2035)		Future Speed Limit (mph)
I-39						
Project Start to US 20 System Interchange	**NB**	**SB**		**NB**	**SB**	
Auto	1164	1128	65	1911	1855	65
Medium Truck	130	133	65	212	217	65
Heavy Truck	516	529	65	848	870	65
Buses	56	56	65	93	92	65
Motorcycle	19	19	65	31	31	65
E of US 20 System Interchange to S of Harrison Service Interchange	**NB**	**SB**		**NB**	**SB**	
Auto	2205	2149	65	3618	2876	65
Medium Truck	171	175	65	281	277	65
Heavy Truck	686	700	65	1126	1109	65
Buses	96	95	65	157	133	65
Motorcycle	32	32	65	52	44	65
N. of Harrison Service Interchange to Project End	**NB**	**SB**		**NB**	**SB**	
Auto	1396	1528	50	2510	4398	50
Medium Truck	172	150	50	288	301	50
Heavy Truck	688	598	50	1152	1205	50
Buses	71	71	50	123	184	50
Motorcycle	24	24	50	41	61	50
Fork at I-90 WB	**NB**	**SB**		**NB**	**SB**	
Auto	1187	382	50	2134	1100	50
Medium Truck	146	38	50	245	75	50
Heavy Truck	585	150	50	979	301	50
Buses	60	18	50	105	46	50
Motorcycle	20	6	50	35	15	50
Fork at I-90 EB	**NB**	**SB**		**NB**	**SB**	
Auto	209	1146	50	377	3299	50
Medium Truck	26	113	50	43	226	50
Heavy Truck	103	449	50	173	904	50
Buses	11	53	50	18	138	50
Motorcycle	4	18	50	6	46	50
I-39/US 20 Interchange						

Table 5.1 – Traffic Design Hourly Volume, Composition, and Speed Limit

Roadway Segment / Vehicle Type	Existing DHV		Existing Speed Limit (mph)	Projected DHV (2035)		Future Speed Limit (mph)
I-39 NB to I-39 NB (Ramp)	**NB**	**SB**		**NB**	**SB**	
Auto	767	N/A	55	1260	N/A	65
Medium Truck	110	N/A	55	180	N/A	65
Heavy Truck	438	N/A	55	720	N/A	65
Buses	41	N/A	55	68	N/A	65
Motorcycle	14	N/A	55	23	N/A	65
I-39 SB to I-39 SB (Ramp)	**NB**	**SB**		**NB**	**SB**	
Auto	N/A	767	65	N/A	1260	65
Medium Truck	N/A	110	65	N/A	180	65
Heavy Truck	N/A	438	65	N/A	720	65
Buses	N/A	41	65	N/A	68	65
Motorcycle	N/A	14	65	N/A	23	65
I-39 NB to US 20 WB (Ramp)	**NB**	**SB**		**NB**	**SB**	
Auto	397	N/A	30	651	N/A	45/30
Medium Truck	20	N/A	30	32	N/A	45/30
Heavy Truck	78	N/A	30	128	N/A	45/30
Buses	15	N/A	30	25	N/A	45/30
Motorcycle	5	N/A	30	8	N/A	45/30
US 20 EB to I-39 SB (Ramp)	**EB**	**WB**		**EB**	**WB**	
Auto	361	N/A	50	595	N/A	45
Medium Truck	23	N/A	50	37	N/A	45
Heavy Truck	91	N/A	50	150	N/A	45
Buses	15	N/A	50	24	N/A	45
Motorcycle	5	N/A	50	8	N/A	45
US 20 WB: I-39 Exit to I-39 Entrance	**EB**	**WB**		**EB**	**WB**	
Auto	N/A	1834	65	N/A	3526	65
Medium Truck	N/A	81	65	N/A	287	65
Heavy Truck	N/A	326	65	N/A	1150	65
Buses	N/A	70	65	N/A	155	65
Motorcycle	N/A	23	65	N/A	52	65
US 20 EB: I-39 Exit to I-39 Entrance	**EB**	**WB**		**EB**	**WB**	
Auto	1438	N/A	65	2358	N/A	65
Medium Truck	62	N/A	65	101	N/A	65

Table 5.1 – Traffic Design Hourly Volume, Composition, and Speed Limit

Roadway Segment / Vehicle Type	Existing DHV		Existing Speed Limit (mph)	Projected DHV (2035)		Future Speed Limit (mph)
Heavy Truck	248	N/A	65	406	N/A	65
Buses	55	N/A	65	90	N/A	65
Motorcycle	18	N/A	65	30	N/A	65
US 20						
Project Start to I-39 System Interchange	**EB**	**WB**		**EB**	**WB**	
Auto	1799	1834	65	2953	4177	65
Medium Truck	85	81	65	138	319	65
Heavy Truck	339	326	65	556	1278	65
Buses	70	70	65	114	180	65
Motorcycle	23	23	65	38	60	65
Harrison Avenue/I-39 Interchange						
I-39 NB to Harrison Avenue EB (Ramp AD)	**NB**	**SB**		**NB**	**SB**	
Auto	976	N/A	35	N/A	N/A	N/A
Medium Truck	28	N/A	35	N/A	N/A	N/A
Heavy Truck	114	N/A	35	N/A	N/A	N/A
Buses	35	N/A	35	N/A	N/A	N/A
Motorcycle	12	N/A	35	N/A	N/A	N/A
I-39 NB to Harrison Avenue WB (Ramp AC)	**NB**	**SB**		**NB**	**SB**	
Auto	308	N/A	25	N/A	N/A	N/A
Medium Truck	6	N/A	25	N/A	N/A	N/A
Heavy Truck	22	N/A	25	N/A	N/A	N/A
Buses	11	N/A	25	N/A	N/A	N/A
Motorcycle	4	N/A	25	N/A	N/A	N/A
I-39 SB to Harrison Avenue WB (Ramp BC)	**NB**	**SB**		**NB**	**SB**	
Auto	N/A	265	30	N/A	N/A	N/A
Medium Truck	N/A	6	30	N/A	N/A	N/A
Heavy Truck	N/A	22	30	N/A	N/A	N/A
Buses	N/A	9	30	N/A	N/A	N/A
Motorcycle	N/A	3	30	N/A	N/A	N/A
I-39 SB to Harrison Avenue EB (Ramp BD)	**NB**	**SB**		**NB**	**SB**	
Auto	N/A	112	25	N/A	N/A	N/A
Medium Truck	N/A	4	25	N/A	N/A	N/A
Heavy Truck	N/A	14	25	N/A	N/A	N/A

Table 5.1 – Traffic Design Hourly Volume, Composition, and Speed Limit

Roadway Segment / Vehicle Type	Existing DHV		Existing Speed Limit (mph)	Projected DHV (2035)		Future Speed Limit (mph)
Buses	N/A	4	25	N/A	N/A	N/A
Motorcycle	N/A	1	25	N/A	N/A	N/A
Harrison Avenue WB to I-39 NB (Ramp DB)	**EB**	**WB**		**EB**	**WB**	
Auto	N/A	112	40	N/A	N/A	N/A
Medium Truck	N/A	4	40	N/A	N/A	N/A
Heavy Truck	N/A	14	40	N/A	N/A	N/A
Buses	N/A	4	40	N/A	N/A	N/A
Motorcycle	N/A	1	40	N/A	N/A	N/A
Harrison Avenue WB to I-39 SB (Ramp DA)	**EB**	**WB**		**EB**	**WB**	
Auto	N/A	493	30	N/A	N/A	N/A
Medium Truck	N/A	24	30	N/A	N/A	N/A
Heavy Truck	N/A	97	30	N/A	N/A	N/A
Buses	N/A	19	30	N/A	N/A	N/A
Motorcycle	N/A	6	30	N/A	N/A	N/A
Harrison Avenue EB to I-39 SB (Ramp CA)	**EB**	**WB**		**EB**	**WB**	
Auto	396	N/A	40	N/A	N/A	N/A
Medium Truck	6	N/A	40	N/A	N/A	N/A
Heavy Truck	25	N/A	40	N/A	N/A	N/A
Buses	13	N/A	40	N/A	N/A	N/A
Motorcycle	4	N/A	40	N/A	N/A	N/A
Harrison Avenue EB to I-39 NB (Ramp CB)	**EB**	**WB**		**EB**	**WB**	
Auto	128	N/A	30	N/A	N/A	N/A
Medium Truck	3	N/A	30	N/A	N/A	N/A
Heavy Truck	13	N/A	30	N/A	N/A	N/A
Buses	5	N/A	30	N/A	N/A	N/A
Motorcycle	2	N/A	30	N/A	N/A	N/A
I-39 NB to Harrison Avenue EB (Ramp B RT Turn)	**NB**	**SB**		**NB**	**SB**	
Auto	N/A	N/A	N/A	1099	N/A	35/50
Medium Truck	N/A	N/A	N/A	38	N/A	35/50
Heavy Truck	N/A	N/A	N/A	150	N/A	35/50
Buses	N/A	N/A	N/A	40	N/A	35/50
Motorcycle	N/A	N/A	N/A	13	N/A	35/50

Table 5.1 – Traffic Design Hourly Volume, Composition, and Speed Limit

Roadway Segment / Vehicle Type	Existing DHV		Existing Speed Limit (mph)	Projected DHV (2035)		Future Speed Limit (mph)
I-39 NB to Harrison Avenue WB (Ramp B LT Turn)	**NB**	**SB**		**NB**	**SB**	
Auto	N/A	N/A	N/A	510	N/A	35/50
Medium Truck	N/A	N/A	N/A	9	N/A	35/50
Heavy Truck	N/A	N/A	N/A	37	N/A	35/50
Buses	N/A	N/A	N/A	17	N/A	35/50
Motorcycle	N/A	N/A	N/A	6	N/A	35/50
I-39 SB to Harrison Avenue WB (Ramp C RT Turn)	**NB**	**SB**		**NB**	**SB**	
Auto	N/A	N/A	N/A	N/A	289	35/50
Medium Truck	N/A	N/A	N/A	N/A	5	35/50
Heavy Truck	N/A	N/A	N/A	N/A	18	35/50
Buses	N/A	N/A	N/A	N/A	10	35/50
Motorcycle	N/A	N/A	N/A	N/A	3	35/50
I-39 SB to Harrison Avenue EB (Ramp C LT Turn)	**NB**	**SB**		**NB**	**SB**	
Auto	N/A	N/A	N/A	N/A	159	35/50
Medium Truck	N/A	N/A	N/A	N/A	5	35/50
Heavy Truck	N/A	N/A	N/A	N/A	20	35/50
Buses	N/A	N/A	N/A	N/A	6	35/50
Motorcycle	N/A	N/A	N/A	N/A	2	35/50
Harrison Avenue WB to I-39 NB (Ramp A RT Turn)	**EB**	**WB**		**EB**	**WB**	
Auto	N/A	N/A	N/A	N/A	187	35/50
Medium Truck	N/A	N/A	N/A	N/A	6	35/50
Heavy Truck	N/A	N/A	N/A	N/A	23	35/50
Buses	N/A	N/A	N/A	N/A	7	35/50
Motorcycle	N/A	N/A	N/A	N/A	2	35/50
Harrison Avenue WB to I-39 SB (Ramp D LT Turn)	**EB**	**WB**		**EB**	**WB**	
Auto	N/A	N/A	N/A	N/A	809	35/50
Medium Truck	N/A	N/A	N/A	N/A	40	35/50
Heavy Truck	N/A	N/A	N/A	N/A	160	35/50
Buses	N/A	N/A	N/A	N/A	32	35/50
Motorcycle	N/A	N/A	N/A	N/A	11	35/50

Table 5.1 – Traffic Design Hourly Volume, Composition, and Speed Limit

Roadway Segment / Vehicle Type	Existing DHV		Existing Speed Limit (mph)	Projected DHV (2035)		Future Speed Limit (mph)
Harrison Avenue EB to I-39 SB (Ramp D RT Turn)	**EB**	**WB**		**EB**	**WB**	
Auto	N/A	N/A	N/A	650	N/A	35/50
Medium Truck	N/A	N/A	N/A	10	N/A	35/50
Heavy Truck	N/A	N/A	N/A	41	N/A	35/50
Buses	N/A	N/A	N/A	22	N/A	35/50
Motorcycle	N/A	N/A	N/A	7	N/A	35/50
Harrison Avenue EB to I-39 NB (Ramp A LT Turn)	**EB**	**WB**		**EB**	**WB**	
Auto	N/A	N/A	N/A	213	N/A	35/50
Medium Truck	N/A	N/A	N/A	6	N/A	35/50
Heavy Truck	N/A	N/A	N/A	22	N/A	35/50
Buses	N/A	N/A	N/A	8	N/A	35/50
Motorcycle	N/A	N/A	N/A	3	N/A	35/50
I-39 NB: S. of Harrison Interchange to Entrance from Harrison EB	**NB**	**SB**		**NB**	**SB**	
Auto	1384	N/A	65	N/A	N/A	N/A
Medium Truck	120	N/A	65	N/A	N/A	N/A
Heavy Truck	479	N/A	65	N/A	N/A	N/A
Buses	62	N/A	65	N/A	N/A	N/A
Motorcycle	21	N/A	65	N/A	N/A	N/A
I-39 NB: Entrance from Harrison EB to N. of Harrison Interchange	**NB**	**SB**		**NB**	**SB**	
Auto	1284	N/A	65	N/A	N/A	N/A
Medium Truck	169	N/A	65	N/A	N/A	N/A
Heavy Truck	674	N/A	65	N/A	N/A	N/A
Buses	66	N/A	65	N/A	N/A	N/A
Motorcycle	22	N/A	65	N/A	N/A	N/A
I-39 SB: S. of Harrison Interchange to Entrance from Harrison WB	**NB**	**SB**		**NB**	**SB**	
Auto	N/A	1752	65	N/A	N/A	N/A
Medium Truck	N/A	169	65	N/A	N/A	N/A
Heavy Truck	N/A	675	65	N/A	N/A	N/A
Buses	N/A	81	65	N/A	N/A	N/A
Motorcycle	N/A	27	65	N/A	N/A	N/A

Table 5.1 – Traffic Design Hourly Volume, Composition, and Speed Limit

Roadway Segment / Vehicle Type	Existing DHV		Existing Speed Limit (mph)	Projected DHV (2035)		Future Speed Limit (mph)
I-39 SB: Entrance from Harrison WB to N. of Harrison Interchange	**NB**	**SB**		**NB**	**SB**	
Auto	N/A	1260	65	N/A	N/A	N/A
Medium Truck	N/A	145	65	N/A	N/A	N/A
Heavy Truck	N/A	578	65	N/A	N/A	N/A
Buses	N/A	62	65	N/A	N/A	N/A
Motorcycle	N/A	21	65	N/A	N/A	N/A
I-39 NB: Harrison Avenue Exit to Harrison Avenue Entrance	**NB**	**SB**		**NB**	**SB**	
Auto	N/A	N/A	N/A	2271	N/A	65
Medium Truck	N/A	N/A	N/A	197	N/A	65
Heavy Truck	N/A	N/A	N/A	786	N/A	65
Buses	N/A	N/A	N/A	102	N/A	65
Motorcycle	N/A	N/A	N/A	34	N/A	65
I-39 SB: Harrison Avenue Exit to Harrison Avenue Entrance	**NB**	**SB**		**NB**	**SB**	
Auto	N/A	N/A	N/A	N/A	2068	65
Medium Truck	N/A	N/A	N/A	N/A	237	65
Heavy Truck	N/A	N/A	N/A	N/A	949	65
Buses	N/A	N/A	N/A	N/A	102	65
Motorcycle	N/A	N/A	N/A	N/A	34	65
Harrison Avenue EB: Exit to I-39 SB to Entrance from I-39 SB	**EB**	**WB**		**EB**	**WB**	
Auto	880	N/A	45	N/A	N/A	N/A
Medium Truck	23	N/A	45	N/A	N/A	N/A
Heavy Truck	91	N/A	45	N/A	N/A	N/A
Buses	31	N/A	45	N/A	N/A	N/A
Motorcycle	10	N/A	45	N/A	N/A	N/A
Harrison Ave EB: Entrance from I-39 SB to Exit to I-39 NB	**EB**	**WB**		**EB**	**WB**	
Auto	844	N/A	45	N/A	N/A	N/A
Medium Truck	22	N/A	45	N/A	N/A	N/A
Heavy Truck	89	N/A	45	N/A	N/A	N/A
Buses	30	N/A	45	N/A	N/A	N/A
Motorcycle	10	N/A	45	N/A	N/A	N/A

Table 5.1 – Traffic Design Hourly Volume, Composition, and Speed Limit

Roadway Segment / Vehicle Type	Existing DHV		Existing Speed Limit (mph)	Projected DHV (2035)		Future Speed Limit (mph)
Harrison Ave EB: Exit to I-39 NB to Entrance from I-39 NB	**EB**	**WB**		**EB**	**WB**	
Auto	1512	N/A	45	N/A	N/A	N/A
Medium Truck	45	N/A	45	N/A	N/A	N/A
Heavy Truck	181	N/A	45	N/A	N/A	N/A
Buses	54	N/A	45	N/A	N/A	N/A
Motorcycle	18	N/A	45	N/A	N/A	N/A
Harrison Ave WB: Entrance from I-39 SB to Exit to I-39 SB	**EB**	**WB**		**EB**	**WB**	
Auto	N/A	1060	45	N/A	N/A	N/A
Medium Truck	N/A	25	45	N/A	N/A	N/A
Heavy Truck	N/A	100	45	N/A	N/A	N/A
Buses	N/A	37	45	N/A	N/A	N/A
Motorcycle	N/A	12	45	N/A	N/A	N/A
Harrison Ave WB: Exit to I-39 SB to Entrance from I-39 NB	**EB**	**WB**		**EB**	**WB**	
Auto	N/A	1245	45	N/A	N/A	N/A
Medium Truck	N/A	44	45	N/A	N/A	N/A
Heavy Truck	N/A	175	45	N/A	N/A	N/A
Buses	N/A	46	45	N/A	N/A	N/A
Motorcycle	N/A	15	45	N/A	N/A	N/A
Harrison Ave WB: Entrance from I-39 NB to Exit to I-39 NB	**EB**	**WB**		**EB**	**WB**	
Auto	N/A	1245	45	N/A	N/A	N/A
Medium Truck	N/A	44	45	N/A	N/A	N/A
Heavy Truck	N/A	175	45	N/A	N/A	N/A
Buses	N/A	46	45	N/A	N/A	N/A
Motorcycle	N/A	15	45	N/A	N/A	N/A
Harrison Avenue						
Project Start to I-39 Service Interchange	**EB**	**WB**		**EB**	**WB**	
Auto	1420	785	45	2160	1356	45
Medium Truck	11	3	45	56	29	45
Heavy Truck	43	13	45	223	117	45
Buses	46	25	45	76	47	45
Motorcycle	15	8	45	25	16	45

Table 5.1 – Traffic Design Hourly Volume, Composition, and Speed Limit

Roadway Segment / Vehicle Type	Existing DHV		Existing Speed Limit (mph)	Projected DHV (2035)		Future Speed Limit (mph)
I-39 Service Interchange to Mill Road	**EB**	**WB**		**EB**	**WB**	
Auto	1104	1676	45	1817	1673	45/50
Medium Truck	20	29	45	33	37	45/50
Heavy Truck	80	115	45	132	148	45/50
Buses	38	57	45	62	58	45/50
Motorcycle	13	19	45	21	19	45/50
West of Mill Road to Project End	**EB**	**WB**		**EB**	**WB**	
Auto	1311	1708	45/55	2163	2811	45/50
Medium Truck	20	26	45/55	33	43	45/50
Heavy Truck	80	104	45/55	132	171	45/50
Buses	44	57	45/55	73	95	45/50
Motorcycle	15	19	45/55	24	32	45/50
Mill Road						
Davisville Drive to Harrison Avenue	**NB**	**SB**		**NB**	**SB**	
Auto	134	138	45	223	231	45
Medium Truck	2	2	45	4	4	45
Heavy Truck	8	9	45	14	15	45
Buses	5	5	45	8	8	45
Motorcycle	2	2	45	3	3	45
S. Perryville Road to Kindlewood Trail	**EB**	**WB**		**EB**	**WB**	
Auto	114	114	40	189	189	40
Medium Truck	1	1	40	2	2	40
Heavy Truck	5	5	40	8	8	40
Buses	4	4	40	7	7	40
Motorcycle	1	1	40	2	2	40
Harrison Avenue to State Street	**NB**	**SB**		**NB**	**SB**	
Auto	162	212	25	273	358	25
Medium Truck	1	1	25	2	1	25
Heavy Truck	5	3	25	8	5	25
Buses	6	7	25	9	11	25
Motorcycle	2	2	25	3	3	25
Perryville Road						
S RR at-grade crossing to N RR Overpass	**NB**	**SB**		**NB**	**SB**	

Table 5.1 – Traffic Design Hourly Volume, Composition, and Speed Limit

Roadway Segment / Vehicle Type	Existing DHV		Existing Speed Limit (mph)	Projected DHV (2035)		Future Speed Limit (mph)
Auto	519	519	45	699	699	45
Medium Truck	7	7	45	9	9	45
Heavy Truck	28	28	45	38	38	45
Buses	17	17	45	23	23	45
Motorcycle	6	6	45	8	8	45
Mulford Road						
Mistwood Gate to Sandy Hollow Road	**NB**	**SB**		**NB**	**SB**	
Auto	714	714	45	1564	1564	45
Medium Truck	14	14	45	30	30	45
Heavy Truck	56	56	45	122	122	45
Buses	24	24	45	54	54	45
Motorcycle	8	8	45	18	18	45
South of Linden Road	**NB**	**SB**		**NB**	**SB**	
Auto	333	333	45	729	729	45
Medium Truck	7	7	45	14	14	45
Heavy Truck	26	26	45	57	57	45
Buses	11	11	45	25	25	45
Motorcycle	4	4	45	8	8	45
Linden Road						
Apartment Entrance Driveway to E. of Dellview Drive	**EB**	**WB**		**EB**	**WB**	
Auto	515	515	45	844	844	45
Medium Truck	3	3	45	5	5	45
Heavy Truck	11	11	45	18	18	45
Buses	17	17	45	27	27	45
Motorcycle	6	6	45	9	9	45
Mall Drive						
Harrison Avenue to Cherry Vale Mall Drive	**NB**	**SB**		**NB**	**SB**	
Auto	470	470	25	780	780	25
Medium Truck	2	2	25	3	3	25
Heavy Truck	8	8	25	13	13	25
Buses	15	15	25	25	25	25
Motorcycle	5	5	25	8	8	25

Notes: N/A = Not available

5.3 Receptors

As discussed in Section 3.0, 22 representative receptors were chosen to represent the common noise environments (17)/areas (5) located within the study area. Receptors included residential, recreational, commercial, and institutional. Receptor locations were based on review of aerial photography, topographic mapping, and field reconnaissance. In order to generate conservative values and be more protective of the noise sensitive receptors, receptor locations were placed on ground floor outdoor gathering spaces where most outdoor activity is assumed to occur. Some receptors are located at second and third floor apartment balconies, which were accounted for in noise modeling by adjusting receptor heights.

Representative receptors are shown on Exhibit C and are listed on Tables 3.1 and 6.1.

5.4 Receptor Distances and Elevation

The representative noise receptors' elevations fluctuate between approximately 728 to 834 feet above sea level. Table 6.1 includes the distances of each representative noise sensitive receptor from the roadway edge-of-pavement for each scenario. Representative noise sensitive receptors for the existing conditions and No-Build (2035) scenarios range from 59 to 400 feet from the existing roadway edge-of-pavement. For the Build (2035) scenario, representative noise sensitive receptors are located at distances ranging from 59 to 441 feet from the modeled proposed roadway edge-of-pavement.

6.0 TNM RESULTS

As previously described, existing noise levels for sensitive receptors were determined by modeling. These values were used for comparison to models of proposed changes, to determine if predicted noise levels created by the Build scenario would approach, meet, or exceed the NAC. The TNM 2.5 model output data tables showing results from each of the TNM models are included in Exhibit D.

Table 6.1 summarizes the modeled noise levels for the existing conditions, No-Build (2035), and Build (2035) scenarios. Existing conditions scenario traffic noise levels range from 57 dB(A) at Representative Receptor R2-1 to 76 dB(A) at Representative Receptor R21-1. No-Build scenario traffic noise levels range from 59 dB(A) at Representative Receptor R2-1 to 78 dB(A) at Representative Receptor R21-1.

The Build scenario traffic noise levels range from 60 dB(A) at Representative Receptor R2-1 to 76 dB(A) at Representative Receptor R9-12. Nineteen (R1-1, R4-1, R5-1, R6-1, R7-1, R8-1, R9-12, R10-1, R11-1, R12-7, R13-1, R14-1, R16-24, R18-2, R19-1, R20-70.3, R21-1, R22-9, R23-1) of the 22 representative receptors (representing 199 single-family residential receptors, 208 apartment residential receptors, and 11 recreational or institutional receptors) approach, meet, or exceed the NAC and are therefore considered impacted under this scenario.

Table 6.1 – Noise Impact Summary

CNE/Area (Activity Category)	Description of Representative Receptor (Receptor ID)	IDOT Approach Criterion dB(A)	No. of Receptors Represented	Existing (2015)		No-Build (2035)	Build (2035)			Impact (Yes/No)
				Distance to Nearest Edge of Pavement (ft)	Noise Level dB(A)	Noise Level dB(A)	Distance to Nearest Edge of Pavement (ft)	Noise Level dB(A)	Increase Over Existing	
CNE 1 (C)	Church Campground (R1-1)	66	2	179[1]	65	67	195[2]	66	1	Yes
Area 2 (B)	Single-Family Front Yard (R2-1)	66	1	172[3]	57	59	168[3]	60	3	No
CNE 3 (C)	Cemetery (R3-1)	66	2	63[3]	64	66	92[3]	65	1	No
CNE 4 (B)	Single-Family Back Yard (R4-1)	66	13	110[2]	66	68	98[2]	69	3	Yes
CNE 5 (B)	Single-Family Back Yard (R5-1)	66	19	97[2]	69	71	94[2]	70	1	Yes
Area 6 (C)	Park/Playground (R6-1)	66	1	136[4]	69	70	155[2]	67	-2	Yes
CNE 7 (B)	Single-Family Front Yard (R7-1)	66	5	209[4]	66	68	340[2]	66	0	Yes
CNE 8 (B)	Single-Family Back Yard (R8-1)	66	13	125[4]	70	72	151[5]	72	2	Yes
CNE 9 (B)	Single-Family Back Yard (R9-12)	66	27	152[6]	74	76	153[6]	76	2	Yes
CNE 10 (B)	Single-Family Back Yard (R10-1)	66	48	195[6]	73	75	193[6]	71	-2	Yes
Area 11 (B)	Single-Family Back Yard (R11-1)	66	1	265[7]	67	69	265[7]	69	2	Yes
CNE 12 (B)	Single-Family Back Yard (R12-7)	66	15	65[7]	67	69	65[7]	69	2	Yes
Area 13 (B)	Single-Family Back Yard (R13-1)	66	1	400[6]	67	69	394[6]	68	1	Yes
Area 14 (C)	Church (R14-1)	66	1	174[8]	66	69	174[8]	70	4	Yes
CNE 16 (B)	Single-Family Front Yard (R16-24)	66	33	59[8]	70	73	59[8]	73	3	Yes
Area 17 (B)	Single-Family Back Yard (R17-1)	66	1	237[6]	63	65	441[6]	61	-2	No

CNE/Area (Activity Category)	Description of Representative Receptor (Receptor ID)	IDOT Approach Criterion dB(A)	No. of Receptors Represented	Existing (2015)		No-Build (2035)	Build (2035)			Impact (Yes/No)
				Distance to Nearest Edge of Pavement (ft)	Noise Level dB(A)	Noise Level dB(A)	Distance to Nearest Edge of Pavement (ft)	Noise Level dB(A)	Increase Over Existing	
CNE 18 (B)	Single-Family Back Yard (R18-2)	66	2	235[6]	65	67	230[6]	68	3	Yes
CNE 19 (B)	Single-Family Back Yard (R19-1)	66	8	166[6]	68	70	166[6]	70	2	Yes
CNE 20 (B)	Apartment Balcony (R20-70.3)	66	208	219[9]	69	71	220[9]	72	3	Yes
CNE 21 (C)	Park/Trail (R21-1)	66	2	68[6]	75	77	66[6]	74	-1	Yes
CNE 22 (B)	Single-Family Back Yard (R22-9)	66	12	293[10]	66	69	407[11]	68	2	Yes
CNE 23 (C)	Water Park (R23-1)	66	2	244[12]	68	71	244[12]	71	3	Yes

[1]From Harrison WB to I-39 NB ramp edge of pavement.
[2]From Harrison Avenue edge of pavement.
[3]From Mill Road edge of pavement.
[4]From I-39 NB to Harrison EB ramp edge of pavement.
[5]From I-39 NB ramp to Harrison Avenue edge of pavement.
[6]From I-39 edge of pavement.
[7]From Perryville Road edge of pavement.
[8]From Mulford Road edge of pavement.
[9]From US 20 EB to I-39 SB ramp edge of pavement.
[10]From I-39 SB to Harrison WB ramp edge of pavement.
[11]From I-39 SB to Harrison Avenue ramp edge of pavement.
[12]From I-90 EB to I-39 SB ramp edge of pavement.

7.0 ABATEMENT ANALYSIS

As shown on Table 6.1, potential traffic noise impacts were identified for 15 CNEs and 4 areas based on the 2035 Build scenario developed using TNM Version 2.5.

Per IDOT Noise Policy [4], noise abatement must be considered when traffic noise impacts are identified. In addition, any noise abatement measure must be determined to be both feasible and reasonable for implementation. Potential noise abatement measures include the following:

- Traffic management measures,
- Alteration of horizontal and vertical alignments,
- Acquisition of property rights for construction of noise barriers,
- Acquisition of undeveloped land for buffer zones,
- Noise insulation (only for Activity Category D), or
- Construction of noise barriers.

Construction of noise barriers is the most commonly used noise abatement measure. Due to the project's geometric and traffic conditions as well as the availability of right-of-way along the corridor, noise barriers are the most viable option.

Noise barriers are usually either noise walls or earth berms. Noise walls placed adjacent to the roadway will attenuate traffic-related noise and are the most practical and commonly used measure to abate noise impacts. Earth berms are typically relatively low cost and provide a natural aesthetic. Although available right-of-way along the I-39 corridor may be sufficient for the use of berms for noise abatement, berms were not included in the noise abatement evaluation since the existing aesthetic in the project area includes noise walls.

To be effective, a noise barrier must break the line of sight between the highest point of a noise source and a receiver. It also must be long enough to prevent sounds from passing around the ends, having no openings such as driveways, and be dense enough so the noise would not be transmitted through it.

Existing Noise Barriers

Two noise barriers are present in the study area, representing CNE 16, area 17, CNE 18, and the northern portion of CNE 19. The locations of the existing barriers are show in in Exhibit F. IDOT policy states the noise analysis for a new Type I project should consider the effectiveness of existing noise barriers and consider whether they require retrofit or modification based on the new Build conditions.

The noise analysis identified potential traffic noise impacts with the existing barriers in place. Modeled noise levels at CNEs 16, 18 and 19 exceeded the FHWA noise abatement criteria sound levels based on the 2035 Build scenario developed using TNM Version 2.5.

7.1 Noise Abatement Criterion

IDOT policy identifies the following criteria that must be met before a noise barrier shall be recommended for implementation.

- *Feasibility*. In order to be considered acoustically feasible, a noise abatement measure must achieve the traffic noise reduction feasibility criterion of at least 5 dB(A) for at least two **impacted** receptors. Feasibility also addresses the engineering aspects of implementing a noise barrier such as considerations for safety, drainage, and utilities. If

these factors cannot be accommodated in providing the minimum noise reduction, noise abatement will be deemed not feasible.

- *Reasonableness*. The following three reasonableness evaluation criteria must be met in order for noise abatement to be considered:

1. *Noise Reduction Design Goal*: The noise abatement must achieve the noise reduction design goal of at least 8 dB(A) for at least one **benefited** receptor.

2. *Cost Effectiveness*: The noise abatement must be cost effective (i.e., may not exceed the allowable noise abatement base cost per benefited receptor).

   The IDOT base cost per benefited receptor is $30,000. Other factors considered to potentially adjust the allowable noise abatement base value include (Table 7.1):
   - The absolute noise level of the benefited receptors in the design year build scenario before noise abatement.
   - The incremental increase in noise level between the existing noise level at the benefited receptor and the predicted build noise level before noise abatement; and
   - The date of development compared to the construction date of the highway.

   Consideration of the three reasonableness adjustment factors result in a potential maximum allowable noise abatement cost of $45,000 per benefited receptor. If the estimated build cost of noise abatement per benefited receptor is less than the adjusted allowable noise abatement cost per benefited receptor, then the noise abatement measure achieves the cost-effective reasonableness criterion.

Table 7.1 - Factors for Adjusting the Allowable Noise Abatement Cost per Benefited Receptor Base Value of $30,000, Using other Reasonableness Factors

Absolute Noise Level Consideration	
Predicted Build Noise Level Before Noise Abatement	**Dollars Added to Base Value Cost per Benefited Receptor**
Less than 70 dB(A)	$0
70 to 74 dB(A)	$1,000
75 to 79 dB(A)	$2,500
80 dB(A) or greater	$5,000
Increase in Noise Level Consideration	
Incremental Increase in Noise Level Between the Existing Noise Level and the Predicted Build Noise Level Before Noise Abatement	**Dollars Added to Base Value Cost per Benefited Receptor**
Less than 5 dB(A)	$0
5 top 9 dB(A)	$1,000
10 to 14 dB(A)	$2,500
15 dB(A) or greater	$5,000
New Alignment / Construction Date Consideration	
Project is on New Alignment OR the Receptor Existed Prior to the Original Construction of the Highway	**Dollars Added to Base Value Cost per Benefited Receptor**
No for both	$0
Yes for either	$5,000

3. *Viewpoints Solicitation*: The noise abatement treatment must be deemed desired by the benefited receptors.

   Viewpoints of benefited receptors must be considered for noise abatement measures that are determined to be feasible and achieve the first two reasonableness factors. The goal is to obtain responses from at least one-third (33%) of the potential number of votes for each noise abatement measure. If responses from one-third of the potential votes cast are not received after the first attempt, a second attempt shall be made. The voting result can be determined after viewpoints from at least one-third of the potential votes have been received or after two attempts have been made to obtain the responses. If after the second attempt there are still less than one-third of the potential votes received, the voting result will be determined based on the responses received. If no votes are received, the barrier will not be recommended for construction.

   For noise abatement to be considered reasonable, more than 50 percent of the responses (weighted totals) must be in favor of the noise abatement measure. A response from front row benefited receptors (receptors or properties adjacent to a proposed barrier), the status of which will be reviewed by IDOT, will be counted, and weighted compared to non-front row receptor responses, as shown in Table 7.2.

Table 7.2 – Example of Votes Per Benefited Receptor

Receptor Location	***Rental Property***		***Owner Occupied Property: Number of Votes Per Unit***
	Owner: Number of Votes Per Unit	*Renter: Number of Votes Per Unit*	
Front Row	2	2	4
Non-Front Row	1	1	2

7.2 Abatement Alternatives

TNM 2.5 was used to perform the noise wall feasibility and reasonability analysis for impacted locations along the project corridor. The primary analysis consisted of adjusting the height and length of each barrier to determine the optimum settings to achieve the Design Goal Reduction and optimize Cost Effectiveness. The results are summarized in Table 7.3 and Table 7.4. The TNM output for the barrier analysis is in Exhibit E. The locations of the potential barriers are shown in Exhibit F.

Variations of fourteen barrier walls were assessed and analyzed for the nineteen impacted CNEs and areas (CNE 1, 4 through 14, 16, 18 through 23). The variations reflecting the best-case feasibility and reasonableness outcomes are presented while the others are omitted from this report. The omitted variations focused on alignment configurations and included permutations of CNEs 4 through 12, 16, 18 through 21, and 23. The varied alignments ranged from the edge of right-of-way to near the outside shoulder, focusing on avoiding utilities and taking advantage of higher ground elevations. Additional analysis details for barrier variations involving CNEs 9 and 10 are included in Exhibit E per IDOT request.

<u>Existing Noise Barriers</u>
To assess the feasibility and reasonableness of modifying the two existing noise barriers (covering CNEs 16, 17, and 18 in Tables 7.3 and 7.4), abatement analysis was performed for the locations adjacent to the existing noise walls (CNE 16, 17, 18 and part of 19). It was determined that due to the condition of the existing noise walls both will be reconstructed in-place under this

Type I project. IDOT policy establishes alternative cost-effectiveness criterion under this scenario, in which only modifications to the noise barrier beyond the existing attenuation are subject to cost-effectiveness criterion.

Where a modified existing noise barrier is deemed not reasonable, IDOT policy establishes when an existing noise barrier is physically impacted or relocated as part of a new Type I project, at a minimum, the same attenuation line must be provided where physically feasible. Consequently, no existing noise walls will be eliminated.

7.3 Viewpoint Solicitation Process

The third criterion in determining noise barrier reasonableness is the viewpoint of benefited residents and property owners. A benefited property is defined as a receptor adjacent to a proposed noise abatement measure that receives a noise reduction equal to or greater than 5 dB(A). If benefited residents and property owners indicate that a proposed noise barrier is not desired, then the noise barrier is removed from further consideration and would not be constructed with the project.

To determine the desires of the benefited property owners and residents regarding the construction of proposed noise abatement measures, the viewpoint of benefited property owners and residents is solicited through a public involvement process, which, in this case, was direct mailing of a solicitation form. IDOT's noise requirements allows for up to two solicitation periods to request votes and determine the outcome regarding proposed noise abatement measures.

The goal of the initial solicitation is to receive at least one-third (33%) of the potential number of votes for each noise abatement measure (i.e., for each noise barrier being considered). If responses from at least one-third of the potential votes cast for a given wall are received, a second solicitation is not necessary, but is at the discretion of the District.

If less than 33% of votes are received after the first solicitation, a second solicitation is sent. The voting result can be determined after viewpoints from at least one-third of the potential votes have been received, or after two attempts have been made to obtain responses. If after the second attempt there are still less than one-third of the potential votes received, the voting result will be determined based on the responses received.

Viewpoints are tallied for each individual abatement measure (i.e., for each noise barrier being considered) after the responses have been collected. Responses from front row benefited receptors (defined as receptors or properties adjacent to a proposed barrier) are counted and weighted compared to non-front row receptor responses. Owner votes receive 50% weight, and the total of respective tenant or renter votes receive 50% weight for viewpoint tallies. In order for a proposed noise abatement measure to be implemented, greater than 50% of the viewpoint responses must be in favor of the proposed abatement measure.

Table 7.3 – Barrier Assessment

Noise Wall ID	Impacted CNE(s)/ Area(s)	Description of Receptors	*Feasibility*		*Reasonableness*				
					Criterion 1		Criterion 2		Criterion 3
			Is it Feasible?	# of Impacted Receptors Reduced by at Least 5 dB(A)	Noise Reduction Design Goal Achieved?	# Receptors Reduced by at Least 8 dB(A)	Economic Reasonableness Achieved?	Cost per Benefited Receptor	Viewpoints of Benefited Receptors
W1	1	Church Campground	No	1	No	0	N/A	N/A	N/A
W4	4	SF Residential	Yes	2	No	0	N/A	N/A	N/A
W5-7	5, 6, 7	SF Residential/ Park and Playground	Yes	7	Yes	1	No	$92,084	N/A
W8-10, 21	8, 9, 10, 21	SF Residential/ Park and Trail	Yes	82	Yes	5	Yes[1]	$30,829	TBD
W11-12	11, 12	SF Residential	No	1	No	0	N/A	N/A	N/A
W12	12	SF Residential	Yes	6	Yes	1	No	$76,660	N/A
W13	13	SF Residential	No	1	No	0	N/A	N/A	N/A
W14	14	Church/ Commercial Picnic Table	No	1	No	0	N/A	N/A	N/A
W16[2]	16	SF Residential	Yes	2	N/A[2]	N/A	No[2]	$247,287	N/A
W17[2]	17	SF Residential	No	0	N/A[2]	N/A	N/A[2]	N/A	N/A
W18[2]	18	SF Residential	No	0	N/A[2]	N/A	N/A[2]	N/A	N/A
W19	19	SF Residential	Yes	5	Yes	1	No	$205,931	N/A
W20	20	Apartment Balcony	Yes	19	Yes	1	Yes	$23,571	TBD
W21	21	Trail	No	1	No	0	N/A	N/A	N/A
W22	22	SF Residential	Yes	8	Yes	1	No	$120,773	N/A
W23	23	Water Park	Yes	4	No	0	N/A	N/A	N/A

[1]Cost averaging was used to warrant reasonableness. See Table 7.5 – Cost Averaging Analysis.
[2]Economic reasonableness subject to alternative criterion due to presence of existing barrier.

Table 7.4 – Barrier Wall Analysis

Noise Wall ID	Impacted CNE(s)/ Area(s)	Wall Height (ft)	Wall Length (ft)	Cost[1]	Benefited Receptors	Cost per Benefited Receptor	Adjusted Allowable Cost per Benefited Receptor	Likely to be Implemented?[2]	If No, Reason(s) Why
W4	4	24	568	$408,960	2	N/A	N/A	No	Does not meet noise reduction design goal
W5-7	5, 6, 7	24	2430	$1,749,600	19	$92,084	$30,000	No	Not cost effective
W8-10, 21	8, 9, 10, 21	13	6482	$2,527,980	82	$30,829	$30,744	Yes[4]	
W12	12	20.47[3]	749	$459,961	6	$76,660	$30,000	No	Not cost effective
W16	16	18.8[3]	2826	$494,574[5]	2	$247,287[5]	$31,000	No	Not cost effective
W19	19	15.73	1750	$823,725	5	$164,745	$30,800	No	Not cost effective
W20	20	20	1650	$990,000	42	$23,571	$30,095	Yes	
W22	22	23.6[3]	2047	$1,449,276	12	$120,773	$30,000	No	Not cost effective
W23	23	24	1168	$840,960	4	N/A	N/A	No	Does not meet noise reduction design goal

[1]Noise wall cost based on $30 per square foot construction cost.
[2]Likely to be implemented pending benefited receptor viewpoint.
[3]This wall has a variable wall height, the average wall height is indicated.
[4]Cost averaging was used to warrant reasonableness. See Table 7.5 – Cost Averaging Analysis.
[5]Economic reasonableness subject to alternative criterion due to presence of existing barrier.

Table 7.5 – Cost Averaging Analysis

CNE (Barrier Wall)	Total Benefited Receptors	Noise Wall Cost	Noise Wall Cost per Benefited Receptor	Adjusted Allowable Cost per Benefited Receptor	Ratio of Wall to Adjusted Allowable	Cumulative Estimated Build Cost Per Benefited Receptor	Cumulative Adjusted Allowable Cost Per Benefited Receptor	Result of Determination
W20	42	$990,000	$23,571	$30,095	0.783	$23,571	$30,095	Cost Effective Stand Alone
W8-10,21	82	$2,527,980	$30,829	$30,744	1.003	$28,371	$30,524	Cost Effective Cumulative

7.4 Viewpoint Solicitation Results

The two locations where noise barriers were evaluated for cost because they met the 8 dB(A) design goal reduction were W8-10,21 and W20 which involve five CNEs and a total of 124 benefited receptors. As previously noted, additional barriers were determined to not be cost effective and were removed from the cost averaging evaluation because they had an estimated build cost more than double the adjusted allowable cost per benefitted receptor. For the proposed I-39 noise abatement measures, W8-10,21 and W20, a viewpoint solicitation was conducted to provide input from the benefited receptors in deciding the implementation of the identified noise walls.

The viewpoint solicitation process was consistent with Illinois Department of Transportation policies. Viewpoint solicitations for the proposed barrier W8-10,21 were mailed to benefited receptor addresses on November 23, 2022, and on December 27, 2022 for proposed barrier W20. Refer to Exhibit G for a copy of the Viewpoint Solicitation Letters.

The benefitted receptor locations for barrier W20 at Beacon Hill represent apartments. One owner and 42 tenant viewpoints were solicited as part of the first mailing. The owner's response is weighted to 50% (or equivalent to 42 votes) and each tenant response is worth approximately 2% (1 of 42 votes). The results from the solicitation process are summarized in Table 7.6.

Table 7.6 – Viewpoint Solicitation Summary

Barrier Wall	Benefited Receptors		Rented Property	Ballots		Available Points				Vote Majority Result
	Front Row	Non-Front Row		No. Sent	No. Received	Total	Yea	Nay	Reported (%)	
W8-10,21	45	36	2	83	56	252	162	15	70	In Favor
W20	42	0	42	43	2[1]	168	84	2	51	In Favor

[1]One ballot received was the Owner ballot which represents 50% of points for Barrier W20.

The proposed noise barriers were presented to the public in an Online Public Information Meeting on January 18, 2023.

7.5 Likelihood Statement

Based on the traffic noise analysis, the noise abatement evaluation conducted, and the viewpoints solicitation, highway traffic noise abatement measures are likely to be implemented based on Phase II Design. If it subsequently develops during final design that constraints not foreseen in the preliminary design or public input substantially change, the abatement measures may need to be modified or removed from the project plans. A final decision on the installation of abatement measures will be made upon completion of the project's final design and the public involvement process.

8.0 COORDINATION WITH LOCAL OFFICIALS FOR UNDEVELOPED LANDS

Noise contours were developed for undeveloped lands along the project corridor. A map depicting the noise contours will be provided to the appropriate planning/zoning officials for their use. A copy of the documentation available for local officials is included in Exhibit H.

9.0 CONSTRUCTION NOISE

Trucks, heavy machinery, and other equipment used during construction produce noise which may affect some land uses and activities during the construction period. Residents along the alignment will at some time experience perceptible construction noise from implementation of the project. To minimize or eliminate the effect of construction noise on these receptors, mitigation measures have been incorporated into the IDOT Standard Specifications for Road and Bridge Construction as Article 107.35[5].

10.0 SUMMARY

This traffic noise analysis has been conducted to evaluate potential traffic noise impacts for the proposed improvements to I-39 at US 20 in the southeast portion of Winnebago County, Illinois within the Village of Cherrywood, and the City of Rockford. Traffic noise was evaluated at a total of twenty-three representative modeled noise sensitive receptors located within the project area. Traffic noise levels were evaluated for the existing conditions and projected (2035) traffic volumes for the No-Build and Build scenarios.

Projected build 2035 noise levels approached, met, or exceeded the NAC at nineteen representative receptor locations – R1-1, R4-1, R5-1, R6-1, R7-1, R8-1, R9-12, R10-1, R11-1, R12-7, R13-1, R14-1, R16-24, R18-2, R19-1, R20-70.3, R21-1, R22-9, and R23-1, due to the increase in traffic volumes and proposed improvements. None of the receptors had noise level increases equal to 15 dB(A) or greater, which is considered a substantial increase in traffic noise levels. Since the receptors are impacted in the build scenario, a noise barrier abatement analysis was performed.

Variations of fourteen barrier walls were analyzed. Two of the barrier walls, based on the guidelines and definitions set forth in IDOT's *Highway Traffic Noise Assessment Manual,* May 2017, were found to meet reasonableness criteria, and are likely to be implemented. Among the various barrier alignments analyzed, one of the proposed barriers is located near the proposed roadway shoulder and within the roadside clear zone. Should this barrier be implemented, subsequent design modifications will be necessary to address roadside safety, drainage, and other engineering impacts. Additionally, the two existing barrier walls that are to be demolished will be reconstructed in-place with, at minimum, barriers that achieve the same attenuation line.

11.0 REFERENCES

[1] 2030 Land Resource Management Plan for Winnebago County, Illinois. Adopted by the County Board on May 28, 2009. Amended May 28, 2009 and August 13, 2009.

[2] Transportation Improvement Program (FY 2021-2024), Region 1 Planning Council. August 28, 2020.

[3] Procedures for Abatement of Highway Traffic and Construction Noise, 23 CFR 772. Federal Highway Administration, July 13, 2010.

[4] Highway Traffic Noise Assessment Manual, Illinois Department of Transportation, May, 2017.

[5] Standard Specifications for Road and Bridge Construction, Illinois Department of Transportation, 2016.

EXHIBIT A

LOCATION MAP

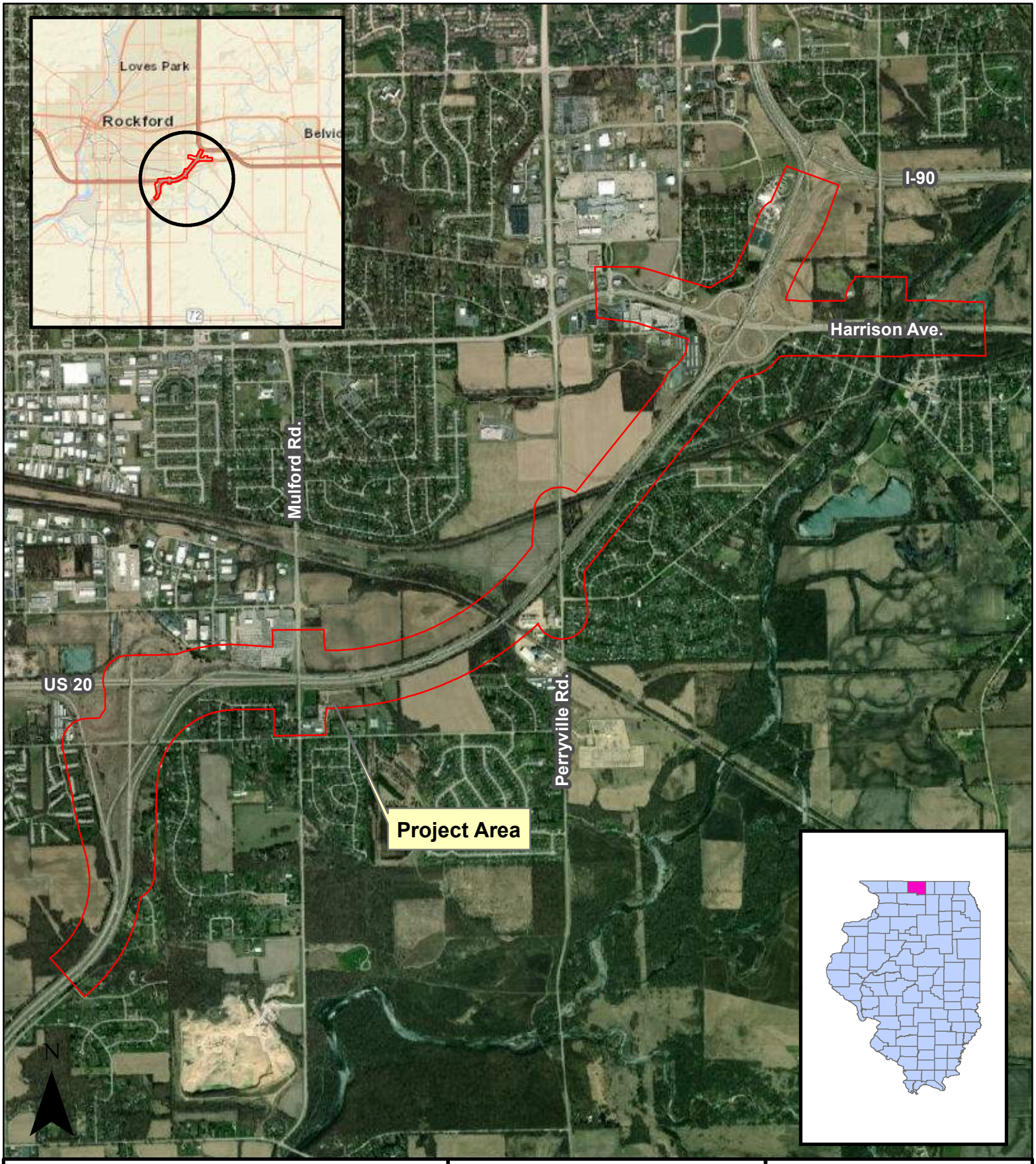

Exhibit A
Location Map
Noise Analysis
I-39 - From US 20
to Harrison Ave.

0 0.25 0.5
Miles

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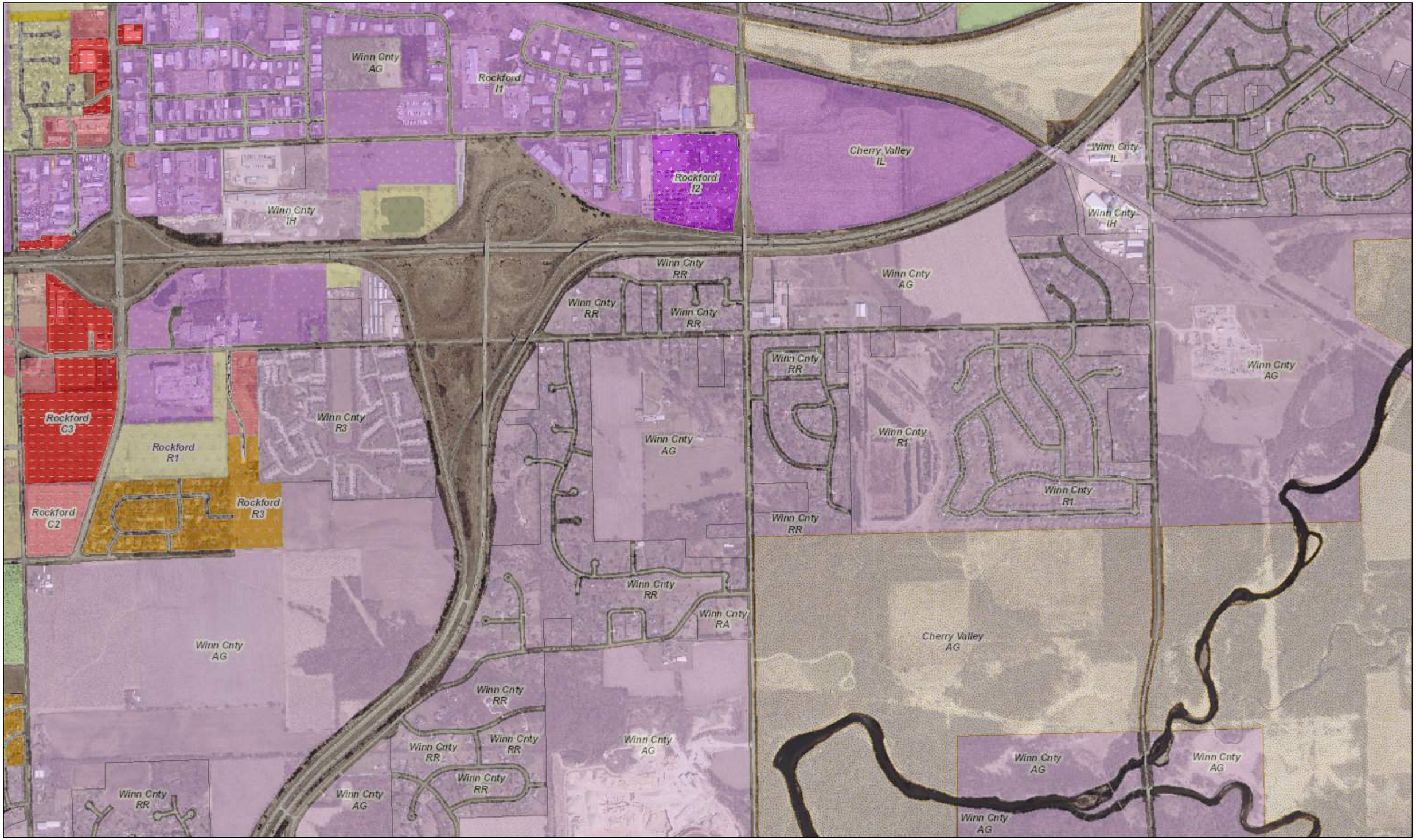
EXHIBIT B

LAND USE MAP

January 24, 2017



N
W E
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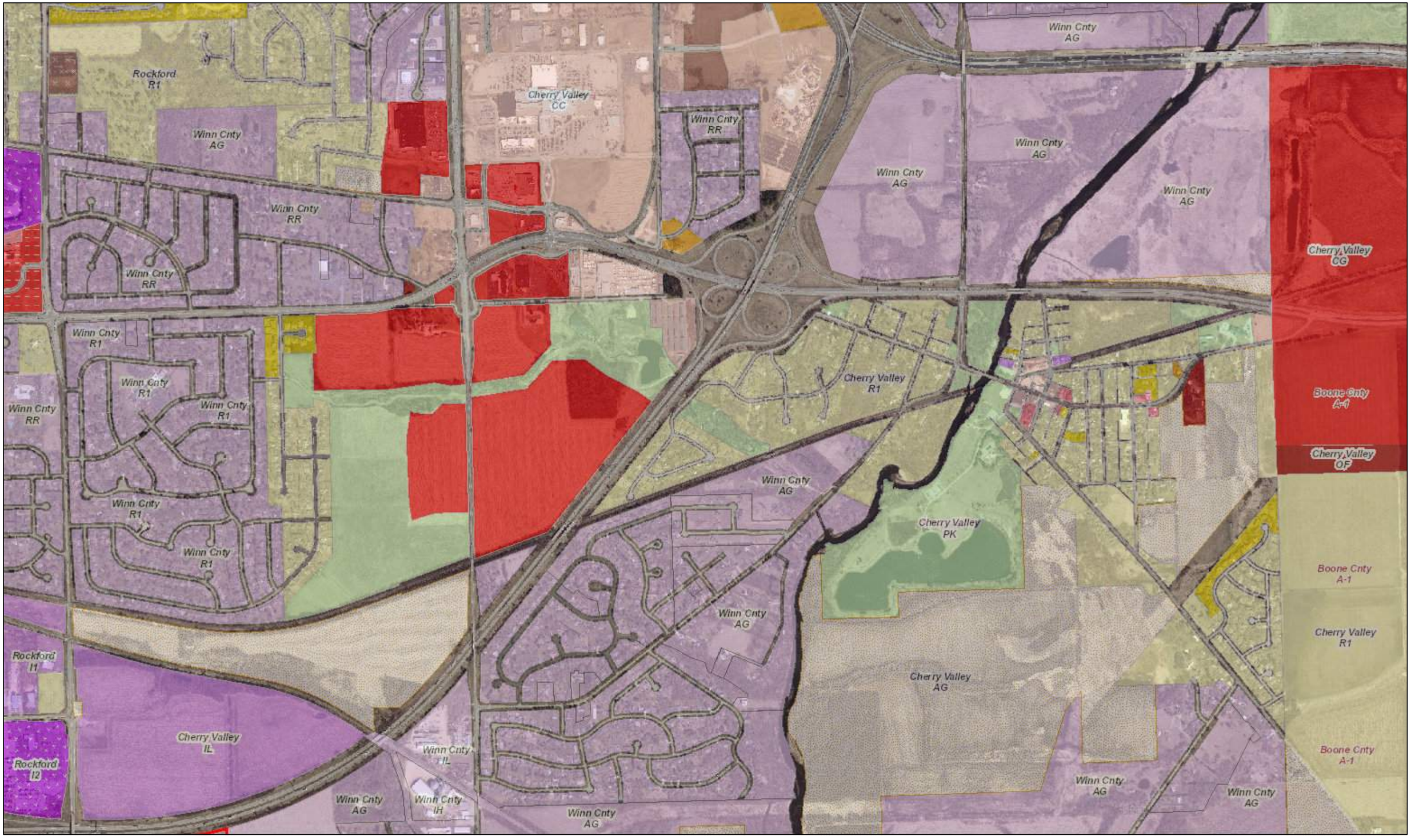
0 1,150 2,300 Feet

SCALE: 1:13,506

WIN GIS
Winnebago County Geographic Information System

January 24, 2017



N
W E
S

WinGIS cannot and does not warrant the accuracy of: property and boundary lines, dimensions of parcels and lots, location of structures or improvements, and topographic or geologic features on the land. Only on-site verification or field surveys by a licensed professional land surveyor can provide such accuracy.

0 1,150 2,300 Feet

SCALE: 1:13,506

WINGIS
Winnebago County Geographic Information System

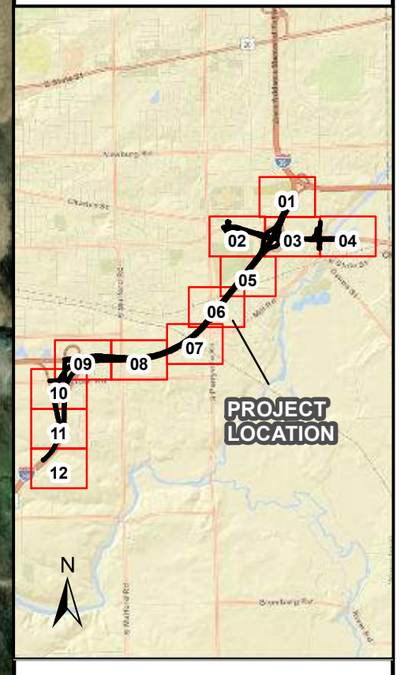
EXHIBIT C

NOISE RECEPTOR LOCATION MAP

Validation Point
Receptor
Representative Receptor
CNE
Area
500-ft Buffer
Design EOP and Shoulder
Activity Category B
Activity Category C
Activity Category E
Activity Category F

Exhibit C

Receptor Location Map
I-39 Reconstruction -
US 20 to Harrison Ave.



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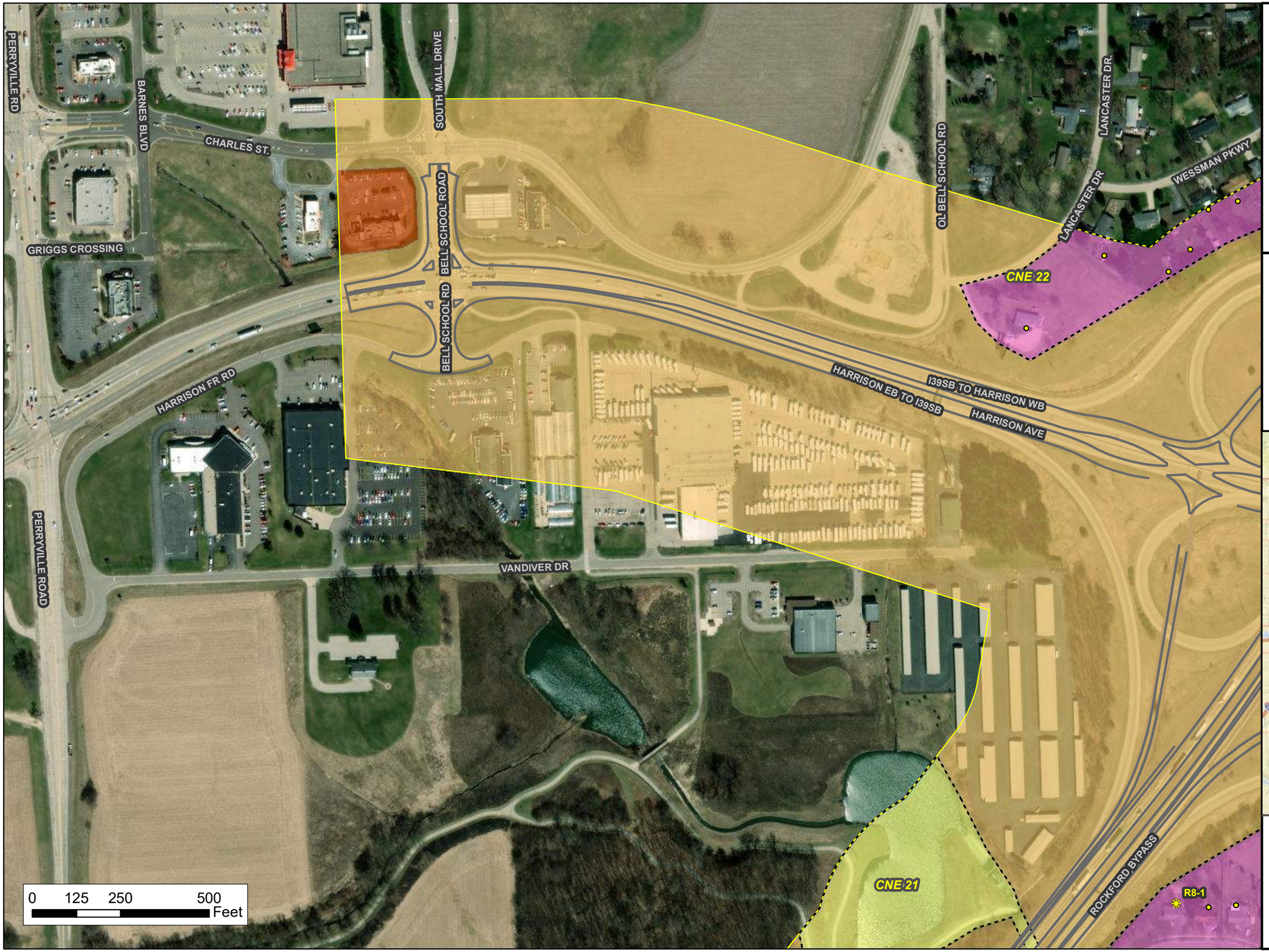
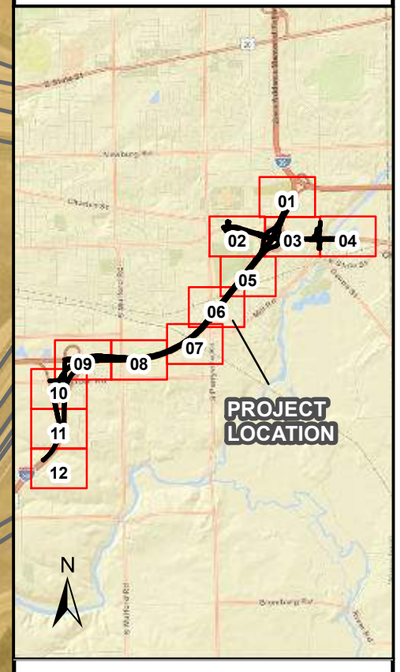


Validation Point
Receptor
Representative Receptor
CNE
Area
500-ft Buffer
Design EOP and Shoulder
Activity Category B
Activity Category C
Activity Category E
Activity Category F

Exhibit C

Receptor Location Map
I-39 Reconstruction -
US 20 to Harrison Ave.



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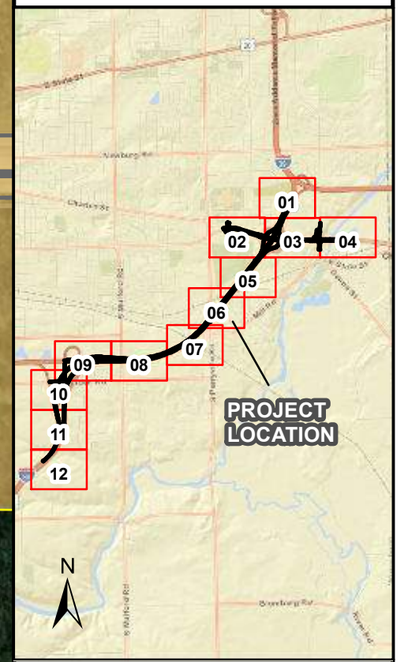
Validation Point
Receptor
Representative Receptor
CNE
Area
500-ft Buffer
Design EOP and Shoulder
Activity Category B
Activity Category C
Activity Category E
Activity Category F

Exhibit C

Receptor Location Map
I-39 Reconstruction -
US 20 to Harrison Ave.



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WESSMAN PKWY
R22-9
I39SB TO HARRISON WB
ROCKFORD BYPASS
I39NB TO HARRISON WB
US20WB TO I39SB
I39SB TO US20EB
HARRISON EB TO I39NB
I39SB TO US20EB
US 20 WB TO I90 NB
HARRISON AVE
I39NB TO US20EB
OLD MILL RD
CNE 3
R3-1
R1-1
CNE 1
R5-1
CAMP
CNE 5
FRANKLIN ST
ULSTER ST
V-6
R6-1
CNE 6
R7-1
CNE 7
HOFFMAN CT
VALLEY WOODS DR.
STATE ST
SALEM ST
MILL RD
0 125 250 500 Feet

Validation Point
Receptor
Representative Receptor
CNE
Area
500-ft Buffer
Design EOP and Shoulder
Activity Category B
Activity Category C
Activity Category E
Activity Category F

Exhibit C

Receptor Location Map
I-39 Reconstruction - US 20 to Harrison Ave.

R2-1
AREA 2
CNE 3
R3-1
OLD MILL RD
HARRISON AVE
R4-1
V-4
FITCH ST
CHERRY ST
CNE 4
GROVE ST
WALNUT ST
ELGIN ST
HOGAN
LAWRENCE
ELGIN
E STATE ST

0 125 250 500 Feet

01 02 03 04 05 06 07 08 09 10 11 12
PROJECT LOCATION
N

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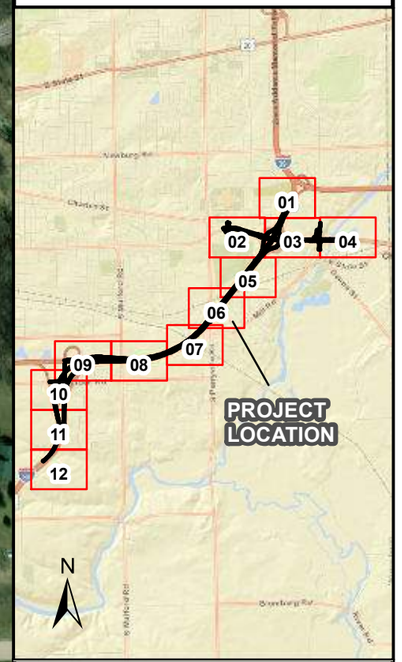
Validation Point
Receptor
Representative Receptor
CNE
Area
500-ft Buffer
Design EOP and Shoulder
Activity Category B
Activity Category C
Activity Category E
Activity Category F

Exhibit C

Receptor Location Map
I-39 Reconstruction -
US 20 to Harrison Ave.

CNE 21
CNE 8
CNE 9
R8-1
R21-1
R9-12
R10-1
V-8
V-9
HARRISON EB TO I39SB
I39NB TO US20EB
ROCKFORD BYPASS
TUGGLE DR
LAUREN LN
MIKE'S PLACE
VALLEY WOODS DR.
BROOKS WAY
HAYMAKER LN
RED CHERRY LN
FRANKLIN PL
CHERRY HILL RD
GNARL TREE LN
FARVIEW DR
MILL RD

0 125 250 500 Feet



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Validation Point
Receptor
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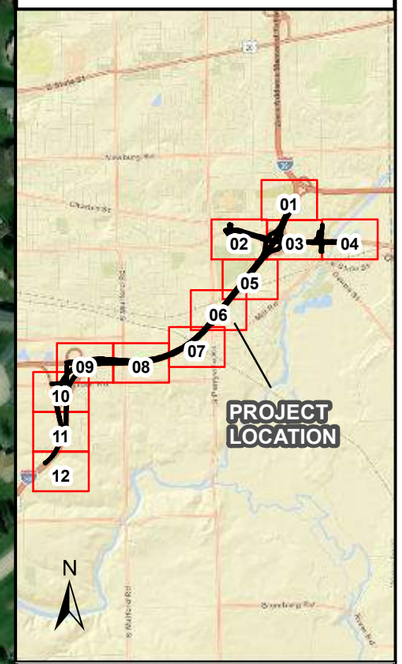
CNE
Area
500-ft Buffer
Design EOP and Shoulder
Activity Category B
Activity Category C
Activity Category E
Activity Category F

Exhibit C

Receptor Location Map
I-39 Reconstruction -
US 20 to Harrison Ave.



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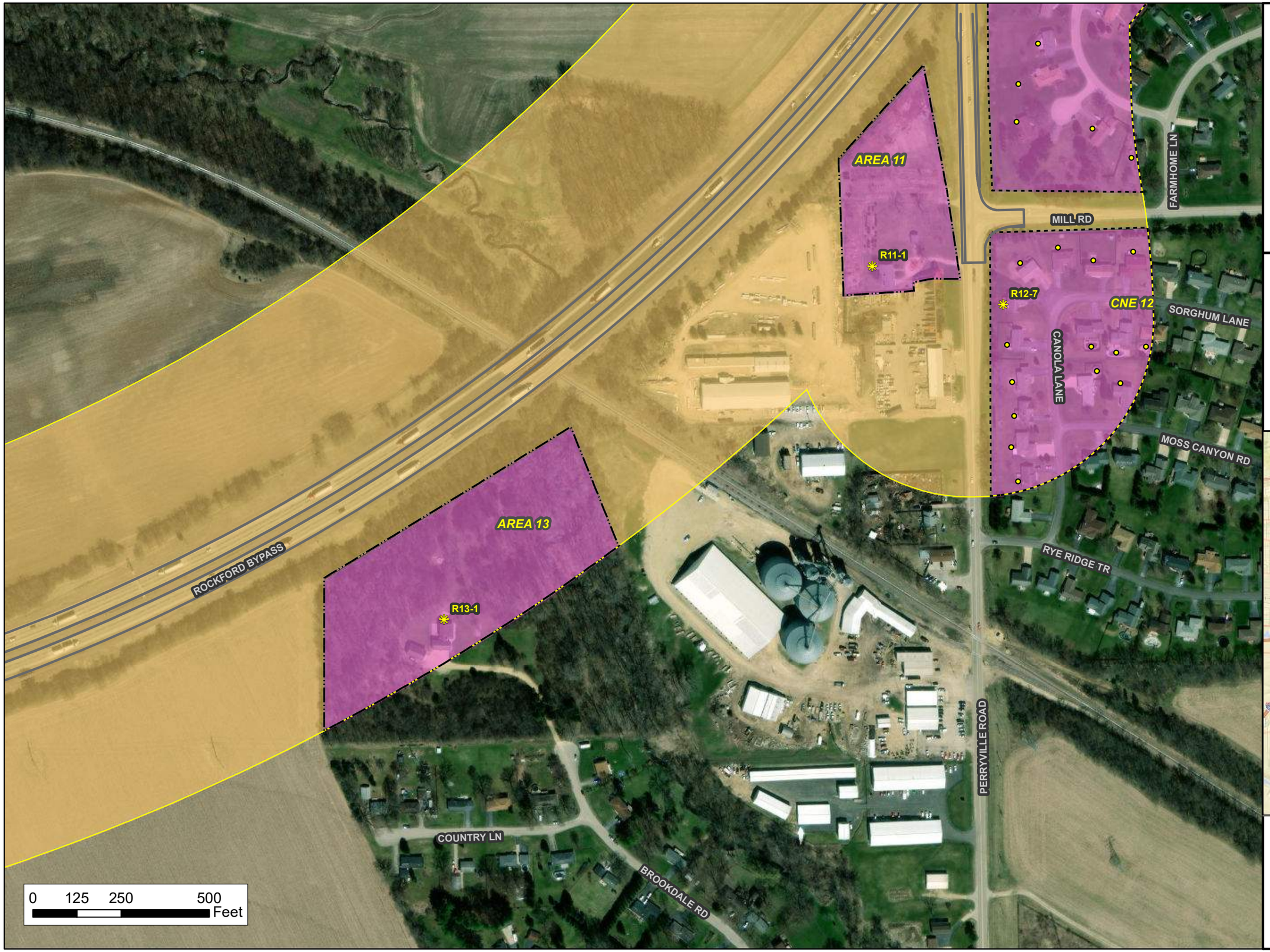
R10-1
V-10
CNE 10
AREA 11
PERRYVILLE ROAD
ROCKFORD BYPASS
HAYMAKER LN
GNARL TREE LN
FURROW CT
WHEATLAND TERR
CORNFLOWER RD
GLORIA CT
THISTLEDOWN CT
FARMHOME LN
RAIL FENCE RD
MILL RD
RUSSET WOOD TR

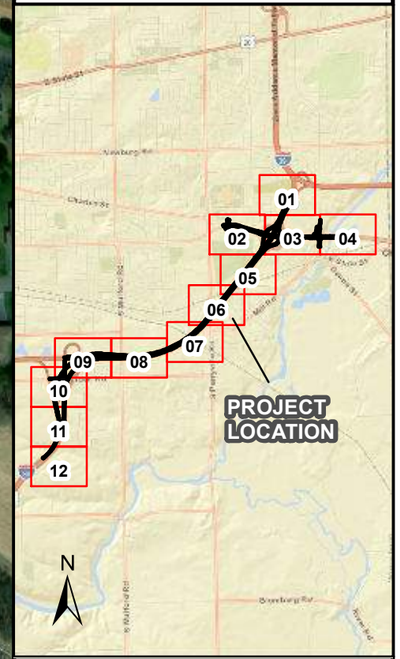
0 125 250 500 Feet



Validation Point
Receptor
Representative Receptor
CNE
Area
500-ft Buffer
Design EOP and Shoulder
Activity Category B
Activity Category C
Activity Category E
Activity Category F

Exhibit C

Receptor Location Map
I-39 Reconstruction -
US 20 to Harrison Ave.



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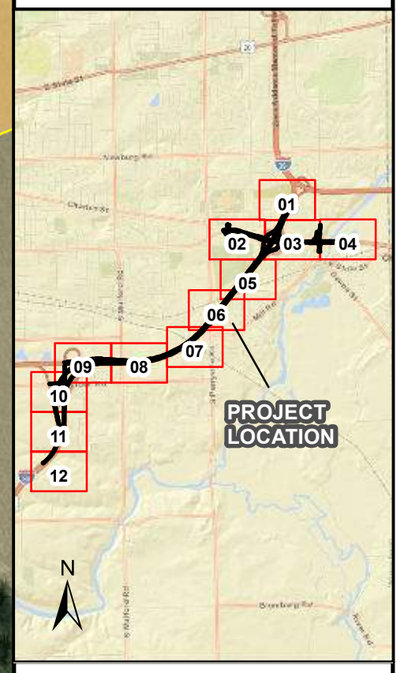
Validation Point
Receptor
Representative Receptor
CNE
Area
500-ft Buffer
Design EOP and Shoulder
Activity Category B
Activity Category C
Activity Category E
Activity Category F

Exhibit C

Receptor Location Map
I-39 Reconstruction -
US 20 to Harrison Ave.

MULFORD RD
I39
ROCKFORD BYPASS
CNE 16
AREA 14
V-14
R14-1
R16-24
PALOMINO PKWY
CALICO CIR
SHETLAND RD
LINDEN RD
DELVIEW RD
WHITEFRIARS WAY
0 125 250 500 Feet



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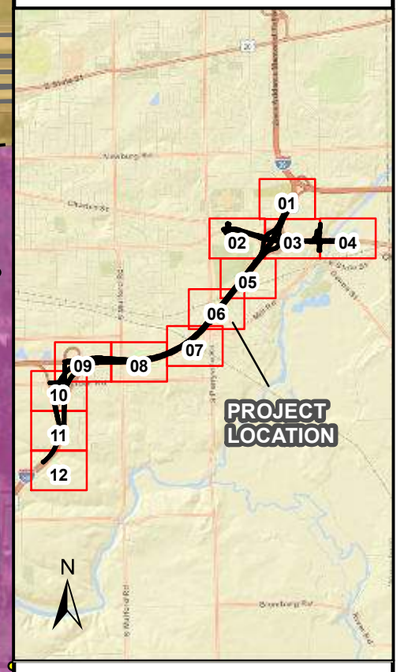
Validation Point
Receptor
Representative Receptor
CNE
Area
500-ft Buffer
Design EOP and Shoulder
Activity Category B
Activity Category C
Activity Category E
Activity Category F

Exhibit C

Receptor Location Map
I-39 Reconstruction -
US 20 to Harrison Ave.



PUBLISHERS DR
I39NB TO US20WB
ROCKFORD BYPASS
I39
CNE 16
PALOMINO PKWY
CALICO CIR
REDWOOD DR
PINTO PL
V-16
0 125 250 500 Feet

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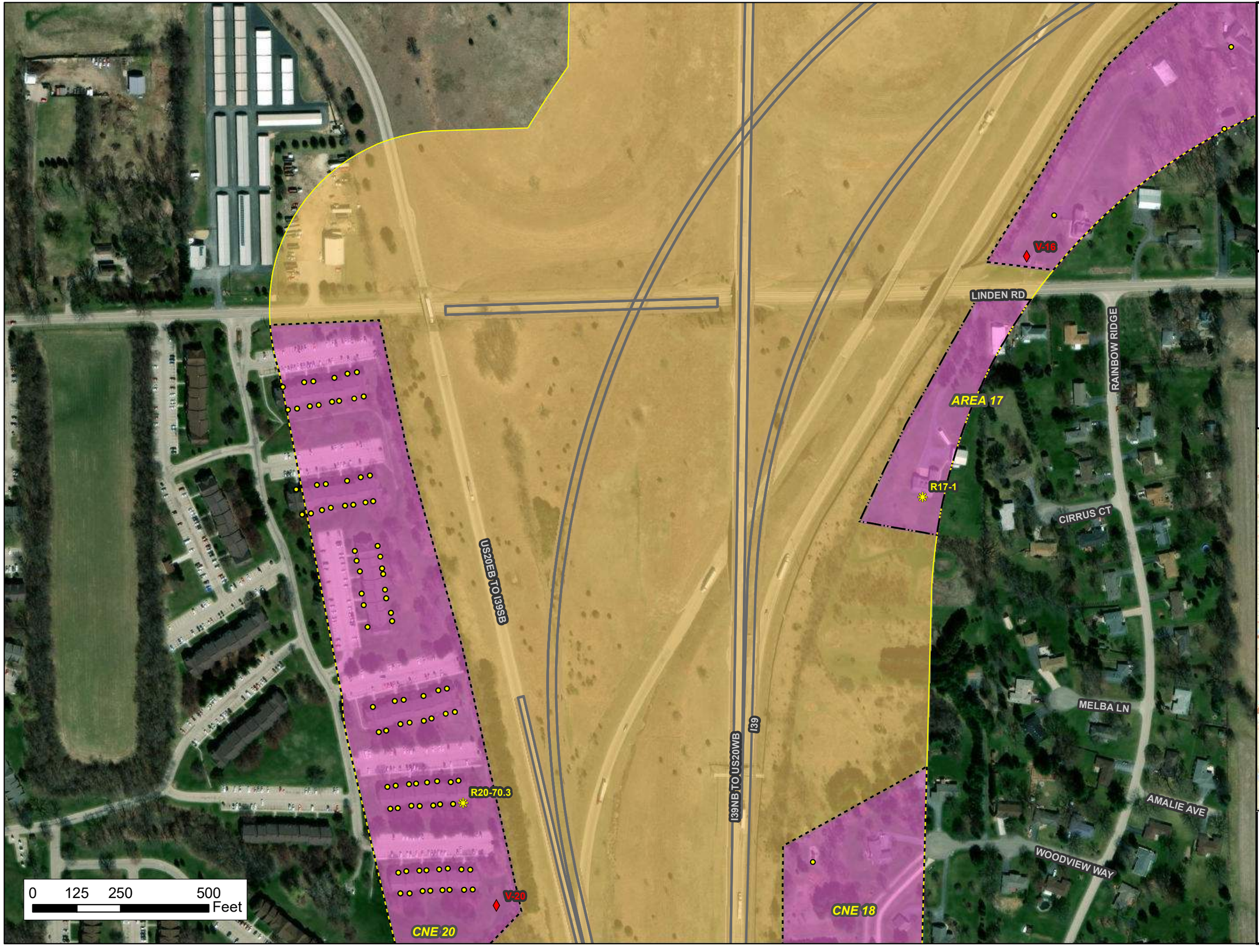
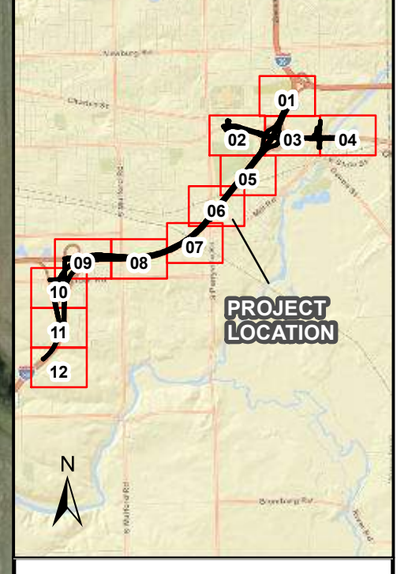


Validation Point
Receptor
Representative Receptor
CNE
Area
500-ft Buffer
Design EOP and Shoulder
Activity Category B
Activity Category C
Activity Category E
Activity Category F

Exhibit C

Receptor Location Map
I-39 Reconstruction -
US 20 to Harrison Ave.



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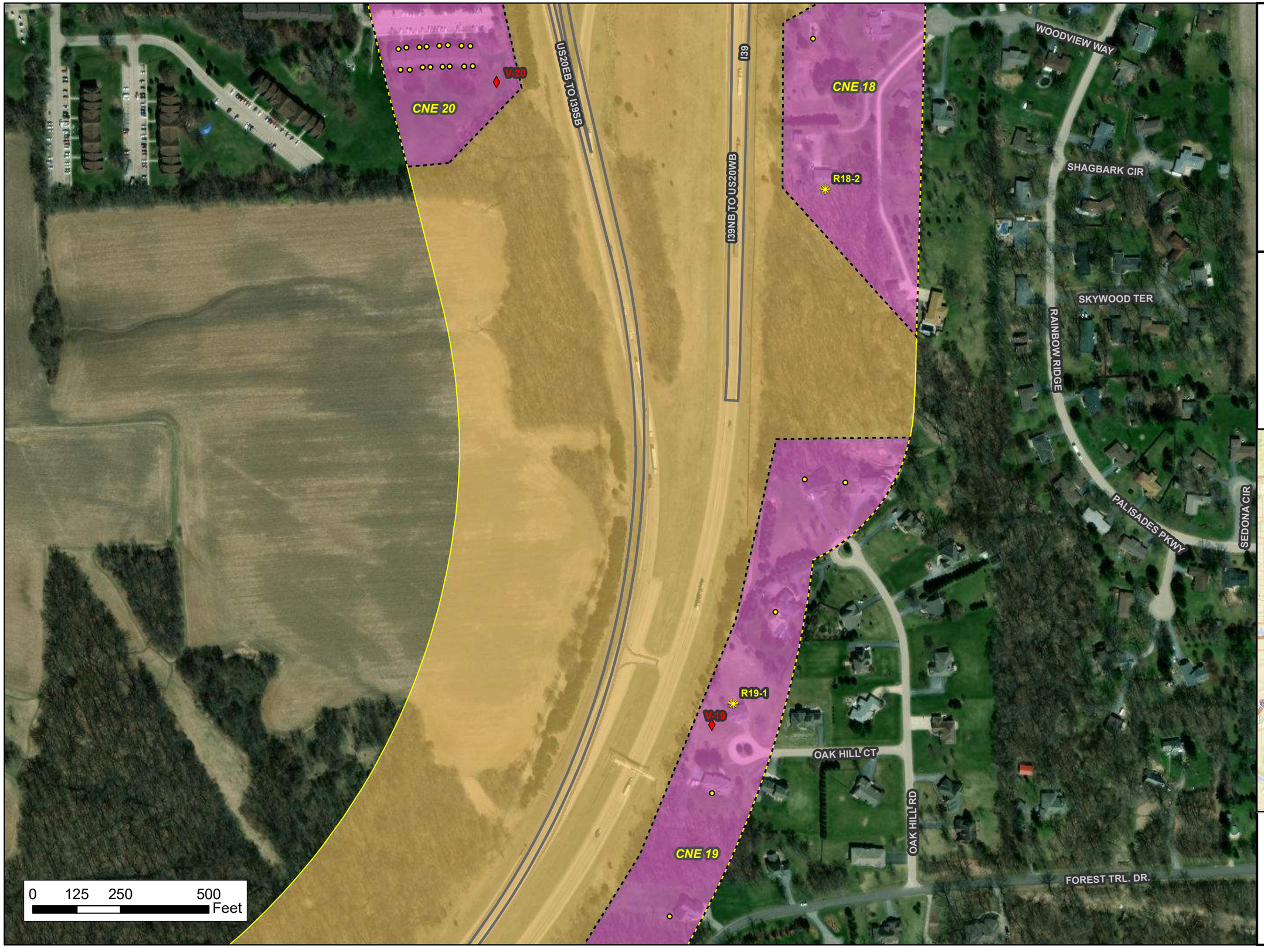
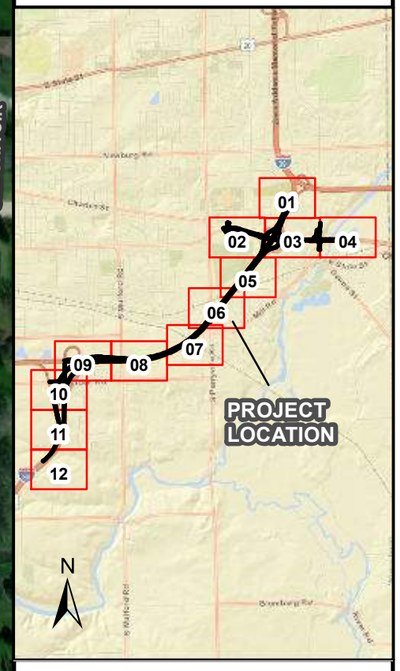


Validation Point
Receptor
Representative Receptor
CNE
Area
500-ft Buffer
Design EOP and Shoulder
Activity Category B
Activity Category C
Activity Category E
Activity Category F

Exhibit C

Receptor Location Map
I-39 Reconstruction -
US 20 to Harrison Ave.



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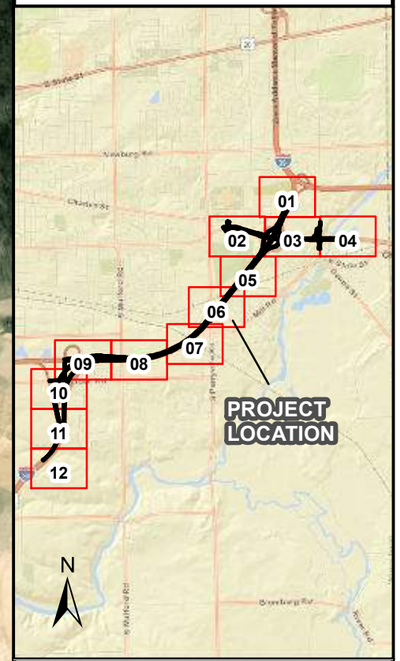
Validation Point
Receptor
Representative Receptor
CNE
Area
500-ft Buffer
Design EOP and Shoulder
Activity Category B
Activity Category C
Activity Category E
Activity Category F

Exhibit C

Receptor Location Map
I-39 Reconstruction -
US 20 to Harrison Ave.



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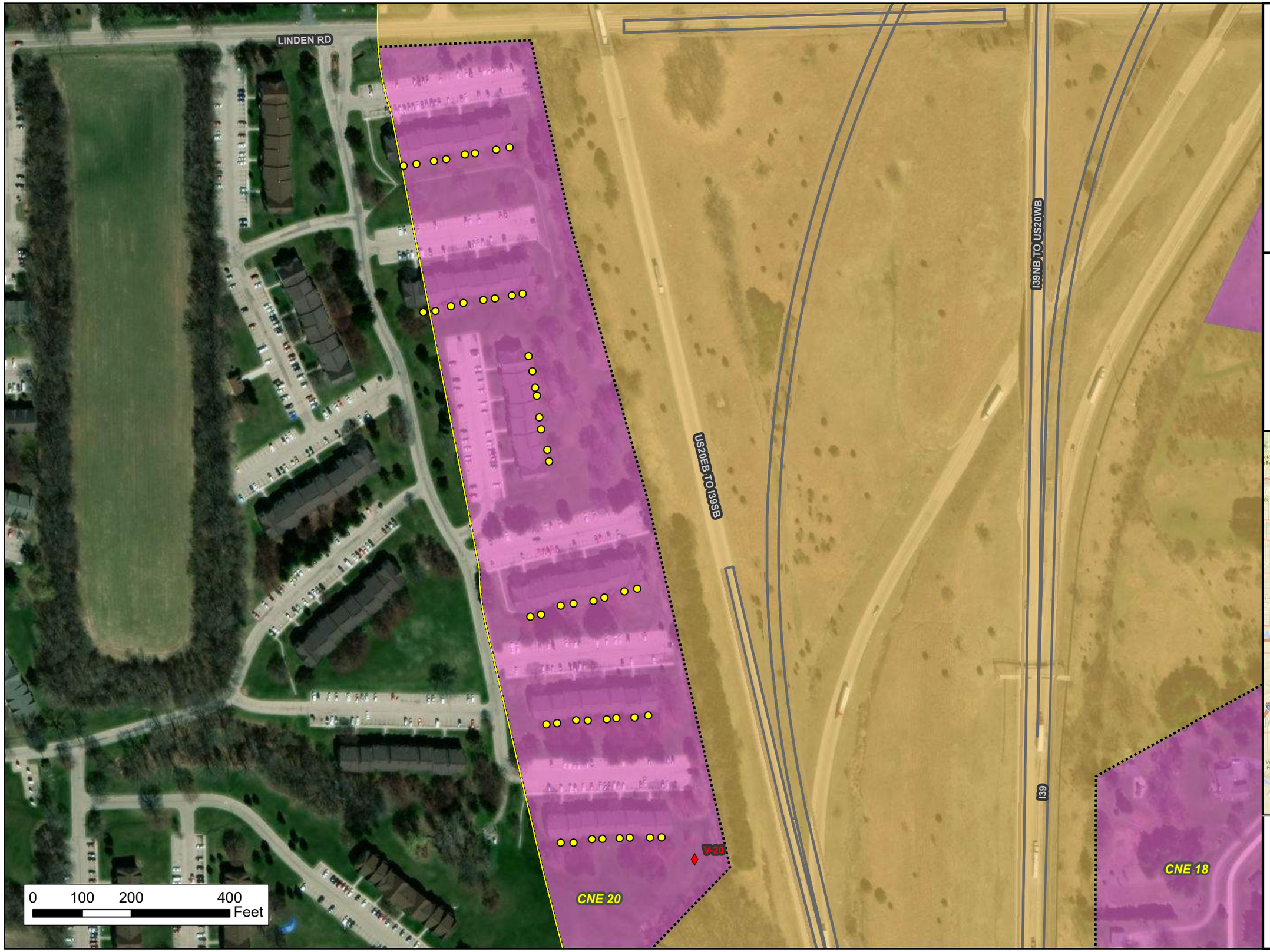

Validaiton Point
Receptor
Representative Receptor
CNE
500-ft Buffer
Design EOP and Shoulder
Activity Category B
Activity Category C
Activity Category E
Activity Category F

Exhibit C

Receptor Location Map
(1st Floor Receptors, CNE 20)

I-39 Reconstruction -
US 20 to Harrison Ave.

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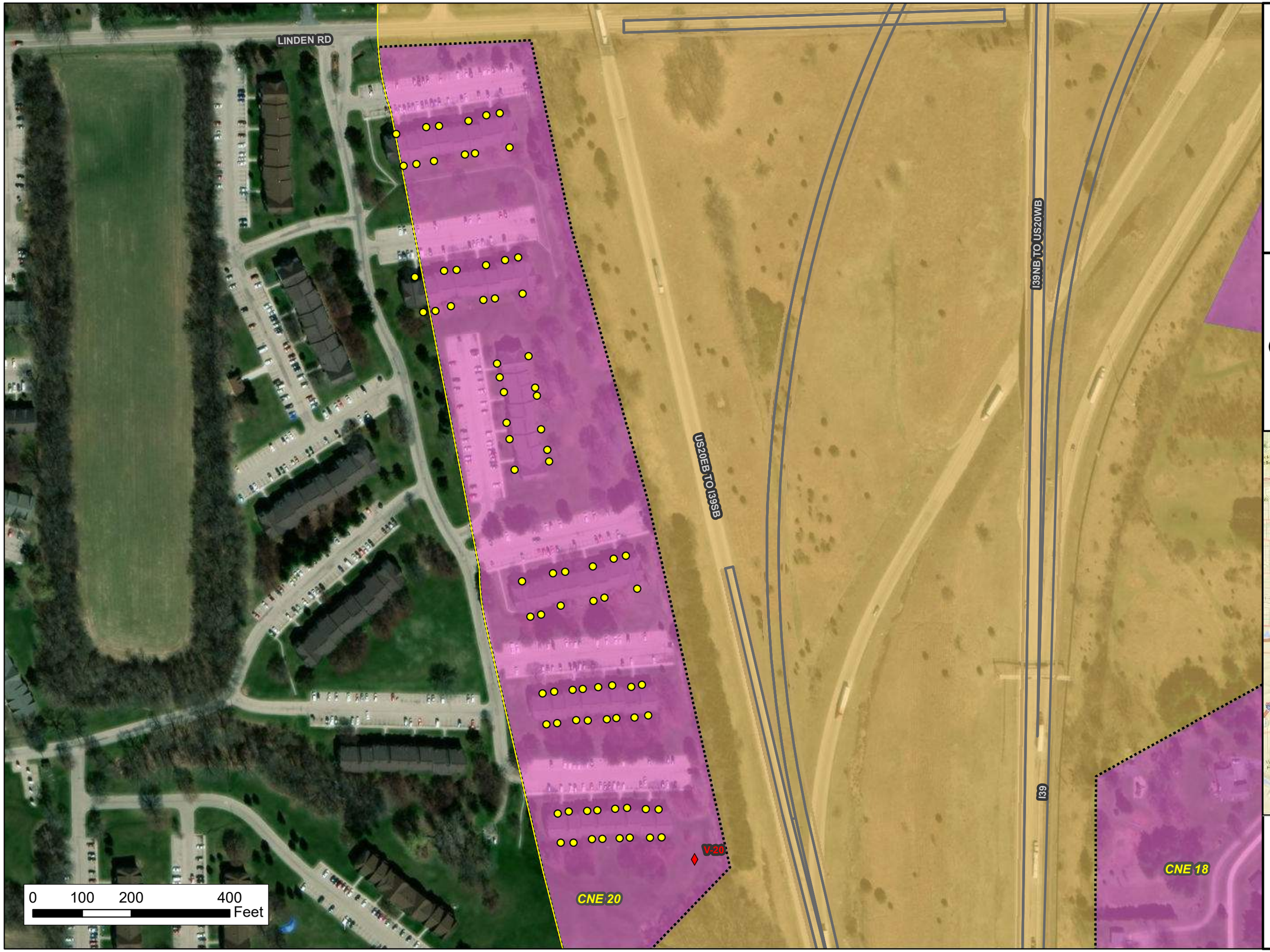

Validaiton Point
Receptor
Representative Receptor
CNE
500-ft Buffer
Design EOP and Shoulder
Activity Category B
Activity Category C
Activity Category E
Activity Category F

Exhibit C

Receptor Location Map
(2nd Floor Receptors, CNE 20)

I-39 Reconstruction -
US 20 to Harrison Ave.

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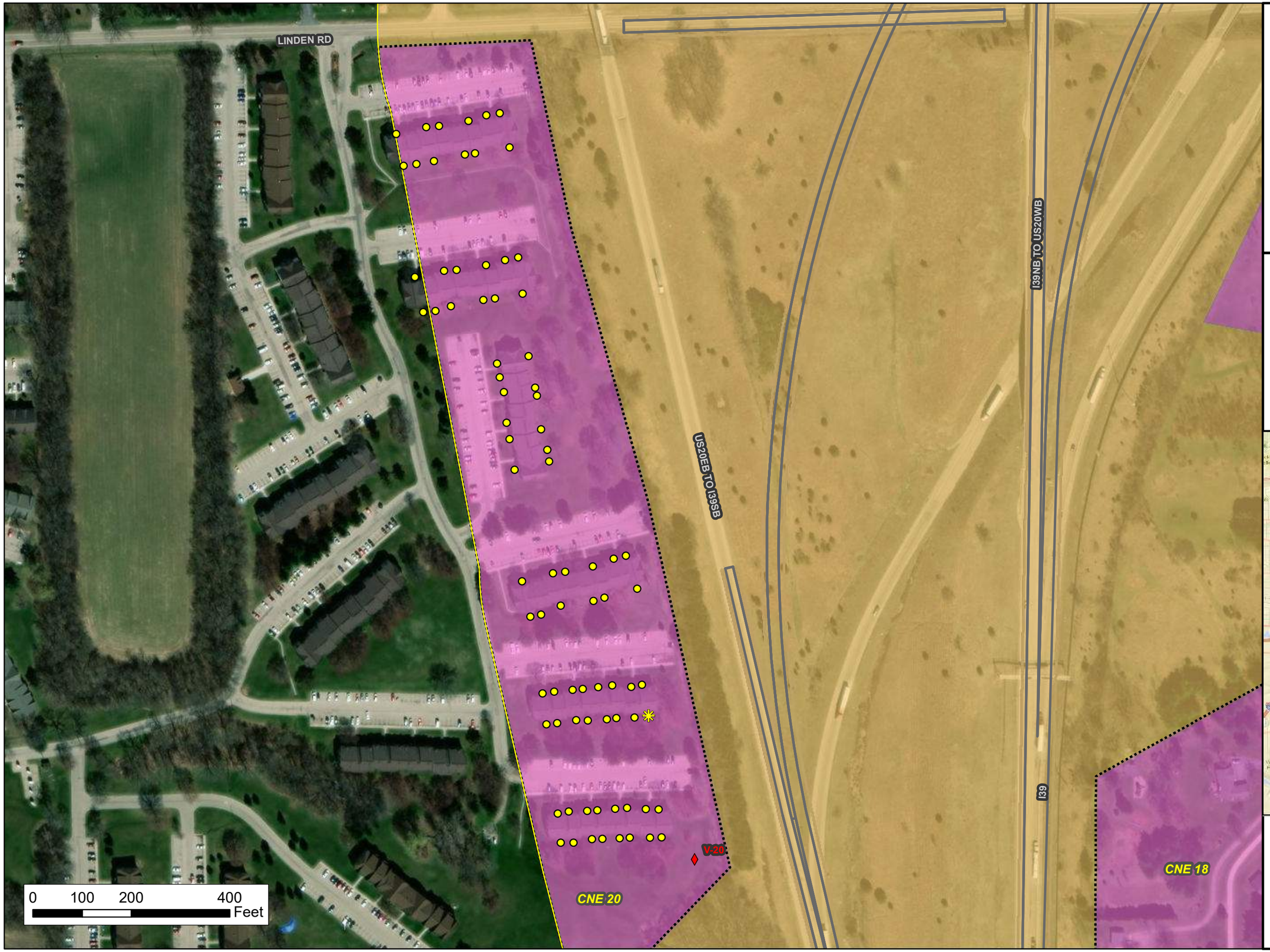

Validaiton Point
Receptor
Representative Receptor
CNE
500-ft Buffer
Design EOP and Shoulder
Activity Category B
Activity Category C
Activity Category E
Activity Category F

Exhibit C

Receptor Location Map
(3rd Floor Receptors, CNE 20)

I-39 Reconstruction -
US 20 to Harrison Ave.

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EXHIBIT D

MODEL VALIDATION DATA AND TNM 2.5 MODEL OUTPUT

Exhibit D

Noise Analysis Receptor Summary
Existing and Future Scenarios

Noise Level Comparison	
XX	Approaches or Exceeds Noise Abatement Criteria
XX	Substantial Increase (≥15 dBA Leq)

Receptor			FHWA Noise Abatement Criteria		2015 Existing Condition	2035 No Build Conditions	Δ Existing, No Build	2035 Build Conditions	Δ Existing, Build
ID	Repres-entative	Dwelling Units	Activity Category	Activity Criteria $L_{eq}(h)$	L_{eq}	L_{eq}	L_{eq}	L_{eq}	L_{eq}
R01-1	*	1	C	67.0	65.3	67.1	1.8	65.6	0.3
R01-2		1	C	67.0	64.3	66.0	1.7	64.5	0.2
R02-1	*	1	B	67.0	57.1	59.3	2.2	59.7	2.6
R03-01	*	1	C	67.0	63.9	66.1	2.2	65.1	1.2
R03-02		1	C	67.0	57.4	59.6	2.2	60.2	2.8
R04-01	*	1	B	67.0	65.6	67.8	2.2	68.5	2.9
R04-02		1	B	67.0	64.7	66.9	2.2	67.5	2.8
R04-03		1	B	67.0	61.1	63.2	2.1	63.8	2.7
R04-04		1	B	67.0	62.5	64.7	2.2	65.1	2.6
R04-05		1	B	67.0	62.7	64.9	2.2	64.9	2.2
R04-06		1	B	67.0	60.4	62.6	2.2	63.2	2.8
R04-07		1	B	67.0	59.4	61.5	2.1	62.1	2.7
R04-08		1	B	67.0	58.6	60.7	2.1	61.2	2.6
R04-09		1	B	67.0	58.2	60.4	2.2	61.0	2.8
R04-10		1	B	67.0	59.5	61.6	2.1	61.8	2.3
R04-11		1	B	67.0	58.5	60.7	2.2	60.7	2.2
R04-12		1	B	67.0	59.0	61.1	2.1	60.7	1.7
R04-13		1	B	67.0	57.9	60.0	2.1	60.5	2.6
R05-01	*	1	B	67.0	68.6	70.5	1.9	69.6	1.0
R05-02		1	B	67.0	67.8	69.6	1.8	66.9	-0.9
R05-03		1	B	67.0	66.0	67.8	1.8	65.5	-0.5
R05-04		1	B	67.0	64.3	66.2	1.9	64.2	-0.1
R05-05		1	B	67.0	64.1	65.9	1.8	64.1	0.0
R05-06		1	B	67.0	63.0	64.8	1.8	63.3	0.3
R05-07		1	B	67.0	64.1	65.9	1.8	64.6	0.5
R05-08		1	B	67.0	65.3	67.1	1.8	65.8	0.5
R05-09		1	B	67.0	62.3	64.2	1.9	62.8	0.5
R05-10		1	B	67.0	64.8	66.7	1.9	65.5	0.7
R05-11		1	B	67.0	60.9	62.8	1.9	61.8	0.9
R05-12		1	B	67.0	62.3	64.2	1.9	63.2	0.9
R05-13		1	B	67.0	63.3	65.2	1.9	64.3	1.0
R05-14		1	B	67.0	61.7	63.7	2.0	62.8	1.1
R05-15		1	B	67.0	62.8	64.8	2.0	64.1	1.3
R05-16		1	B	67.0	61.2	63.2	2.0	62.6	1.4
R05-17		1	B	67.0	62.7	64.8	2.1	64.5	1.8
R05-18		1	B	67.0	60.0	62.1	2.1	61.8	1.8
R05-19		1	B	67.0	62.0	64.1	2.1	64.0	2.0
R06-01	*	1	C	67.0	68.6	70.4	1.8	67.4	-1.2
R06-02		1	C	67.0	66.5	68.3	1.8	65.8	-0.7
R07-1	*	1	B	67.0	66.0	67.8	1.8	65.8	-0.2

Exhibit D

Noise Analysis Receptor Summary
Existing and Future Scenarios

Noise Level Comparison	
XX	Approaches or Exceeds Noise Abatement Criteria
XX	Substantial Increase (≥15 dBA Leq)

Receptor			FHWA Noise Abatement Criteria		2015 Existing Condition	2035 No Build Conditions	Δ Existing, No Build	2035 Build Conditions	Δ Existing, Build
ID	Repres-entative	Dwelling Units	Activity Category	Activity Criteria $L_{eq}(h)$	L_{eq}	L_{eq}	L_{eq}	L_{eq}	L_{eq}
R07-2		1	B	67.0	63.8	65.7	1.9	64.0	0.2
R07-3		1	B	67.0	62.4	64.3	1.9	62.8	0.4
R07-4		1	B	67.0	65.1	67.0	1.9	65.7	0.6
R07-5		1	B	67.0	64.6	66.5	1.9	65.6	1.0
R08-01	*	1	B	67.0	70.7	72.5	1.8	71.9	1.2
R08-02		1	B	67.0	67.5	69.2	1.7	68.8	1.3
R08-03		1	B	67.0	66.1	67.9	1.8	67.0	0.9
R08-04		1	B	67.0	66.5	68.3	1.8	68.3	1.8
R08-05		1	B	67.0	65.3	67.1	1.8	66.7	1.4
R08-06		1	B	67.0	66.4	68.2	1.8	67.8	1.4
R08-07		1	B	67.0	67.0	68.9	1.9	68.5	1.5
R08-08		1	B	67.0	67.9	69.8	1.9	69.4	1.5
R08-09		1	B	67.0	66.6	68.5	1.9	67.7	1.1
R08-10		1	B	67.0	69.1	71.0	1.9	70.5	1.4
R08-11		1	B	67.0	67.5	69.4	1.9	68.7	1.2
R08-12		1	B	67.0	69.2	71.1	1.9	70.2	1.0
R08-13		1	B	67.0	69.5	71.4	1.9	70.3	0.8
R09-01		1	B	67.0	73.9	76.0	2.1	74.8	0.9
R09-02		1	B	67.0	72.6	74.7	2.1	73.1	0.5
R09-03		1	B	67.0	72.2	74.3	2.1	72.9	0.7
R09-04		1	B	67.0	73.0	75.0	2.0	73.9	0.9
R09-05		1	B	67.0	73.6	75.7	2.1	74.5	0.9
R09-06		1	B	67.0	73.1	75.1	2.0	74.1	1.0
R09-07		1	B	67.0	73.6	75.7	2.1	74.6	1.0
R09-08		1	B	67.0	73.2	75.2	2.0	74.2	1.0
R09-09		1	B	67.0	73.6	75.7	2.1	74.9	1.3
R09-10		1	B	67.0	74.2	76.2	2.0	75.3	1.1
R09-11		1	B	67.0	73.7	75.7	2.0	74.8	1.1
R09-12	*	1	B	67.0	74.9	76.9	2.0	75.5	0.6
R09-13		1	B	67.0	71.2	73.2	2.0	72.2	1.0
R09-14		1	B	67.0	68.9	70.9	2.0	70.4	1.5
R09-15		1	B	67.0	67.7	69.7	2.0	68.9	1.2
R09-16		1	B	67.0	65.7	67.6	1.9	67.0	1.3
R09-17		1	B	67.0	68.3	70.3	2.0	70.2	1.9
R09-18		1	B	67.0	66.4	68.4	2.0	68.0	1.6
R09-19		1	B	67.0	68.6	70.6	2.0	70.3	1.7
R09-20		1	B	67.0	68.8	70.8	2.0	70.3	1.5
R09-21		1	B	67.0	65.9	67.9	2.0	67.6	1.7
R09-22		1	B	67.0	66.8	68.8	2.0	68.7	1.9
R09-23		1	B	67.0	68.2	70.2	2.0	69.7	1.5

Exhibit D

Noise Analysis Receptor Summary
Existing and Future Scenarios

Noise Level Comparison	
XX	Approaches or Exceeds Noise Abatement Criteria
XX	Substantial Increase (≥15 dBA Leq)

Receptor			FHWA Noise Abatement Criteria		2015 Existing Condition	2035 No Build Conditions	Δ Existing, No Build	2035 Build Conditions	Δ Existing, Build
ID	Repres-entative	Dwelling Units	Activity Category	Activity Criteria $L_{eq}(h)$	L_{eq}	L_{eq}	L_{eq}	L_{eq}	L_{eq}
R09-24		1	B	67.0	66.3	68.3	2.0	67.9	1.6
R09-25		1	B	67.0	67.6	69.6	2.0	68.9	1.3
R09-26		1	B	67.0	68.0	70.1	2.1	69.6	1.6
R09-27		1	B	67.0	68.6	70.7	2.1	69.8	1.2
R10-01	*	1	B	67.0	73.4	75.5	2.1	71.4	-2.0
R10-02		1	B	67.0	67.6	69.5	1.9	68.7	1.1
R10-03		1	B	67.0	67.0	68.9	1.9	68.1	1.1
R10-04		1	B	67.0	67.1	69.0	1.9	69.3	2.2
R10-05		1	B	67.0	70.2	72.2	2.0	73.3	3.1
R10-06		1	B	67.0	70.7	72.7	2.0	73.1	2.4
R10-07		1	B	67.0	73.0	75.1	2.1	74.7	1.7
R10-08		1	B	67.0	72.2	74.3	2.1	74.0	1.8
R10-09		1	B	67.0	71.1	73.2	2.1	73.1	2.0
R10-10		1	B	67.0	72.9	74.9	2.0	74.4	1.5
R10-11		1	B	67.0	71.5	73.5	2.0	73.3	1.8
R10-12		1	B	67.0	71.8	73.8	2.0	73.1	1.3
R10-13		1	B	67.0	71.7	73.8	2.1	73.0	1.3
R10-14		1	B	67.0	71.8	73.8	2.0	72.9	1.1
R10-15		1	B	67.0	71.8	73.9	2.1	73.0	1.2
R10-16		1	B	67.0	71.3	73.3	2.0	72.4	1.1
R10-17		1	B	67.0	71.5	73.5	2.0	72.5	1.0
R10-18		1	B	67.0	71.1	73.2	2.1	72.0	0.9
R10-19		1	B	67.0	71.8	73.9	2.1	71.6	-0.2
R10-20		1	B	67.0	71.7	73.8	2.1	71.3	-0.4
R10-21		1	B	67.0	71.8	73.9	2.1	70.8	-1.0
R10-22		1	B	67.0	72.0	74.0	2.0	70.4	-1.6
R10-23		1	B	67.0	73.0	75.0	2.0	71.0	-2.0
R10-24		1	B	67.0	72.9	75.0	2.1	71.3	-1.6
R10-25		1	B	67.0	70.9	72.9	2.0	70.0	-0.9
R10-26		1	B	67.0	68.9	70.9	2.0	69.0	0.1
R10-27		1	B	67.0	67.6	69.6	2.0	68.2	0.6
R10-28		1	B	67.0	66.6	68.7	2.1	67.4	0.8
R10-29		1	B	67.0	66.5	68.6	2.1	66.7	0.2
R10-30		1	B	67.0	67.8	69.9	2.1	67.6	-0.2
R10-31		1	B	67.0	67.6	69.7	2.1	67.7	0.1
R10-32		1	B	67.0	67.0	69.0	2.0	67.1	0.1
R10-33		1	B	67.0	67.6	69.6	2.0	67.9	0.3
R10-34		1	B	67.0	67.2	69.2	2.0	68.0	0.8
R10-35		1	B	67.0	67.1	69.2	2.1	68.0	0.9
R10-36		1	B	67.0	66.8	68.9	2.1	68.1	1.3

Exhibit D

Noise Analysis Receptor Summary
Existing and Future Scenarios

Noise Level Comparison	
XX	Approaches or Exceeds Noise Abatement Criteria
XX	Substantial Increase (≥15 dBA Leq)

Receptor			FHWA Noise Abatement Criteria		2015 Existing Condition	2035 No Build Conditions	Δ Existing, No Build	2035 Build Conditions	Δ Existing, Build
ID	Repres-entative	Dwelling Units	Activity Category	Activity Criteria $L_{eq}(h)$	L_{eq}	L_{eq}	L_{eq}	L_{eq}	L_{eq}
R10-37		1	B	67.0	67.5	69.5	2.0	69.0	1.5
R10-38		1	B	67.0	65.9	67.9	2.0	67.5	1.6
R10-39		1	B	67.0	67.4	69.4	2.0	69.0	1.6
R10-40		1	B	67.0	67.7	69.7	2.0	69.2	1.5
R10-41		1	B	67.0	67.5	69.5	2.0	69.3	1.8
R10-42		1	B	67.0	67.2	69.2	2.0	69.3	2.1
R10-43		1	B	67.0	67.4	69.4	2.0	69.5	2.1
R10-44		1	B	67.0	67.2	69.2	2.0	69.4	2.2
R10-45		1	B	67.0	67.1	69.1	2.0	69.5	2.4
R10-46		1	B	67.0	66.6	68.6	2.0	69.1	2.5
R10-47		1	B	67.0	65.0	67.0	2.0	66.8	1.8
R10-48		1	B	67.0	63.7	65.7	2.0	65.6	1.9
R11-1	*	1	B	67.0	67.6	69.5	1.9	69.0	1.4
R12-01		1	B	67.0	65.7	67.5	1.8	67.7	2.0
R12-02		1	B	67.0	65.0	66.6	1.6	66.6	1.6
R12-03		1	B	67.0	65.9	67.4	1.5	67.3	1.4
R12-04		1	B	67.0	65.2	66.7	1.5	66.9	1.7
R12-05		1	B	67.0	65.6	67.2	1.6	67.3	1.7
R12-06		1	B	67.0	66.2	67.8	1.6	67.9	1.7
R12-07	*	1	B	67.0	67.0	68.7	1.7	68.6	1.6
R12-08		1	B	67.0	65.1	67.1	2.0	67.0	1.9
R12-09		1	B	67.0	63.6	65.5	1.9	65.3	1.7
R12-10		1	B	67.0	62.5	64.5	2.0	64.7	2.2
R12-11		1	B	67.0	61.7	63.7	2.0	63.4	1.7
R12-12		1	B	67.0	62.0	64.0	2.0	63.8	1.8
R12-13		1	B	67.0	62.5	64.5	2.0	64.2	1.7
R12-14		1	B	67.0	62.1	64.0	1.9	63.8	1.7
R12-15		1	B	67.0	61.8	63.7	1.9	63.4	1.6
R13-1	*	1	B	67.0	67.2	69.4	2.2	67.9	0.7
R14-1	*	1	C	67.0	65.9	69.1	3.2	69.8	3.9
R15-1	*	1	E	72.0	66.1	69.0	2.9	69.2	3.1
R16-01		1	B	67.0	64.6	67.3	2.7	67.4	2.8
R16-02		1	B	67.0	64.6	66.8	2.2	63.3	-1.3
R16-03		1	B	67.0	61.7	64.2	2.5	63.4	1.7
R16-04		1	B	67.0	64.1	66.4	2.3	65.2	1.1
R16-05		1	B	67.0	64.5	67.0	2.5	66.5	2.0
R16-06		1	B	67.0	63.6	66.1	2.5	65.6	2.0
R16-07		1	B	67.0	64.8	67.5	2.7	67.1	2.3
R16-08		1	B	67.0	63.1	65.7	2.6	65.3	2.2
R16-09		1	B	67.0	64.8	67.5	2.7	67.1	2.3

Exhibit D

Noise Analysis Receptor Summary
Existing and Future Scenarios

Noise Level Comparison	
XX	Approaches or Exceeds Noise Abatement Criteria
XX	Substantial Increase (≥15 dBA Leq)

Receptor			FHWA Noise Abatement Criteria		2015 Existing Condition	2035 No Build Conditions	Δ Existing, No Build	2035 Build Conditions	Δ Existing, Build
ID	Repres-entative	Dwelling Units	Activity Category	Activity Criteria $L_{eq}(h)$	L_{eq}	L_{eq}	L_{eq}	L_{eq}	L_{eq}
R16-10		1	B	67.0	64.9	67.6	2.7	67.3	2.4
R16-11		1	B	67.0	63.0	65.7	2.7	65.5	2.5
R16-12		1	B	67.0	64.6	67.4	2.8	67.5	2.9
R16-13		1	B	67.0	64.6	67.4	2.8	67.3	2.7
R16-14		1	B	67.0	63.1	65.8	2.7	65.8	2.7
R16-15		1	B	67.0	64.5	67.3	2.8	67.3	2.8
R16-16		1	B	67.0	64.5	67.3	2.8	67.3	2.8
R16-17		1	B	67.0	63.4	66.2	2.8	66.3	2.9
R16-18		1	B	67.0	64.4	67.3	2.9	67.4	3.0
R16-19		1	B	67.0	64.4	67.3	2.9	67.6	3.2
R16-20		1	B	67.0	64.7	67.7	3.0	68.2	3.5
R16-21		1	B	67.0	65.8	68.8	3.0	70.1	4.3
R16-22		1	B	67.0	67.6	70.8	3.2	71.2	3.6
R16-23		1	B	67.0	64.3	67.1	2.8	67.0	2.7
R16-24	*	1	B	67.0	69.8	73.1	3.3	73.4	3.6
R16-25		1	B	67.0	63.4	66.2	2.8	66.3	2.9
R16-26		1	B	67.0	62.1	65.0	2.9	64.9	2.8
R16-27		1	B	67.0	63.5	66.5	3.0	66.3	2.8
R16-28		1	B	67.0	66.4	69.6	3.2	69.4	3.0
R16-29		1	B	67.0	63.8	66.2	2.4	66.2	2.4
R16-30		1	B	67.0	64.0	66.5	2.5	66.5	2.5
R16-31		1	B	67.0	64.2	66.7	2.5	66.7	2.5
R16-32		1	B	67.0	65.6	68.4	2.8	68.3	2.7
R16-33		1	B	67.0	67.4	70.4	3.0	70.3	2.9
R17-1	*	1	B	67.0	62.8	65.0	2.2	60.5	-2.3
R18-1		1	B	67.0	61.6	63.8	2.2	63.8	2.2
R18-2	*	1	B	67.0	64.9	67.1	2.2	67.7	2.8
R19-1	*	1	B	67.0	68.2	70.4	2.2	70.3	2.1
R19-2		1	B	67.0	63.1	65.3	2.2	66.0	2.9
R19-3		1	B	67.0	60.8	63.0	2.2	63.6	2.8
R19-4		1	B	67.0	68.2	70.4	2.2	70.4	2.2
R19-5		1	B	67.0	67.3	69.5	2.2	68.8	1.5
R19-6		1	B	67.0	65.8	67.9	2.1	67.2	1.4
R19-7		1	B	67.0	65.4	67.6	2.2	67.0	1.6
R19-8		1	B	67.0	66.8	68.9	2.1	68.4	1.6
R20-1-07		1	B	67.0	52.1	54.3	2.2	53.1	1.0
R20-1-08		1	B	67.0	52.9	55.0	2.1	53.7	0.8
R20-1-09		1	B	67.0	53.9	56.1	2.2	54.5	0.6
R20-1-10		1	B	67.0	54.7	56.9	2.2	55.2	0.5
R20-1-11		1	B	67.0	55.7	57.9	2.2	56.2	0.5

Exhibit D

Noise Analysis Receptor Summary
Existing and Future Scenarios

Noise Level Comparison	
XX	Approaches or Exceeds Noise Abatement Criteria
XX	Substantial Increase (≥15 dBA Leq)

Receptor			FHWA Noise Abatement Criteria		2015 Existing Condition	2035 No Build Conditions	Δ Existing, No Build	2035 Build Conditions	Δ Existing, Build
ID	Repres-entative	Dwelling Units	Activity Category	Activity Criteria $L_{eq}(h)$	L_{eq}	L_{eq}	L_{eq}	L_{eq}	L_{eq}
R20-1-12		1	B	67.0	56.4	58.6	2.2	56.8	0.4
R20-1-13		1	B	67.0	58.3	60.5	2.2	58.1	-0.2
R20-1-14		1	B	67.0	59.9	62.0	2.1	60.3	0.4
R20-1-21		1	B	67.0	51.5	53.7	2.2	54.2	2.7
R20-1-22		1	B	67.0	51.9	54.1	2.2	54.6	2.7
R20-1-23		1	B	67.0	52.6	54.8	2.2	55.1	2.5
R20-1-24		1	B	67.0	53.3	55.5	2.2	56.0	2.7
R20-1-25		1	B	67.0	54.8	57.0	2.2	57.5	2.7
R20-1-26		1	B	67.0	55.6	57.8	2.2	58.4	2.8
R20-1-27		1	B	67.0	56.7	58.8	2.1	59.2	2.5
R20-1-28		1	B	67.0	57.5	59.6	2.1	59.8	2.3
R20-1-35		1	B	67.0	59.8	61.9	2.1	62.8	3.0
R20-1-36		1	B	67.0	59.8	62.0	2.2	62.6	2.8
R20-1-37		1	B	67.0	59.5	61.7	2.2	62.4	2.9
R20-1-38		1	B	67.0	59.6	61.7	2.1	62.4	2.8
R20-1-39		1	B	67.0	59.4	61.6	2.2	62.2	2.8
R20-1-40		1	B	67.0	59.4	61.6	2.2	62.0	2.6
R20-1-41		1	B	67.0	59.3	61.5	2.2	61.8	2.5
R20-1-42		1	B	67.0	59.2	61.4	2.2	61.6	2.4
R20-1-49		1	B	67.0	57.2	59.4	2.2	60.6	3.4
R20-1-50		1	B	67.0	57.7	59.9	2.2	61.2	3.5
R20-1-51		1	B	67.0	58.6	60.8	2.2	62.2	3.6
R20-1-52		1	B	67.0	59.4	61.6	2.2	63.0	3.6
R20-1-53		1	B	67.0	60.7	62.8	2.1	64.3	3.6
R20-1-54		1	B	67.0	61.5	63.7	2.2	65.3	3.8
R20-1-55		1	B	67.0	63.1	65.2	2.1	66.7	3.6
R20-1-56		1	B	67.0	63.9	66.1	2.2	67.8	3.9
R20-1-63		1	B	67.0	57.1	59.3	2.2	60.7	3.6
R20-1-64		1	B	67.0	57.6	59.7	2.1	61.3	3.7
R20-1-65		1	B	67.0	58.6	60.8	2.2	62.2	3.6
R20-1-66		1	B	67.0	59.5	61.6	2.1	63.0	3.5
R20-1-67		1	B	67.0	60.7	62.8	2.1	64.1	3.4
R20-1-68		1	B	67.0	61.3	63.5	2.2	64.6	3.3
R20-1-69		1	B	67.0	62.5	64.7	2.2	65.9	3.4
R20-1-70		1	B	67.0	64.2	66.4	2.2	68.0	3.8
R20-1-77		1	B	67.0	59.6	61.8	2.2	62.2	2.6
R20-1-78		1	B	67.0	60.0	62.2	2.2	62.6	2.6
R20-1-79		1	B	67.0	60.6	62.7	2.1	63.0	2.4
R20-1-80		1	B	67.0	61.0	63.1	2.1	63.4	2.4
R20-1-81		1	B	67.0	61.7	63.8	2.1	64.2	2.5

Exhibit D

Noise Analysis Receptor Summary
Existing and Future Scenarios

Noise Level Comparison	
XX	Approaches or Exceeds Noise Abatement Criteria
XX	Substantial Increase (≥15 dBA Leq)

Receptor			FHWA Noise Abatement Criteria		2015 Existing Condition	2035 No Build Conditions	Δ Existing, No Build	2035 Build Conditions	Δ Existing, Build
ID	Repres-entative	Dwelling Units	Activity Category	Activity Criteria $L_{eq}(h)$	L_{eq}	L_{eq}	L_{eq}	L_{eq}	L_{eq}
R20-1-82		1	B	67.0	62.1	64.2	2.1	64.6	2.5
R20-1-83		1	B	67.0	63.1	65.3	2.2	65.6	2.5
R20-1-84		1	B	67.0	63.9	66.0	2.1	66.5	2.6
R20-2-01		1	B	67.0	62.3	64.4	2.1	64.8	2.5
R20-2-02		1	B	67.0	62.9	65.0	2.1	65.4	2.5
R20-2-03		1	B	67.0	63.1	65.2	2.1	65.5	2.4
R20-2-04		1	B	67.0	63.7	65.8	2.1	66.1	2.4
R20-2-05		1	B	67.0	64.5	66.6	2.1	66.7	2.2
R20-2-06		1	B	67.0	65.1	67.3	2.2	67.2	2.1
R20-2-07		1	B	67.0	54.8	57.0	2.2	56.2	1.4
R20-2-08		1	B	67.0	55.5	57.7	2.2	56.7	1.2
R20-2-09		1	B	67.0	56.4	58.6	2.2	57.5	1.1
R20-2-11		1	B	67.0	58.2	60.4	2.2	59.4	1.2
R20-2-12		1	B	67.0	58.9	61.1	2.2	60.2	1.3
R20-2-14		1	B	67.0	62.4	64.6	2.2	63.4	1.0
R20-2-15		1	B	67.0	55.2	57.5	2.3	56.7	1.5
R20-2-16		1	B	67.0	55.8	58.1	2.3	57.3	1.5
R20-2-17		1	B	67.0	56.2	58.5	2.3	57.7	1.5
R20-2-18		1	B	67.0	57.4	59.7	2.3	58.9	1.5
R20-2-19		1	B	67.0	59.0	61.2	2.2	60.4	1.4
R20-2-20		1	B	67.0	60.5	62.7	2.2	61.9	1.4
R20-2-21		1	B	67.0	54.7	56.8	2.1	57.2	2.5
R20-2-22		1	B	67.0	55.2	57.4	2.2	57.7	2.5
R20-2-23		1	B	67.0	56.1	58.3	2.2	58.4	2.3
R20-2-25		1	B	67.0	58.4	60.6	2.2	60.9	2.5
R20-2-26		1	B	67.0	59.4	61.6	2.2	62.1	2.7
R20-2-28		1	B	67.0	61.1	63.3	2.2	63.7	2.6
R20-2-29		1	B	67.0	49.8	52.0	2.2	52.7	2.9
R20-2-30		1	B	67.0	49.3	51.5	2.2	52.3	3.0
R20-2-31		1	B	67.0	49.3	51.5	2.2	52.2	2.9
R20-2-32		1	B	67.0	49.3	51.5	2.2	52.3	3.0
R20-2-33		1	B	67.0	49.2	51.4	2.2	52.1	2.9
R20-2-34		1	B	67.0	49.1	51.3	2.2	52.0	2.9
R20-2-35		1	B	67.0	62.4	64.6	2.2	66.2	3.8
R20-2-36		1	B	67.0	62.8	65.0	2.2	66.1	3.3
R20-2-37		1	B	67.0	63.1	65.2	2.1	65.9	2.8
R20-2-39		1	B	67.0	63.1	65.3	2.2	65.7	2.6
R20-2-40		1	B	67.0	63.0	65.2	2.2	65.6	2.6
R20-2-42		1	B	67.0	62.7	64.9	2.2	65.1	2.4
R20-2-43		1	B	67.0	57.8	60.0	2.2	62.0	4.2

Exhibit D

Noise Analysis Receptor Summary
Existing and Future Scenarios

Noise Level Comparison	
XX	Approaches or Exceeds Noise Abatement Criteria
XX	Substantial Increase (≥15 dBA Leq)

Receptor			FHWA Noise Abatement Criteria		2015 Existing Condition	2035 No Build Conditions	Δ Existing, No Build	2035 Build Conditions	Δ Existing, Build
ID	Repres-entative	Dwelling Units	Activity Category	Activity Criteria $L_{eq}(h)$	L_{eq}	L_{eq}	L_{eq}	L_{eq}	L_{eq}
R20-2-44		1	B	67.0	59.2	61.4	2.2	63.4	4.2
R20-2-45		1	B	67.0	59.7	61.9	2.2	63.8	4.1
R20-2-46		1	B	67.0	60.9	63.1	2.2	65.1	4.2
R20-2-47		1	B	67.0	62.5	64.7	2.2	66.7	4.2
R20-2-48		1	B	67.0	63.8	66.0	2.2	68.0	4.2
R20-2-49		1	B	67.0	59.5	61.7	2.2	63.3	3.8
R20-2-50		1	B	67.0	60.0	62.2	2.2	64.1	4.1
R20-2-51		1	B	67.0	61.0	63.2	2.2	65.0	4.0
R20-2-53		1	B	67.0	63.2	65.3	2.1	67.4	4.2
R20-2-54		1	B	67.0	64.0	66.2	2.2	68.1	4.1
R20-2-56		1	B	67.0	66.7	68.8	2.1	70.7	4.0
R20-2-57		1	B	67.0	59.3	61.5	2.2	62.5	3.2
R20-2-58		1	B	67.0	60.6	62.8	2.2	64.1	3.5
R20-2-59		1	B	67.0	61.0	63.2	2.2	64.7	3.7
R20-2-60		1	B	67.0	62.6	64.8	2.2	66.6	4.0
R20-2-61		1	B	67.0	63.5	65.7	2.2	67.7	4.2
R20-2-62		1	B	67.0	64.7	66.9	2.2	69.0	4.3
R20-2-63		1	B	67.0	59.6	61.8	2.2	63.8	4.2
R20-2-64		1	B	67.0	60.1	62.3	2.2	64.3	4.2
R20-2-65		1	B	67.0	61.3	63.4	2.1	65.5	4.2
R20-2-66		1	B	67.0	62.3	64.4	2.1	66.2	3.9
R20-2-67		1	B	67.0	63.6	65.8	2.2	67.5	3.9
R20-2-68		1	B	67.0	64.3	66.5	2.2	68.0	3.7
R20-2-69		1	B	67.0	65.7	67.9	2.2	69.4	3.7
R20-2-70		1	B	67.0	67.6	69.8	2.2	71.1	3.5
R20-2-71		1	B	67.0	62.2	64.4	2.2	64.8	2.6
R20-2-72		1	B	67.0	61.5	63.7	2.2	64.6	3.1
R20-2-73		1	B	67.0	62.1	64.2	2.1	65.5	3.4
R20-2-74		1	B	67.0	64.0	66.2	2.2	67.5	3.5
R20-2-75		1	B	67.0	65.2	67.3	2.1	68.5	3.3
R20-2-76		1	B	67.0	66.3	68.5	2.2	69.6	3.3
R20-2-77		1	B	67.0	63.1	65.3	2.2	65.6	2.5
R20-2-78		1	B	67.0	63.4	65.6	2.2	65.9	2.5
R20-2-79		1	B	67.0	63.8	65.9	2.1	66.3	2.5
R20-2-80		1	B	67.0	64.1	66.2	2.1	66.7	2.6
R20-2-81		1	B	67.0	64.6	66.7	2.1	67.1	2.5
R20-2-82		1	B	67.0	64.9	67.1	2.2	67.4	2.5
R20-2-83		1	B	67.0	65.8	67.9	2.1	68.3	2.5
R20-2-84		1	B	67.0	66.6	68.7	2.1	69.2	2.6
R20-2-85		1	B	67.0	59.8	62.0	2.2	63.2	3.4

Exhibit D

Noise Analysis Receptor Summary
Existing and Future Scenarios

Noise Level Comparison	
XX	Approaches or Exceeds Noise Abatement Criteria
XX	Substantial Increase (≥15 dBA Leq)

Receptor			FHWA Noise Abatement Criteria		2015 Existing Condition	2035 No Build Conditions	Δ Existing, No Build	2035 Build Conditions	Δ Existing, Build
ID	Repres-entative	Dwelling Units	Activity Category	Activity Criteria $L_{eq}(h)$	L_{eq}	L_{eq}	L_{eq}	L_{eq}	L_{eq}
R20-2-86		1	B	67.0	61.8	64.0	2.2	65.8	4.0
R20-2-87		1	B	67.0	60.7	62.9	2.2	63.2	2.5
R20-2-88		1	B	67.0	63.3	65.4	2.1	66.7	3.4
R20-3-01		1	B	67.0	63.7	65.8	2.1	66.3	2.6
R20-3-02		1	B	67.0	64.2	66.4	2.2	66.9	2.7
R20-3-03		1	B	67.0	64.4	66.5	2.1	67.0	2.6
R20-3-04		1	B	67.0	65.0	67.1	2.1	67.6	2.6
R20-3-05		1	B	67.0	65.5	67.7	2.2	68.1	2.6
R20-3-06		1	B	67.0	66.2	68.3	2.1	68.7	2.5
R20-3-07		1	B	67.0	57.5	59.6	2.1	59.7	2.2
R20-3-08		1	B	67.0	58.1	60.3	2.2	60.2	2.1
R20-3-09		1	B	67.0	59.0	61.2	2.2	61.0	2.0
R20-3-11		1	B	67.0	60.9	63.1	2.2	62.9	2.0
R20-3-12		1	B	67.0	61.5	63.7	2.2	63.6	2.1
R20-3-14		1	B	67.0	64.3	66.5	2.2	66.3	2.0
R20-3-15		1	B	67.0	57.5	59.8	2.3	60.5	3.0
R20-3-16		1	B	67.0	58.4	60.7	2.3	61.4	3.0
R20-3-17		1	B	67.0	58.8	61.0	2.2	61.8	3.0
R20-3-18		1	B	67.0	60.1	62.4	2.3	62.9	2.8
R20-3-19		1	B	67.0	61.5	63.7	2.2	64.1	2.6
R20-3-20		1	B	67.0	62.7	64.9	2.2	65.1	2.4
R20-3-21		1	B	67.0	57.1	59.3	2.2	59.1	2.0
R20-3-22		1	B	67.0	57.7	59.9	2.2	59.6	1.9
R20-3-23		1	B	67.0	58.6	60.7	2.1	60.3	1.7
R20-3-25		1	B	67.0	60.7	62.9	2.2	62.9	2.2
R20-3-26		1	B	67.0	61.8	63.9	2.1	64.1	2.3
R20-3-28		1	B	67.0	63.1	65.3	2.2	66.2	3.1
R20-3-29		1	B	67.0	53.9	56.1	2.2	57.2	3.3
R20-3-30		1	B	67.0	54.1	56.3	2.2	57.3	3.2
R20-3-31		1	B	67.0	54.2	56.4	2.2	57.4	3.2
R20-3-32		1	B	67.0	53.8	56.0	2.2	57.1	3.3
R20-3-33		1	B	67.0	53.6	55.8	2.2	56.9	3.3
R20-3-34		1	B	67.0	53.2	55.4	2.2	56.4	3.2
R20-3-35		1	B	67.0	64.2	66.3	2.1	67.8	3.6
R20-3-36		1	B	67.0	64.2	66.4	2.2	67.8	3.6
R20-3-37		1	B	67.0	64.1	66.3	2.2	67.7	3.6
R20-3-39		1	B	67.0	64.1	66.3	2.2	67.6	3.5
R20-3-40		1	B	67.0	64.1	66.3	2.2	67.5	3.4
R20-3-42		1	B	67.0	64.0	66.2	2.2	67.2	3.2
R20-3-43		1	B	67.0	59.7	62.0	2.3	63.8	4.1

Exhibit D

Noise Analysis Receptor Summary
Existing and Future Scenarios

Noise Level Comparison	
XX	Approaches or Exceeds Noise Abatement Criteria
XX	Substantial Increase (≥15 dBA Leq)

Receptor			FHWA Noise Abatement Criteria		2015 Existing Condition	2035 No Build Conditions	Δ Existing, No Build	2035 Build Conditions	Δ Existing, Build
ID	Repres-entative	Dwelling Units	Activity Category	Activity Criteria $L_{eq}(h)$	L_{eq}	L_{eq}	L_{eq}	L_{eq}	L_{eq}
R20-3-44		1	B	67.0	61.2	63.4	2.2	65.2	4.0
R20-3-45		1	B	67.0	61.5	63.7	2.2	65.6	4.1
R20-3-46		1	B	67.0	62.5	64.7	2.2	67.1	4.6
R20-3-47		1	B	67.0	63.8	66.0	2.2	69.0	5.2
R20-3-48		1	B	67.0	64.9	67.0	2.1	70.0	5.1
R20-3-49		1	B	67.0	60.9	63.1	2.2	64.5	3.6
R20-3-50		1	B	67.0	61.4	63.6	2.2	65.2	3.8
R20-3-51		1	B	67.0	62.5	64.6	2.1	66.3	3.8
R20-3-53		1	B	67.0	64.7	66.9	2.2	68.7	4.0
R20-3-54		1	B	67.0	65.5	67.7	2.2	69.6	4.1
R20-3-56		1	B	67.0	67.9	70.1	2.2	72.2	4.3
R20-3-57		1	B	67.0	61.2	63.4	2.2	63.9	2.7
R20-3-58		1	B	67.0	62.5	64.7	2.2	65.7	3.2
R20-3-59		1	B	67.0	62.9	65.1	2.2	66.4	3.5
R20-3-60		1	B	67.0	64.5	66.7	2.2	68.8	4.3
R20-3-61		1	B	67.0	65.3	67.5	2.2	69.7	4.4
R20-3-62		1	B	67.0	66.4	68.5	2.1	70.8	4.4
R20-3-63		1	B	67.0	61.4	63.6	2.2	64.9	3.5
R20-3-64		1	B	67.0	61.9	64.1	2.2	65.3	3.4
R20-3-65		1	B	67.0	62.9	65.1	2.2	66.4	3.5
R20-3-66		1	B	67.0	63.7	65.9	2.2	67.1	3.4
R20-3-67		1	B	67.0	65.2	67.3	2.1	68.4	3.2
R20-3-68		1	B	67.0	65.9	68.0	2.1	69.0	3.1
R20-3-69		1	B	67.0	67.4	69.5	2.1	70.5	3.1
R20-3-70	*	1	B	67.0	69.3	71.4	2.1	72.4	3.1
R20-3-71		1	B	67.0	64.0	66.2	2.2	66.5	2.5
R20-3-72		1	B	67.0	64.0	66.1	2.1	66.4	2.4
R20-3-73		1	B	67.0	64.4	66.6	2.2	67.0	2.6
R20-3-74		1	B	67.0	65.9	68.1	2.2	69.1	3.2
R20-3-75		1	B	67.0	66.9	69.1	2.2	70.3	3.4
R20-3-76		1	B	67.0	67.9	70.1	2.2	71.3	3.4
R20-3-77		1	B	67.0	64.0	66.1	2.1	66.5	2.5
R20-3-78		1	B	67.0	64.4	66.5	2.1	66.8	2.4
R20-3-79		1	B	67.0	64.9	67.0	2.1	67.1	2.2
R20-3-80		1	B	67.0	65.2	67.4	2.2	67.5	2.3
R20-3-81		1	B	67.0	65.9	68.0	2.1	68.1	2.2
R20-3-82		1	B	67.0	66.3	68.5	2.2	68.4	2.1
R20-3-83		1	B	67.0	67.4	69.5	2.1	69.5	2.1
R20-3-84		1	B	67.0	68.2	70.4	2.2	70.4	2.2
R20-3-85		1	B	67.0	61.7	63.9	2.2	64.9	3.2

Exhibit D

Noise Analysis Receptor Summary
Existing and Future Scenarios

Noise Level Comparison	
XX	Approaches or Exceeds Noise Abatement Criteria
XX	Substantial Increase (≥15 dBA Leq)

Receptor			FHWA Noise Abatement Criteria		2015 Existing Condition	2035 No Build Conditions	Δ Existing, No Build	2035 Build Conditions	Δ Existing, Build
ID	Repres-entative	Dwelling Units	Activity Category	Activity Criteria $L_{eq}(h)$	L_{eq}	L_{eq}	L_{eq}	L_{eq}	L_{eq}
R20-3-86		1	B	67.0	63.7	65.9	2.2	67.7	4.0
R20-3-87		1	B	67.0	63.0	65.2	2.2	65.3	2.3
R20-3-88		1	B	67.0	65.3	67.5	2.2	68.2	2.9
R21-01	*	1	C	67.0	75.6	77.7	2.1	73.7	-1.9
R21-2		1	C	67.0	68.5	70.4	1.9	70.6	2.1
R22-01		1	B	67.0	65.4	68.1	2.7	66.5	1.1
R22-02		1	B	67.0	62.7	65.0	2.3	63.9	1.2
R22-03		1	B	67.0	64.8	66.8	2.0	65.2	0.4
R22-04		1	B	67.0	64.9	67.0	2.1	65.3	0.4
R22-05		1	B	67.0	64.6	66.7	2.1	65.2	0.6
R22-06		1	B	67.0	64.9	67.1	2.2	65.6	0.7
R22-07		1	B	67.0	65.5	67.7	2.2	66.3	0.8
R22-08		1	B	67.0	66.5	68.7	2.2	67.5	1.0
R22-09	*	1	B	67.0	67.0	69.2	2.2	68.1	1.1
R22-10		1	B	67.0	67.0	69.2	2.2	68.1	1.1
R22-11		1	B	67.0	66.2	68.5	2.3	67.5	1.3
R22-12		1	B	67.0	66.4	68.7	2.3	67.7	1.3
R23-1	*	1	C	67.0	68.3	70.6	2.3	71.1	2.8
R23-2		1	C	67.0	67.3	69.6	2.3	70.1	2.8
R23-3		1	C	67.0	67.9	70.1	2.2	70.6	2.7
R23-4		1	C	67.0	65.0	67.3	2.3	67.7	2.7
R23-5		1	C	67.0	66.5	68.7	2.2	69.2	2.7

Model Validation Data

Kaskaskia Engineering Group, LLC 9 November 2020
VPR TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Validation - Site 4
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
V-4	1	1	65.7	63.6	66	-2.1	10	----	63.6	0.0	8	-8.0
V-6	2	1	63.9	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-8	3	1	66.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-9	4	1	68.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-22	6	1	68.6	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-14	7	1	62.8	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-16	8	1	64.1	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-20	9	1	62.3	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-19	10	1	65.6	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-10	12	1	66.8	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	10	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Kaskaskia Engineering Group, LLC 9 November 2020
VPR TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Validation - Site 6
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
V-4	1	1	65.7	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-6	2	1	63.9	64.6	66	0.7	10	----	64.6	0.0	8	-8.0
V-8	3	1	66.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-9	4	1	68.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-22	6	1	68.6	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-14	7	1	62.8	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-16	8	1	64.1	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-20	9	1	62.3	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-19	10	1	65.6	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-10	12	1	66.8	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	10	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Kaskaskia Engineering Group, LLC 9 November 2020
VPR TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Validation - Site 8
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
V-4	1	1	65.7	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-6	2	1	63.9	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-8	3	1	66.0	69.0	66	3.0	10	Snd Lvl	69.0	0.0	8	-8.0
V-9	4	1	68.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-22	6	1	68.6	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-14	7	1	62.8	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-16	8	1	64.1	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-20	9	1	62.3	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-19	10	1	65.6	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-10	12	1	66.8	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	10	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Kaskaskia Engineering Group, LLC 9 November 2020
VPR TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Validation - Site 9
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
V-4	1	1	65.7	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-6	2	1	63.9	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-8	3	1	66.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-9	4	1	68.0	69.7	66	1.7	10	Snd Lvl	69.7	0.0	8	-8.0
V-22	6	1	68.6	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-14	7	1	62.8	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-16	8	1	64.1	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-20	9	1	62.3	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-19	10	1	65.6	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-10	12	1	66.8	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	10	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Kaskaskia Engineering Group, LLC 9 November 2020
VPR TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Validation - Site 10
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
V-4	1	1	65.7	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-6	2	1	63.9	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-8	3	1	66.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-9	4	1	68.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-22	6	1	68.6	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-14	7	1	62.8	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-16	8	1	64.1	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-20	9	1	62.3	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-19	10	1	65.6	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-10	12	1	66.8	67.6	66	0.8	10	Snd Lvl	67.6	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	10	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Kaskaskia Engineering Group, LLC 9 November 2020
VPR TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Validation - Site 14
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
V-4	1	1	65.7	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-6	2	1	63.9	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-8	3	1	66.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-9	4	1	68.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-22	6	1	68.6	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-14	7	1	62.8	61.3	66	-1.5	10	----	61.3	0.0	8	-8.0
V-16	8	1	64.1	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-20	9	1	62.3	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-19	10	1	65.6	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-10	12	1	66.8	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	10	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Kaskaskia Engineering Group, LLC 19 November 2020
VPR TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Validation - Site 16
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
V-4	1	1	65.7	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-6	2	1	63.9	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-8	3	1	66.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-9	4	1	68.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-22	6	1	68.6	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-14	7	1	62.8	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-16	8	1	64.1	62.8	66	-1.3	10	----	62.8	0.0	8	-8.0
V-20	9	1	62.3	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-19	10	1	65.6	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-10	12	1	66.8	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	10	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Kaskaskia Engineering Group, LLC 9 November 2020
VPR TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Validation - Site 19
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
V-4	1	1	65.7	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-6	2	1	63.9	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-8	3	1	66.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-9	4	1	68.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-22	6	1	68.6	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-14	7	1	62.8	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-16	8	1	64.1	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-20	9	1	62.3	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-19	10	1	65.6	68.5	66	2.9	10	Snd Lvl	68.5	0.0	8	-8.0
V-10	12	1	66.8	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	10	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Kaskaskia Engineering Group, LLC 9 November 2020
VPR TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Validation - Site 20
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
V-4	1	1	65.7	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-6	2	1	63.9	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-8	3	1	66.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-9	4	1	68.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-22	6	1	68.6	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-14	7	1	62.8	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-16	8	1	64.1	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-20	9	1	62.3	65.1	66	2.8	10	----	65.1	0.0	8	-8.0
V-19	10	1	65.6	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
V-10	12	1	66.8	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	10	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Existing (Year of Construction, 2020), No Build Alternative (2035), Build Alternative (2035)

Kaskaskia Engineering Group, LLC 6 August 2021
VPR TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Existing Scenario
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R01-1	1	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
R01-2	2	1	0.0	64.3	66	64.3	10	----	64.3	0.0	8	-8.0
R02-1	3	1	0.0	57.1	66	57.1	10	----	57.1	0.0	8	-8.0
R03-01	4	1	0.0	63.9	66	63.9	10	----	63.9	0.0	8	-8.0
R03-02	5	1	0.0	57.4	66	57.4	10	----	57.4	0.0	8	-8.0
R04-01	6	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0
R04-02	7	1	0.0	64.7	66	64.7	10	----	64.7	0.0	8	-8.0
R04-03	8	1	0.0	61.1	66	61.1	10	----	61.1	0.0	8	-8.0
R04-04	9	1	0.0	62.5	66	62.5	10	----	62.5	0.0	8	-8.0
R04-05	10	1	0.0	62.7	66	62.7	10	----	62.7	0.0	8	-8.0
R04-06	11	1	0.0	60.4	66	60.4	10	----	60.4	0.0	8	-8.0
R04-07	12	1	0.0	59.4	66	59.4	10	----	59.4	0.0	8	-8.0
R04-08	13	1	0.0	58.6	66	58.6	10	----	58.6	0.0	8	-8.0
R04-09	14	1	0.0	58.2	66	58.2	10	----	58.2	0.0	8	-8.0
R04-10	15	1	0.0	59.5	66	59.5	10	----	59.5	0.0	8	-8.0
R04-11	16	1	0.0	58.5	66	58.5	10	----	58.5	0.0	8	-8.0
R04-12	17	1	0.0	59.0	66	59.0	10	----	59.0	0.0	8	-8.0
R04-13	18	1	0.0	57.9	66	57.9	10	----	57.9	0.0	8	-8.0
R05-01	19	1	0.0	68.6	66	68.6	10	Snd Lvl	68.6	0.0	8	-8.0
R05-02	20	1	0.0	67.8	66	67.8	10	Snd Lvl	67.8	0.0	8	-8.0
R05-03	21	1	0.0	66.0	66	66.0	10	Snd Lvl	66.0	0.0	8	-8.0
R05-04	22	1	0.0	64.3	66	64.3	10	----	64.3	0.0	8	-8.0
R05-05	23	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
R05-06	24	1	0.0	63.0	66	63.0	10	----	63.0	0.0	8	-8.0

R05-07	25	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
R05-08	26	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
R05-09	27	1	0.0	62.3	66	62.3	10	----	62.3	0.0	8	-8.0
R05-10	28	1	0.0	64.8	66	64.8	10	----	64.8	0.0	8	-8.0
R05-11	29	1	0.0	60.9	66	60.9	10	----	60.9	0.0	8	-8.0
R05-12	30	1	0.0	62.3	66	62.3	10	----	62.3	0.0	8	-8.0
R05-13	31	1	0.0	63.3	66	63.3	10	----	63.3	0.0	8	-8.0
R05-14	32	1	0.0	61.7	66	61.7	10	----	61.7	0.0	8	-8.0
R05-15	33	1	0.0	62.8	66	62.8	10	----	62.8	0.0	8	-8.0
R05-16	34	1	0.0	61.2	66	61.2	10	----	61.2	0.0	8	-8.0
R05-17	35	1	0.0	62.7	66	62.7	10	----	62.7	0.0	8	-8.0
R05-18	36	1	0.0	60.0	66	60.0	10	----	60.0	0.0	8	-8.0
R05-19	37	1	0.0	62.0	66	62.0	10	----	62.0	0.0	8	-8.0
R06-01	38	1	0.0	68.6	66	68.6	10	Snd Lvl	68.6	0.0	8	-8.0
R07-1	39	1	0.0	66.0	66	66.0	10	Snd Lvl	66.0	0.0	8	-8.0
R07-2	40	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
R07-3	41	1	0.0	62.4	66	62.4	10	----	62.4	0.0	8	-8.0
R07-4	42	1	0.0	65.1	66	65.1	10	----	65.1	0.0	8	-8.0
R07-5	43	1	0.0	64.6	66	64.6	10	----	64.6	0.0	8	-8.0
R08-01	44	1	0.0	70.7	66	70.7	10	Snd Lvl	70.7	0.0	8	-8.0
R08-02	45	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
R08-03	46	1	0.0	66.1	66	66.1	10	Snd Lvl	66.1	0.0	8	-8.0
R08-04	47	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
R08-05	48	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
R08-06	49	1	0.0	66.4	66	66.4	10	Snd Lvl	66.4	0.0	8	-8.0
R08-07	50	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
R08-08	51	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0
R08-09	52	1	0.0	66.6	66	66.6	10	Snd Lvl	66.6	0.0	8	-8.0
R08-10	53	1	0.0	69.1	66	69.1	10	Snd Lvl	69.1	0.0	8	-8.0
R08-11	54	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
R08-12	55	1	0.0	69.2	66	69.2	10	Snd Lvl	69.2	0.0	8	-8.0
R08-13	56	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	0.0	8	-8.0
R09-01	57	1	0.0	73.9	66	73.9	10	Snd Lvl	73.9	0.0	8	-8.0
R09-02	58	1	0.0	72.6	66	72.6	10	Snd Lvl	72.6	0.0	8	-8.0
R09-03	59	1	0.0	72.2	66	72.2	10	Snd Lvl	72.2	0.0	8	-8.0
R09-04	60	1	0.0	73.0	66	73.0	10	Snd Lvl	73.0	0.0	8	-8.0
R09-05	61	1	0.0	73.6	66	73.6	10	Snd Lvl	73.6	0.0	8	-8.0
R09-06	62	1	0.0	73.1	66	73.1	10	Snd Lvl	73.1	0.0	8	-8.0
R09-07	63	1	0.0	73.6	66	73.6	10	Snd Lvl	73.6	0.0	8	-8.0
R09-08	64	1	0.0	73.2	66	73.2	10	Snd Lvl	73.2	0.0	8	-8.0
R09-09	65	1	0.0	73.6	66	73.6	10	Snd Lvl	73.6	0.0	8	-8.0

R09-10	66	1	0.0	74.2	66	74.2	10	Snd Lvl	74.2	0.0	8	-8.0
R09-11	67	1	0.0	73.7	66	73.7	10	Snd Lvl	73.7	0.0	8	-8.0
R09-12	68	1	0.0	74.9	66	74.9	10	Snd Lvl	74.9	0.0	8	-8.0
R09-13	69	1	0.0	71.2	66	71.2	10	Snd Lvl	71.2	0.0	8	-8.0
R09-14	70	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0
R09-15	71	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0
R09-16	72	1	0.0	65.7	66	65.7	10	----	65.7	0.0	8	-8.0
R09-17	73	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0
R09-18	74	1	0.0	66.4	66	66.4	10	Snd Lvl	66.4	0.0	8	-8.0
R09-19	75	1	0.0	68.6	66	68.6	10	Snd Lvl	68.6	0.0	8	-8.0
R09-20	76	1	0.0	68.8	66	68.8	10	Snd Lvl	68.8	0.0	8	-8.0
R09-21	77	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
R09-22	78	1	0.0	66.8	66	66.8	10	Snd Lvl	66.8	0.0	8	-8.0
R09-23	79	1	0.0	68.2	66	68.2	10	Snd Lvl	68.2	0.0	8	-8.0
R09-24	80	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
R09-25	81	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
R09-26	82	1	0.0	68.0	66	68.0	10	Snd Lvl	68.0	0.0	8	-8.0
R09-27	83	1	0.0	68.6	66	68.6	10	Snd Lvl	68.6	0.0	8	-8.0
R10-01	84	1	0.0	73.4	66	73.4	10	Snd Lvl	73.4	0.0	8	-8.0
R10-02	85	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
R10-03	86	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
R10-04	87	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
R10-05	88	1	0.0	70.2	66	70.2	10	Snd Lvl	70.2	0.0	8	-8.0
R10-06	89	1	0.0	70.7	66	70.7	10	Snd Lvl	70.7	0.0	8	-8.0
R10-07	90	1	0.0	73.0	66	73.0	10	Snd Lvl	73.0	0.0	8	-8.0
R10-08	91	1	0.0	72.2	66	72.2	10	Snd Lvl	72.2	0.0	8	-8.0
R10-09	92	1	0.0	71.1	66	71.1	10	Snd Lvl	71.1	0.0	8	-8.0
R10-10	93	1	0.0	72.9	66	72.9	10	Snd Lvl	72.9	0.0	8	-8.0
R10-11	94	1	0.0	71.5	66	71.5	10	Snd Lvl	71.5	0.0	8	-8.0
R10-12	95	1	0.0	71.8	66	71.8	10	Snd Lvl	71.8	0.0	8	-8.0
R10-13	96	1	0.0	71.7	66	71.7	10	Snd Lvl	71.7	0.0	8	-8.0
R10-14	97	1	0.0	71.8	66	71.8	10	Snd Lvl	71.8	0.0	8	-8.0
R10-15	98	1	0.0	71.8	66	71.8	10	Snd Lvl	71.8	0.0	8	-8.0
R10-16	99	1	0.0	71.3	66	71.3	10	Snd Lvl	71.3	0.0	8	-8.0
R10-17	100	1	0.0	71.5	66	71.5	10	Snd Lvl	71.5	0.0	8	-8.0
R10-18	101	1	0.0	71.1	66	71.1	10	Snd Lvl	71.1	0.0	8	-8.0
R10-19	102	1	0.0	71.8	66	71.8	10	Snd Lvl	71.8	0.0	8	-8.0
R10-20	103	1	0.0	71.7	66	71.7	10	Snd Lvl	71.7	0.0	8	-8.0
R10-21	104	1	0.0	71.8	66	71.8	10	Snd Lvl	71.8	0.0	8	-8.0
R10-22	105	1	0.0	72.0	66	72.0	10	Snd Lvl	72.0	0.0	8	-8.0
R10-23	106	1	0.0	73.0	66	73.0	10	Snd Lvl	73.0	0.0	8	-8.0

R10-24	107	1	0.0	72.9	66	72.9	10	Snd Lvl	72.9	0.0	8	-8.0
R10-25	108	1	0.0	70.9	66	70.9	10	Snd Lvl	70.9	0.0	8	-8.0
R10-26	109	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0
R10-27	110	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
R10-28	111	1	0.0	66.6	66	66.6	10	Snd Lvl	66.6	0.0	8	-8.0
R10-29	112	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
R10-30	113	1	0.0	67.8	66	67.8	10	Snd Lvl	67.8	0.0	8	-8.0
R10-31	114	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
R10-32	115	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
R10-33	116	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
R10-34	117	1	0.0	67.2	66	67.2	10	Snd Lvl	67.2	0.0	8	-8.0
R10-35	118	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
R10-36	119	1	0.0	66.8	66	66.8	10	Snd Lvl	66.8	0.0	8	-8.0
R10-37	120	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
R10-38	121	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
R10-39	122	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
R10-40	123	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0
R10-41	124	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
R10-42	125	1	0.0	67.2	66	67.2	10	Snd Lvl	67.2	0.0	8	-8.0
R10-43	126	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
R10-44	127	1	0.0	67.2	66	67.2	10	Snd Lvl	67.2	0.0	8	-8.0
R10-45	128	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
R10-46	129	1	0.0	66.6	66	66.6	10	Snd Lvl	66.6	0.0	8	-8.0
R10-47	130	1	0.0	65.0	66	65.0	10	----	65.0	0.0	8	-8.0
R10-48	131	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0
R11-1	132	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
R12-01	133	1	0.0	65.7	66	65.7	10	----	65.7	0.0	8	-8.0
R12-02	134	1	0.0	65.0	66	65.0	10	----	65.0	0.0	8	-8.0
R12-03	135	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
R12-04	136	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0
R12-05	137	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0
R12-06	138	1	0.0	66.2	66	66.2	10	Snd Lvl	66.2	0.0	8	-8.0
R12-07	139	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
R12-08	140	1	0.0	65.1	66	65.1	10	----	65.1	0.0	8	-8.0
R12-09	141	1	0.0	63.6	66	63.6	10	----	63.6	0.0	8	-8.0
R12-10	142	1	0.0	62.5	66	62.5	10	----	62.5	0.0	8	-8.0
R12-11	143	1	0.0	61.7	66	61.7	10	----	61.7	0.0	8	-8.0
R12-12	144	1	0.0	62.0	66	62.0	10	----	62.0	0.0	8	-8.0
R12-13	145	1	0.0	62.5	66	62.5	10	----	62.5	0.0	8	-8.0
R12-14	146	1	0.0	62.1	66	62.1	10	----	62.1	0.0	8	-8.0
R12-15	147	1	0.0	61.8	66	61.8	10	----	61.8	0.0	8	-8.0

R13-1	148	1	0.0	67.2	66	67.2	10	Snd Lvl	67.2	0.0	8	-8.0
R14-1	149	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
R16-01	151	1	0.0	64.6	66	64.6	10	----	64.6	0.0	8	-8.0
R16-02	152	1	0.0	64.6	66	64.6	10	----	64.6	0.0	8	-8.0
R16-03	153	1	0.0	61.7	66	61.7	10	----	61.7	0.0	8	-8.0
R16-04	154	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
R16-05	155	1	0.0	64.5	66	64.5	10	----	64.5	0.0	8	-8.0
R16-06	156	1	0.0	63.6	66	63.6	10	----	63.6	0.0	8	-8.0
R16-07	157	1	0.0	64.8	66	64.8	10	----	64.8	0.0	8	-8.0
R16-08	158	1	0.0	63.1	66	63.1	10	----	63.1	0.0	8	-8.0
R16-09	159	1	0.0	64.8	66	64.8	10	----	64.8	0.0	8	-8.0
R16-10	160	1	0.0	64.9	66	64.9	10	----	64.9	0.0	8	-8.0
R16-11	161	1	0.0	63.0	66	63.0	10	----	63.0	0.0	8	-8.0
R16-12	162	1	0.0	64.6	66	64.6	10	----	64.6	0.0	8	-8.0
R16-13	163	1	0.0	64.6	66	64.6	10	----	64.6	0.0	8	-8.0
R16-14	164	1	0.0	63.1	66	63.1	10	----	63.1	0.0	8	-8.0
R16-15	165	1	0.0	64.5	66	64.5	10	----	64.5	0.0	8	-8.0
R16-16	166	1	0.0	64.5	66	64.5	10	----	64.5	0.0	8	-8.0
R16-17	167	1	0.0	63.4	66	63.4	10	----	63.4	0.0	8	-8.0
R16-18	168	1	0.0	64.4	66	64.4	10	----	64.4	0.0	8	-8.0
R16-19	169	1	0.0	64.4	66	64.4	10	----	64.4	0.0	8	-8.0
R16-20	170	1	0.0	64.7	66	64.7	10	----	64.7	0.0	8	-8.0
R16-21	171	1	0.0	65.8	66	65.8	10	----	65.8	0.0	8	-8.0
R16-22	172	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
R16-23	173	1	0.0	64.3	66	64.3	10	----	64.3	0.0	8	-8.0
R16-24	174	1	0.0	69.8	66	69.8	10	Snd Lvl	69.8	0.0	8	-8.0
R16-25	175	1	0.0	63.4	66	63.4	10	----	63.4	0.0	8	-8.0
R16-26	176	1	0.0	62.1	66	62.1	10	----	62.1	0.0	8	-8.0
R16-27	177	1	0.0	63.5	66	63.5	10	----	63.5	0.0	8	-8.0
R16-28	178	1	0.0	66.4	66	66.4	10	Snd Lvl	66.4	0.0	8	-8.0
R16-29	179	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
R16-30	180	1	0.0	64.0	66	64.0	10	----	64.0	0.0	8	-8.0
R16-31	181	1	0.0	64.2	66	64.2	10	----	64.2	0.0	8	-8.0
R16-32	182	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0
R16-33	183	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
R17-1	184	1	0.0	62.8	66	62.8	10	----	62.8	0.0	8	-8.0
R18-1	185	1	0.0	61.6	66	61.6	10	----	61.6	0.0	8	-8.0
R18-2	186	1	0.0	64.9	66	64.9	10	----	64.9	0.0	8	-8.0
R19-1	187	1	0.0	68.2	66	68.2	10	Snd Lvl	68.2	0.0	8	-8.0
R19-2	188	1	0.0	63.1	66	63.1	10	----	63.1	0.0	8	-8.0
R19-3	189	1	0.0	60.8	66	60.8	10	----	60.8	0.0	8	-8.0

R19-4	190	1	0.0	68.2	66	68.2	10	Snd Lvl	68.2	0.0	8	-8.0
R19-5	191	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
R19-6	192	1	0.0	65.8	66	65.8	10	----	65.8	0.0	8	-8.0
R19-7	193	1	0.0	65.4	66	65.4	10	----	65.4	0.0	8	-8.0
R19-8	194	1	0.0	66.8	66	66.8	10	Snd Lvl	66.8	0.0	8	-8.0
R20-1-07	195	1	0.0	52.1	66	52.1	10	----	52.1	0.0	8	-8.0
R20-1-08	196	1	0.0	52.9	66	52.9	10	----	52.9	0.0	8	-8.0
R20-1-09	197	1	0.0	53.9	66	53.9	10	----	53.9	0.0	8	-8.0
R20-1-10	198	1	0.0	54.7	66	54.7	10	----	54.7	0.0	8	-8.0
R20-1-11	199	1	0.0	55.7	66	55.7	10	----	55.7	0.0	8	-8.0
R20-1-12	200	1	0.0	56.4	66	56.4	10	----	56.4	0.0	8	-8.0
R20-1-13	201	1	0.0	58.3	66	58.3	10	----	58.3	0.0	8	-8.0
R20-1-14	202	1	0.0	59.9	66	59.9	10	----	59.9	0.0	8	-8.0
R20-1-21	203	1	0.0	51.5	66	51.5	10	----	51.5	0.0	8	-8.0
R20-1-22	204	1	0.0	51.9	66	51.9	10	----	51.9	0.0	8	-8.0
R20-1-23	205	1	0.0	52.6	66	52.6	10	----	52.6	0.0	8	-8.0
R20-1-24	206	1	0.0	53.3	66	53.3	10	----	53.3	0.0	8	-8.0
R20-1-25	207	1	0.0	54.8	66	54.8	10	----	54.8	0.0	8	-8.0
R20-1-26	208	1	0.0	55.6	66	55.6	10	----	55.6	0.0	8	-8.0
R20-1-27	209	1	0.0	56.7	66	56.7	10	----	56.7	0.0	8	-8.0
R20-1-28	210	1	0.0	57.5	66	57.5	10	----	57.5	0.0	8	-8.0
R20-1-35	211	1	0.0	59.8	66	59.8	10	----	59.8	0.0	8	-8.0
R20-1-36	212	1	0.0	59.8	66	59.8	10	----	59.8	0.0	8	-8.0
R20-1-37	213	1	0.0	59.5	66	59.5	10	----	59.5	0.0	8	-8.0
R20-1-38	214	1	0.0	59.6	66	59.6	10	----	59.6	0.0	8	-8.0
R20-1-39	215	1	0.0	59.4	66	59.4	10	----	59.4	0.0	8	-8.0
R20-1-40	216	1	0.0	59.4	66	59.4	10	----	59.4	0.0	8	-8.0
R20-1-41	217	1	0.0	59.3	66	59.3	10	----	59.3	0.0	8	-8.0
R20-1-42	218	1	0.0	59.2	66	59.2	10	----	59.2	0.0	8	-8.0
R20-1-49	219	1	0.0	57.2	66	57.2	10	----	57.2	0.0	8	-8.0
R20-1-50	220	1	0.0	57.7	66	57.7	10	----	57.7	0.0	8	-8.0
R20-1-51	221	1	0.0	58.6	66	58.6	10	----	58.6	0.0	8	-8.0
R20-1-52	222	1	0.0	59.4	66	59.4	10	----	59.4	0.0	8	-8.0
R20-1-53	223	1	0.0	60.7	66	60.7	10	----	60.7	0.0	8	-8.0
R20-1-54	224	1	0.0	61.5	66	61.5	10	----	61.5	0.0	8	-8.0
R20-1-55	225	1	0.0	63.1	66	63.1	10	----	63.1	0.0	8	-8.0
R20-1-56	226	1	0.0	63.9	66	63.9	10	----	63.9	0.0	8	-8.0
R20-1-63	227	1	0.0	57.1	66	57.1	10	----	57.1	0.0	8	-8.0
R20-1-64	228	1	0.0	57.6	66	57.6	10	----	57.6	0.0	8	-8.0
R20-1-65	229	1	0.0	58.6	66	58.6	10	----	58.6	0.0	8	-8.0
R20-1-66	230	1	0.0	59.5	66	59.5	10	----	59.5	0.0	8	-8.0

R20-1-67	231	1	0.0	60.7	66	60.7	10	----	60.7	0.0	8	-8.0
R20-1-68	232	1	0.0	61.3	66	61.3	10	----	61.3	0.0	8	-8.0
R20-1-69	233	1	0.0	62.5	66	62.5	10	----	62.5	0.0	8	-8.0
R20-1-70	234	1	0.0	64.2	66	64.2	10	----	64.2	0.0	8	-8.0
R20-1-77	235	1	0.0	59.6	66	59.6	10	----	59.6	0.0	8	-8.0
R20-1-78	236	1	0.0	60.0	66	60.0	10	----	60.0	0.0	8	-8.0
R20-1-79	237	1	0.0	60.6	66	60.6	10	----	60.6	0.0	8	-8.0
R20-1-80	238	1	0.0	61.0	66	61.0	10	----	61.0	0.0	8	-8.0
R20-1-81	239	1	0.0	61.7	66	61.7	10	----	61.7	0.0	8	-8.0
R20-1-82	240	1	0.0	62.1	66	62.1	10	----	62.1	0.0	8	-8.0
R20-1-83	241	1	0.0	63.1	66	63.1	10	----	63.1	0.0	8	-8.0
R20-1-84	242	1	0.0	63.9	66	63.9	10	----	63.9	0.0	8	-8.0
R20-2-01	243	1	0.0	62.3	66	62.3	10	----	62.3	0.0	8	-8.0
R20-2-02	244	1	0.0	62.9	66	62.9	10	----	62.9	0.0	8	-8.0
R20-2-03	245	1	0.0	63.1	66	63.1	10	----	63.1	0.0	8	-8.0
R20-2-04	246	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0
R20-2-05	247	1	0.0	64.5	66	64.5	10	----	64.5	0.0	8	-8.0
R20-2-06	248	1	0.0	65.1	66	65.1	10	----	65.1	0.0	8	-8.0
R20-2-07	249	1	0.0	54.8	66	54.8	10	----	54.8	0.0	8	-8.0
R20-2-08	250	1	0.0	55.5	66	55.5	10	----	55.5	0.0	8	-8.0
R20-2-09	251	1	0.0	56.4	66	56.4	10	----	56.4	0.0	8	-8.0
R20-2-11	252	1	0.0	58.2	66	58.2	10	----	58.2	0.0	8	-8.0
R20-2-12	253	1	0.0	58.9	66	58.9	10	----	58.9	0.0	8	-8.0
R20-2-14	254	1	0.0	62.4	66	62.4	10	----	62.4	0.0	8	-8.0
R20-2-15	255	1	0.0	55.2	66	55.2	10	----	55.2	0.0	8	-8.0
R20-2-16	256	1	0.0	55.8	66	55.8	10	----	55.8	0.0	8	-8.0
R20-2-17	257	1	0.0	56.2	66	56.2	10	----	56.2	0.0	8	-8.0
R20-2-18	258	1	0.0	57.4	66	57.4	10	----	57.4	0.0	8	-8.0
R20-2-19	259	1	0.0	59.0	66	59.0	10	----	59.0	0.0	8	-8.0
R20-2-20	260	1	0.0	60.5	66	60.5	10	----	60.5	0.0	8	-8.0
R20-2-21	261	1	0.0	54.7	66	54.7	10	----	54.7	0.0	8	-8.0
R20-2-22	262	1	0.0	55.2	66	55.2	10	----	55.2	0.0	8	-8.0
R20-2-23	263	1	0.0	56.1	66	56.1	10	----	56.1	0.0	8	-8.0
R20-2-25	264	1	0.0	58.4	66	58.4	10	----	58.4	0.0	8	-8.0
R20-2-26	265	1	0.0	59.4	66	59.4	10	----	59.4	0.0	8	-8.0
R20-2-28	266	1	0.0	61.1	66	61.1	10	----	61.1	0.0	8	-8.0
R20-2-29	267	1	0.0	49.8	66	49.8	10	----	49.8	0.0	8	-8.0
R20-2-30	268	1	0.0	49.3	66	49.3	10	----	49.3	0.0	8	-8.0
R20-2-31	269	1	0.0	49.3	66	49.3	10	----	49.3	0.0	8	-8.0
R20-2-32	270	1	0.0	49.3	66	49.3	10	----	49.3	0.0	8	-8.0
R20-2-33	271	1	0.0	49.2	66	49.2	10	----	49.2	0.0	8	-8.0

R20-2-34	272	1	0.0	49.1	66	49.1	10	----	49.1	0.0	8	-8.0
R20-2-35	273	1	0.0	62.4	66	62.4	10	----	62.4	0.0	8	-8.0
R20-2-36	274	1	0.0	62.8	66	62.8	10	----	62.8	0.0	8	-8.0
R20-2-37	275	1	0.0	63.1	66	63.1	10	----	63.1	0.0	8	-8.0
R20-2-39	276	1	0.0	63.1	66	63.1	10	----	63.1	0.0	8	-8.0
R20-2-40	277	1	0.0	63.0	66	63.0	10	----	63.0	0.0	8	-8.0
R20-2-42	278	1	0.0	62.7	66	62.7	10	----	62.7	0.0	8	-8.0
R20-2-43	279	1	0.0	57.8	66	57.8	10	----	57.8	0.0	8	-8.0
R20-2-44	280	1	0.0	59.2	66	59.2	10	----	59.2	0.0	8	-8.0
R20-2-45	281	1	0.0	59.7	66	59.7	10	----	59.7	0.0	8	-8.0
R20-2-46	282	1	0.0	60.9	66	60.9	10	----	60.9	0.0	8	-8.0
R20-2-47	283	1	0.0	62.5	66	62.5	10	----	62.5	0.0	8	-8.0
R20-2-48	284	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
R20-2-49	285	1	0.0	59.5	66	59.5	10	----	59.5	0.0	8	-8.0
R20-2-50	286	1	0.0	60.0	66	60.0	10	----	60.0	0.0	8	-8.0
R20-2-51	287	1	0.0	61.0	66	61.0	10	----	61.0	0.0	8	-8.0
R20-2-53	288	1	0.0	63.2	66	63.2	10	----	63.2	0.0	8	-8.0
R20-2-54	289	1	0.0	64.0	66	64.0	10	----	64.0	0.0	8	-8.0
R20-2-56	290	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
R20-2-57	291	1	0.0	59.3	66	59.3	10	----	59.3	0.0	8	-8.0
R20-2-58	292	1	0.0	60.6	66	60.6	10	----	60.6	0.0	8	-8.0
R20-2-59	293	1	0.0	61.0	66	61.0	10	----	61.0	0.0	8	-8.0
R20-2-60	294	1	0.0	62.6	66	62.6	10	----	62.6	0.0	8	-8.0
R20-2-61	295	1	0.0	63.5	66	63.5	10	----	63.5	0.0	8	-8.0
R20-2-62	296	1	0.0	64.7	66	64.7	10	----	64.7	0.0	8	-8.0
R20-2-63	297	1	0.0	59.6	66	59.6	10	----	59.6	0.0	8	-8.0
R20-2-64	298	1	0.0	60.1	66	60.1	10	----	60.1	0.0	8	-8.0
R20-2-65	299	1	0.0	61.3	66	61.3	10	----	61.3	0.0	8	-8.0
R20-2-66	300	1	0.0	62.3	66	62.3	10	----	62.3	0.0	8	-8.0
R20-2-67	301	1	0.0	63.6	66	63.6	10	----	63.6	0.0	8	-8.0
R20-2-68	302	1	0.0	64.3	66	64.3	10	----	64.3	0.0	8	-8.0
R20-2-69	303	1	0.0	65.7	66	65.7	10	----	65.7	0.0	8	-8.0
R20-2-70	304	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
R20-2-71	305	1	0.0	62.2	66	62.2	10	----	62.2	0.0	8	-8.0
R20-2-72	306	1	0.0	61.5	66	61.5	10	----	61.5	0.0	8	-8.0
R20-2-73	307	1	0.0	62.1	66	62.1	10	----	62.1	0.0	8	-8.0
R20-2-74	308	1	0.0	64.0	66	64.0	10	----	64.0	0.0	8	-8.0
R20-2-75	309	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0
R20-2-76	310	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
R20-2-77	311	1	0.0	63.1	66	63.1	10	----	63.1	0.0	8	-8.0
R20-2-78	312	1	0.0	63.4	66	63.4	10	----	63.4	0.0	8	-8.0

R20-2-79	313	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
R20-2-80	314	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
R20-2-81	315	1	0.0	64.6	66	64.6	10	----	64.6	0.0	8	-8.0
R20-2-82	316	1	0.0	64.9	66	64.9	10	----	64.9	0.0	8	-8.0
R20-2-83	317	1	0.0	65.8	66	65.8	10	----	65.8	0.0	8	-8.0
R20-2-84	318	1	0.0	66.6	66	66.6	10	Snd Lvl	66.6	0.0	8	-8.0
R20-2-85	319	1	0.0	59.8	66	59.8	10	----	59.8	0.0	8	-8.0
R20-2-86	320	1	0.0	61.8	66	61.8	10	----	61.8	0.0	8	-8.0
R20-2-87	321	1	0.0	60.7	66	60.7	10	----	60.7	0.0	8	-8.0
R20-2-88	322	1	0.0	63.3	66	63.3	10	----	63.3	0.0	8	-8.0
R20-3-01	323	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0
R20-3-02	324	1	0.0	64.2	66	64.2	10	----	64.2	0.0	8	-8.0
R20-3-03	325	1	0.0	64.4	66	64.4	10	----	64.4	0.0	8	-8.0
R20-3-04	326	1	0.0	65.0	66	65.0	10	----	65.0	0.0	8	-8.0
R20-3-05	327	1	0.0	65.5	66	65.5	10	----	65.5	0.0	8	-8.0
R20-3-06	328	1	0.0	66.2	66	66.2	10	Snd Lvl	66.2	0.0	8	-8.0
R20-3-07	329	1	0.0	57.5	66	57.5	10	----	57.5	0.0	8	-8.0
R20-3-08	330	1	0.0	58.1	66	58.1	10	----	58.1	0.0	8	-8.0
R20-3-09	331	1	0.0	59.0	66	59.0	10	----	59.0	0.0	8	-8.0
R20-3-11	332	1	0.0	60.9	66	60.9	10	----	60.9	0.0	8	-8.0
R20-3-12	333	1	0.0	61.5	66	61.5	10	----	61.5	0.0	8	-8.0
R20-3-14	334	1	0.0	64.3	66	64.3	10	----	64.3	0.0	8	-8.0
R20-3-15	335	1	0.0	57.5	66	57.5	10	----	57.5	0.0	8	-8.0
R20-3-16	336	1	0.0	58.4	66	58.4	10	----	58.4	0.0	8	-8.0
R20-3-17	337	1	0.0	58.8	66	58.8	10	----	58.8	0.0	8	-8.0
R20-3-18	338	1	0.0	60.1	66	60.1	10	----	60.1	0.0	8	-8.0
R20-3-19	339	1	0.0	61.5	66	61.5	10	----	61.5	0.0	8	-8.0
R20-3-20	340	1	0.0	62.7	66	62.7	10	----	62.7	0.0	8	-8.0
R20-3-21	341	1	0.0	57.1	66	57.1	10	----	57.1	0.0	8	-8.0
R20-3-22	342	1	0.0	57.7	66	57.7	10	----	57.7	0.0	8	-8.0
R20-3-23	343	1	0.0	58.6	66	58.6	10	----	58.6	0.0	8	-8.0
R20-3-25	344	1	0.0	60.7	66	60.7	10	----	60.7	0.0	8	-8.0
R20-3-26	345	1	0.0	61.8	66	61.8	10	----	61.8	0.0	8	-8.0
R20-3-28	346	1	0.0	63.1	66	63.1	10	----	63.1	0.0	8	-8.0
R20-3-29	347	1	0.0	53.9	66	53.9	10	----	53.9	0.0	8	-8.0
R20-3-30	348	1	0.0	54.1	66	54.1	10	----	54.1	0.0	8	-8.0
R20-3-31	349	1	0.0	54.2	66	54.2	10	----	54.2	0.0	8	-8.0
R20-3-32	350	1	0.0	53.8	66	53.8	10	----	53.8	0.0	8	-8.0
R20-3-33	351	1	0.0	53.6	66	53.6	10	----	53.6	0.0	8	-8.0
R20-3-34	352	1	0.0	53.2	66	53.2	10	----	53.2	0.0	8	-8.0
R20-3-35	353	1	0.0	64.2	66	64.2	10	----	64.2	0.0	8	-8.0

R20-3-36	354	1	0.0	64.2	66	64.2	10	----	64.2	0.0	8	-8.0
R20-3-37	355	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
R20-3-39	356	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
R20-3-40	357	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
R20-3-42	358	1	0.0	64.0	66	64.0	10	----	64.0	0.0	8	-8.0
R20-3-43	359	1	0.0	59.7	66	59.7	10	----	59.7	0.0	8	-8.0
R20-3-44	360	1	0.0	61.2	66	61.2	10	----	61.2	0.0	8	-8.0
R20-3-45	361	1	0.0	61.5	66	61.5	10	----	61.5	0.0	8	-8.0
R20-3-46	362	1	0.0	62.5	66	62.5	10	----	62.5	0.0	8	-8.0
R20-3-47	363	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
R20-3-48	364	1	0.0	64.9	66	64.9	10	----	64.9	0.0	8	-8.0
R20-3-49	365	1	0.0	60.9	66	60.9	10	----	60.9	0.0	8	-8.0
R20-3-50	366	1	0.0	61.4	66	61.4	10	----	61.4	0.0	8	-8.0
R20-3-51	367	1	0.0	62.5	66	62.5	10	----	62.5	0.0	8	-8.0
R20-3-53	368	1	0.0	64.7	66	64.7	10	----	64.7	0.0	8	-8.0
R20-3-54	369	1	0.0	65.5	66	65.5	10	----	65.5	0.0	8	-8.0
R20-3-56	370	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0
R20-3-57	371	1	0.0	61.2	66	61.2	10	----	61.2	0.0	8	-8.0
R20-3-58	372	1	0.0	62.5	66	62.5	10	----	62.5	0.0	8	-8.0
R20-3-59	373	1	0.0	62.9	66	62.9	10	----	62.9	0.0	8	-8.0
R20-3-60	374	1	0.0	64.5	66	64.5	10	----	64.5	0.0	8	-8.0
R20-3-61	375	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
R20-3-62	376	1	0.0	66.4	66	66.4	10	Snd Lvl	66.4	0.0	8	-8.0
R20-3-63	377	1	0.0	61.4	66	61.4	10	----	61.4	0.0	8	-8.0
R20-3-64	378	1	0.0	61.9	66	61.9	10	----	61.9	0.0	8	-8.0
R20-3-65	379	1	0.0	62.9	66	62.9	10	----	62.9	0.0	8	-8.0
R20-3-66	380	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0
R20-3-67	381	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0
R20-3-68	382	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
R20-3-69	383	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
R20-3-70	384	1	0.0	69.3	66	69.3	10	Snd Lvl	69.3	0.0	8	-8.0
R20-3-71	385	1	0.0	64.0	66	64.0	10	----	64.0	0.0	8	-8.0
R20-3-72	386	1	0.0	64.0	66	64.0	10	----	64.0	0.0	8	-8.0
R20-3-73	387	1	0.0	64.4	66	64.4	10	----	64.4	0.0	8	-8.0
R20-3-74	388	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
R20-3-75	389	1	0.0	66.9	66	66.9	10	Snd Lvl	66.9	0.0	8	-8.0
R20-3-76	390	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0
R20-3-77	391	1	0.0	64.0	66	64.0	10	----	64.0	0.0	8	-8.0
R20-3-78	392	1	0.0	64.4	66	64.4	10	----	64.4	0.0	8	-8.0
R20-3-79	393	1	0.0	64.9	66	64.9	10	----	64.9	0.0	8	-8.0
R20-3-80	394	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0

R20-3-81	395	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
R20-3-82	396	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
R20-3-83	397	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
R20-3-84	398	1	0.0	68.2	66	68.2	10	Snd Lvl	68.2	0.0	8	-8.0
R20-3-85	399	1	0.0	61.7	66	61.7	10	----	61.7	0.0	8	-8.0
R20-3-86	400	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0
R20-3-87	401	1	0.0	63.0	66	63.0	10	----	63.0	0.0	8	-8.0
R20-3-88	402	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
R21-01	403	1	0.0	75.6	66	75.6	10	Snd Lvl	75.6	0.0	8	-8.0
R21-2	404	1	0.0	68.5	66	68.5	10	Snd Lvl	68.5	0.0	8	-8.0
R22-01	405	1	0.0	65.4	66	65.4	10	----	65.4	0.0	8	-8.0
R22-02	406	1	0.0	62.7	66	62.7	10	----	62.7	0.0	8	-8.0
R22-03	407	1	0.0	64.8	66	64.8	10	----	64.8	0.0	8	-8.0
R22-04	408	1	0.0	64.9	66	64.9	10	----	64.9	0.0	8	-8.0
R22-05	409	1	0.0	64.6	66	64.6	10	----	64.6	0.0	8	-8.0
R22-06	410	1	0.0	64.9	66	64.9	10	----	64.9	0.0	8	-8.0
R22-07	411	1	0.0	65.5	66	65.5	10	----	65.5	0.0	8	-8.0
R22-08	412	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
R22-09	413	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
R22-10	414	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
R22-11	415	1	0.0	66.2	66	66.2	10	Snd Lvl	66.2	0.0	8	-8.0
R22-12	416	1	0.0	66.4	66	66.4	10	Snd Lvl	66.4	0.0	8	-8.0
R23-1	417	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0
R23-2	418	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
R23-3	420	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0
R23-4	421	1	0.0	65.0	66	65.0	10	----	65.0	0.0	8	-8.0
R23-5	422	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
R6-2	423	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0

Dwelling Units		**# DUs**	**Noise Reduction**		
			Min	**Avg**	**Max**
			dB	**dB**	**dB**
All Selected		421	0.0	0.0	0.0
All Impacted		125	0.0	0.0	0.0
All that meet NR Goal		0	0.0	0.0	0.0

Kaskaskia Engineering Group, LLC
VPR

6 August 2021
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: No Build (2035)
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R01-1	1	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
R01-2	2	1	0.0	66.0	66	66.0	10	Snd Lvl	66.0	0.0	8	-8.0
R02-1	3	1	0.0	59.3	66	59.3	10	----	59.3	0.0	8	-8.0
R03-01	4	1	0.0	66.1	66	66.1	10	Snd Lvl	66.1	0.0	8	-8.0
R03-02	5	1	0.0	59.6	66	59.6	10	----	59.6	0.0	8	-8.0
R04-01	6	1	0.0	67.8	66	67.8	10	Snd Lvl	67.8	0.0	8	-8.0
R04-02	7	1	0.0	66.9	66	66.9	10	Snd Lvl	66.9	0.0	8	-8.0
R04-03	8	1	0.0	63.2	66	63.2	10	----	63.2	0.0	8	-8.0
R04-04	9	1	0.0	64.7	66	64.7	10	----	64.7	0.0	8	-8.0
R04-05	10	1	0.0	64.9	66	64.9	10	----	64.9	0.0	8	-8.0
R04-06	11	1	0.0	62.6	66	62.6	10	----	62.6	0.0	8	-8.0
R04-07	12	1	0.0	61.5	66	61.5	10	----	61.5	0.0	8	-8.0
R04-08	13	1	0.0	60.7	66	60.7	10	----	60.7	0.0	8	-8.0
R04-09	14	1	0.0	60.4	66	60.4	10	----	60.4	0.0	8	-8.0
R04-10	15	1	0.0	61.6	66	61.6	10	----	61.6	0.0	8	-8.0
R04-11	16	1	0.0	60.7	66	60.7	10	----	60.7	0.0	8	-8.0
R04-12	17	1	0.0	61.1	66	61.1	10	----	61.1	0.0	8	-8.0
R04-13	18	1	0.0	60.0	66	60.0	10	----	60.0	0.0	8	-8.0
R05-01	19	1	0.0	70.5	66	70.5	10	Snd Lvl	70.5	0.0	8	-8.0
R05-02	20	1	0.0	69.6	66	69.6	10	Snd Lvl	69.6	0.0	8	-8.0
R05-03	21	1	0.0	67.8	66	67.8	10	Snd Lvl	67.8	0.0	8	-8.0
R05-04	22	1	0.0	66.2	66	66.2	10	Snd Lvl	66.2	0.0	8	-8.0
R05-05	23	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
R05-06	24	1	0.0	64.8	66	64.8	10	----	64.8	0.0	8	-8.0

R05-07	25	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
R05-08	26	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
R05-09	27	1	0.0	64.2	66	64.2	10	----	64.2	0.0	8	-8.0
R05-10	28	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
R05-11	29	1	0.0	62.8	66	62.8	10	----	62.8	0.0	8	-8.0
R05-12	30	1	0.0	64.2	66	64.2	10	----	64.2	0.0	8	-8.0
R05-13	31	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0
R05-14	32	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0
R05-15	33	1	0.0	64.8	66	64.8	10	----	64.8	0.0	8	-8.0
R05-16	34	1	0.0	63.2	66	63.2	10	----	63.2	0.0	8	-8.0
R05-17	35	1	0.0	64.8	66	64.8	10	----	64.8	0.0	8	-8.0
R05-18	36	1	0.0	62.1	66	62.1	10	----	62.1	0.0	8	-8.0
R05-19	37	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
R06-01	38	1	0.0	70.4	66	70.4	10	Snd Lvl	70.4	0.0	8	-8.0
R07-1	39	1	0.0	67.8	66	67.8	10	Snd Lvl	67.8	0.0	8	-8.0
R07-2	40	1	0.0	65.7	66	65.7	10	----	65.7	0.0	8	-8.0
R07-3	41	1	0.0	64.3	66	64.3	10	----	64.3	0.0	8	-8.0
R07-4	42	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
R07-5	43	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
R08-01	44	1	0.0	72.5	66	72.5	10	Snd Lvl	72.5	0.0	8	-8.0
R08-02	45	1	0.0	69.2	66	69.2	10	Snd Lvl	69.2	0.0	8	-8.0
R08-03	46	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0
R08-04	47	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0
R08-05	48	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
R08-06	49	1	0.0	68.2	66	68.2	10	Snd Lvl	68.2	0.0	8	-8.0
R08-07	50	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0
R08-08	51	1	0.0	69.8	66	69.8	10	Snd Lvl	69.8	0.0	8	-8.0
R08-09	52	1	0.0	68.5	66	68.5	10	Snd Lvl	68.5	0.0	8	-8.0
R08-10	53	1	0.0	71.0	66	71.0	10	Snd Lvl	71.0	0.0	8	-8.0
R08-11	54	1	0.0	69.4	66	69.4	10	Snd Lvl	69.4	0.0	8	-8.0
R08-12	55	1	0.0	71.1	66	71.1	10	Snd Lvl	71.1	0.0	8	-8.0
R08-13	56	1	0.0	71.4	66	71.4	10	Snd Lvl	71.4	0.0	8	-8.0
R09-01	57	1	0.0	76.0	66	76.0	10	Snd Lvl	76.0	0.0	8	-8.0
R09-02	58	1	0.0	74.7	66	74.7	10	Snd Lvl	74.7	0.0	8	-8.0
R09-03	59	1	0.0	74.3	66	74.3	10	Snd Lvl	74.3	0.0	8	-8.0
R09-04	60	1	0.0	75.0	66	75.0	10	Snd Lvl	75.0	0.0	8	-8.0
R09-05	61	1	0.0	75.7	66	75.7	10	Snd Lvl	75.7	0.0	8	-8.0
R09-06	62	1	0.0	75.1	66	75.1	10	Snd Lvl	75.1	0.0	8	-8.0
R09-07	63	1	0.0	75.7	66	75.7	10	Snd Lvl	75.7	0.0	8	-8.0
R09-08	64	1	0.0	75.2	66	75.2	10	Snd Lvl	75.2	0.0	8	-8.0
R09-09	65	1	0.0	75.7	66	75.7	10	Snd Lvl	75.7	0.0	8	-8.0

R09-10	66	1	0.0	76.2	66	76.2	10	Snd Lvl	76.2	0.0	8	-8.0
R09-11	67	1	0.0	75.7	66	75.7	10	Snd Lvl	75.7	0.0	8	-8.0
R09-12	68	1	0.0	76.9	66	76.9	10	Snd Lvl	76.9	0.0	8	-8.0
R09-13	69	1	0.0	73.2	66	73.2	10	Snd Lvl	73.2	0.0	8	-8.0
R09-14	70	1	0.0	70.9	66	70.9	10	Snd Lvl	70.9	0.0	8	-8.0
R09-15	71	1	0.0	69.7	66	69.7	10	Snd Lvl	69.7	0.0	8	-8.0
R09-16	72	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
R09-17	73	1	0.0	70.3	66	70.3	10	Snd Lvl	70.3	0.0	8	-8.0
R09-18	74	1	0.0	68.4	66	68.4	10	Snd Lvl	68.4	0.0	8	-8.0
R09-19	75	1	0.0	70.6	66	70.6	10	Snd Lvl	70.6	0.0	8	-8.0
R09-20	76	1	0.0	70.8	66	70.8	10	Snd Lvl	70.8	0.0	8	-8.0
R09-21	77	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0
R09-22	78	1	0.0	68.8	66	68.8	10	Snd Lvl	68.8	0.0	8	-8.0
R09-23	79	1	0.0	70.2	66	70.2	10	Snd Lvl	70.2	0.0	8	-8.0
R09-24	80	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0
R09-25	81	1	0.0	69.6	66	69.6	10	Snd Lvl	69.6	0.0	8	-8.0
R09-26	82	1	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
R09-27	83	1	0.0	70.7	66	70.7	10	Snd Lvl	70.7	0.0	8	-8.0
R10-01	84	1	0.0	75.5	66	75.5	10	Snd Lvl	75.5	0.0	8	-8.0
R10-02	85	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	0.0	8	-8.0
R10-03	86	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0
R10-04	87	1	0.0	69.0	66	69.0	10	Snd Lvl	69.0	0.0	8	-8.0
R10-05	88	1	0.0	72.2	66	72.2	10	Snd Lvl	72.2	0.0	8	-8.0
R10-06	89	1	0.0	72.7	66	72.7	10	Snd Lvl	72.7	0.0	8	-8.0
R10-07	90	1	0.0	75.1	66	75.1	10	Snd Lvl	75.1	0.0	8	-8.0
R10-08	91	1	0.0	74.3	66	74.3	10	Snd Lvl	74.3	0.0	8	-8.0
R10-09	92	1	0.0	73.2	66	73.2	10	Snd Lvl	73.2	0.0	8	-8.0
R10-10	93	1	0.0	74.9	66	74.9	10	Snd Lvl	74.9	0.0	8	-8.0
R10-11	94	1	0.0	73.5	66	73.5	10	Snd Lvl	73.5	0.0	8	-8.0
R10-12	95	1	0.0	73.8	66	73.8	10	Snd Lvl	73.8	0.0	8	-8.0
R10-13	96	1	0.0	73.8	66	73.8	10	Snd Lvl	73.8	0.0	8	-8.0
R10-14	97	1	0.0	73.8	66	73.8	10	Snd Lvl	73.8	0.0	8	-8.0
R10-15	98	1	0.0	73.9	66	73.9	10	Snd Lvl	73.9	0.0	8	-8.0
R10-16	99	1	0.0	73.3	66	73.3	10	Snd Lvl	73.3	0.0	8	-8.0
R10-17	100	1	0.0	73.5	66	73.5	10	Snd Lvl	73.5	0.0	8	-8.0
R10-18	101	1	0.0	73.2	66	73.2	10	Snd Lvl	73.2	0.0	8	-8.0
R10-19	102	1	0.0	73.9	66	73.9	10	Snd Lvl	73.9	0.0	8	-8.0
R10-20	103	1	0.0	73.8	66	73.8	10	Snd Lvl	73.8	0.0	8	-8.0
R10-21	104	1	0.0	73.9	66	73.9	10	Snd Lvl	73.9	0.0	8	-8.0
R10-22	105	1	0.0	74.0	66	74.0	10	Snd Lvl	74.0	0.0	8	-8.0
R10-23	106	1	0.0	75.0	66	75.0	10	Snd Lvl	75.0	0.0	8	-8.0

R10-24	107	1	0.0	75.0	66	75.0	10	Snd Lvl	75.0	0.0	8	-8.0
R10-25	108	1	0.0	72.9	66	72.9	10	Snd Lvl	72.9	0.0	8	-8.0
R10-26	109	1	0.0	70.9	66	70.9	10	Snd Lvl	70.9	0.0	8	-8.0
R10-27	110	1	0.0	69.6	66	69.6	10	Snd Lvl	69.6	0.0	8	-8.0
R10-28	111	1	0.0	68.7	66	68.7	10	Snd Lvl	68.7	0.0	8	-8.0
R10-29	112	1	0.0	68.6	66	68.6	10	Snd Lvl	68.6	0.0	8	-8.0
R10-30	113	1	0.0	69.9	66	69.9	10	Snd Lvl	69.9	0.0	8	-8.0
R10-31	114	1	0.0	69.7	66	69.7	10	Snd Lvl	69.7	0.0	8	-8.0
R10-32	115	1	0.0	69.0	66	69.0	10	Snd Lvl	69.0	0.0	8	-8.0
R10-33	116	1	0.0	69.6	66	69.6	10	Snd Lvl	69.6	0.0	8	-8.0
R10-34	117	1	0.0	69.2	66	69.2	10	Snd Lvl	69.2	0.0	8	-8.0
R10-35	118	1	0.0	69.2	66	69.2	10	Snd Lvl	69.2	0.0	8	-8.0
R10-36	119	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0
R10-37	120	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	0.0	8	-8.0
R10-38	121	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0
R10-39	122	1	0.0	69.4	66	69.4	10	Snd Lvl	69.4	0.0	8	-8.0
R10-40	123	1	0.0	69.7	66	69.7	10	Snd Lvl	69.7	0.0	8	-8.0
R10-41	124	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	0.0	8	-8.0
R10-42	125	1	0.0	69.2	66	69.2	10	Snd Lvl	69.2	0.0	8	-8.0
R10-43	126	1	0.0	69.4	66	69.4	10	Snd Lvl	69.4	0.0	8	-8.0
R10-44	127	1	0.0	69.2	66	69.2	10	Snd Lvl	69.2	0.0	8	-8.0
R10-45	128	1	0.0	69.1	66	69.1	10	Snd Lvl	69.1	0.0	8	-8.0
R10-46	129	1	0.0	68.6	66	68.6	10	Snd Lvl	68.6	0.0	8	-8.0
R10-47	130	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
R10-48	131	1	0.0	65.7	66	65.7	10	----	65.7	0.0	8	-8.0
R11-1	132	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	0.0	8	-8.0
R12-01	133	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
R12-02	134	1	0.0	66.6	66	66.6	10	Snd Lvl	66.6	0.0	8	-8.0
R12-03	135	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
R12-04	136	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
R12-05	137	1	0.0	67.2	66	67.2	10	Snd Lvl	67.2	0.0	8	-8.0
R12-06	138	1	0.0	67.8	66	67.8	10	Snd Lvl	67.8	0.0	8	-8.0
R12-07	139	1	0.0	68.7	66	68.7	10	Snd Lvl	68.7	0.0	8	-8.0
R12-08	140	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
R12-09	141	1	0.0	65.5	66	65.5	10	----	65.5	0.0	8	-8.0
R12-10	142	1	0.0	64.5	66	64.5	10	----	64.5	0.0	8	-8.0
R12-11	143	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0
R12-12	144	1	0.0	64.0	66	64.0	10	----	64.0	0.0	8	-8.0
R12-13	145	1	0.0	64.5	66	64.5	10	----	64.5	0.0	8	-8.0
R12-14	146	1	0.0	64.0	66	64.0	10	----	64.0	0.0	8	-8.0
R12-15	147	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0

R13-1	148	1	0.0	69.4	66	69.4	10	Snd Lvl	69.4	0.0	8	-8.0
R14-1	149	1	0.0	69.1	66	69.1	10	Snd Lvl	69.1	0.0	8	-8.0
R16-01	151	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
R16-02	152	1	0.0	66.8	66	66.8	10	Snd Lvl	66.8	0.0	8	-8.0
R16-03	153	1	0.0	64.2	66	64.2	10	----	64.2	0.0	8	-8.0
R16-04	154	1	0.0	66.4	66	66.4	10	Snd Lvl	66.4	0.0	8	-8.0
R16-05	155	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
R16-06	156	1	0.0	66.1	66	66.1	10	Snd Lvl	66.1	0.0	8	-8.0
R16-07	157	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
R16-08	158	1	0.0	65.7	66	65.7	10	----	65.7	0.0	8	-8.0
R16-09	159	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
R16-10	160	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
R16-11	161	1	0.0	65.7	66	65.7	10	----	65.7	0.0	8	-8.0
R16-12	162	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
R16-13	163	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
R16-14	164	1	0.0	65.8	66	65.8	10	----	65.8	0.0	8	-8.0
R16-15	165	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
R16-16	166	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
R16-17	167	1	0.0	66.2	66	66.2	10	Snd Lvl	66.2	0.0	8	-8.0
R16-18	168	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
R16-19	169	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
R16-20	170	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0
R16-21	171	1	0.0	68.8	66	68.8	10	Snd Lvl	68.8	0.0	8	-8.0
R16-22	172	1	0.0	70.8	66	70.8	10	Snd Lvl	70.8	0.0	8	-8.0
R16-23	173	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
R16-24	174	1	0.0	73.1	66	73.1	10	Snd Lvl	73.1	0.0	8	-8.0
R16-25	175	1	0.0	66.2	66	66.2	10	Snd Lvl	66.2	0.0	8	-8.0
R16-26	176	1	0.0	65.0	66	65.0	10	----	65.0	0.0	8	-8.0
R16-27	177	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
R16-28	178	1	0.0	69.6	66	69.6	10	Snd Lvl	69.6	0.0	8	-8.0
R16-29	179	1	0.0	66.2	66	66.2	10	Snd Lvl	66.2	0.0	8	-8.0
R16-30	180	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
R16-31	181	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
R16-32	182	1	0.0	68.4	66	68.4	10	Snd Lvl	68.4	0.0	8	-8.0
R16-33	183	1	0.0	70.4	66	70.4	10	Snd Lvl	70.4	0.0	8	-8.0
R17-1	184	1	0.0	65.0	66	65.0	10	----	65.0	0.0	8	-8.0
R18-1	185	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
R18-2	186	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
R19-1	187	1	0.0	70.4	66	70.4	10	Snd Lvl	70.4	0.0	8	-8.0
R19-2	188	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
R19-3	189	1	0.0	63.0	66	63.0	10	----	63.0	0.0	8	-8.0

R19-4	190	1	0.0	70.4	66	70.4	10	Snd Lvl	70.4	0.0	8	-8.0
R19-5	191	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	0.0	8	-8.0
R19-6	192	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0
R19-7	193	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
R19-8	194	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0
R20-1-07	195	1	0.0	54.3	66	54.3	10	----	54.3	0.0	8	-8.0
R20-1-08	196	1	0.0	55.0	66	55.0	10	----	55.0	0.0	8	-8.0
R20-1-09	197	1	0.0	56.1	66	56.1	10	----	56.1	0.0	8	-8.0
R20-1-10	198	1	0.0	56.9	66	56.9	10	----	56.9	0.0	8	-8.0
R20-1-11	199	1	0.0	57.9	66	57.9	10	----	57.9	0.0	8	-8.0
R20-1-12	200	1	0.0	58.6	66	58.6	10	----	58.6	0.0	8	-8.0
R20-1-13	201	1	0.0	60.5	66	60.5	10	----	60.5	0.0	8	-8.0
R20-1-14	202	1	0.0	62.0	66	62.0	10	----	62.0	0.0	8	-8.0
R20-1-21	203	1	0.0	53.7	66	53.7	10	----	53.7	0.0	8	-8.0
R20-1-22	204	1	0.0	54.1	66	54.1	10	----	54.1	0.0	8	-8.0
R20-1-23	205	1	0.0	54.8	66	54.8	10	----	54.8	0.0	8	-8.0
R20-1-24	206	1	0.0	55.5	66	55.5	10	----	55.5	0.0	8	-8.0
R20-1-25	207	1	0.0	57.0	66	57.0	10	----	57.0	0.0	8	-8.0
R20-1-26	208	1	0.0	57.8	66	57.8	10	----	57.8	0.0	8	-8.0
R20-1-27	209	1	0.0	58.8	66	58.8	10	----	58.8	0.0	8	-8.0
R20-1-28	210	1	0.0	59.6	66	59.6	10	----	59.6	0.0	8	-8.0
R20-1-35	211	1	0.0	61.9	66	61.9	10	----	61.9	0.0	8	-8.0
R20-1-36	212	1	0.0	62.0	66	62.0	10	----	62.0	0.0	8	-8.0
R20-1-37	213	1	0.0	61.7	66	61.7	10	----	61.7	0.0	8	-8.0
R20-1-38	214	1	0.0	61.7	66	61.7	10	----	61.7	0.0	8	-8.0
R20-1-39	215	1	0.0	61.6	66	61.6	10	----	61.6	0.0	8	-8.0
R20-1-40	216	1	0.0	61.6	66	61.6	10	----	61.6	0.0	8	-8.0
R20-1-41	217	1	0.0	61.5	66	61.5	10	----	61.5	0.0	8	-8.0
R20-1-42	218	1	0.0	61.4	66	61.4	10	----	61.4	0.0	8	-8.0
R20-1-49	219	1	0.0	59.4	66	59.4	10	----	59.4	0.0	8	-8.0
R20-1-50	220	1	0.0	59.9	66	59.9	10	----	59.9	0.0	8	-8.0
R20-1-51	221	1	0.0	60.8	66	60.8	10	----	60.8	0.0	8	-8.0
R20-1-52	222	1	0.0	61.6	66	61.6	10	----	61.6	0.0	8	-8.0
R20-1-53	223	1	0.0	62.8	66	62.8	10	----	62.8	0.0	8	-8.0
R20-1-54	224	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0
R20-1-55	225	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0
R20-1-56	226	1	0.0	66.1	66	66.1	10	Snd Lvl	66.1	0.0	8	-8.0
R20-1-63	227	1	0.0	59.3	66	59.3	10	----	59.3	0.0	8	-8.0
R20-1-64	228	1	0.0	59.7	66	59.7	10	----	59.7	0.0	8	-8.0
R20-1-65	229	1	0.0	60.8	66	60.8	10	----	60.8	0.0	8	-8.0
R20-1-66	230	1	0.0	61.6	66	61.6	10	----	61.6	0.0	8	-8.0

R20-1-67	231	1	0.0	62.8	66	62.8	10	----	62.8	0.0	8	-8.0
R20-1-68	232	1	0.0	63.5	66	63.5	10	----	63.5	0.0	8	-8.0
R20-1-69	233	1	0.0	64.7	66	64.7	10	----	64.7	0.0	8	-8.0
R20-1-70	234	1	0.0	66.4	66	66.4	10	Snd Lvl	66.4	0.0	8	-8.0
R20-1-77	235	1	0.0	61.8	66	61.8	10	----	61.8	0.0	8	-8.0
R20-1-78	236	1	0.0	62.2	66	62.2	10	----	62.2	0.0	8	-8.0
R20-1-79	237	1	0.0	62.7	66	62.7	10	----	62.7	0.0	8	-8.0
R20-1-80	238	1	0.0	63.1	66	63.1	10	----	63.1	0.0	8	-8.0
R20-1-81	239	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
R20-1-82	240	1	0.0	64.2	66	64.2	10	----	64.2	0.0	8	-8.0
R20-1-83	241	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
R20-1-84	242	1	0.0	66.0	66	66.0	10	Snd Lvl	66.0	0.0	8	-8.0
R20-2-01	243	1	0.0	64.4	66	64.4	10	----	64.4	0.0	8	-8.0
R20-2-02	244	1	0.0	65.0	66	65.0	10	----	65.0	0.0	8	-8.0
R20-2-03	245	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0
R20-2-04	246	1	0.0	65.8	66	65.8	10	----	65.8	0.0	8	-8.0
R20-2-05	247	1	0.0	66.6	66	66.6	10	Snd Lvl	66.6	0.0	8	-8.0
R20-2-06	248	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
R20-2-07	249	1	0.0	57.0	66	57.0	10	----	57.0	0.0	8	-8.0
R20-2-08	250	1	0.0	57.7	66	57.7	10	----	57.7	0.0	8	-8.0
R20-2-09	251	1	0.0	58.6	66	58.6	10	----	58.6	0.0	8	-8.0
R20-2-11	252	1	0.0	60.4	66	60.4	10	----	60.4	0.0	8	-8.0
R20-2-12	253	1	0.0	61.1	66	61.1	10	----	61.1	0.0	8	-8.0
R20-2-14	254	1	0.0	64.6	66	64.6	10	----	64.6	0.0	8	-8.0
R20-2-15	255	1	0.0	57.5	66	57.5	10	----	57.5	0.0	8	-8.0
R20-2-16	256	1	0.0	58.1	66	58.1	10	----	58.1	0.0	8	-8.0
R20-2-17	257	1	0.0	58.5	66	58.5	10	----	58.5	0.0	8	-8.0
R20-2-18	258	1	0.0	59.7	66	59.7	10	----	59.7	0.0	8	-8.0
R20-2-19	259	1	0.0	61.2	66	61.2	10	----	61.2	0.0	8	-8.0
R20-2-20	260	1	0.0	62.7	66	62.7	10	----	62.7	0.0	8	-8.0
R20-2-21	261	1	0.0	56.8	66	56.8	10	----	56.8	0.0	8	-8.0
R20-2-22	262	1	0.0	57.4	66	57.4	10	----	57.4	0.0	8	-8.0
R20-2-23	263	1	0.0	58.3	66	58.3	10	----	58.3	0.0	8	-8.0
R20-2-25	264	1	0.0	60.6	66	60.6	10	----	60.6	0.0	8	-8.0
R20-2-26	265	1	0.0	61.6	66	61.6	10	----	61.6	0.0	8	-8.0
R20-2-28	266	1	0.0	63.3	66	63.3	10	----	63.3	0.0	8	-8.0
R20-2-29	267	1	0.0	52.0	66	52.0	10	----	52.0	0.0	8	-8.0
R20-2-30	268	1	0.0	51.5	66	51.5	10	----	51.5	0.0	8	-8.0
R20-2-31	269	1	0.0	51.5	66	51.5	10	----	51.5	0.0	8	-8.0
R20-2-32	270	1	0.0	51.5	66	51.5	10	----	51.5	0.0	8	-8.0
R20-2-33	271	1	0.0	51.4	66	51.4	10	----	51.4	0.0	8	-8.0

R20-2-34	272	1	0.0	51.3	66	51.3	10	----	51.3	0.0	8	-8.0
R20-2-35	273	1	0.0	64.6	66	64.6	10	----	64.6	0.0	8	-8.0
R20-2-36	274	1	0.0	65.0	66	65.0	10	----	65.0	0.0	8	-8.0
R20-2-37	275	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0
R20-2-39	276	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
R20-2-40	277	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0
R20-2-42	278	1	0.0	64.9	66	64.9	10	----	64.9	0.0	8	-8.0
R20-2-43	279	1	0.0	60.0	66	60.0	10	----	60.0	0.0	8	-8.0
R20-2-44	280	1	0.0	61.4	66	61.4	10	----	61.4	0.0	8	-8.0
R20-2-45	281	1	0.0	61.9	66	61.9	10	----	61.9	0.0	8	-8.0
R20-2-46	282	1	0.0	63.1	66	63.1	10	----	63.1	0.0	8	-8.0
R20-2-47	283	1	0.0	64.7	66	64.7	10	----	64.7	0.0	8	-8.0
R20-2-48	284	1	0.0	66.0	66	66.0	10	Snd Lvl	66.0	0.0	8	-8.0
R20-2-49	285	1	0.0	61.7	66	61.7	10	----	61.7	0.0	8	-8.0
R20-2-50	286	1	0.0	62.2	66	62.2	10	----	62.2	0.0	8	-8.0
R20-2-51	287	1	0.0	63.2	66	63.2	10	----	63.2	0.0	8	-8.0
R20-2-53	288	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
R20-2-54	289	1	0.0	66.2	66	66.2	10	Snd Lvl	66.2	0.0	8	-8.0
R20-2-56	290	1	0.0	68.8	66	68.8	10	Snd Lvl	68.8	0.0	8	-8.0
R20-2-57	291	1	0.0	61.5	66	61.5	10	----	61.5	0.0	8	-8.0
R20-2-58	292	1	0.0	62.8	66	62.8	10	----	62.8	0.0	8	-8.0
R20-2-59	293	1	0.0	63.2	66	63.2	10	----	63.2	0.0	8	-8.0
R20-2-60	294	1	0.0	64.8	66	64.8	10	----	64.8	0.0	8	-8.0
R20-2-61	295	1	0.0	65.7	66	65.7	10	----	65.7	0.0	8	-8.0
R20-2-62	296	1	0.0	66.9	66	66.9	10	Snd Lvl	66.9	0.0	8	-8.0
R20-2-63	297	1	0.0	61.8	66	61.8	10	----	61.8	0.0	8	-8.0
R20-2-64	298	1	0.0	62.3	66	62.3	10	----	62.3	0.0	8	-8.0
R20-2-65	299	1	0.0	63.4	66	63.4	10	----	63.4	0.0	8	-8.0
R20-2-66	300	1	0.0	64.4	66	64.4	10	----	64.4	0.0	8	-8.0
R20-2-67	301	1	0.0	65.8	66	65.8	10	----	65.8	0.0	8	-8.0
R20-2-68	302	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
R20-2-69	303	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0
R20-2-70	304	1	0.0	69.8	66	69.8	10	Snd Lvl	69.8	0.0	8	-8.0
R20-2-71	305	1	0.0	64.4	66	64.4	10	----	64.4	0.0	8	-8.0
R20-2-72	306	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0
R20-2-73	307	1	0.0	64.2	66	64.2	10	----	64.2	0.0	8	-8.0
R20-2-74	308	1	0.0	66.2	66	66.2	10	Snd Lvl	66.2	0.0	8	-8.0
R20-2-75	309	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
R20-2-76	310	1	0.0	68.5	66	68.5	10	Snd Lvl	68.5	0.0	8	-8.0
R20-2-77	311	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
R20-2-78	312	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0

R20-2-79	313	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
R20-2-80	314	1	0.0	66.2	66	66.2	10	Snd Lvl	66.2	0.0	8	-8.0
R20-2-81	315	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
R20-2-82	316	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
R20-2-83	317	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0
R20-2-84	318	1	0.0	68.7	66	68.7	10	Snd Lvl	68.7	0.0	8	-8.0
R20-2-85	319	1	0.0	62.0	66	62.0	10	----	62.0	0.0	8	-8.0
R20-2-86	320	1	0.0	64.0	66	64.0	10	----	64.0	0.0	8	-8.0
R20-2-87	321	1	0.0	62.9	66	62.9	10	----	62.9	0.0	8	-8.0
R20-2-88	322	1	0.0	65.4	66	65.4	10	----	65.4	0.0	8	-8.0
R20-3-01	323	1	0.0	65.8	66	65.8	10	----	65.8	0.0	8	-8.0
R20-3-02	324	1	0.0	66.4	66	66.4	10	Snd Lvl	66.4	0.0	8	-8.0
R20-3-03	325	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
R20-3-04	326	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
R20-3-05	327	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0
R20-3-06	328	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0
R20-3-07	329	1	0.0	59.6	66	59.6	10	----	59.6	0.0	8	-8.0
R20-3-08	330	1	0.0	60.3	66	60.3	10	----	60.3	0.0	8	-8.0
R20-3-09	331	1	0.0	61.2	66	61.2	10	----	61.2	0.0	8	-8.0
R20-3-11	332	1	0.0	63.1	66	63.1	10	----	63.1	0.0	8	-8.0
R20-3-12	333	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0
R20-3-14	334	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
R20-3-15	335	1	0.0	59.8	66	59.8	10	----	59.8	0.0	8	-8.0
R20-3-16	336	1	0.0	60.7	66	60.7	10	----	60.7	0.0	8	-8.0
R20-3-17	337	1	0.0	61.0	66	61.0	10	----	61.0	0.0	8	-8.0
R20-3-18	338	1	0.0	62.4	66	62.4	10	----	62.4	0.0	8	-8.0
R20-3-19	339	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0
R20-3-20	340	1	0.0	64.9	66	64.9	10	----	64.9	0.0	8	-8.0
R20-3-21	341	1	0.0	59.3	66	59.3	10	----	59.3	0.0	8	-8.0
R20-3-22	342	1	0.0	59.9	66	59.9	10	----	59.9	0.0	8	-8.0
R20-3-23	343	1	0.0	60.7	66	60.7	10	----	60.7	0.0	8	-8.0
R20-3-25	344	1	0.0	62.9	66	62.9	10	----	62.9	0.0	8	-8.0
R20-3-26	345	1	0.0	63.9	66	63.9	10	----	63.9	0.0	8	-8.0
R20-3-28	346	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
R20-3-29	347	1	0.0	56.1	66	56.1	10	----	56.1	0.0	8	-8.0
R20-3-30	348	1	0.0	56.3	66	56.3	10	----	56.3	0.0	8	-8.0
R20-3-31	349	1	0.0	56.4	66	56.4	10	----	56.4	0.0	8	-8.0
R20-3-32	350	1	0.0	56.0	66	56.0	10	----	56.0	0.0	8	-8.0
R20-3-33	351	1	0.0	55.8	66	55.8	10	----	55.8	0.0	8	-8.0
R20-3-34	352	1	0.0	55.4	66	55.4	10	----	55.4	0.0	8	-8.0
R20-3-35	353	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0

R20-3-36	354	1	0.0	66.4	66	66.4	10	Snd Lvl	66.4	0.0	8	-8.0
R20-3-37	355	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
R20-3-39	356	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
R20-3-40	357	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
R20-3-42	358	1	0.0	66.2	66	66.2	10	Snd Lvl	66.2	0.0	8	-8.0
R20-3-43	359	1	0.0	62.0	66	62.0	10	----	62.0	0.0	8	-8.0
R20-3-44	360	1	0.0	63.4	66	63.4	10	----	63.4	0.0	8	-8.0
R20-3-45	361	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0
R20-3-46	362	1	0.0	64.7	66	64.7	10	----	64.7	0.0	8	-8.0
R20-3-47	363	1	0.0	66.0	66	66.0	10	Snd Lvl	66.0	0.0	8	-8.0
R20-3-48	364	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
R20-3-49	365	1	0.0	63.1	66	63.1	10	----	63.1	0.0	8	-8.0
R20-3-50	366	1	0.0	63.6	66	63.6	10	----	63.6	0.0	8	-8.0
R20-3-51	367	1	0.0	64.6	66	64.6	10	----	64.6	0.0	8	-8.0
R20-3-53	368	1	0.0	66.9	66	66.9	10	Snd Lvl	66.9	0.0	8	-8.0
R20-3-54	369	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0
R20-3-56	370	1	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
R20-3-57	371	1	0.0	63.4	66	63.4	10	----	63.4	0.0	8	-8.0
R20-3-58	372	1	0.0	64.7	66	64.7	10	----	64.7	0.0	8	-8.0
R20-3-59	373	1	0.0	65.1	66	65.1	10	----	65.1	0.0	8	-8.0
R20-3-60	374	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
R20-3-61	375	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
R20-3-62	376	1	0.0	68.5	66	68.5	10	Snd Lvl	68.5	0.0	8	-8.0
R20-3-63	377	1	0.0	63.6	66	63.6	10	----	63.6	0.0	8	-8.0
R20-3-64	378	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
R20-3-65	379	1	0.0	65.1	66	65.1	10	----	65.1	0.0	8	-8.0
R20-3-66	380	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
R20-3-67	381	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
R20-3-68	382	1	0.0	68.0	66	68.0	10	Snd Lvl	68.0	0.0	8	-8.0
R20-3-69	383	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	0.0	8	-8.0
R20-3-70	384	1	0.0	71.4	66	71.4	10	Snd Lvl	71.4	0.0	8	-8.0
R20-3-71	385	1	0.0	66.2	66	66.2	10	Snd Lvl	66.2	0.0	8	-8.0
R20-3-72	386	1	0.0	66.1	66	66.1	10	Snd Lvl	66.1	0.0	8	-8.0
R20-3-73	387	1	0.0	66.6	66	66.6	10	Snd Lvl	66.6	0.0	8	-8.0
R20-3-74	388	1	0.0	68.1	66	68.1	10	Snd Lvl	68.1	0.0	8	-8.0
R20-3-75	389	1	0.0	69.1	66	69.1	10	Snd Lvl	69.1	0.0	8	-8.0
R20-3-76	390	1	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
R20-3-77	391	1	0.0	66.1	66	66.1	10	Snd Lvl	66.1	0.0	8	-8.0
R20-3-78	392	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
R20-3-79	393	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
R20-3-80	394	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0

R20-3-81	395	1	0.0	68.0	66	68.0	10	Snd Lvl	68.0	0.0	8	-8.0
R20-3-82	396	1	0.0	68.5	66	68.5	10	Snd Lvl	68.5	0.0	8	-8.0
R20-3-83	397	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	0.0	8	-8.0
R20-3-84	398	1	0.0	70.4	66	70.4	10	Snd Lvl	70.4	0.0	8	-8.0
R20-3-85	399	1	0.0	63.9	66	63.9	10	----	63.9	0.0	8	-8.0
R20-3-86	400	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
R20-3-87	401	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0
R20-3-88	402	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
R21-01	403	1	0.0	77.7	66	77.7	10	Snd Lvl	77.7	0.0	8	-8.0
R21-2	404	1	0.0	70.4	66	70.4	10	Snd Lvl	70.4	0.0	8	-8.0
R22-01	405	1	0.0	68.1	66	68.1	10	Snd Lvl	68.1	0.0	8	-8.0
R22-02	406	1	0.0	65.0	66	65.0	10	----	65.0	0.0	8	-8.0
R22-03	407	1	0.0	66.8	66	66.8	10	Snd Lvl	66.8	0.0	8	-8.0
R22-04	408	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
R22-05	409	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
R22-06	410	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
R22-07	411	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0
R22-08	412	1	0.0	68.7	66	68.7	10	Snd Lvl	68.7	0.0	8	-8.0
R22-09	413	1	0.0	69.2	66	69.2	10	Snd Lvl	69.2	0.0	8	-8.0
R22-10	414	1	0.0	69.2	66	69.2	10	Snd Lvl	69.2	0.0	8	-8.0
R22-11	415	1	0.0	68.5	66	68.5	10	Snd Lvl	68.5	0.0	8	-8.0
R22-12	416	1	0.0	68.7	66	68.7	10	Snd Lvl	68.7	0.0	8	-8.0
R23-1	417	1	0.0	70.6	66	70.6	10	Snd Lvl	70.6	0.0	8	-8.0
R23-2	418	1	0.0	69.6	66	69.6	10	Snd Lvl	69.6	0.0	8	-8.0
R23-3	420	1	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
R23-4	421	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
R23-5	422	1	0.0	68.7	66	68.7	10	Snd Lvl	68.7	0.0	8	-8.0
R6-2	423	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0

Dwelling Units		**# DUs**	**Noise Reduction**		
			Min	**Avg**	**Max**
			dB	**dB**	**dB**
All Selected		421	0.0	0.0	0.0
All Impacted		226	0.0	0.0	0.0
All that meet NR Goal		0	0.0	0.0	0.0

Kaskaskia Engineering Group, LLC 6 August 2021
VPR TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Build (2035)
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R01-1	1	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0
R01-2	2	1	0.0	64.5	66	64.5	10	----	64.5	0.0	8	-8.0
R02-1	3	1	0.0	59.7	66	59.7	10	----	59.7	0.0	8	-8.0
R03-01	4	1	0.0	65.1	66	65.1	10	----	65.1	0.0	8	-8.0
R03-02	5	1	0.0	60.2	66	60.2	10	----	60.2	0.0	8	-8.0
R04-01	6	1	0.0	68.5	66	68.5	10	Snd Lvl	68.5	0.0	8	-8.0
R04-02	7	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
R04-03	8	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
R04-04	9	1	0.0	65.1	66	65.1	10	----	65.1	0.0	8	-8.0
R04-05	10	1	0.0	64.9	66	64.9	10	----	64.9	0.0	8	-8.0
R04-06	11	1	0.0	63.2	66	63.2	10	----	63.2	0.0	8	-8.0
R04-07	12	1	0.0	62.1	66	62.1	10	----	62.1	0.0	8	-8.0
R04-08	13	1	0.0	61.2	66	61.2	10	----	61.2	0.0	8	-8.0
R04-09	14	1	0.0	61.0	66	61.0	10	----	61.0	0.0	8	-8.0
R04-10	15	1	0.0	61.8	66	61.8	10	----	61.8	0.0	8	-8.0
R04-11	16	1	0.0	60.7	66	60.7	10	----	60.7	0.0	8	-8.0
R04-12	17	1	0.0	60.7	66	60.7	10	----	60.7	0.0	8	-8.0
R04-13	18	1	0.0	60.5	66	60.5	10	----	60.5	0.0	8	-8.0
R05-01	19	1	0.0	69.6	66	69.6	10	Snd Lvl	69.6	0.0	8	-8.0
R05-02	20	1	0.0	66.9	66	66.9	10	Snd Lvl	66.9	0.0	8	-8.0
R05-03	21	1	0.0	65.5	66	65.5	10	----	65.5	0.0	8	-8.0
R05-04	22	1	0.0	64.2	66	64.2	10	----	64.2	0.0	8	-8.0
R05-05	23	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
R05-06	24	1	0.0	63.3	66	63.3	10	----	63.3	0.0	8	-8.0

R05-07	25	1	0.0	64.6	66	64.6	10	----	64.6	0.0	8	-8.0
R05-08	26	1	0.0	65.8	66	65.8	10	----	65.8	0.0	8	-8.0
R05-09	27	1	0.0	62.8	66	62.8	10	----	62.8	0.0	8	-8.0
R05-10	28	1	0.0	65.5	66	65.5	10	----	65.5	0.0	8	-8.0
R05-11	29	1	0.0	61.8	66	61.8	10	----	61.8	0.0	8	-8.0
R05-12	30	1	0.0	63.2	66	63.2	10	----	63.2	0.0	8	-8.0
R05-13	31	1	0.0	64.3	66	64.3	10	----	64.3	0.0	8	-8.0
R05-14	32	1	0.0	62.8	66	62.8	10	----	62.8	0.0	8	-8.0
R05-15	33	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
R05-16	34	1	0.0	62.6	66	62.6	10	----	62.6	0.0	8	-8.0
R05-17	35	1	0.0	64.5	66	64.5	10	----	64.5	0.0	8	-8.0
R05-18	36	1	0.0	61.8	66	61.8	10	----	61.8	0.0	8	-8.0
R05-19	37	1	0.0	64.0	66	64.0	10	----	64.0	0.0	8	-8.0
R06-01	38	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
R07-1	39	1	0.0	65.8	66	65.8	10	----	65.8	0.0	8	-8.0
R07-2	40	1	0.0	64.0	66	64.0	10	----	64.0	0.0	8	-8.0
R07-3	41	1	0.0	62.8	66	62.8	10	----	62.8	0.0	8	-8.0
R07-4	42	1	0.0	65.7	66	65.7	10	----	65.7	0.0	8	-8.0
R07-5	43	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0
R08-01	44	1	0.0	71.9	66	71.9	10	Snd Lvl	71.9	0.0	8	-8.0
R08-02	45	1	0.0	68.8	66	68.8	10	Snd Lvl	68.8	0.0	8	-8.0
R08-03	46	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
R08-04	47	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0
R08-05	48	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
R08-06	49	1	0.0	67.8	66	67.8	10	Snd Lvl	67.8	0.0	8	-8.0
R08-07	50	1	0.0	68.5	66	68.5	10	Snd Lvl	68.5	0.0	8	-8.0
R08-08	51	1	0.0	69.4	66	69.4	10	Snd Lvl	69.4	0.0	8	-8.0
R08-09	52	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0
R08-10	53	1	0.0	70.5	66	70.5	10	Snd Lvl	70.5	0.0	8	-8.0
R08-11	54	1	0.0	68.7	66	68.7	10	Snd Lvl	68.7	0.0	8	-8.0
R08-12	55	1	0.0	70.2	66	70.2	10	Snd Lvl	70.2	0.0	8	-8.0
R08-13	56	1	0.0	70.3	66	70.3	10	Snd Lvl	70.3	0.0	8	-8.0
R09-01	57	1	0.0	74.8	66	74.8	10	Snd Lvl	74.8	0.0	8	-8.0
R09-02	58	1	0.0	73.1	66	73.1	10	Snd Lvl	73.1	0.0	8	-8.0
R09-03	59	1	0.0	72.9	66	72.9	10	Snd Lvl	72.9	0.0	8	-8.0
R09-04	60	1	0.0	73.9	66	73.9	10	Snd Lvl	73.9	0.0	8	-8.0
R09-05	61	1	0.0	74.5	66	74.5	10	Snd Lvl	74.5	0.0	8	-8.0
R09-06	62	1	0.0	74.1	66	74.1	10	Snd Lvl	74.1	0.0	8	-8.0
R09-07	63	1	0.0	74.6	66	74.6	10	Snd Lvl	74.6	0.0	8	-8.0
R09-08	64	1	0.0	74.2	66	74.2	10	Snd Lvl	74.2	0.0	8	-8.0
R09-09	65	1	0.0	74.9	66	74.9	10	Snd Lvl	74.9	0.0	8	-8.0

R09-10	66	1	0.0	75.3	66	75.3	10	Snd Lvl	75.3	0.0	8	-8.0
R09-11	67	1	0.0	74.8	66	74.8	10	Snd Lvl	74.8	0.0	8	-8.0
R09-12	68	1	0.0	75.5	66	75.5	10	Snd Lvl	75.5	0.0	8	-8.0
R09-13	69	1	0.0	72.2	66	72.2	10	Snd Lvl	72.2	0.0	8	-8.0
R09-14	70	1	0.0	70.4	66	70.4	10	Snd Lvl	70.4	0.0	8	-8.0
R09-15	71	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0
R09-16	72	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
R09-17	73	1	0.0	70.2	66	70.2	10	Snd Lvl	70.2	0.0	8	-8.0
R09-18	74	1	0.0	68.0	66	68.0	10	Snd Lvl	68.0	0.0	8	-8.0
R09-19	75	1	0.0	70.3	66	70.3	10	Snd Lvl	70.3	0.0	8	-8.0
R09-20	76	1	0.0	70.3	66	70.3	10	Snd Lvl	70.3	0.0	8	-8.0
R09-21	77	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
R09-22	78	1	0.0	68.7	66	68.7	10	Snd Lvl	68.7	0.0	8	-8.0
R09-23	79	1	0.0	69.7	66	69.7	10	Snd Lvl	69.7	0.0	8	-8.0
R09-24	80	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0
R09-25	81	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0
R09-26	82	1	0.0	69.6	66	69.6	10	Snd Lvl	69.6	0.0	8	-8.0
R09-27	83	1	0.0	69.8	66	69.8	10	Snd Lvl	69.8	0.0	8	-8.0
R10-01	84	1	0.0	71.4	66	71.4	10	Snd Lvl	71.4	0.0	8	-8.0
R10-02	85	1	0.0	68.7	66	68.7	10	Snd Lvl	68.7	0.0	8	-8.0
R10-03	86	1	0.0	68.1	66	68.1	10	Snd Lvl	68.1	0.0	8	-8.0
R10-04	87	1	0.0	69.3	66	69.3	10	Snd Lvl	69.3	0.0	8	-8.0
R10-05	88	1	0.0	73.3	66	73.3	10	Snd Lvl	73.3	0.0	8	-8.0
R10-06	89	1	0.0	73.1	66	73.1	10	Snd Lvl	73.1	0.0	8	-8.0
R10-07	90	1	0.0	74.7	66	74.7	10	Snd Lvl	74.7	0.0	8	-8.0
R10-08	91	1	0.0	74.0	66	74.0	10	Snd Lvl	74.0	0.0	8	-8.0
R10-09	92	1	0.0	73.1	66	73.1	10	Snd Lvl	73.1	0.0	8	-8.0
R10-10	93	1	0.0	74.4	66	74.4	10	Snd Lvl	74.4	0.0	8	-8.0
R10-11	94	1	0.0	73.3	66	73.3	10	Snd Lvl	73.3	0.0	8	-8.0
R10-12	95	1	0.0	73.1	66	73.1	10	Snd Lvl	73.1	0.0	8	-8.0
R10-13	96	1	0.0	73.0	66	73.0	10	Snd Lvl	73.0	0.0	8	-8.0
R10-14	97	1	0.0	72.9	66	72.9	10	Snd Lvl	72.9	0.0	8	-8.0
R10-15	98	1	0.0	73.0	66	73.0	10	Snd Lvl	73.0	0.0	8	-8.0
R10-16	99	1	0.0	72.4	66	72.4	10	Snd Lvl	72.4	0.0	8	-8.0
R10-17	100	1	0.0	72.5	66	72.5	10	Snd Lvl	72.5	0.0	8	-8.0
R10-18	101	1	0.0	72.0	66	72.0	10	Snd Lvl	72.0	0.0	8	-8.0
R10-19	102	1	0.0	71.6	66	71.6	10	Snd Lvl	71.6	0.0	8	-8.0
R10-20	103	1	0.0	71.3	66	71.3	10	Snd Lvl	71.3	0.0	8	-8.0
R10-21	104	1	0.0	70.8	66	70.8	10	Snd Lvl	70.8	0.0	8	-8.0
R10-22	105	1	0.0	70.4	66	70.4	10	Snd Lvl	70.4	0.0	8	-8.0
R10-23	106	1	0.0	71.0	66	71.0	10	Snd Lvl	71.0	0.0	8	-8.0

R10-24	107	1	0.0	71.3	66	71.3	10	Snd Lvl	71.3	0.0	8	-8.0
R10-25	108	1	0.0	70.0	66	70.0	10	Snd Lvl	70.0	0.0	8	-8.0
R10-26	109	1	0.0	69.0	66	69.0	10	Snd Lvl	69.0	0.0	8	-8.0
R10-27	110	1	0.0	68.2	66	68.2	10	Snd Lvl	68.2	0.0	8	-8.0
R10-28	111	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
R10-29	112	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
R10-30	113	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
R10-31	114	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0
R10-32	115	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
R10-33	116	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0
R10-34	117	1	0.0	68.0	66	68.0	10	Snd Lvl	68.0	0.0	8	-8.0
R10-35	118	1	0.0	68.0	66	68.0	10	Snd Lvl	68.0	0.0	8	-8.0
R10-36	119	1	0.0	68.1	66	68.1	10	Snd Lvl	68.1	0.0	8	-8.0
R10-37	120	1	0.0	69.0	66	69.0	10	Snd Lvl	69.0	0.0	8	-8.0
R10-38	121	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
R10-39	122	1	0.0	69.0	66	69.0	10	Snd Lvl	69.0	0.0	8	-8.0
R10-40	123	1	0.0	69.2	66	69.2	10	Snd Lvl	69.2	0.0	8	-8.0
R10-41	124	1	0.0	69.3	66	69.3	10	Snd Lvl	69.3	0.0	8	-8.0
R10-42	125	1	0.0	69.3	66	69.3	10	Snd Lvl	69.3	0.0	8	-8.0
R10-43	126	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	0.0	8	-8.0
R10-44	127	1	0.0	69.4	66	69.4	10	Snd Lvl	69.4	0.0	8	-8.0
R10-45	128	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	0.0	8	-8.0
R10-46	129	1	0.0	69.1	66	69.1	10	Snd Lvl	69.1	0.0	8	-8.0
R10-47	130	1	0.0	66.8	66	66.8	10	Snd Lvl	66.8	0.0	8	-8.0
R10-48	131	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0
R11-1	132	1	0.0	69.0	66	69.0	10	Snd Lvl	69.0	0.0	8	-8.0
R12-01	133	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0
R12-02	134	1	0.0	66.6	66	66.6	10	Snd Lvl	66.6	0.0	8	-8.0
R12-03	135	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
R12-04	136	1	0.0	66.9	66	66.9	10	Snd Lvl	66.9	0.0	8	-8.0
R12-05	137	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
R12-06	138	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0
R12-07	139	1	0.0	68.6	66	68.6	10	Snd Lvl	68.6	0.0	8	-8.0
R12-08	140	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
R12-09	141	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
R12-10	142	1	0.0	64.7	66	64.7	10	----	64.7	0.0	8	-8.0
R12-11	143	1	0.0	63.4	66	63.4	10	----	63.4	0.0	8	-8.0
R12-12	144	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
R12-13	145	1	0.0	64.2	66	64.2	10	----	64.2	0.0	8	-8.0
R12-14	146	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
R12-15	147	1	0.0	63.4	66	63.4	10	----	63.4	0.0	8	-8.0

R13-1	148	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0
R14-1	149	1	0.0	69.8	66	69.8	10	Snd Lvl	69.8	0.0	8	-8.0
R16-01	151	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
R16-02	152	1	0.0	63.3	66	63.3	10	----	63.3	0.0	8	-8.0
R16-03	153	1	0.0	63.4	66	63.4	10	----	63.4	0.0	8	-8.0
R16-04	154	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0
R16-05	155	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
R16-06	156	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0
R16-07	157	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
R16-08	158	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
R16-09	159	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
R16-10	160	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
R16-11	161	1	0.0	65.5	66	65.5	10	----	65.5	0.0	8	-8.0
R16-12	162	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
R16-13	163	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
R16-14	164	1	0.0	65.8	66	65.8	10	----	65.8	0.0	8	-8.0
R16-15	165	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
R16-16	166	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
R16-17	167	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
R16-18	168	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
R16-19	169	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
R16-20	170	1	0.0	68.2	66	68.2	10	Snd Lvl	68.2	0.0	8	-8.0
R16-21	171	1	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
R16-22	172	1	0.0	71.2	66	71.2	10	Snd Lvl	71.2	0.0	8	-8.0
R16-23	173	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
R16-24	174	1	0.0	73.4	66	73.4	10	Snd Lvl	73.4	0.0	8	-8.0
R16-25	175	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
R16-26	176	1	0.0	64.9	66	64.9	10	----	64.9	0.0	8	-8.0
R16-27	177	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
R16-28	178	1	0.0	69.4	66	69.4	10	Snd Lvl	69.4	0.0	8	-8.0
R16-29	179	1	0.0	66.2	66	66.2	10	Snd Lvl	66.2	0.0	8	-8.0
R16-30	180	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
R16-31	181	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
R16-32	182	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0
R16-33	183	1	0.0	70.3	66	70.3	10	Snd Lvl	70.3	0.0	8	-8.0
R17-1	184	1	0.0	60.5	66	60.5	10	----	60.5	0.0	8	-8.0
R18-1	185	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
R18-2	186	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0
R19-1	187	1	0.0	70.3	66	70.3	10	Snd Lvl	70.3	0.0	8	-8.0
R19-2	188	1	0.0	66.0	66	66.0	10	Snd Lvl	66.0	0.0	8	-8.0
R19-3	189	1	0.0	63.6	66	63.6	10	----	63.6	0.0	8	-8.0

R19-4	190	1	0.0	70.4	66	70.4	10	Snd Lvl	70.4	0.0	8	-8.0
R19-5	191	1	0.0	68.8	66	68.8	10	Snd Lvl	68.8	0.0	8	-8.0
R19-6	192	1	0.0	67.2	66	67.2	10	Snd Lvl	67.2	0.0	8	-8.0
R19-7	193	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
R19-8	194	1	0.0	68.4	66	68.4	10	Snd Lvl	68.4	0.0	8	-8.0
R20-1-07	195	1	0.0	53.1	66	53.1	10	----	53.1	0.0	8	-8.0
R20-1-08	196	1	0.0	53.7	66	53.7	10	----	53.7	0.0	8	-8.0
R20-1-09	197	1	0.0	54.5	66	54.5	10	----	54.5	0.0	8	-8.0
R20-1-10	198	1	0.0	55.2	66	55.2	10	----	55.2	0.0	8	-8.0
R20-1-11	199	1	0.0	56.2	66	56.2	10	----	56.2	0.0	8	-8.0
R20-1-12	200	1	0.0	56.8	66	56.8	10	----	56.8	0.0	8	-8.0
R20-1-13	201	1	0.0	58.1	66	58.1	10	----	58.1	0.0	8	-8.0
R20-1-14	202	1	0.0	60.3	66	60.3	10	----	60.3	0.0	8	-8.0
R20-1-21	203	1	0.0	54.2	66	54.2	10	----	54.2	0.0	8	-8.0
R20-1-22	204	1	0.0	54.6	66	54.6	10	----	54.6	0.0	8	-8.0
R20-1-23	205	1	0.0	55.1	66	55.1	10	----	55.1	0.0	8	-8.0
R20-1-24	206	1	0.0	56.0	66	56.0	10	----	56.0	0.0	8	-8.0
R20-1-25	207	1	0.0	57.5	66	57.5	10	----	57.5	0.0	8	-8.0
R20-1-26	208	1	0.0	58.4	66	58.4	10	----	58.4	0.0	8	-8.0
R20-1-27	209	1	0.0	59.2	66	59.2	10	----	59.2	0.0	8	-8.0
R20-1-28	210	1	0.0	59.8	66	59.8	10	----	59.8	0.0	8	-8.0
R20-1-35	211	1	0.0	62.8	66	62.8	10	----	62.8	0.0	8	-8.0
R20-1-36	212	1	0.0	62.6	66	62.6	10	----	62.6	0.0	8	-8.0
R20-1-37	213	1	0.0	62.4	66	62.4	10	----	62.4	0.0	8	-8.0
R20-1-38	214	1	0.0	62.4	66	62.4	10	----	62.4	0.0	8	-8.0
R20-1-39	215	1	0.0	62.2	66	62.2	10	----	62.2	0.0	8	-8.0
R20-1-40	216	1	0.0	62.0	66	62.0	10	----	62.0	0.0	8	-8.0
R20-1-41	217	1	0.0	61.8	66	61.8	10	----	61.8	0.0	8	-8.0
R20-1-42	218	1	0.0	61.6	66	61.6	10	----	61.6	0.0	8	-8.0
R20-1-49	219	1	0.0	60.6	66	60.6	10	----	60.6	0.0	8	-8.0
R20-1-50	220	1	0.0	61.2	66	61.2	10	----	61.2	0.0	8	-8.0
R20-1-51	221	1	0.0	62.2	66	62.2	10	----	62.2	0.0	8	-8.0
R20-1-52	222	1	0.0	63.0	66	63.0	10	----	63.0	0.0	8	-8.0
R20-1-53	223	1	0.0	64.3	66	64.3	10	----	64.3	0.0	8	-8.0
R20-1-54	224	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
R20-1-55	225	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
R20-1-56	226	1	0.0	67.8	66	67.8	10	Snd Lvl	67.8	0.0	8	-8.0
R20-1-63	227	1	0.0	60.7	66	60.7	10	----	60.7	0.0	8	-8.0
R20-1-64	228	1	0.0	61.3	66	61.3	10	----	61.3	0.0	8	-8.0
R20-1-65	229	1	0.0	62.2	66	62.2	10	----	62.2	0.0	8	-8.0
R20-1-66	230	1	0.0	63.0	66	63.0	10	----	63.0	0.0	8	-8.0

R20-1-67	231	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
R20-1-68	232	1	0.0	64.6	66	64.6	10	----	64.6	0.0	8	-8.0
R20-1-69	233	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
R20-1-70	234	1	0.0	68.0	66	68.0	10	Snd Lvl	68.0	0.0	8	-8.0
R20-1-77	235	1	0.0	62.2	66	62.2	10	----	62.2	0.0	8	-8.0
R20-1-78	236	1	0.0	62.6	66	62.6	10	----	62.6	0.0	8	-8.0
R20-1-79	237	1	0.0	63.0	66	63.0	10	----	63.0	0.0	8	-8.0
R20-1-80	238	1	0.0	63.4	66	63.4	10	----	63.4	0.0	8	-8.0
R20-1-81	239	1	0.0	64.2	66	64.2	10	----	64.2	0.0	8	-8.0
R20-1-82	240	1	0.0	64.6	66	64.6	10	----	64.6	0.0	8	-8.0
R20-1-83	241	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0
R20-1-84	242	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
R20-2-01	243	1	0.0	64.8	66	64.8	10	----	64.8	0.0	8	-8.0
R20-2-02	244	1	0.0	65.4	66	65.4	10	----	65.4	0.0	8	-8.0
R20-2-03	245	1	0.0	65.5	66	65.5	10	----	65.5	0.0	8	-8.0
R20-2-04	246	1	0.0	66.1	66	66.1	10	Snd Lvl	66.1	0.0	8	-8.0
R20-2-05	247	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
R20-2-06	248	1	0.0	67.2	66	67.2	10	Snd Lvl	67.2	0.0	8	-8.0
R20-2-07	249	1	0.0	56.2	66	56.2	10	----	56.2	0.0	8	-8.0
R20-2-08	250	1	0.0	56.7	66	56.7	10	----	56.7	0.0	8	-8.0
R20-2-09	251	1	0.0	57.5	66	57.5	10	----	57.5	0.0	8	-8.0
R20-2-11	252	1	0.0	59.4	66	59.4	10	----	59.4	0.0	8	-8.0
R20-2-12	253	1	0.0	60.2	66	60.2	10	----	60.2	0.0	8	-8.0
R20-2-14	254	1	0.0	63.4	66	63.4	10	----	63.4	0.0	8	-8.0
R20-2-15	255	1	0.0	56.7	66	56.7	10	----	56.7	0.0	8	-8.0
R20-2-16	256	1	0.0	57.3	66	57.3	10	----	57.3	0.0	8	-8.0
R20-2-17	257	1	0.0	57.7	66	57.7	10	----	57.7	0.0	8	-8.0
R20-2-18	258	1	0.0	58.9	66	58.9	10	----	58.9	0.0	8	-8.0
R20-2-19	259	1	0.0	60.4	66	60.4	10	----	60.4	0.0	8	-8.0
R20-2-20	260	1	0.0	61.9	66	61.9	10	----	61.9	0.0	8	-8.0
R20-2-21	261	1	0.0	57.2	66	57.2	10	----	57.2	0.0	8	-8.0
R20-2-22	262	1	0.0	57.7	66	57.7	10	----	57.7	0.0	8	-8.0
R20-2-23	263	1	0.0	58.4	66	58.4	10	----	58.4	0.0	8	-8.0
R20-2-25	264	1	0.0	60.9	66	60.9	10	----	60.9	0.0	8	-8.0
R20-2-26	265	1	0.0	62.1	66	62.1	10	----	62.1	0.0	8	-8.0
R20-2-28	266	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0
R20-2-29	267	1	0.0	52.7	66	52.7	10	----	52.7	0.0	8	-8.0
R20-2-30	268	1	0.0	52.3	66	52.3	10	----	52.3	0.0	8	-8.0
R20-2-31	269	1	0.0	52.2	66	52.2	10	----	52.2	0.0	8	-8.0
R20-2-32	270	1	0.0	52.3	66	52.3	10	----	52.3	0.0	8	-8.0
R20-2-33	271	1	0.0	52.1	66	52.1	10	----	52.1	0.0	8	-8.0

R20-2-34	272	1	0.0	52.0	66	52.0	10	----	52.0	0.0	8	-8.0
R20-2-35	273	1	0.0	66.2	66	66.2	10	Snd Lvl	66.2	0.0	8	-8.0
R20-2-36	274	1	0.0	66.1	66	66.1	10	Snd Lvl	66.1	0.0	8	-8.0
R20-2-37	275	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
R20-2-39	276	1	0.0	65.7	66	65.7	10	----	65.7	0.0	8	-8.0
R20-2-40	277	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0
R20-2-42	278	1	0.0	65.1	66	65.1	10	----	65.1	0.0	8	-8.0
R20-2-43	279	1	0.0	62.0	66	62.0	10	----	62.0	0.0	8	-8.0
R20-2-44	280	1	0.0	63.4	66	63.4	10	----	63.4	0.0	8	-8.0
R20-2-45	281	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
R20-2-46	282	1	0.0	65.1	66	65.1	10	----	65.1	0.0	8	-8.0
R20-2-47	283	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
R20-2-48	284	1	0.0	68.0	66	68.0	10	Snd Lvl	68.0	0.0	8	-8.0
R20-2-49	285	1	0.0	63.3	66	63.3	10	----	63.3	0.0	8	-8.0
R20-2-50	286	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
R20-2-51	287	1	0.0	65.0	66	65.0	10	----	65.0	0.0	8	-8.0
R20-2-53	288	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
R20-2-54	289	1	0.0	68.1	66	68.1	10	Snd Lvl	68.1	0.0	8	-8.0
R20-2-56	290	1	0.0	70.7	66	70.7	10	Snd Lvl	70.7	0.0	8	-8.0
R20-2-57	291	1	0.0	62.5	66	62.5	10	----	62.5	0.0	8	-8.0
R20-2-58	292	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
R20-2-59	293	1	0.0	64.7	66	64.7	10	----	64.7	0.0	8	-8.0
R20-2-60	294	1	0.0	66.6	66	66.6	10	Snd Lvl	66.6	0.0	8	-8.0
R20-2-61	295	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0
R20-2-62	296	1	0.0	69.0	66	69.0	10	Snd Lvl	69.0	0.0	8	-8.0
R20-2-63	297	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
R20-2-64	298	1	0.0	64.3	66	64.3	10	----	64.3	0.0	8	-8.0
R20-2-65	299	1	0.0	65.5	66	65.5	10	----	65.5	0.0	8	-8.0
R20-2-66	300	1	0.0	66.2	66	66.2	10	Snd Lvl	66.2	0.0	8	-8.0
R20-2-67	301	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
R20-2-68	302	1	0.0	68.0	66	68.0	10	Snd Lvl	68.0	0.0	8	-8.0
R20-2-69	303	1	0.0	69.4	66	69.4	10	Snd Lvl	69.4	0.0	8	-8.0
R20-2-70	304	1	0.0	71.1	66	71.1	10	Snd Lvl	71.1	0.0	8	-8.0
R20-2-71	305	1	0.0	64.8	66	64.8	10	----	64.8	0.0	8	-8.0
R20-2-72	306	1	0.0	64.6	66	64.6	10	----	64.6	0.0	8	-8.0
R20-2-73	307	1	0.0	65.5	66	65.5	10	----	65.5	0.0	8	-8.0
R20-2-74	308	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
R20-2-75	309	1	0.0	68.5	66	68.5	10	Snd Lvl	68.5	0.0	8	-8.0
R20-2-76	310	1	0.0	69.6	66	69.6	10	Snd Lvl	69.6	0.0	8	-8.0
R20-2-77	311	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0
R20-2-78	312	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0

R20-2-79	313	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
R20-2-80	314	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
R20-2-81	315	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
R20-2-82	316	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
R20-2-83	317	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0
R20-2-84	318	1	0.0	69.2	66	69.2	10	Snd Lvl	69.2	0.0	8	-8.0
R20-2-85	319	1	0.0	63.2	66	63.2	10	----	63.2	0.0	8	-8.0
R20-2-86	320	1	0.0	65.8	66	65.8	10	----	65.8	0.0	8	-8.0
R20-2-87	321	1	0.0	63.2	66	63.2	10	----	63.2	0.0	8	-8.0
R20-2-88	322	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
R20-3-01	323	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
R20-3-02	324	1	0.0	66.9	66	66.9	10	Snd Lvl	66.9	0.0	8	-8.0
R20-3-03	325	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
R20-3-04	326	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
R20-3-05	327	1	0.0	68.1	66	68.1	10	Snd Lvl	68.1	0.0	8	-8.0
R20-3-06	328	1	0.0	68.7	66	68.7	10	Snd Lvl	68.7	0.0	8	-8.0
R20-3-07	329	1	0.0	59.7	66	59.7	10	----	59.7	0.0	8	-8.0
R20-3-08	330	1	0.0	60.2	66	60.2	10	----	60.2	0.0	8	-8.0
R20-3-09	331	1	0.0	61.0	66	61.0	10	----	61.0	0.0	8	-8.0
R20-3-11	332	1	0.0	62.9	66	62.9	10	----	62.9	0.0	8	-8.0
R20-3-12	333	1	0.0	63.6	66	63.6	10	----	63.6	0.0	8	-8.0
R20-3-14	334	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
R20-3-15	335	1	0.0	60.5	66	60.5	10	----	60.5	0.0	8	-8.0
R20-3-16	336	1	0.0	61.4	66	61.4	10	----	61.4	0.0	8	-8.0
R20-3-17	337	1	0.0	61.8	66	61.8	10	----	61.8	0.0	8	-8.0
R20-3-18	338	1	0.0	62.9	66	62.9	10	----	62.9	0.0	8	-8.0
R20-3-19	339	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
R20-3-20	340	1	0.0	65.1	66	65.1	10	----	65.1	0.0	8	-8.0
R20-3-21	341	1	0.0	59.1	66	59.1	10	----	59.1	0.0	8	-8.0
R20-3-22	342	1	0.0	59.6	66	59.6	10	----	59.6	0.0	8	-8.0
R20-3-23	343	1	0.0	60.3	66	60.3	10	----	60.3	0.0	8	-8.0
R20-3-25	344	1	0.0	62.9	66	62.9	10	----	62.9	0.0	8	-8.0
R20-3-26	345	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
R20-3-28	346	1	0.0	66.2	66	66.2	10	Snd Lvl	66.2	0.0	8	-8.0
R20-3-29	347	1	0.0	57.2	66	57.2	10	----	57.2	0.0	8	-8.0
R20-3-30	348	1	0.0	57.3	66	57.3	10	----	57.3	0.0	8	-8.0
R20-3-31	349	1	0.0	57.4	66	57.4	10	----	57.4	0.0	8	-8.0
R20-3-32	350	1	0.0	57.1	66	57.1	10	----	57.1	0.0	8	-8.0
R20-3-33	351	1	0.0	56.9	66	56.9	10	----	56.9	0.0	8	-8.0
R20-3-34	352	1	0.0	56.4	66	56.4	10	----	56.4	0.0	8	-8.0
R20-3-35	353	1	0.0	67.8	66	67.8	10	Snd Lvl	67.8	0.0	8	-8.0

R20-3-36	354	1	0.0	67.8	66	67.8	10	Snd Lvl	67.8	0.0	8	-8.0
R20-3-37	355	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0
R20-3-39	356	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
R20-3-40	357	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
R20-3-42	358	1	0.0	67.2	66	67.2	10	Snd Lvl	67.2	0.0	8	-8.0
R20-3-43	359	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
R20-3-44	360	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0
R20-3-45	361	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0
R20-3-46	362	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
R20-3-47	363	1	0.0	69.0	66	69.0	10	Snd Lvl	69.0	0.0	8	-8.0
R20-3-48	364	1	0.0	70.0	66	70.0	10	Snd Lvl	70.0	0.0	8	-8.0
R20-3-49	365	1	0.0	64.5	66	64.5	10	----	64.5	0.0	8	-8.0
R20-3-50	366	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0
R20-3-51	367	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
R20-3-53	368	1	0.0	68.7	66	68.7	10	Snd Lvl	68.7	0.0	8	-8.0
R20-3-54	369	1	0.0	69.6	66	69.6	10	Snd Lvl	69.6	0.0	8	-8.0
R20-3-56	370	1	0.0	72.2	66	72.2	10	Snd Lvl	72.2	0.0	8	-8.0
R20-3-57	371	1	0.0	63.9	66	63.9	10	----	63.9	0.0	8	-8.0
R20-3-58	372	1	0.0	65.7	66	65.7	10	----	65.7	0.0	8	-8.0
R20-3-59	373	1	0.0	66.4	66	66.4	10	Snd Lvl	66.4	0.0	8	-8.0
R20-3-60	374	1	0.0	68.8	66	68.8	10	Snd Lvl	68.8	0.0	8	-8.0
R20-3-61	375	1	0.0	69.7	66	69.7	10	Snd Lvl	69.7	0.0	8	-8.0
R20-3-62	376	1	0.0	70.8	66	70.8	10	Snd Lvl	70.8	0.0	8	-8.0
R20-3-63	377	1	0.0	64.9	66	64.9	10	----	64.9	0.0	8	-8.0
R20-3-64	378	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
R20-3-65	379	1	0.0	66.4	66	66.4	10	Snd Lvl	66.4	0.0	8	-8.0
R20-3-66	380	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
R20-3-67	381	1	0.0	68.4	66	68.4	10	Snd Lvl	68.4	0.0	8	-8.0
R20-3-68	382	1	0.0	69.0	66	69.0	10	Snd Lvl	69.0	0.0	8	-8.0
R20-3-69	383	1	0.0	70.5	66	70.5	10	Snd Lvl	70.5	0.0	8	-8.0
R20-3-70	384	1	0.0	72.4	66	72.4	10	Snd Lvl	72.4	0.0	8	-8.0
R20-3-71	385	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
R20-3-72	386	1	0.0	66.4	66	66.4	10	Snd Lvl	66.4	0.0	8	-8.0
R20-3-73	387	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
R20-3-74	388	1	0.0	69.1	66	69.1	10	Snd Lvl	69.1	0.0	8	-8.0
R20-3-75	389	1	0.0	70.3	66	70.3	10	Snd Lvl	70.3	0.0	8	-8.0
R20-3-76	390	1	0.0	71.3	66	71.3	10	Snd Lvl	71.3	0.0	8	-8.0
R20-3-77	391	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
R20-3-78	392	1	0.0	66.8	66	66.8	10	Snd Lvl	66.8	0.0	8	-8.0
R20-3-79	393	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
R20-3-80	394	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0

R20-3-81	395	1	0.0	68.1	66	68.1	10	Snd Lvl	68.1	0.0	8	-8.0
R20-3-82	396	1	0.0	68.4	66	68.4	10	Snd Lvl	68.4	0.0	8	-8.0
R20-3-83	397	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	0.0	8	-8.0
R20-3-84	398	1	0.0	70.4	66	70.4	10	Snd Lvl	70.4	0.0	8	-8.0
R20-3-85	399	1	0.0	64.9	66	64.9	10	----	64.9	0.0	8	-8.0
R20-3-86	400	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0
R20-3-87	401	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
R20-3-88	402	1	0.0	68.2	66	68.2	10	Snd Lvl	68.2	0.0	8	-8.0
R21-01	403	1	0.0	73.7	66	73.7	10	Snd Lvl	73.7	0.0	8	-8.0
R21-2	404	1	0.0	70.6	66	70.6	10	Snd Lvl	70.6	0.0	8	-8.0
R22-01	405	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
R22-02	406	1	0.0	63.9	66	63.9	10	----	63.9	0.0	8	-8.0
R22-03	407	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0
R22-04	408	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
R22-05	409	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0
R22-06	410	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0
R22-07	411	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
R22-08	412	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
R22-09	413	1	0.0	68.1	66	68.1	10	Snd Lvl	68.1	0.0	8	-8.0
R22-10	414	1	0.0	68.1	66	68.1	10	Snd Lvl	68.1	0.0	8	-8.0
R22-11	415	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
R22-12	416	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0
R23-1	417	1	0.0	71.1	66	71.1	10	Snd Lvl	71.1	0.0	8	-8.0
R23-2	418	1	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
R23-3	420	1	0.0	70.6	66	70.6	10	Snd Lvl	70.6	0.0	8	-8.0
R23-4	421	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0
R23-5	422	1	0.0	69.2	66	69.2	10	Snd Lvl	69.2	0.0	8	-8.0
R6-2	423	1	0.0	65.8	66	65.8	10	----	65.8	0.0	8	-8.0

Dwelling Units		**# DUs**	**Noise Reduction**		
			Min	**Avg**	**Max**
			dB	**dB**	**dB**
All Selected		421	0.0	0.0	0.0
All Impacted		229	0.0	0.0	0.0
All that meet NR Goal		0	0.0	0.0	0.0

EXHIBIT E

NOISE BARRIER ANALYSIS AND TNM 2.5 MODEL OUTPUT

Exhibit E

Noise Barrier Analysis

Noise Level Comparison	
XX	Approaches or Exceeds FHWA Noise Abatement Criteria

Table 1

Build Noise Barrier Cost Effectiveness - Wall W1 - 24 Foot Noise Barrier at 1165 feet

Noise Barrier	Receptor	Land Use	Dwelling Units	L_{eq} Noise Level (dBA)			Noise Reduction (dBA)	Total Benefited Receptors	Acoustically Feasible	Reasonableness Design Goal Reduction	Height of Barrier (ft)	Length of Barrier (ft)	Barrier Area (sq ft)	Total Cost of Barrier ($30/sq ft)	Cost Per Benefited Receptor	Noise Barrier Results
				FHWA Criteria (dBA)	Build Year 2035 (No Barrier)	Build Year 2035 (With Barrier)										
Wall W1	R01-1	C	1	67	66	59	7	2	Yes	No	24	1,165	27,960	$838,800	NA	Does Not Meet Noise Reduction Design Goal
Wall W1	R01-2	C	1	67	65	60	5	2	Yes	No	24	1,165	27,960	$838,800	NA	Does Not Meet Noise Reduction Design Goal

Table 2

Build Noise Barrier Cost Effectiveness - Wall W4 - 24 Foot Noise Barrier at 568 feet

Noise Barrier	Receptor	Land Use	Dwelling Units	Leq Noise Level (dBA)			Noise Reduction (dBA)	Total Benefited Receptors	Acoustically Feasible	Reasonableness Design Goal Reduction	Height of Barrier (ft)	Length of Barrier (ft)	Barrier Area (sq ft)	Total Cost of Barrier ($30/sq ft)	Cost Per Benefited Receptor	Noise Barrier Results
				FHWA Criteria (dBA)	Build Year 2035 (No Barrier)	Build Year 2035 (With Barrier)										
Wall W4	R04-01	B	1	67	69	62	7	2	Yes	No	24	568	13,632	$408,960	NA	Does Not Meet Noise Reduction Design Goal
Wall W4	R04-02	B	1	67	68	60	8	2	Yes	No	24	568	13,632	$408,960	NA	Does Not Meet Noise Reduction Design Goal
Wall W4	R04-03	B	1	67	64	60	4	2	Yes	No	24	568	13,632	$408,960	NA	Does Not Meet Noise Reduction Design Goal
Wall W4	R04-04	B	1	67	65	61	4	2	Yes	No	24	568	13,632	$408,960	NA	Does Not Meet Noise Reduction Design Goal
Wall W4	R04-05	B	1	67	65	61	4	2	Yes	No	24	568	13,632	$408,960	NA	Does Not Meet Noise Reduction Design Goal
Wall W4	R04-06	B	1	67	63	60	3	2	Yes	No	24	568	13,632	$408,960	NA	Does Not Meet Noise Reduction Design Goal
Wall W4	R04-07	B	1	67	62	59	3	2	Yes	No	24	568	13,632	$408,960	NA	Does Not Meet Noise Reduction Design Goal
Wall W4	R04-08	B	1	67	61	59	2	2	Yes	No	24	568	13,632	$408,960	NA	Does Not Meet Noise Reduction Design Goal
Wall W4	R04-09	B	1	67	61	59	2	2	Yes	No	24	568	13,632	$408,960	NA	Does Not Meet Noise Reduction Design Goal
Wall W4	R04-10	B	1	67	62	59	3	2	Yes	No	24	568	13,632	$408,960	NA	Does Not Meet Noise Reduction Design Goal
Wall W4	R04-11	B	1	67	61	59	2	2	Yes	No	24	568	13,632	$408,960	NA	Does Not Meet Noise Reduction Design Goal
Wall W4	R04-12	B	1	67	61	59	2	2	Yes	No	24	568	13,632	$408,960	NA	Does Not Meet Noise Reduction Design Goal
Wall W4	R04-13	B	1	67	61	59	2	2	Yes	No	24	568	13,632	$408,960	NA	Does Not Meet Noise Reduction Design Goal

Exhibit E

Noise Barrier Analysis

Noise Level Comparison	
XX	Approaches or Exceeds FHWA Noise Abatement Criteria

Table 3

Build Noise Barrier Cost Effectiveness - Wall W5-7 - 24 Foot Noise Barrier at 2430 feet

Noise Barrier	Receptor	Land Use	Dwelling Units	Leq Noise Level (dBA)			Noise Reduction (dBA)	Total Benefited Receptors	Acoustically Feasible	Reasonableness Design Goal Reduction	Height of Barrier (ft)	Length of Barrier (ft)	Barrier Area (sq ft)	Total Cost of Barrier ($30/sq ft)	Cost Per Benefited Receptor	Noise Barrier Results
				FHWA Criteria (dBA)	Build Year 2035 (No Barrier)	Build Year 2035 (With Barrier)										
Wall W5-7	R05-01	B	1	67	70	58	12	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R05-02	B	1	67	67	59	8	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R05-03	B	1	67	66	59	7	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R05-04	B	1	67	64	59	5	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R05-05	B	1	67	64	59	5	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R05-06	B	1	67	63	58	5	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R05-07	B	1	67	65	58	7	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R05-08	B	1	67	66	58	8	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R05-09	B	1	67	63	58	5	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R05-10	B	1	67	66	58	8	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R05-11	B	1	67	62	57	5	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R05-12	B	1	67	63	58	5	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R05-13	B	1	67	64	58	6	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R05-14	B	1	67	63	58	5	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R05-15	B	1	67	64	58	6	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R05-16	B	1	67	63	58	5	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R05-17	B	1	67	65	59	6	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R05-18	B	1	67	62	59	3	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R05-19	B	1	67	64	61	3	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R06-01	C	1	67	67	60	7	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R07-1	B	1	67	66	62	4	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R07-2	B	1	67	64	61	3	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R07-3	B	1	67	63	60	3	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R07-4	B	1	67	66	65	1	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R07-5	B	1	67	66	66	0	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective
Wall W5-7	R06-02	C	1	67	66	60	6	19	Yes	Yes	24	2,430	58,320	$1,749,600	$92,084	Not Cost Effective

Exhibit E

Noise Barrier Analysis

Noise Level Comparison	
XX	Approaches or Exceeds FHWA Noise Abatement Criteria

Table 4

Build Noise Barrier Cost Effectiveness - Wall W8-10,21 - 13 Foot Noise Barrier at 6482 feet

Noise Barrier	Receptor	Land Use	Dwelling Units	Leq Noise Level (dBA)			Noise Reduction (dBA)	Total Benefited Receptors	Acoustically Feasible	Reasonableness Design Goal Reduction	Height of Barrier (ft)	Length of Barrier (ft)	Barrier Area (sq ft)	Total Cost of Barrier ($30/sq ft)	Cost Per Benefited Receptor	Noise Barrier Results
				FHWA Criteria (dBA)	Build Year 2035 (No Barrier)	Build Year 2035 (With Barrier)										
Wall W8-10,21	R08-01	B	1	67	72	65	7	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R08-02	B	1	67	69	64	5	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R08-03	B	1	67	67	66	1	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R08-04	B	1	67	68	63	5	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R08-05	B	1	67	67	65	2	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R08-06	B	1	67	68	63	5	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R08-07	B	1	67	69	63	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R08-08	B	1	67	69	64	5	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R08-09	B	1	67	68	63	5	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R08-10	B	1	67	71	64	7	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R08-11	B	1	67	69	63	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R08-12	B	1	67	70	64	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R08-13	B	1	67	70	64	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-01	B	1	67	75	67	8	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-02	B	1	67	73	66	7	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-03	B	1	67	73	66	7	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-04	B	1	67	74	67	7	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-05	B	1	67	75	67	8	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-06	B	1	67	74	67	7	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-07	B	1	67	75	67	8	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-08	B	1	67	74	67	7	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-09	B	1	67	75	67	8	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-10	B	1	67	75	67	8	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-11	B	1	67	75	67	8	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-12	B	1	67	76	67	9	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-13	B	1	67	72	65	7	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-14	B	1	67	70	64	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-15	B	1	67	69	63	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-16	B	1	67	67	61	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-17	B	1	67	70	64	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-18	B	1	67	68	62	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-19	B	1	67	70	64	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-20	B	1	67	70	64	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-21	B	1	67	68	62	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-22	B	1	67	69	63	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-23	B	1	67	70	64	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-24	B	1	67	68	62	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-25	B	1	67	69	63	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-26	B	1	67	70	64	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R09-27	B	1	67	70	64	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-01	B	1	67	71	65	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-02	B	1	67	69	66	3	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-03	B	1	67	68	65	3	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-04	B	1	67	69	65	4	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-05	B	1	67	73	66	7	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-06	B	1	67	73	67	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct

Exhibit E

Noise Barrier Analysis

Noise Level Comparison	
XX	Approaches or Exceeds FHWA Noise Abatement Criteria

Wall W8-10,21	R10-07	B	1	67	75	68	7	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-08	B	1	67	74	67	7	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-09	B	1	67	73	67	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-10	B	1	67	74	67	7	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-11	B	1	67	73	66	7	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-12	B	1	67	73	66	7	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-13	B	1	67	73	66	7	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-14	B	1	67	73	66	7	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-15	B	1	67	73	66	7	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-16	B	1	67	72	65	7	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-17	B	1	67	73	65	8	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-18	B	1	67	72	65	7	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-19	B	1	67	72	65	7	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-20	B	1	67	71	65	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-21	B	1	67	71	64	7	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-22	B	1	67	70	64	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-23	B	1	67	71	65	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-24	B	1	67	71	65	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-25	B	1	67	70	64	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-26	B	1	67	69	64	5	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-27	B	1	67	68	63	5	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-28	B	1	67	67	62	5	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-29	B	1	67	67	62	5	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-30	B	1	67	68	63	5	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-31	B	1	67	68	63	5	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-32	B	1	67	67	62	5	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-33	B	1	67	68	63	5	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-34	B	1	67	68	63	5	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-35	B	1	67	68	63	5	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-36	B	1	67	68	63	5	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-37	B	1	67	69	63	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-38	B	1	67	68	62	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-39	B	1	67	69	63	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-40	B	1	67	69	63	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-41	B	1	67	69	63	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-42	B	1	67	69	63	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-43	B	1	67	70	64	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-44	B	1	67	69	64	5	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-45	B	1	67	70	64	6	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-46	B	1	67	69	64	5	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-47	B	1	67	67	65	2	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R10-48	B	1	67	66	64	2	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct
Wall W8-10,21	R21-01	C	1	67	74	65	9	82	Yes	Yes	13	6,482	84,266	$2,527,980	$30,829.02	Review - Potential to Construct

Exhibit E

Noise Barrier Analysis

Noise Level Comparison	
XX	Approaches or Exceeds FHWA Noise Abatement Criteria

Table 5

Build Noise Barrier Cost Effectiveness - Wall W11-12 - 24 Foot Noise Barrier at 954 feet

Noise Barrier	Receptor	Land Use	Dwelling Units	Leq Noise Level (dBA)			Noise Reduction (dBA)	Total Benefited Receptors	Acoustically Feasible	Reasonableness Design Goal Reduction	Height of Barrier (ft)	Length of Barrier (ft)	Barrier Area (sq ft)	Total Cost of Barrier ($30/sq ft)	Cost Per Benefited Receptor	Noise Barrier Results
				FHWA Criteria (dBA)	Build Year 2035 (No Barrier)	Build Year 2035 (With Barrier)										
Wall W11-12	R11-1	B	1	67	69	64	5	1	No	No	24	954	22,896	$686,880	NA	Not Acoustically Effective
Wall W11-12	R12-01	B	1	67	68	66	2	1	No	No	24	954	22,896	$686,880	NA	Not Acoustically Effective
Wall W11-12	R12-02	B	1	67	67	66	1	1	No	No	24	954	22,896	$686,880	NA	Not Acoustically Effective
Wall W11-12	R12-03	B	1	67	67	67	0	1	No	No	24	954	22,896	$686,880	NA	Not Acoustically Effective
Wall W11-12	R12-04	B	1	67	67	66	1	1	No	No	24	954	22,896	$686,880	NA	Not Acoustically Effective
Wall W11-12	R12-05	B	1	67	67	66	1	1	No	No	24	954	22,896	$686,880	NA	Not Acoustically Effective
Wall W11-12	R12-06	B	1	67	68	67	1	1	No	No	24	954	22,896	$686,880	NA	Not Acoustically Effective
Wall W11-12	R12-07	B	1	67	69	68	1	1	No	No	24	954	22,896	$686,880	NA	Not Acoustically Effective
Wall W11-12	R12-08	B	1	67	67	65	2	1	No	No	24	954	22,896	$686,880	NA	Not Acoustically Effective
Wall W11-12	R12-09	B	1	67	65	63	2	1	No	No	24	954	22,896	$686,880	NA	Not Acoustically Effective
Wall W11-12	R12-10	B	1	67	65	63	2	1	No	No	24	954	22,896	$686,880	NA	Not Acoustically Effective
Wall W11-12	R12-11	B	1	67	63	62	1	1	No	No	24	954	22,896	$686,880	NA	Not Acoustically Effective
Wall W11-12	R12-12	B	1	67	64	62	2	1	No	No	24	954	22,896	$686,880	NA	Not Acoustically Effective
Wall W11-12	R12-13	B	1	67	64	62	2	1	No	No	24	954	22,896	$686,880	NA	Not Acoustically Effective
Wall W11-12	R12-14	B	1	67	64	62	2	1	No	No	24	954	22,896	$686,880	NA	Not Acoustically Effective
Wall W11-12	R12-15	B	1	67	63	62	1	1	No	No	24	954	22,896	$686,880	NA	Not Acoustically Effective

Table 6

Build Noise Barrier Cost Effectiveness - Wall W12 - 20.47 Foot Noise Barrier at 749 feet

Noise Barrier	Receptor	Land Use	Dwelling Units	Leq Noise Level (dBA)			Noise Reduction (dBA)	Total Benefited Receptors	Acoustically Feasible	Reasonableness Design Goal Reduction	Height of Barrier (ft)	Length of Barrier (ft)	Barrier Area (sq ft)	Total Cost of Barrier ($30/sq ft)	Cost Per Benefited Receptor	Noise Barrier Results
				FHWA Criteria (dBA)	Build Year 2035 (No Barrier)	Build Year 2035 (With Barrier)										
Wall W12	R12-01	B	1	67	68	67	1	6	Yes	Yes	20.47	749	15,332	$459,961	$76,660.15	Not Cost Effective
Wall W12	R12-02	B	1	67	67	61	6	6	Yes	Yes	20.47	749	15,332	$459,961	$76,660.15	Not Cost Effective
Wall W12	R12-03	B	1	67	67	59	8	6	Yes	Yes	20.47	749	15,332	$459,961	$76,660.15	Not Cost Effective
Wall W12	R12-04	B	1	67	67	59	8	6	Yes	Yes	20.47	749	15,332	$459,961	$76,660.15	Not Cost Effective
Wall W12	R12-05	B	1	67	67	60	7	6	Yes	Yes	20.47	749	15,332	$459,961	$76,660.15	Not Cost Effective
Wall W12	R12-06	B	1	67	68	60	8	6	Yes	Yes	20.47	749	15,332	$459,961	$76,660.15	Not Cost Effective
Wall W12	R12-07	B	1	67	69	62	7	6	Yes	Yes	20.47	749	15,332	$459,961	$76,660.15	Not Cost Effective
Wall W12	R12-08	B	1	67	67	67	0	6	Yes	Yes	20.47	749	15,332	$459,961	$76,660.15	Not Cost Effective
Wall W12	R12-09	B	1	67	65	65	0	6	Yes	Yes	20.47	749	15,332	$459,961	$76,660.15	Not Cost Effective
Wall W12	R12-10	B	1	67	65	64	1	6	Yes	Yes	20.47	749	15,332	$459,961	$76,660.15	Not Cost Effective
Wall W12	R12-11	B	1	67	63	62	1	6	Yes	Yes	20.47	749	15,332	$459,961	$76,660.15	Not Cost Effective
Wall W12	R12-12	B	1	67	64	62	2	6	Yes	Yes	20.47	749	15,332	$459,961	$76,660.15	Not Cost Effective
Wall W12	R12-13	B	1	67	64	62	2	6	Yes	Yes	20.47	749	15,332	$459,961	$76,660.15	Not Cost Effective
Wall W12	R12-14	B	1	67	64	62	2	6	Yes	Yes	20.47	749	15,332	$459,961	$76,660.15	Not Cost Effective
Wall W12	R12-15	B	1	67	63	62	1	6	Yes	Yes	20.47	749	15,332	$459,961	$76,660.15	Not Cost Effective

Exhibit E

Noise Barrier Analysis

Noise Level Comparison	
XX	Approaches or Exceeds FHWA Noise Abatement Criteria

Table 7

Build Noise Barrier Cost Effectiveness - Wall W13 - 24 Foot Noise Barrier at 854 feet

Noise Barrier	Receptor	Land Use	Dwelling Units	Leq Noise Level (dBA)			Noise Reduction (dBA)	Total Benefited Receptors	Acoustically Feasible	Reasonableness Design Goal Reduction	Height of Barrier (ft)	Length of Barrier (ft)	Barrier Area (sq ft)	Total Cost of Barrier ($30/sq ft)	Cost Per Benefited Receptor	Noise Barrier Results
				FHWA Criteria (dBA)	Build Year 2035 (No Barrier)	Build Year 2035 (With Barrier)										
Wall W13	R13-1	B	1	67	68	63	5	1	No	No	24	854	20,496	$614,880	NA	Not Acoustically Effective

Table 8

Build Noise Barrier Cost Effectiveness - Wall W14 - 24 Foot Noise Barrier at 1222 feet

Noise Barrier	Receptor	Land Use	Dwelling Units	Leq Noise Level (dBA)			Noise Reduction (dBA)	Total Benefited Receptors	Acoustically Feasible	Reasonableness Design Goal Reduction	Height of Barrier (ft)	Length of Barrier (ft)	Barrier Area (sq ft)	Total Cost of Barrier ($30/sq ft)	Cost Per Benefited Receptor	Noise Barrier Results
				FHWA Criteria (dBA)	Build Year 2035 (No Barrier)	Build Year 2035 (With Barrier)										
Wall W14	R14-1	C	1	67	70	65	5	1	No	No	24	1,222	29,328	$879,840	NA	Not Acoustically Effective

Exhibit E

Noise Barrier Analysis

Noise Level Comparison	
XX	Approaches or Exceeds FHWA Noise Abatement Criteria

Table 9

Build Noise Barrier Cost Effectiveness - Wall W16 - 18.8 Foot Noise Barrier at 2826 feet

Noise Barrier	Receptor	Land Use	Dwelling Units	Leq Noise Level (dBA)			Noise Reduction (dBA)	Total Benefited Receptors	Acoustically Feasible	Reasonableness Design Goal Reduction[1]	Height of Barrier (ft)	Length of Barrier (ft)	Barrier Area (sq ft)	Total Cost of Barrier ($30/sq ft)	Cost Per Benefited Receptor[1]	Noise Barrier Results
				FHWA Criteria (dBA)	Build Year 2035 (No Barrier)	Build Year 2035 (With Barrier)										
Wall W16	R16-01	B	1	67	67	67	0	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-02	B	1	67	63	67	-4	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-03	B	1	67	63	64	-1	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-04	B	1	67	65	65	0	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-05	B	1	67	67	66	1	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-06	B	1	67	66	65	1	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-07	B	1	67	67	67	0	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-08	B	1	67	65	65	0	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-09	B	1	67	67	67	0	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-10	B	1	67	67	67	0	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-11	B	1	67	66	65	1	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-12	B	1	67	68	67	1	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-13	B	1	67	67	66	1	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-14	B	1	67	66	65	1	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-15	B	1	67	67	67	0	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-16	B	1	67	67	67	0	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-17	B	1	67	66	65	1	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-18	B	1	67	67	67	0	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-19	B	1	67	68	67	1	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-20	B	1	67	68	67	1	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-21	B	1	67	70	67	3	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-22	B	1	67	71	66	5	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-23	B	1	67	67	65	2	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-24	B	1	67	73	67	6	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-25	B	1	67	66	64	2	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-26	B	1	67	65	64	1	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-27	B	1	67	66	65	1	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-28	B	1	67	69	68	1	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-29	B	1	67	66	66	0	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-30	B	1	67	67	66	1	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-31	B	1	67	67	66	1	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-32	B	1	67	68	68	0	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective
Wall W16	R16-33	B	1	67	70	70	0	2	Yes	N/A	18.8	2,826	53,129	$1,593,864	$247,287	Not Cost Effective

[1]Economic reasonableness subject to alternative criterion due to presence of existing barrier.

Exhibit E

Noise Barrier Analysis

Noise Level Comparison	
XX	Approaches or Exceeds FHWA Noise Abatement Criteria

Table 10

Build Noise Barrier Cost Effectiveness - Wall W17 - 24 Foot Noise Barrier at 783 feet

Noise Barrier	Receptor	Land Use	Dwelling Units	Leq Noise Level (dBA)			Noise Reduction (dBA)	Total Benefited Receptors	Acoustically Feasible	Reasonableness Design Goal Reduction[1]	Height of Barrier (ft)	Length of Barrier (ft)	Barrier Area (sq ft)	Total Cost of Barrier ($30/sq ft)	Cost Per Benefited Receptor[1]	Noise Barrier Results
				FHWA Criteria (dBA)	Build Year 2035 (No Barrier)	Build Year 2035 (With Barrier)										
Wall W17	R17-1	B	1	67	61	66	-5	0	No	N/A	24	783	18,792	$563,760	NA	Not Acoustically Effective

[1]Economic reasonableness subject to alternative criterion due to presence of existing barrier.

Table 11

Build Noise Barrier Cost Effectiveness - Wall W18 - 24 Foot Noise Barrier at 948 feet

Noise Barrier	Receptor	Land Use	Dwelling Units	Leq Noise Level (dBA)			Noise Reduction (dBA)	Total Benefited Receptors	Acoustically Feasible	Reasonableness Design Goal Reduction[1]	Height of Barrier (ft)	Length of Barrier (ft)	Barrier Area (sq ft)	Total Cost of Barrier ($30/sq ft)	Cost Per Benefited Receptor[1]	Noise Barrier Results
				FHWA Criteria (dBA)	Build Year 2035 (No Barrier)	Build Year 2035 (With Barrier)										
Wall W18	R18-1	B	1	67	64	61	3	0	No	N/A	24	948	22,752	$682,560	NA	Not Acoustically Effective
Wall W18	R18-2	B	1	67	68	64	4	0	No	N/A	24	948	22,752	$682,560	NA	Not Acoustically Effective

[1]Economic reasonableness subject to alternative criterion due to presence of existing barrier.

Table 12

Build Noise Barrier Cost Effectiveness - Wall W19 - 15.69 Foot Noise Barrier at 1750 feet

Noise Barrier	Receptor	Land Use	Dwelling Units	Leq Noise Level (dBA)			Noise Reduction (dBA)	Total Benefited Receptors	Acoustically Feasible	Reasonableness Design Goal Reduction	Height of Barrier (ft)	Length of Barrier (ft)	Barrier Area (sq ft)	Total Cost of Barrier ($30/sq ft)	Cost Per Benefited Receptor	Noise Barrier Results
				FHWA Criteria (dBA)	Build Year 2035 (No Barrier)	Build Year 2035 (With Barrier)										
Wall W19	R19-1	B	1	67	70	62	8	4	Yes	Yes	15.69	1,750	27,458	$823,725	$205,931.25	Not Cost Effective
Wall W19	R19-2	B	1	67	66	64	2	4	Yes	Yes	15.69	1,750	27,458	$823,725	$205,931.25	Not Cost Effective
Wall W19	R19-3	B	1	67	64	62	2	4	Yes	Yes	15.69	1,750	27,458	$823,725	$205,931.25	Not Cost Effective
Wall W19	R19-4	B	1	67	70	64	6	4	Yes	Yes	15.69	1,750	27,458	$823,725	$205,931.25	Not Cost Effective
Wall W19	R19-5	B	1	67	69	63	6	4	Yes	Yes	15.69	1,750	27,458	$823,725	$205,931.25	Not Cost Effective
Wall W19	R19-6	B	1	67	67	61	6	4	Yes	Yes	15.69	1,750	27,458	$823,725	$205,931.25	Not Cost Effective
Wall W19	R19-7	B	1	67	67	67	0	4	Yes	Yes	15.69	1,750	27,458	$823,725	$205,931.25	Not Cost Effective
Wall W19	R19-8	B	1	67	68	69	-1	4	Yes	Yes	15.69	1,750	27,458	$823,725	$205,931.25	Not Cost Effective

Exhibit E

Noise Barrier Analysis

Noise Level Comparison	
XX	Approaches or Exceeds FHWA Noise Abatement Criteria

Table 13

Build Noise Barrier Cost Effectiveness - Wall W20 - 20 Foot Noise Barrier at 1650 feet

Noise Barrier	Receptor	Land Use	Dwelling Units	Leq Noise Level (dBA)			Noise Reduction (dBA)	Total Benefited Receptors	Acoustically Feasible	Reasonableness Design Goal Reduction	Height of Barrier (ft)	Length of Barrier (ft)	Barrier Area (sq ft)	Total Cost of Barrier ($30/sq ft)	Cost Per Benefited Receptor	Noise Barrier Results
				FHWA Criteria (dBA)	Build Year 2035 (No Barrier)	Build Year 2035 (With Barrier)										
Wall W20	R20-1-07	B	1	67	53	51	2	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-08	B	1	67	54	51	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-09	B	1	67	55	52	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-10	B	1	67	55	52	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-11	B	1	67	56	53	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-12	B	1	67	57	53	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-13	B	1	67	58	55	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-14	B	1	67	60	56	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-21	B	1	67	54	52	2	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-22	B	1	67	55	52	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-23	B	1	67	55	52	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-24	B	1	67	56	53	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-25	B	1	67	58	54	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-26	B	1	67	58	54	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-27	B	1	67	59	55	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-28	B	1	67	60	56	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-35	B	1	67	63	58	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-36	B	1	67	63	58	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-37	B	1	67	62	58	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-38	B	1	67	62	58	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-39	B	1	67	62	58	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-40	B	1	67	62	58	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-41	B	1	67	62	58	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-42	B	1	67	62	58	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-49	B	1	67	61	56	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-50	B	1	67	61	57	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-51	B	1	67	62	57	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-52	B	1	67	63	58	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-53	B	1	67	64	58	6	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-54	B	1	67	65	59	6	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-55	B	1	67	67	59	8	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-56	B	1	67	68	60	8	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-63	B	1	67	61	58	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-64	B	1	67	61	59	2	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-65	B	1	67	62	59	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-66	B	1	67	63	60	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-67	B	1	67	64	61	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-68	B	1	67	65	61	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-69	B	1	67	66	62	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-70	B	1	67	68	63	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-77	B	1	67	62	62	0	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-78	B	1	67	63	62	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-79	B	1	67	63	63	0	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-80	B	1	67	63	63	0	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct

Exhibit E

Noise Barrier Analysis

Noise Level Comparison	
XX	Approaches or Exceeds FHWA Noise Abatement Criteria

Wall W20	R20-1-81	B	1	67	64	64	0	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-82	B	1	67	65	64	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-83	B	1	67	66	65	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-1-84	B	1	67	67	66	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-01	B	1	67	65	65	0	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-02	B	1	67	65	65	0	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-03	B	1	67	66	65	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-04	B	1	67	66	66	0	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-05	B	1	67	67	66	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-06	B	1	67	67	66	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-07	B	1	67	56	52	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-08	B	1	67	57	53	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-09	B	1	67	58	53	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-11	B	1	67	59	54	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-12	B	1	67	60	55	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-14	B	1	67	63	58	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-15	B	1	67	57	55	2	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-16	B	1	67	57	55	2	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-17	B	1	67	58	55	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-18	B	1	67	59	56	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-19	B	1	67	60	57	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-20	B	1	67	62	58	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-21	B	1	67	57	53	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-22	B	1	67	58	53	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-23	B	1	67	58	54	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-25	B	1	67	61	55	6	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-26	B	1	67	62	56	6	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-28	B	1	67	64	58	6	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-29	B	1	67	53	51	2	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-30	B	1	67	52	51	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-31	B	1	67	52	51	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-32	B	1	67	52	51	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-33	B	1	67	52	51	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-34	B	1	67	52	51	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-35	B	1	67	66	62	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-36	B	1	67	66	62	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-37	B	1	67	66	61	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-39	B	1	67	66	60	6	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-40	B	1	67	66	60	6	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-42	B	1	67	65	60	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-43	B	1	67	62	59	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-44	B	1	67	63	60	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-45	B	1	67	64	60	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-46	B	1	67	65	61	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-47	B	1	67	67	62	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-48	B	1	67	68	63	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-49	B	1	67	63	60	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-50	B	1	67	64	60	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-51	B	1	67	65	61	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-53	B	1	67	67	63	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-54	B	1	67	68	64	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct

Exhibit E

Noise Barrier Analysis

Noise Level Comparison	
XX	Approaches or Exceeds FHWA Noise Abatement Criteria

Wall W20	R20-2-56	B	1	67	71	66	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-57	B	1	67	63	59	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-58	B	1	67	64	60	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-59	B	1	67	65	61	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-60	B	1	67	67	62	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-61	B	1	67	68	63	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-62	B	1	67	69	64	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-63	B	1	67	64	61	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-64	B	1	67	64	61	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-65	B	1	67	66	62	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-66	B	1	67	66	63	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-67	B	1	67	68	65	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-68	B	1	67	68	65	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-69	B	1	67	69	66	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-70	B	1	67	71	67	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-71	B	1	67	65	63	2	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-72	B	1	67	65	61	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-73	B	1	67	66	61	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-74	B	1	67	68	63	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-75	B	1	67	69	64	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-76	B	1	67	70	65	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-77	B	1	67	66	65	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-78	B	1	67	66	66	0	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-79	B	1	67	66	66	0	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-80	B	1	67	67	66	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-81	B	1	67	67	67	0	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-82	B	1	67	67	67	0	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-83	B	1	67	68	68	0	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-84	B	1	67	69	68	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-85	B	1	67	63	59	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-86	B	1	67	66	61	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-87	B	1	67	63	60	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-2-88	B	1	67	67	62	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-01	B	1	67	66	66	0	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-02	B	1	67	67	67	0	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-03	B	1	67	67	67	0	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-04	B	1	67	68	67	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-05	B	1	67	68	68	0	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-06	B	1	67	69	68	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-07	B	1	67	60	55	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-08	B	1	67	60	55	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-09	B	1	67	61	56	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-11	B	1	67	63	57	6	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-12	B	1	67	64	58	6	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-14	B	1	67	66	60	6	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-15	B	1	67	61	58	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-16	B	1	67	61	58	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-17	B	1	67	62	58	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-18	B	1	67	63	59	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-19	B	1	67	64	59	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-20	B	1	67	65	60	5	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct

Exhibit E

Noise Barrier Analysis

Noise Level Comparison	
XX	Approaches or Exceeds FHWA Noise Abatement Criteria

Wall W20	R20-3-21	B	1	67	59	56	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-22	B	1	67	60	57	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-23	B	1	67	60	58	2	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-25	B	1	67	63	60	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-26	B	1	67	64	61	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-28	B	1	67	66	62	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-29	B	1	67	57	56	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-30	B	1	67	57	56	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-31	B	1	67	57	56	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-32	B	1	67	57	55	2	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-33	B	1	67	57	55	2	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-34	B	1	67	56	55	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-35	B	1	67	68	65	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-36	B	1	67	68	65	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-37	B	1	67	68	65	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-39	B	1	67	68	65	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-40	B	1	67	68	64	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-42	B	1	67	67	64	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-43	B	1	67	64	61	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-44	B	1	67	65	62	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-45	B	1	67	66	63	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-46	B	1	67	67	64	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-47	B	1	67	69	65	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-48	B	1	67	70	67	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-49	B	1	67	65	61	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-50	B	1	67	65	62	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-51	B	1	67	66	63	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-53	B	1	67	69	65	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-54	B	1	67	70	66	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-56	B	1	67	72	69	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-57	B	1	67	64	61	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-58	B	1	67	66	62	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-59	B	1	67	66	63	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-60	B	1	67	69	65	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-61	B	1	67	70	66	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-62	B	1	67	71	68	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-63	B	1	67	65	62	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-64	B	1	67	65	63	2	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-65	B	1	67	66	64	2	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-66	B	1	67	67	65	2	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-67	B	1	67	68	66	2	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-68	B	1	67	69	67	2	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-69	B	1	67	71	68	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-70	B	1	67	72	70	2	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-71	B	1	67	67	65	2	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-72	B	1	67	66	63	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-73	B	1	67	67	63	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-74	B	1	67	69	66	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-75	B	1	67	70	67	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-76	B	1	67	71	68	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-77	B	1	67	67	66	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct

Exhibit E

Noise Barrier Analysis

Noise Level Comparison	
XX	Approaches or Exceeds FHWA Noise Abatement Criteria

Wall W20	R20-3-78	B	1	67	67	66	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-79	B	1	67	67	67	0	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-80	B	1	67	68	67	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-81	B	1	67	68	68	0	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-82	B	1	67	68	68	0	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-83	B	1	67	70	69	1	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-84	B	1	67	70	70	0	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-85	B	1	67	65	61	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-86	B	1	67	68	64	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-87	B	1	67	65	62	3	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct
Wall W20	R20-3-88	B	1	67	68	64	4	42	Yes	Yes	20	1,650	33,000	$990,000	$23,571.43	Propose to Construct

Exhibit E

Noise Barrier Analysis

Noise Level Comparison	
XX	Approaches or Exceeds FHWA Noise Abatement Criteria

Table 14

Build Noise Barrier Cost Effectiveness - Wall W21 - 24 Foot Noise Barrier at 1313 feet

Noise Barrier	Receptor	Land Use	Dwelling Units	Leq Noise Level (dBA)			Noise Reduction (dBA)	Total Benefited Receptors	Acoustically Feasible	Reasonableness Design Goal Reduction	Height of Barrier (ft)	Length of Barrier (ft)	Barrier Area (sq ft)	Total Cost of Barrier ($30/sq ft)	Cost Per Benefited Receptor	Noise Barrier Results
				FHWA Criteria (dBA)	Build Year 2035 (No Barrier)	Build Year 2035 (With Barrier)										
Wall W21	R21-01	C	1	67	74	74	0	1	No	No	24	1,313	31,512	$945,360	NA	Not Acoustically Effective
Wall W21	R21-2	C	1	67	71	64	7	1	No	No	24	1,313	31,512	$945,360	NA	Not Acoustically Effective

Table 15

Build Noise Barrier Cost Effectiveness - Wall W22 - 23.6 Foot Noise Barrier at 2047 feet

Noise Barrier	Receptor	Land Use	Dwelling Units	Leq Noise Level (dBA)			Noise Reduction (dBA)	Total Benefited Receptors	Acoustically Feasible	Reasonableness Design Goal Reduction	Height of Barrier (ft)	Length of Barrier (ft)	Barrier Area (sq ft)	Total Cost of Barrier ($30/sq ft)	Cost Per Benefited Receptor	Noise Barrier Results
				FHWA Criteria (dBA)	Build Year 2035 (No Barrier)	Build Year 2035 (With Barrier)										
Wall W22	R22-01	B	1	67	67	60	7	12	Yes	Yes	23.6	2,047	48,309	$1,449,276	$120,773.00	Not Cost Effective
Wall W22	R22-02	B	1	67	64	59	5	12	Yes	Yes	23.6	2,047	48,309	$1,449,276	$120,773.00	Not Cost Effective
Wall W22	R22-03	B	1	67	65	57	8	12	Yes	Yes	23.6	2,047	48,309	$1,449,276	$120,773.00	Not Cost Effective
Wall W22	R22-04	B	1	67	65	58	7	12	Yes	Yes	23.6	2,047	48,309	$1,449,276	$120,773.00	Not Cost Effective
Wall W22	R22-05	B	1	67	65	59	6	12	Yes	Yes	23.6	2,047	48,309	$1,449,276	$120,773.00	Not Cost Effective
Wall W22	R22-06	B	1	67	66	59	7	12	Yes	Yes	23.6	2,047	48,309	$1,449,276	$120,773.00	Not Cost Effective
Wall W22	R22-07	B	1	67	66	60	6	12	Yes	Yes	23.6	2,047	48,309	$1,449,276	$120,773.00	Not Cost Effective
Wall W22	R22-08	B	1	67	68	61	7	12	Yes	Yes	23.6	2,047	48,309	$1,449,276	$120,773.00	Not Cost Effective
Wall W22	R22-09	B	1	67	68	62	6	12	Yes	Yes	23.6	2,047	48,309	$1,449,276	$120,773.00	Not Cost Effective
Wall W22	R22-10	B	1	67	68	62	6	12	Yes	Yes	23.6	2,047	48,309	$1,449,276	$120,773.00	Not Cost Effective
Wall W22	R22-11	B	1	67	68	62	6	12	Yes	Yes	23.6	2,047	48,309	$1,449,276	$120,773.00	Not Cost Effective
Wall W22	R22-12	B	1	67	68	63	5	12	Yes	Yes	23.6	2,047	48,309	$1,449,276	$120,773.00	Not Cost Effective

Table 16

Build Noise Barrier Cost Effectiveness - Wall W23 - 24 Foot Noise Barrier at 1168 feet

Noise Barrier	Receptor	Land Use	Dwelling Units	Leq Noise Level (dBA)			Noise Reduction (dBA)	Total Benefited Receptors	Acoustically Feasible	Reasonableness Design Goal Reduction	Height of Barrier (ft)	Length of Barrier (ft)	Barrier Area (sq ft)	Total Cost of Barrier ($30/sq ft)	Cost Per Benefited Receptor	Noise Barrier Results
				FHWA Criteria (dBA)	Build Year 2035 (No Barrier)	Build Year 2035 (With Barrier)										
Wall W23	R23-1	C	1	67	71	68	3	4	Yes	No	24	1,168	28,032	$840,960	NA	Does Not Meet Noise Reduction Design Goal
Wall W23	R23-2	C	1	67	70	63	7	4	Yes	No	24	1,168	28,032	$840,960	NA	Does Not Meet Noise Reduction Design Goal
Wall W23	R23-3	C	1	67	71	66	5	4	Yes	No	24	1,168	28,032	$840,960	NA	Does Not Meet Noise Reduction Design Goal
Wall W23	R23-4	C	1	67	68	63	5	4	Yes	No	24	1,168	28,032	$840,960	NA	Does Not Meet Noise Reduction Design Goal
Wall W23	R23-5	C	1	67	69	64	5	4	Yes	No	24	1,168	28,032	$840,960	NA	Does Not Meet Noise Reduction Design Goal

Kaskaskia Engineering Group, LLC
12 February 2021
VPR
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: I-39 Reconstruction
RUN: Build (2035) - Barrier Analysis
BARRIER DESIGN: Barrier01_v01
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R01-1	1	1	0.0	65.6	66	65.6	10	----	59.3	6.3	8	-1.7
R01-2	2	1	0.0	64.6	66	64.6	10	----	59.7	4.9	8	-3.1

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	2	4.9	5.6	6.3
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Kaskaskia Engineering Group, LLC 12 February 2021
VPR TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Build (2035) - Barrier Analysis
BARRIER DESIGN: Barrier4_v01
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R04-01	6	1	0.0	68.1	66	68.1	10	Snd Lvl	61.7	6.4	8	-1.6
R04-02	7	1	0.0	67.1	66	67.1	10	Snd Lvl	60.2	6.9	8	-1.1
R04-03	8	1	0.0	63.1	66	63.1	10	----	59.9	3.2	8	-4.8
R04-04	9	1	0.0	64.7	66	64.7	10	----	60.5	4.2	8	-3.8
R04-05	10	1	0.0	64.5	66	64.5	10	----	61.1	3.4	8	-4.6
R04-06	11	1	0.0	62.5	66	62.5	10	----	60.0	2.5	8	-5.5
R04-07	12	1	0.0	61.4	66	61.4	10	----	59.4	2.0	8	-6.0
R04-08	13	1	0.0	60.5	66	60.5	10	----	59.0	1.5	8	-6.5
R04-09	14	1	0.0	60.5	66	60.5	10	----	59.4	1.1	8	-6.9
R04-10	15	1	0.0	61.2	66	61.2	10	----	59.3	1.9	8	-6.1
R04-11	16	1	0.0	60.1	66	60.1	10	----	58.6	1.5	8	-6.5
R04-12	17	1	0.0	60.1	66	60.1	10	----	58.7	1.4	8	-6.6
R04-13	18	1	0.0	60.0	66	60.0	10	----	58.8	1.2	8	-6.8

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	13	1.1	2.9	6.9
All Impacted	2	6.4	6.6	6.9
All that meet NR Goal	0	0.0	0.0	0.0

Kaskaskia Engineering Group, LLC
VPR

6 August 2021
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Build (2035) - Barrier Analysis
BARRIER DESIGN: Barrier5-7_rev2_v02
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R05-01	19	1	0.0	69.6	66	69.6	10	Snd Lvl	57.8	11.8	8	3.8
R05-02	20	1	0.0	67.1	66	67.1	10	Snd Lvl	59.2	7.9	8	-0.1
R05-03	21	1	0.0	65.7	66	65.7	10	----	59.1	6.6	8	-1.4
R05-04	22	1	0.0	64.3	66	64.3	10	----	59.0	5.3	8	-2.7
R05-05	23	1	0.0	64.2	66	64.2	10	----	58.7	5.5	8	-2.5
R05-06	24	1	0.0	63.2	66	63.2	10	----	58.1	5.1	8	-2.9
R05-07	25	1	0.0	64.5	66	64.5	10	----	58.1	6.4	8	-1.6
R05-08	26	1	0.0	66.0	66	66.0	10	Snd Lvl	58.3	7.7	8	-0.3
R05-09	27	1	0.0	62.7	66	62.7	10	----	57.7	5.0	8	-3.0
R05-10	28	1	0.0	65.5	66	65.5	10	----	57.9	7.6	8	-0.4
R05-11	29	1	0.0	61.5	66	61.5	10	----	57.3	4.2	8	-3.8
R05-12	30	1	0.0	63.0	66	63.0	10	----	57.9	5.1	8	-2.9
R05-13	31	1	0.0	64.2	66	64.2	10	----	58.1	6.1	8	-1.9
R05-14	32	1	0.0	62.5	66	62.5	10	----	57.9	4.6	8	-3.4
R05-15	33	1	0.0	63.8	66	63.8	10	----	58.0	5.8	8	-2.2
R05-16	34	1	0.0	62.2	66	62.2	10	----	57.9	4.3	8	-3.7
R05-17	35	1	0.0	64.6	66	64.6	10	----	59.2	5.4	8	-2.6
R05-18	36	1	0.0	61.7	66	61.7	10	----	59.3	2.4	8	-5.6
R05-19	37	1	0.0	64.2	66	64.2	10	----	60.8	3.4	8	-4.6
R06-01	38	1	0.0	67.8	66	67.8	10	Snd Lvl	60.4	7.4	8	-0.6
R07-1	39	1	0.0	66.0	66	66.0	10	Snd Lvl	62.3	3.7	8	-4.3
R07-2	40	1	0.0	64.1	66	64.1	10	----	60.9	3.2	8	-4.8
R07-3	41	1	0.0	62.9	66	62.9	10	----	59.5	3.4	8	-4.6
R07-4	42	1	0.0	65.9	66	65.9	10	----	65.3	0.6	8	-7.4

R07-5	43	1	0.0	65.8	66	65.8	10	----	65.6	0.2	8	-7.8
R06-02	420	1	0.0	66.0	66	66.0	10	Snd Lvl	60.1	5.9	8	-2.1

Dwelling Units		**# DUs**	**Noise Reduction**		
			Min	**Avg**	**Max**
			dB	**dB**	**dB**
All Selected		26	0.2	5.2	11.8
All Impacted		6	3.7	7.4	11.8
All that meet NR Goal		1	11.8	11.8	11.8

RESULTS: SOUND LEVELS **I-39 Reconstruction**

Kaskaskia Engineering Group, LLC **12 February 2021**
VPR **TNM 2.5**
Calculated with TNM 2.5
RESULTS: SOUND LEVELS
PROJECT/CONTRACT: **I-39 Reconstruction**
RUN: **Build (2035) - Barrier Analysis**
BARRIER DESIGN: **Wall8-10_21_v06**
Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS: **68 deg F, 50% RH**

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R07-1	39	1	0.0	65.9	66	65.9	10	----	65.7	0.2	8	-7.8
R07-2	40	1	0.0	64.0	66	64.0	10	----	63.8	0.2	8	-7.8
R07-3	41	1	0.0	62.8	66	62.8	10	----	62.6	0.2	8	-7.8
R07-4	42	1	0.0	65.9	66	65.9	10	----	65.4	0.5	8	-7.5
R07-5	43	1	0.0	65.8	66	65.8	10	----	64.9	0.9	8	-7.1
R08-01	44	1	0.0	71.7	66	71.7	10	Snd Lvl	64.7	7.0	8	-1.0
R08-02	45	1	0.0	68.8	66	68.8	10	Snd Lvl	64.2	4.6	8	-3.4
R08-03	46	1	0.0	67.2	66	67.2	10	Snd Lvl	65.7	1.5	8	-6.5
R08-04	47	1	0.0	68.3	66	68.3	10	Snd Lvl	63.4	4.9	8	-3.1
R08-05	48	1	0.0	66.8	66	66.8	10	Snd Lvl	64.5	2.3	8	-5.7
R08-06	49	1	0.0	67.8	66	67.8	10	Snd Lvl	63.0	4.8	8	-3.2
R08-07	50	1	0.0	68.5	66	68.5	10	Snd Lvl	63.2	5.3	8	-2.7
R08-08	51	1	0.0	69.4	66	69.4	10	Snd Lvl	63.6	5.8	8	-2.2
R08-09	52	1	0.0	67.8	66	67.8	10	Snd Lvl	62.6	5.2	8	-2.8
R08-10	53	1	0.0	70.5	66	70.5	10	Snd Lvl	64.3	6.2	8	-1.8
R08-11	54	1	0.0	68.7	66	68.7	10	Snd Lvl	63.0	5.7	8	-2.3
R08-12	55	1	0.0	70.1	66	70.1	10	Snd Lvl	63.9	6.2	8	-1.8
R08-13	56	1	0.0	70.2	66	70.2	10	Snd Lvl	64.0	6.2	8	-1.8
R09-01	57	1	0.0	74.8	66	74.8	10	Snd Lvl	66.9	7.9	8	-0.1
R09-02	58	1	0.0	73.0	66	73.0	10	Snd Lvl	65.6	7.4	8	-0.6
R09-03	59	1	0.0	72.9	66	72.9	10	Snd Lvl	65.9	7.0	8	-1.0
R09-04	60	1	0.0	73.9	66	73.9	10	Snd Lvl	66.6	7.3	8	-0.7
R09-05	61	1	0.0	74.4	66	74.4	10	Snd Lvl	66.9	7.5	8	-0.5
R09-06	62	1	0.0	74.1	66	74.1	10	Snd Lvl	66.6	7.5	8	-0.5

R09-07	63	1	0.0	74.7	66	74.7	10	Snd Lvl	66.9	7.8	8	-0.2
R09-08	64	1	0.0	74.3	66	74.3	10	Snd Lvl	66.6	7.7	8	-0.3
R09-09	65	1	0.0	74.9	66	74.9	10	Snd Lvl	66.7	8.2	8	0.2
R09-10	66	1	0.0	75.3	66	75.3	10	Snd Lvl	66.9	8.4	8	0.4
R09-11	67	1	0.0	74.8	66	74.8	10	Snd Lvl	66.8	8.0	8	0.0
R09-12	68	1	0.0	75.6	66	75.6	10	Snd Lvl	67.0	8.6	8	0.6
R09-13	69	1	0.0	72.2	66	72.2	10	Snd Lvl	65.1	7.1	8	-0.9
R09-14	70	1	0.0	70.2	66	70.2	10	Snd Lvl	63.7	6.5	8	-1.5
R09-15	71	1	0.0	68.8	66	68.8	10	Snd Lvl	62.8	6.0	8	-2.0
R09-16	72	1	0.0	66.8	66	66.8	10	Snd Lvl	61.4	5.4	8	-2.6
R09-17	73	1	0.0	70.3	66	70.3	10	Snd Lvl	63.6	6.7	8	-1.3
R09-18	74	1	0.0	67.9	66	67.9	10	Snd Lvl	62.0	5.9	8	-2.1
R09-19	75	1	0.0	70.3	66	70.3	10	Snd Lvl	64.0	6.3	8	-1.7
R09-20	76	1	0.0	70.3	66	70.3	10	Snd Lvl	64.2	6.1	8	-1.9
R09-21	77	1	0.0	67.6	66	67.6	10	Snd Lvl	61.8	5.8	8	-2.2
R09-22	78	1	0.0	68.6	66	68.6	10	Snd Lvl	63.0	5.6	8	-2.4
R09-23	79	1	0.0	69.6	66	69.6	10	Snd Lvl	64.0	5.6	8	-2.4
R09-24	80	1	0.0	67.9	66	67.9	10	Snd Lvl	62.4	5.5	8	-2.5
R09-25	81	1	0.0	69.0	66	69.0	10	Snd Lvl	63.3	5.7	8	-2.3
R09-26	82	1	0.0	69.5	66	69.5	10	Snd Lvl	63.8	5.7	8	-2.3
R09-27	83	1	0.0	69.8	66	69.8	10	Snd Lvl	63.9	5.9	8	-2.1
R10-01	84	1	0.0	70.9	66	70.9	10	Snd Lvl	64.8	6.1	8	-1.9
R10-02	85	1	0.0	68.7	66	68.7	10	Snd Lvl	65.9	2.8	8	-5.2
R10-03	86	1	0.0	68.1	66	68.1	10	Snd Lvl	65.1	3.0	8	-5.0
R10-04	87	1	0.0	68.7	66	68.7	10	Snd Lvl	65.0	3.7	8	-4.3
R10-05	88	1	0.0	71.7	66	71.7	10	Snd Lvl	66.3	5.4	8	-2.6
R10-06	89	1	0.0	72.6	66	72.6	10	Snd Lvl	66.7	5.9	8	-2.1
R10-07	90	1	0.0	74.5	66	74.5	10	Snd Lvl	67.6	6.9	8	-1.1
R10-08	91	1	0.0	73.8	66	73.8	10	Snd Lvl	67.2	6.6	8	-1.4
R10-09	92	1	0.0	72.9	66	72.9	10	Snd Lvl	66.5	6.4	8	-1.6
R10-10	93	1	0.0	74.3	66	74.3	10	Snd Lvl	67.0	7.3	8	-0.7
R10-11	94	1	0.0	73.2	66	73.2	10	Snd Lvl	66.3	6.9	8	-1.1
R10-12	95	1	0.0	73.0	66	73.0	10	Snd Lvl	65.9	7.1	8	-0.9
R10-13	96	1	0.0	72.9	66	72.9	10	Snd Lvl	65.8	7.1	8	-0.9
R10-14	97	1	0.0	72.9	66	72.9	10	Snd Lvl	65.8	7.1	8	-0.9
R10-15	98	1	0.0	72.9	66	72.9	10	Snd Lvl	65.7	7.2	8	-0.8
R10-16	99	1	0.0	72.4	66	72.4	10	Snd Lvl	65.3	7.1	8	-0.9
R10-17	100	1	0.0	72.4	66	72.4	10	Snd Lvl	65.2	7.2	8	-0.8
R10-18	101	1	0.0	71.9	66	71.9	10	Snd Lvl	65.0	6.9	8	-1.1
R10-19	102	1	0.0	71.4	66	71.4	10	Snd Lvl	64.6	6.8	8	-1.2
R10-20	103	1	0.0	71.1	66	71.1	10	Snd Lvl	64.5	6.6	8	-1.4

R10-21	104	1	0.0	70.5	66	70.5	10	Snd Lvl	64.3	6.2	8	-1.8
R10-22	105	1	0.0	70.1	66	70.1	10	Snd Lvl	64.2	5.9	8	-2.1
R10-23	106	1	0.0	70.6	66	70.6	10	Snd Lvl	64.5	6.1	8	-1.9
R10-24	107	1	0.0	71.0	66	71.0	10	Snd Lvl	64.5	6.5	8	-1.5
R10-25	108	1	0.0	69.8	66	69.8	10	Snd Lvl	64.0	5.8	8	-2.2
R10-26	109	1	0.0	68.8	66	68.8	10	Snd Lvl	63.5	5.3	8	-2.7
R10-27	110	1	0.0	68.0	66	68.0	10	Snd Lvl	62.9	5.1	8	-2.9
R10-28	111	1	0.0	67.3	66	67.3	10	Snd Lvl	62.2	5.1	8	-2.9
R10-29	112	1	0.0	66.6	66	66.6	10	Snd Lvl	62.1	4.5	8	-3.5
R10-30	113	1	0.0	67.2	66	67.2	10	Snd Lvl	62.7	4.5	8	-3.5
R10-31	114	1	0.0	67.2	66	67.2	10	Snd Lvl	62.8	4.4	8	-3.6
R10-32	115	1	0.0	66.9	66	66.9	10	Snd Lvl	62.4	4.5	8	-3.5
R10-33	116	1	0.0	67.7	66	67.7	10	Snd Lvl	62.7	5.0	8	-3.0
R10-34	117	1	0.0	67.8	66	67.8	10	Snd Lvl	62.6	5.2	8	-2.8
R10-35	118	1	0.0	67.9	66	67.9	10	Snd Lvl	62.6	5.3	8	-2.7
R10-36	119	1	0.0	68.0	66	68.0	10	Snd Lvl	62.5	5.5	8	-2.5
R10-37	120	1	0.0	68.8	66	68.8	10	Snd Lvl	63.0	5.8	8	-2.2
R10-38	121	1	0.0	67.3	66	67.3	10	Snd Lvl	61.8	5.5	8	-2.5
R10-39	122	1	0.0	68.9	66	68.9	10	Snd Lvl	63.1	5.8	8	-2.2
R10-40	123	1	0.0	69.1	66	69.1	10	Snd Lvl	63.2	5.9	8	-2.1
R10-41	124	1	0.0	69.1	66	69.1	10	Snd Lvl	63.4	5.7	8	-2.3
R10-42	125	1	0.0	69.2	66	69.2	10	Snd Lvl	63.4	5.8	8	-2.2
R10-43	126	1	0.0	69.3	66	69.3	10	Snd Lvl	63.7	5.6	8	-2.4
R10-44	127	1	0.0	69.1	66	69.1	10	Snd Lvl	63.8	5.3	8	-2.7
R10-45	128	1	0.0	69.2	66	69.2	10	Snd Lvl	64.0	5.2	8	-2.8
R10-46	129	1	0.0	68.8	66	68.8	10	Snd Lvl	64.0	4.8	8	-3.2
R10-47	130	1	0.0	66.2	66	66.2	10	Snd Lvl	64.6	1.6	8	-6.4
R10-48	131	1	0.0	65.3	66	65.3	10	----	64.1	1.2	8	-6.8
R12-01	133	1	0.0	67.6	66	67.6	10	Snd Lvl	67.5	0.1	8	-7.9
R12-02	134	1	0.0	66.6	66	66.6	10	Snd Lvl	66.5	0.1	8	-7.9
R12-03	135	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
R12-04	136	1	0.0	66.9	66	66.9	10	Snd Lvl	66.8	0.1	8	-7.9
R12-05	137	1	0.0	67.3	66	67.3	10	Snd Lvl	67.2	0.1	8	-7.9
R12-06	138	1	0.0	67.9	66	67.9	10	Snd Lvl	67.8	0.1	8	-7.9
R12-07	139	1	0.0	68.6	66	68.6	10	Snd Lvl	68.5	0.1	8	-7.9
R12-08	140	1	0.0	66.8	66	66.8	10	Snd Lvl	66.6	0.2	8	-7.8
R12-09	141	1	0.0	65.0	66	65.0	10	----	64.8	0.2	8	-7.8
R12-10	142	1	0.0	64.5	66	64.5	10	----	64.3	0.2	8	-7.8
R12-11	143	1	0.0	63.1	66	63.1	10	----	62.6	0.5	8	-7.5
R12-12	144	1	0.0	63.7	66	63.7	10	----	63.4	0.3	8	-7.7
R12-13	145	1	0.0	64.1	66	64.1	10	----	63.9	0.2	8	-7.8

R12-14	146	1	0.0	63.7	66	63.7	10	----	63.4	0.3	8	-7.7
R12-15	147	1	0.0	63.2	66	63.2	10	----	62.8	0.4	8	-7.6
R21-2	404	1	0.0	70.6	66	70.6	10	Snd Lvl	70.6	0.0	8	-8.0
R21-1	420	1	0.0	72.4	66	72.4	10	Snd Lvl	65.4	7.0	8	-1.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	110	0.0	4.8	8.6
All Impacted	97	0.0	5.4	8.6
All that meet NR Goal	4	8.0	8.3	8.6

Kaskaskia Engineering Group, LLC 12 February 2021
VPR TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Build (2035) - Barrier Analysis
BARRIER DESIGN: Barrier11-12_v01
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		With Barrier Type Impact	Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc					
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R10-01	84	1	0.0	71.4	66	71.4	10	Snd Lvl	71.4	0.0	8	-8.0
R10-02	85	1	0.0	68.4	66	68.4	10	Snd Lvl	67.1	1.3	8	-6.7
R10-03	86	1	0.0	68.0	66	68.0	10	Snd Lvl	67.5	0.5	8	-7.5
R10-04	87	1	0.0	69.3	66	69.3	10	Snd Lvl	69.0	0.3	8	-7.7
R10-05	88	1	0.0	73.3	66	73.3	10	Snd Lvl	73.2	0.1	8	-7.9
R10-06	89	1	0.0	73.1	66	73.1	10	Snd Lvl	73.1	0.0	8	-8.0
R10-07	90	1	0.0	74.7	66	74.7	10	Snd Lvl	74.7	0.0	8	-8.0
R10-08	91	1	0.0	74.0	66	74.0	10	Snd Lvl	74.0	0.0	8	-8.0
R10-09	92	1	0.0	73.1	66	73.1	10	Snd Lvl	73.0	0.1	8	-7.9
R10-10	93	1	0.0	74.4	66	74.4	10	Snd Lvl	74.4	0.0	8	-8.0
R10-11	94	1	0.0	73.3	66	73.3	10	Snd Lvl	73.3	0.0	8	-8.0
R10-12	95	1	0.0	73.1	66	73.1	10	Snd Lvl	73.1	0.0	8	-8.0
R10-13	96	1	0.0	73.0	66	73.0	10	Snd Lvl	72.9	0.1	8	-7.9
R10-14	97	1	0.0	72.9	66	72.9	10	Snd Lvl	72.9	0.0	8	-8.0
R10-15	98	1	0.0	73.0	66	73.0	10	Snd Lvl	72.9	0.1	8	-7.9
R10-16	99	1	0.0	72.4	66	72.4	10	Snd Lvl	72.4	0.0	8	-8.0
R10-17	100	1	0.0	72.5	66	72.5	10	Snd Lvl	72.5	0.0	8	-8.0
R10-18	101	1	0.0	72.0	66	72.0	10	Snd Lvl	72.0	0.0	8	-8.0
R10-19	102	1	0.0	71.6	66	71.6	10	Snd Lvl	71.6	0.0	8	-8.0
R10-20	103	1	0.0	71.3	66	71.3	10	Snd Lvl	71.3	0.0	8	-8.0
R10-21	104	1	0.0	70.8	66	70.8	10	Snd Lvl	70.8	0.0	8	-8.0
R10-22	105	1	0.0	70.4	66	70.4	10	Snd Lvl	70.4	0.0	8	-8.0
R10-23	106	1	0.0	71.0	66	71.0	10	Snd Lvl	71.0	0.0	8	-8.0
R10-24	107	1	0.0	71.3	66	71.3	10	Snd Lvl	71.3	0.0	8	-8.0

R10-25	108	1	0.0	70.0	66	70.0	10	Snd Lvl	70.0	0.0	8	-8.0
R10-26	109	1	0.0	69.0	66	69.0	10	Snd Lvl	69.0	0.0	8	-8.0
R10-27	110	1	0.0	68.2	66	68.2	10	Snd Lvl	68.2	0.0	8	-8.0
R10-28	111	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
R10-29	112	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
R10-30	113	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
R10-31	114	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
R10-32	115	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
R10-33	116	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0
R10-34	117	1	0.0	68.0	66	68.0	10	Snd Lvl	67.9	0.1	8	-7.9
R10-35	118	1	0.0	68.0	66	68.0	10	Snd Lvl	68.0	0.0	8	-8.0
R10-36	119	1	0.0	68.1	66	68.1	10	Snd Lvl	68.1	0.0	8	-8.0
R10-37	120	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0
R10-38	121	1	0.0	67.5	66	67.5	10	Snd Lvl	67.4	0.1	8	-7.9
R10-39	122	1	0.0	69.0	66	69.0	10	Snd Lvl	69.0	0.0	8	-8.0
R10-40	123	1	0.0	69.2	66	69.2	10	Snd Lvl	69.2	0.0	8	-8.0
R10-41	124	1	0.0	69.3	66	69.3	10	Snd Lvl	69.2	0.1	8	-7.9
R10-42	125	1	0.0	69.3	66	69.3	10	Snd Lvl	69.3	0.0	8	-8.0
R10-43	126	1	0.0	69.5	66	69.5	10	Snd Lvl	69.4	0.1	8	-7.9
R10-44	127	1	0.0	69.4	66	69.4	10	Snd Lvl	69.3	0.1	8	-7.9
R10-45	128	1	0.0	69.5	66	69.5	10	Snd Lvl	69.4	0.1	8	-7.9
R10-46	129	1	0.0	69.1	66	69.1	10	Snd Lvl	68.9	0.2	8	-7.8
R10-47	130	1	0.0	66.5	66	66.5	10	Snd Lvl	65.0	1.5	8	-6.5
R10-48	131	1	0.0	65.3	66	65.3	10	----	64.0	1.3	8	-6.7
R11-1	132	1	0.0	68.8	66	68.8	10	Snd Lvl	64.3	4.5	8	-3.5
R12-01	133	1	0.0	67.1	66	67.1	10	Snd Lvl	65.9	1.2	8	-6.8
R12-02	134	1	0.0	66.3	66	66.3	10	Snd Lvl	66.0	0.3	8	-7.7
R12-03	135	1	0.0	67.0	66	67.0	10	Snd Lvl	66.7	0.3	8	-7.7
R12-04	136	1	0.0	66.4	66	66.4	10	Snd Lvl	66.0	0.4	8	-7.6
R12-05	137	1	0.0	66.8	66	66.8	10	Snd Lvl	66.2	0.6	8	-7.4
R12-06	138	1	0.0	67.4	66	67.4	10	Snd Lvl	66.8	0.6	8	-7.4
R12-07	139	1	0.0	68.2	66	68.2	10	Snd Lvl	67.6	0.6	8	-7.4
R12-08	140	1	0.0	66.6	66	66.6	10	Snd Lvl	65.0	1.6	8	-6.4
R12-09	141	1	0.0	65.0	66	65.0	10	----	63.3	1.7	8	-6.3
R12-10	142	1	0.0	64.5	66	64.5	10	----	63.1	1.4	8	-6.6
R12-11	143	1	0.0	63.3	66	63.3	10	----	61.7	1.6	8	-6.4
R12-12	144	1	0.0	63.4	66	63.4	10	----	61.8	1.6	8	-6.4
R12-13	145	1	0.0	63.6	66	63.6	10	----	62.2	1.4	8	-6.6
R12-14	146	1	0.0	63.2	66	63.2	10	----	61.8	1.4	8	-6.6
R12-15	147	1	0.0	63.1	66	63.1	10	----	61.6	1.5	8	-6.5
Dwelling Units		**# DUs**	**Noise Reduction**									

			Min	Avg	Max
			dB	dB	dB
All Selected		64	0.0	0.4	4.5
All Impacted		56	0.0	0.3	4.5
All that meet NR Goal		0	0.0	0.0	0.0

Kaskaskia Engineering Group, LLC 6 August 2021
VPR TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Build (2035) - Barrier Analysis
BARRIER DESIGN: Wall12_v3
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R12-01	133	1	0.0	67.8	66	67.8	10	Snd Lvl	66.7	1.1	8	-6.9
R12-02	134	1	0.0	66.6	66	66.6	10	Snd Lvl	60.7	5.9	8	-2.1
R12-03	135	1	0.0	67.4	66	67.4	10	Snd Lvl	59.1	8.3	8	0.3
R12-04	136	1	0.0	66.9	66	66.9	10	Snd Lvl	59.1	7.8	8	-0.2
R12-05	137	1	0.0	67.5	66	67.5	10	Snd Lvl	60.1	7.4	8	-0.6
R12-06	138	1	0.0	68.0	66	68.0	10	Snd Lvl	60.4	7.6	8	-0.4
R12-07	139	1	0.0	68.7	66	68.7	10	Snd Lvl	61.9	6.8	8	-1.2
R12-08	140	1	0.0	67.0	66	67.0	10	Snd Lvl	66.6	0.4	8	-7.6
R12-09	141	1	0.0	65.3	66	65.3	10	----	64.7	0.6	8	-7.4
R12-10	142	1	0.0	64.8	66	64.8	10	----	64.4	0.4	8	-7.6
R12-11	143	1	0.0	63.5	66	63.5	10	----	62.3	1.2	8	-6.8
R12-12	144	1	0.0	63.9	66	63.9	10	----	62.4	1.5	8	-6.5
R12-13	145	1	0.0	64.3	66	64.3	10	----	62.4	1.9	8	-6.1
R12-14	146	1	0.0	63.9	66	63.9	10	----	61.6	2.3	8	-5.7
R12-15	147	1	0.0	63.5	66	63.5	10	----	61.7	1.8	8	-6.2

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	15	0.4	3.7	8.3
All Impacted	8	0.4	5.7	8.3
All that meet NR Goal	1	8.3	8.3	8.3

Kaskaskia Engineering Group, LLC 12 February 2021
VPR TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Build (2035) - Barrier Analysis
BARRIER DESIGN: Barrier13_v01
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		With Barrier Type Impact	Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R13-1	148	1	0.0	67.0	66	67.0	10	Snd Lvl	62.7	4.3	8	-3.7

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	4.3	4.3	4.3
All Impacted	1	4.3	4.3	4.3
All that meet NR Goal	0	0.0	0.0	0.0

Kaskaskia Engineering Group, LLC 6 August 2021
VPR TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Base Model - Existing
BARRIER DESIGN: Barrier14-15_receptor14
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc					
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R14-1	149	1	0.0	70.0	66	70.0	10	Snd Lvl	64.8	5.2	8	-2.8

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	5.2	5.2	5.2
All Impacted	1	5.2	5.2	5.2
All that meet NR Goal	0	0.0	0.0	0.0

Kaskaskia Engineering Group, LLC
VPR

12 February 2021
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Build (2035) - Barrier Analysis
BARRIER DESIGN: Barrier16_v10
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R14-1	149	1	0.0	70.3	66	70.3	10	Snd Lvl	69.6	0.7	8	-7.3
R15-1	150	1	0.0	69.2	66	69.2	10	Snd Lvl	69.1	0.1	8	-7.9
R16-01	151	1	0.0	77.3	66	77.3	10	Snd Lvl	66.9	10.4	8	2.4
R16-02	152	1	0.0	67.6	66	67.6	10	Snd Lvl	67.3	0.3	8	-7.7
R16-03	153	1	0.0	69.1	66	69.1	10	Snd Lvl	64.4	4.7	8	-3.3
R16-04	154	1	0.0	67.0	66	67.0	10	Snd Lvl	65.0	2.0	8	-6.0
R16-05	155	1	0.0	70.6	66	70.6	10	Snd Lvl	65.7	4.9	8	-3.1
R16-06	156	1	0.0	69.6	66	69.6	10	Snd Lvl	65.3	4.3	8	-3.7
R16-07	157	1	0.0	73.3	66	73.3	10	Snd Lvl	66.6	6.7	8	-1.3
R16-08	158	1	0.0	69.2	66	69.2	10	Snd Lvl	64.9	4.3	8	-3.7
R16-09	159	1	0.0	73.0	66	73.0	10	Snd Lvl	66.5	6.5	8	-1.5
R16-10	160	1	0.0	73.0	66	73.0	10	Snd Lvl	66.5	6.5	8	-1.5
R16-11	161	1	0.0	69.4	66	69.4	10	Snd Lvl	64.9	4.5	8	-3.5
R16-12	162	1	0.0	75.6	66	75.6	10	Snd Lvl	66.9	8.7	8	0.7
R16-13	163	1	0.0	73.6	66	73.6	10	Snd Lvl	66.4	7.2	8	-0.8
R16-14	164	1	0.0	69.6	66	69.6	10	Snd Lvl	65.0	4.6	8	-3.4
R16-15	165	1	0.0	73.8	66	73.8	10	Snd Lvl	66.5	7.3	8	-0.7
R16-16	166	1	0.0	73.1	66	73.1	10	Snd Lvl	66.5	6.6	8	-1.4
R16-17	167	1	0.0	69.9	66	69.9	10	Snd Lvl	65.3	4.6	8	-3.4
R16-18	168	1	0.0	73.3	66	73.3	10	Snd Lvl	66.6	6.7	8	-1.3
R16-19	169	1	0.0	73.6	66	73.6	10	Snd Lvl	66.7	6.9	8	-1.1
R16-20	170	1	0.0	73.3	66	73.3	10	Snd Lvl	66.9	6.4	8	-1.6
R16-21	171	1	0.0	75.6	66	75.6	10	Snd Lvl	67.3	8.3	8	0.3
R16-22	172	1	0.0	72.1	66	72.1	10	Snd Lvl	65.5	6.6	8	-1.4

This is a location with an existing noise wall, therefore the "No Barrier" and "Noise Reduction" output columns are not applicable.

Refer to Exhibit D for Build, No Barrier conditions and the Noise Barrier Analysis portion of Exhibit E for noise reduction metrics.

This is a location with an existing noise wall, therefore the "No Barrier" and "Noise Reduction" output columns are not applicable.

Refer to Exhibit D for Build, No Barrier conditions and the Noise Barrier Analysis portion of Exhibit E for noise reduction metrics.

R16-23	173	1	0.0	69.8	66	69.8	10	Snd Lvl	65.1	4.7	8	-3.3
R16-24	174	1	0.0	73.5	66	73.5	10	Snd Lvl	67.2	6.3	8	-1.7
R16-25	175	1	0.0	68.5	66	68.5	10	Snd Lvl	64.4	4.1	8	-3.9
R16-26	176	1	0.0	67.0	66	67.0	10	Snd Lvl	63.7	3.3	8	-4.7
R16-27	177	1	0.0	67.6	66	67.6	10	Snd Lvl	65.1	2.5	8	-5.5
R16-28	178	1	0.0	70.1	66	70.1	10	Snd Lvl	68.4	1.7	8	-6.3
R16-29	179	1	0.0	67.1	66	67.1	10	Snd Lvl	65.9	1.2	8	-6.8
R16-30	180	1	0.0	67.3	66	67.3	10	Snd Lvl	66.2	1.1	8	-6.9
R16-31	181	1	0.0	67.4	66	67.4	10	Snd Lvl	66.4	1.0	8	-7.0
R16-32	182	1	0.0	68.8	66	68.8	10	Snd Lvl	68.1	0.7	8	-7.3
R16-33	183	1	0.0	70.5	66	70.5	10	Snd Lvl	70.2	0.3	8	-7.7
R17-1	184	1	0.0	65.9	66	65.9	10	----	65.7	0.2	8	-7.8

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	36	0.1	4.4	10.4
All Impacted	35	0.1	4.5	10.4
All that meet NR Goal	3	8.3	9.1	10.4

Kaskaskia Engineering Group, LLC
12 February 2021
VPR
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Build (2035) - Barrier Analysis
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R16-01	151	1	0.0	76.8	66	76.8	10	Snd Lvl	76.8	0.0	8	-8.0
R16-02	152	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
R16-03	153	1	0.0	69.8	66	69.8	10	Snd Lvl	69.8	0.0	8	-8.0
R16-04	154	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
R16-05	155	1	0.0	70.7	66	70.7	10	Snd Lvl	70.7	0.0	8	-8.0
R16-06	156	1	0.0	69.4	66	69.4	10	Snd Lvl	69.4	0.0	8	-8.0
R16-07	157	1	0.0	72.9	66	72.9	10	Snd Lvl	72.9	0.0	8	-8.0
R16-08	158	1	0.0	69.0	66	69.0	10	Snd Lvl	69.0	0.0	8	-8.0
R16-09	159	1	0.0	72.6	66	72.6	10	Snd Lvl	72.6	0.0	8	-8.0
R16-10	160	1	0.0	72.6	66	72.6	10	Snd Lvl	72.6	0.0	8	-8.0
R16-11	161	1	0.0	69.2	66	69.2	10	Snd Lvl	69.2	0.0	8	-8.0
R16-12	162	1	0.0	75.1	66	75.1	10	Snd Lvl	75.1	0.0	8	-8.0
R16-13	163	1	0.0	73.3	66	73.3	10	Snd Lvl	73.3	0.0	8	-8.0
R16-14	164	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	0.0	8	-8.0
R16-15	165	1	0.0	73.4	66	73.4	10	Snd Lvl	73.4	0.0	8	-8.0
R16-16	166	1	0.0	72.6	66	72.6	10	Snd Lvl	72.6	0.0	8	-8.0
R16-17	167	1	0.0	69.7	66	69.7	10	Snd Lvl	69.7	0.0	8	-8.0
R16-18	168	1	0.0	72.8	66	72.8	10	Snd Lvl	72.8	0.0	8	-8.0
R16-19	169	1	0.0	73.2	66	73.2	10	Snd Lvl	73.2	0.0	8	-8.0
R16-20	170	1	0.0	73.1	66	73.1	10	Snd Lvl	73.1	0.0	8	-8.0
R16-21	171	1	0.0	75.9	66	75.9	10	Snd Lvl	75.9	0.0	8	-8.0
R16-22	172	1	0.0	72.7	66	72.7	10	Snd Lvl	72.7	0.0	8	-8.0
R16-23	173	1	0.0	69.9	66	69.9	10	Snd Lvl	69.9	0.0	8	-8.0
R16-24	174	1	0.0	73.9	66	73.9	10	Snd Lvl	73.9	0.0	8	-8.0

This is a location with an existing noise wall, therefore the "No Barrier" and "Noise Reduction" output columns are not applicable.

Refer to Exhibit D for Build, No Barrier conditions and the Noise Barrier Analysis portion of Exhibit E for noise reduction metrics.

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Refer to Exhibit D for Build, No Barrier conditions and the Noise Barrier Analysis portion of Exhibit E for noise reduction metrics.

R16-25	175	1	0.0	68.6	66	68.6	10	Snd Lvl	68.6	0.0	8	-8.0
R16-26	176	1	0.0	66.9	66	66.9	10	Snd Lvl	66.9	0.0	8	-8.0
R16-27	177	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
R16-28	178	1	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
R16-29	179	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
R16-30	180	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
R16-31	181	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
R16-32	182	1	0.0	68.8	66	68.8	10	Snd Lvl	68.8	0.0	8	-8.0
R16-33	183	1	0.0	70.6	66	70.6	10	Snd Lvl	70.6	0.0	8	-8.0
R17-1	184	1	0.0	65.5	66	65.5	10	----	65.5	0.0	8	-8.0
R18-1	185	1	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
R18-2	186	1	0.0	69.2	66	69.2	10	Snd Lvl	69.2	0.0	8	-8.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	36	0.0	0.0	0.0
All Impacted	35	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Kaskaskia Engineering Group, LLC
12 February 2021
VPR
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: I-39 Reconstruction
RUN: Build (2035) - Barrier Analysis
BARRIER DESIGN: Barrier18_v01
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

This is a location with an existing noise wall, therefore the "No Barrier" and "Noise Reduction" output columns are not applicable.

Refer to Exhibit D for Build, No Barrier conditions and the Noise Barrier Analysis portion of Exhibit E for noise reduction metrics.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc					
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R17-1	184	1	0.0	65.8	66	65.8	10	----	65.7	0.1	8	-7.9
R18-1	185	1	0.0	68.7	66	68.7	10	Snd Lvl	61.3	7.4	8	-0.6
R18-2	186	1	0.0	69.1	66	69.1	10	Snd Lvl	64.3	4.8	8	-3.2

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	3	0.1	4.1	7.4
All Impacted	2	4.8	6.1	7.4
All that meet NR Goal	0	0.0	0.0	0.0

Kaskaskia Engineering Group, LLC
12 February 2021
VPR
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Build (2035) - Barrier Analysis
BARRIER DESIGN: Barrier19_v01
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R18-1	185	1	0.0	70.2	66	70.2	10	Snd Lvl	70.2	0.0	8	-8.0
R18-2	186	1	0.0	69.1	66	69.1	10	Snd Lvl	69.1	0.0	8	-8.0
R19-1	187	1	0.0	70.5	66	70.5	10	Snd Lvl	62.3	8.2	8	0.2
R19-2	188	1	0.0	68.8	66	68.8	10	Snd Lvl	63.7	5.1	8	-2.9
R19-3	189	1	0.0	65.5	66	65.5	10	----	62.0	3.5	8	-4.5
R19-4	190	1	0.0	70.5	66	70.5	10	Snd Lvl	63.6	6.9	8	-1.1
R19-5	191	1	0.0	68.8	66	68.8	10	Snd Lvl	63.0	5.8	8	-2.2
R19-6	192	1	0.0	65.9	66	65.9	10	----	60.9	5.0	8	-3.0
R19-7	193	1	0.0	67.2	66	67.2	10	Snd Lvl	67.0	0.2	8	-7.8
R19-8	194	1	0.0	68.8	66	68.8	10	Snd Lvl	68.7	0.1	8	-7.9

This is a location with an existing noise wall, therefore the "No Barrier" and "Noise Reduction" output columns are not applicable.

Refer to Exhibit D for Build, No Barrier conditions and the Noise Barrier Analysis portion of Exhibit E for noise reduction metrics.

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	10	0.0	3.5	8.2
All Impacted	8	0.0	3.3	8.2
All that meet NR Goal	1	8.2	8.2	8.2

Kaskaskia Engineering Group, LLC 12 February 2021
VPR TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Build (2035) - Barrier Analysis
BARRIER DESIGN: Barrier20adj_v01
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R20-1-07	195	1	0.0	53.6	66	53.6	10	----	51.1	2.5	8	-5.5
R20-1-08	196	1	0.0	54.1	66	54.1	10	----	51.3	2.8	8	-5.2
R20-1-09	197	1	0.0	54.9	66	54.9	10	----	51.8	3.1	8	-4.9
R20-1-10	198	1	0.0	55.6	66	55.6	10	----	52.3	3.3	8	-4.7
R20-1-11	199	1	0.0	56.5	66	56.5	10	----	53.0	3.5	8	-4.5
R20-1-12	200	1	0.0	57.1	66	57.1	10	----	53.4	3.7	8	-4.3
R20-1-13	201	1	0.0	58.3	66	58.3	10	----	54.5	3.8	8	-4.2
R20-1-14	202	1	0.0	59.5	66	59.5	10	----	55.8	3.7	8	-4.3
R20-1-21	203	1	0.0	54.1	66	54.1	10	----	51.5	2.6	8	-5.4
R20-1-22	204	1	0.0	54.5	66	54.5	10	----	51.7	2.8	8	-5.2
R20-1-23	205	1	0.0	55.3	66	55.3	10	----	52.1	3.2	8	-4.8
R20-1-24	206	1	0.0	56.0	66	56.0	10	----	52.5	3.5	8	-4.5
R20-1-25	207	1	0.0	57.6	66	57.6	10	----	53.6	4.0	8	-4.0
R20-1-26	208	1	0.0	58.6	66	58.6	10	----	54.4	4.2	8	-3.8
R20-1-27	209	1	0.0	59.5	66	59.5	10	----	55.2	4.3	8	-3.7
R20-1-28	210	1	0.0	60.3	66	60.3	10	----	55.9	4.4	8	-3.6
R20-1-35	211	1	0.0	63.1	66	63.1	10	----	58.2	4.9	8	-3.1
R20-1-36	212	1	0.0	62.8	66	62.8	10	----	58.2	4.6	8	-3.4
R20-1-37	213	1	0.0	62.5	66	62.5	10	----	58.1	4.4	8	-3.6
R20-1-38	214	1	0.0	62.5	66	62.5	10	----	58.0	4.5	8	-3.5
R20-1-39	215	1	0.0	62.4	66	62.4	10	----	57.9	4.5	8	-3.5
R20-1-40	216	1	0.0	62.2	66	62.2	10	----	57.8	4.4	8	-3.6
R20-1-41	217	1	0.0	61.9	66	61.9	10	----	57.6	4.3	8	-3.7
R20-1-42	218	1	0.0	61.7	66	61.7	10	----	57.6	4.1	8	-3.9

R20-1-49	219	1	0.0	60.7	66	60.7	10	----	56.2	4.5	8	-3.5
R20-1-50	220	1	0.0	61.3	66	61.3	10	----	56.5	4.8	8	-3.2
R20-1-51	221	1	0.0	62.4	66	62.4	10	----	57.1	5.3	8	-2.7
R20-1-52	222	1	0.0	63.1	66	63.1	10	----	57.5	5.6	8	-2.4
R20-1-53	223	1	0.0	64.4	66	64.4	10	----	58.3	6.1	8	-1.9
R20-1-54	224	1	0.0	65.3	66	65.3	10	----	59.1	6.2	8	-1.8
R20-1-55	225	1	0.0	66.8	66	66.8	10	Snd Lvl	59.4	7.4	8	-0.6
R20-1-56	226	1	0.0	68.0	66	68.0	10	Snd Lvl	59.8	8.2	8	0.2
R20-1-63	227	1	0.0	61.3	66	61.3	10	----	58.2	3.1	8	-4.9
R20-1-64	228	1	0.0	61.8	66	61.8	10	----	58.6	3.2	8	-4.8
R20-1-65	229	1	0.0	62.8	66	62.8	10	----	59.4	3.4	8	-4.6
R20-1-66	230	1	0.0	63.5	66	63.5	10	----	59.9	3.6	8	-4.4
R20-1-67	231	1	0.0	64.6	66	64.6	10	----	60.8	3.8	8	-4.2
R20-1-68	232	1	0.0	65.2	66	65.2	10	----	61.2	4.0	8	-4.0
R20-1-69	233	1	0.0	66.4	66	66.4	10	Snd Lvl	61.8	4.6	8	-3.4
R20-1-70	234	1	0.0	68.3	66	68.3	10	Snd Lvl	62.6	5.7	8	-2.3
R20-1-77	235	1	0.0	62.5	66	62.5	10	----	61.8	0.7	8	-7.3
R20-1-78	236	1	0.0	62.9	66	62.9	10	----	62.2	0.7	8	-7.3
R20-1-79	237	1	0.0	63.4	66	63.4	10	----	62.7	0.7	8	-7.3
R20-1-80	238	1	0.0	63.8	66	63.8	10	----	63.1	0.7	8	-7.3
R20-1-81	239	1	0.0	64.7	66	64.7	10	----	63.9	0.8	8	-7.2
R20-1-82	240	1	0.0	65.1	66	65.1	10	----	64.2	0.9	8	-7.1
R20-1-83	241	1	0.0	66.1	66	66.1	10	Snd Lvl	65.0	1.1	8	-6.9
R20-1-84	242	1	0.0	67.1	66	67.1	10	Snd Lvl	65.6	1.5	8	-6.5
R20-2-01	243	1	0.0	64.6	66	64.6	10	----	64.5	0.1	8	-7.9
R20-2-02	244	1	0.0	65.2	66	65.2	10	----	65.1	0.1	8	-7.9
R20-2-03	245	1	0.0	65.3	66	65.3	10	----	65.2	0.1	8	-7.9
R20-2-04	246	1	0.0	65.8	66	65.8	10	----	65.6	0.2	8	-7.8
R20-2-05	247	1	0.0	66.5	66	66.5	10	Snd Lvl	66.1	0.4	8	-7.6
R20-2-06	248	1	0.0	66.9	66	66.9	10	Snd Lvl	66.4	0.5	8	-7.5
R20-2-07	249	1	0.0	56.5	66	56.5	10	----	52.3	4.2	8	-3.8
R20-2-08	250	1	0.0	57.0	66	57.0	10	----	52.5	4.5	8	-3.5
R20-2-09	251	1	0.0	57.9	66	57.9	10	----	53.0	4.9	8	-3.1
R20-2-11	252	1	0.0	59.8	66	59.8	10	----	54.3	5.5	8	-2.5
R20-2-12	253	1	0.0	60.6	66	60.6	10	----	54.8	5.8	8	-2.2
R20-2-14	254	1	0.0	63.2	66	63.2	10	----	57.5	5.7	8	-2.3
R20-2-15	255	1	0.0	57.0	66	57.0	10	----	55.2	1.8	8	-6.2
R20-2-16	256	1	0.0	57.6	66	57.6	10	----	55.1	2.5	8	-5.5
R20-2-17	257	1	0.0	58.1	66	58.1	10	----	55.3	2.8	8	-5.2
R20-2-18	258	1	0.0	59.3	66	59.3	10	----	56.0	3.3	8	-4.7
R20-2-19	259	1	0.0	60.7	66	60.7	10	----	56.9	3.8	8	-4.2

R20-2-20	260	1	0.0	62.2	66	62.2	10	----	57.7	4.5	8	-3.5
R20-2-21	261	1	0.0	57.3	66	57.3	10	----	52.8	4.5	8	-3.5
R20-2-22	262	1	0.0	57.8	66	57.8	10	----	53.1	4.7	8	-3.3
R20-2-23	263	1	0.0	58.6	66	58.6	10	----	53.5	5.1	8	-2.9
R20-2-25	264	1	0.0	61.2	66	61.2	10	----	55.2	6.0	8	-2.0
R20-2-26	265	1	0.0	62.4	66	62.4	10	----	56.4	6.0	8	-2.0
R20-2-28	266	1	0.0	64.0	66	64.0	10	----	57.9	6.1	8	-1.9
R20-2-29	267	1	0.0	52.7	66	52.7	10	----	51.1	1.6	8	-6.4
R20-2-30	268	1	0.0	52.3	66	52.3	10	----	50.7	1.6	8	-6.4
R20-2-31	269	1	0.0	52.3	66	52.3	10	----	50.7	1.6	8	-6.4
R20-2-32	270	1	0.0	52.3	66	52.3	10	----	50.7	1.6	8	-6.4
R20-2-33	271	1	0.0	52.2	66	52.2	10	----	50.6	1.6	8	-6.4
R20-2-34	272	1	0.0	52.1	66	52.1	10	----	50.6	1.5	8	-6.5
R20-2-35	273	1	0.0	66.4	66	66.4	10	Snd Lvl	61.8	4.6	8	-3.4
R20-2-36	274	1	0.0	66.5	66	66.5	10	Snd Lvl	61.6	4.9	8	-3.1
R20-2-37	275	1	0.0	66.2	66	66.2	10	Snd Lvl	61.3	4.9	8	-3.1
R20-2-39	276	1	0.0	66.1	66	66.1	10	Snd Lvl	60.3	5.8	8	-2.2
R20-2-40	277	1	0.0	66.0	66	66.0	10	Snd Lvl	60.2	5.8	8	-2.2
R20-2-42	278	1	0.0	65.4	66	65.4	10	----	59.6	5.8	8	-2.2
R20-2-43	279	1	0.0	62.5	66	62.5	10	----	58.8	3.7	8	-4.3
R20-2-44	280	1	0.0	63.8	66	63.8	10	----	59.8	4.0	8	-4.0
R20-2-45	281	1	0.0	64.2	66	64.2	10	----	60.1	4.1	8	-3.9
R20-2-46	282	1	0.0	65.6	66	65.6	10	----	61.3	4.3	8	-3.7
R20-2-47	283	1	0.0	67.0	66	67.0	10	Snd Lvl	62.1	4.9	8	-3.1
R20-2-48	284	1	0.0	68.2	66	68.2	10	Snd Lvl	62.9	5.3	8	-2.7
R20-2-49	285	1	0.0	63.4	66	63.4	10	----	59.8	3.6	8	-4.4
R20-2-50	286	1	0.0	64.1	66	64.1	10	----	60.2	3.9	8	-4.1
R20-2-51	287	1	0.0	65.1	66	65.1	10	----	61.2	3.9	8	-4.1
R20-2-53	288	1	0.0	67.4	66	67.4	10	Snd Lvl	63.1	4.3	8	-3.7
R20-2-54	289	1	0.0	68.3	66	68.3	10	Snd Lvl	64.0	4.3	8	-3.7
R20-2-56	290	1	0.0	70.8	66	70.8	10	Snd Lvl	66.0	4.8	8	-3.2
R20-2-57	291	1	0.0	62.7	66	62.7	10	----	58.9	3.8	8	-4.2
R20-2-58	292	1	0.0	64.4	66	64.4	10	----	60.0	4.4	8	-3.6
R20-2-59	293	1	0.0	65.0	66	65.0	10	----	60.5	4.5	8	-3.5
R20-2-60	294	1	0.0	66.9	66	66.9	10	Snd Lvl	62.0	4.9	8	-3.1
R20-2-61	295	1	0.0	68.0	66	68.0	10	Snd Lvl	62.6	5.4	8	-2.6
R20-2-62	296	1	0.0	69.3	66	69.3	10	Snd Lvl	63.7	5.6	8	-2.4
R20-2-63	297	1	0.0	63.9	66	63.9	10	----	60.8	3.1	8	-4.9
R20-2-64	298	1	0.0	64.4	66	64.4	10	----	61.3	3.1	8	-4.9
R20-2-65	299	1	0.0	65.5	66	65.5	10	----	62.4	3.1	8	-4.9
R20-2-66	300	1	0.0	66.3	66	66.3	10	Snd Lvl	63.2	3.1	8	-4.9

R20-2-67	301	1	0.0	67.5	66	67.5	10	Snd Lvl	64.6	2.9	8	-5.1
R20-2-68	302	1	0.0	68.1	66	68.1	10	Snd Lvl	65.1	3.0	8	-5.0
R20-2-69	303	1	0.0	69.5	66	69.5	10	Snd Lvl	66.1	3.4	8	-4.6
R20-2-70	304	1	0.0	71.3	66	71.3	10	Snd Lvl	67.4	3.9	8	-4.1
R20-2-71	305	1	0.0	64.9	66	64.9	10	----	63.2	1.7	8	-6.3
R20-2-72	306	1	0.0	64.6	66	64.6	10	----	60.8	3.8	8	-4.2
R20-2-73	307	1	0.0	65.6	66	65.6	10	----	61.2	4.4	8	-3.6
R20-2-74	308	1	0.0	67.6	66	67.6	10	Snd Lvl	62.7	4.9	8	-3.1
R20-2-75	309	1	0.0	68.8	66	68.8	10	Snd Lvl	63.5	5.3	8	-2.7
R20-2-76	310	1	0.0	69.9	66	69.9	10	Snd Lvl	64.6	5.3	8	-2.7
R20-2-77	311	1	0.0	65.7	66	65.7	10	----	65.2	0.5	8	-7.5
R20-2-78	312	1	0.0	66.0	66	66.0	10	Snd Lvl	65.5	0.5	8	-7.5
R20-2-79	313	1	0.0	66.3	66	66.3	10	Snd Lvl	65.9	0.4	8	-7.6
R20-2-80	314	1	0.0	66.7	66	66.7	10	Snd Lvl	66.2	0.5	8	-7.5
R20-2-81	315	1	0.0	67.3	66	67.3	10	Snd Lvl	66.7	0.6	8	-7.4
R20-2-82	316	1	0.0	67.5	66	67.5	10	Snd Lvl	66.8	0.7	8	-7.3
R20-2-83	317	1	0.0	68.5	66	68.5	10	Snd Lvl	67.6	0.9	8	-7.1
R20-2-84	318	1	0.0	69.4	66	69.4	10	Snd Lvl	68.2	1.2	8	-6.8
R20-2-85	319	1	0.0	63.4	66	63.4	10	----	59.4	4.0	8	-4.0
R20-2-86	320	1	0.0	66.1	66	66.1	10	Snd Lvl	61.3	4.8	8	-3.2
R20-2-87	321	1	0.0	63.3	66	63.3	10	----	60.0	3.3	8	-4.7
R20-2-88	322	1	0.0	66.9	66	66.9	10	Snd Lvl	62.0	4.9	8	-3.1
R20-3-01	323	1	0.0	66.4	66	66.4	10	Snd Lvl	66.2	0.2	8	-7.8
R20-3-02	324	1	0.0	66.9	66	66.9	10	Snd Lvl	66.6	0.3	8	-7.7
R20-3-03	325	1	0.0	67.0	66	67.0	10	Snd Lvl	66.8	0.2	8	-7.8
R20-3-04	326	1	0.0	67.5	66	67.5	10	Snd Lvl	67.1	0.4	8	-7.6
R20-3-05	327	1	0.0	68.1	66	68.1	10	Snd Lvl	67.5	0.6	8	-7.4
R20-3-06	328	1	0.0	68.6	66	68.6	10	Snd Lvl	67.7	0.9	8	-7.1
R20-3-07	329	1	0.0	59.8	66	59.8	10	----	54.8	5.0	8	-3.0
R20-3-08	330	1	0.0	60.3	66	60.3	10	----	54.9	5.4	8	-2.6
R20-3-09	331	1	0.0	61.1	66	61.1	10	----	55.5	5.6	8	-2.4
R20-3-11	332	1	0.0	62.8	66	62.8	10	----	56.9	5.9	8	-2.1
R20-3-12	333	1	0.0	63.7	66	63.7	10	----	57.5	6.2	8	-1.8
R20-3-14	334	1	0.0	66.1	66	66.1	10	Snd Lvl	59.5	6.6	8	-1.4
R20-3-15	335	1	0.0	60.9	66	60.9	10	----	57.5	3.4	8	-4.6
R20-3-16	336	1	0.0	61.6	66	61.6	10	----	57.8	3.8	8	-4.2
R20-3-17	337	1	0.0	61.9	66	61.9	10	----	58.0	3.9	8	-4.1
R20-3-18	338	1	0.0	62.9	66	62.9	10	----	58.7	4.2	8	-3.8
R20-3-19	339	1	0.0	64.0	66	64.0	10	----	59.4	4.6	8	-3.4
R20-3-20	340	1	0.0	65.0	66	65.0	10	----	60.3	4.7	8	-3.3
R20-3-21	341	1	0.0	59.2	66	59.2	10	----	56.4	2.8	8	-5.2

R20-3-22	342	1	0.0	59.8	66	59.8	10	----	56.8	3.0	8	-5.0
R20-3-23	343	1	0.0	60.6	66	60.6	10	----	57.5	3.1	8	-4.9
R20-3-25	344	1	0.0	63.1	66	63.1	10	----	59.7	3.4	8	-4.6
R20-3-26	345	1	0.0	64.3	66	64.3	10	----	60.6	3.7	8	-4.3
R20-3-28	346	1	0.0	66.2	66	66.2	10	Snd Lvl	61.9	4.3	8	-3.7
R20-3-29	347	1	0.0	57.2	66	57.2	10	----	55.7	1.5	8	-6.5
R20-3-30	348	1	0.0	57.4	66	57.4	10	----	55.8	1.6	8	-6.4
R20-3-31	349	1	0.0	57.4	66	57.4	10	----	55.8	1.6	8	-6.4
R20-3-32	350	1	0.0	57.1	66	57.1	10	----	55.4	1.7	8	-6.3
R20-3-33	351	1	0.0	56.9	66	56.9	10	----	55.3	1.6	8	-6.4
R20-3-34	352	1	0.0	56.4	66	56.4	10	----	54.8	1.6	8	-6.4
R20-3-35	353	1	0.0	68.0	66	68.0	10	Snd Lvl	64.6	3.4	8	-4.6
R20-3-36	354	1	0.0	68.0	66	68.0	10	Snd Lvl	64.7	3.3	8	-4.7
R20-3-37	355	1	0.0	67.9	66	67.9	10	Snd Lvl	64.6	3.3	8	-4.7
R20-3-39	356	1	0.0	67.8	66	67.8	10	Snd Lvl	64.5	3.3	8	-4.7
R20-3-40	357	1	0.0	67.7	66	67.7	10	Snd Lvl	64.4	3.3	8	-4.7
R20-3-42	358	1	0.0	67.4	66	67.4	10	Snd Lvl	63.7	3.7	8	-4.3
R20-3-43	359	1	0.0	64.1	66	64.1	10	----	61.3	2.8	8	-5.2
R20-3-44	360	1	0.0	65.5	66	65.5	10	----	62.3	3.2	8	-4.8
R20-3-45	361	1	0.0	65.9	66	65.9	10	----	62.6	3.3	8	-4.7
R20-3-46	362	1	0.0	67.4	66	67.4	10	Snd Lvl	63.7	3.7	8	-4.3
R20-3-47	363	1	0.0	69.0	66	69.0	10	Snd Lvl	65.3	3.7	8	-4.3
R20-3-48	364	1	0.0	70.1	66	70.1	10	Snd Lvl	67.0	3.1	8	-4.9
R20-3-49	365	1	0.0	64.6	66	64.6	10	----	61.2	3.4	8	-4.6
R20-3-50	366	1	0.0	65.2	66	65.2	10	----	61.6	3.6	8	-4.4
R20-3-51	367	1	0.0	66.3	66	66.3	10	Snd Lvl	62.7	3.6	8	-4.4
R20-3-53	368	1	0.0	68.8	66	68.8	10	Snd Lvl	64.9	3.9	8	-4.1
R20-3-54	369	1	0.0	69.6	66	69.6	10	Snd Lvl	65.9	3.7	8	-4.3
R20-3-56	370	1	0.0	72.2	66	72.2	10	Snd Lvl	69.2	3.0	8	-5.0
R20-3-57	371	1	0.0	64.1	66	64.1	10	----	60.6	3.5	8	-4.5
R20-3-58	372	1	0.0	65.9	66	65.9	10	----	62.1	3.8	8	-4.2
R20-3-59	373	1	0.0	66.5	66	66.5	10	Snd Lvl	62.5	4.0	8	-4.0
R20-3-60	374	1	0.0	68.9	66	68.9	10	Snd Lvl	64.6	4.3	8	-3.7
R20-3-61	375	1	0.0	69.7	66	69.7	10	Snd Lvl	66.0	3.7	8	-4.3
R20-3-62	376	1	0.0	70.9	66	70.9	10	Snd Lvl	67.5	3.4	8	-4.6
R20-3-63	377	1	0.0	64.9	66	64.9	10	----	62.2	2.7	8	-5.3
R20-3-64	378	1	0.0	65.4	66	65.4	10	----	62.7	2.7	8	-5.3
R20-3-65	379	1	0.0	66.5	66	66.5	10	Snd Lvl	63.9	2.6	8	-5.4
R20-3-66	380	1	0.0	67.2	66	67.2	10	Snd Lvl	64.9	2.3	8	-5.7
R20-3-67	381	1	0.0	68.5	66	68.5	10	Snd Lvl	66.4	2.1	8	-5.9
R20-3-68	382	1	0.0	69.1	66	69.1	10	Snd Lvl	67.0	2.1	8	-5.9

R20-3-69	383	1	0.0	70.6	66	70.6	10	Snd Lvl	68.2	2.4	8	-5.6
R20-3-70	384	1	0.0	72.6	66	72.6	10	Snd Lvl	69.9	2.7	8	-5.3
R20-3-71	385	1	0.0	66.6	66	66.6	10	Snd Lvl	64.5	2.1	8	-5.9
R20-3-72	386	1	0.0	66.6	66	66.6	10	Snd Lvl	62.7	3.9	8	-4.1
R20-3-73	387	1	0.0	67.1	66	67.1	10	Snd Lvl	63.2	3.9	8	-4.1
R20-3-74	388	1	0.0	69.3	66	69.3	10	Snd Lvl	65.5	3.8	8	-4.2
R20-3-75	389	1	0.0	70.4	66	70.4	10	Snd Lvl	66.8	3.6	8	-4.4
R20-3-76	390	1	0.0	71.4	66	71.4	10	Snd Lvl	68.0	3.4	8	-4.6
R20-3-77	391	1	0.0	66.5	66	66.5	10	Snd Lvl	66.1	0.4	8	-7.6
R20-3-78	392	1	0.0	66.8	66	66.8	10	Snd Lvl	66.4	0.4	8	-7.6
R20-3-79	393	1	0.0	67.2	66	67.2	10	Snd Lvl	66.8	0.4	8	-7.6
R20-3-80	394	1	0.0	67.6	66	67.6	10	Snd Lvl	67.2	0.4	8	-7.6
R20-3-81	395	1	0.0	68.2	66	68.2	10	Snd Lvl	67.7	0.5	8	-7.5
R20-3-82	396	1	0.0	68.5	66	68.5	10	Snd Lvl	68.0	0.5	8	-7.5
R20-3-83	397	1	0.0	69.6	66	69.6	10	Snd Lvl	68.9	0.7	8	-7.3
R20-3-84	398	1	0.0	70.5	66	70.5	10	Snd Lvl	69.5	1.0	8	-7.0
R20-3-85	399	1	0.0	64.9	66	64.9	10	----	61.4	3.5	8	-4.5
R20-3-86	400	1	0.0	67.8	66	67.8	10	Snd Lvl	63.5	4.3	8	-3.7
R20-3-87	401	1	0.0	65.4	66	65.4	10	----	61.6	3.8	8	-4.2
R20-3-88	402	1	0.0	68.3	66	68.3	10	Snd Lvl	64.3	4.0	8	-4.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	208	0.1	3.3	8.2
All Impacted	85	0.2	3.1	8.2
All that meet NR Goal	1	8.2	8.2	8.2

Kaskaskia Engineering Group, LLC 6 August 2021
VPR TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Build (2035) - Barrier Analysis
BARRIER DESIGN: Wall21_v01
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R21-2	404	1	0.0	70.7	66	70.7	10	Snd Lvl	63.7	7.0	8	-1.0
R21-1	422	1	0.0	73.7	66	73.7	10	Snd Lvl	73.7	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	2	0.0	3.5	7.0
All Impacted	2	0.0	3.5	7.0
All that meet NR Goal	0	0.0	0.0	0.0

Kaskaskia Engineering Group, LLC 12 February 2021
VPR TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Build (2035) - Barrier Analysis
BARRIER DESIGN: Barrier22_v06
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R22-01	405	1	0.0	66.7	66	66.7	10	Snd Lvl	60.3	6.4	8	-1.6
R22-02	406	1	0.0	63.2	66	63.2	10	----	58.5	4.7	8	-3.3
R22-03	407	1	0.0	64.9	66	64.9	10	----	57.2	7.7	8	-0.3
R22-04	408	1	0.0	64.9	66	64.9	10	----	58.0	6.9	8	-1.1
R22-05	409	1	0.0	65.3	66	65.3	10	----	59.2	6.1	8	-1.9
R22-06	410	1	0.0	65.7	66	65.7	10	----	59.3	6.4	8	-1.6
R22-07	411	1	0.0	66.6	66	66.6	10	Snd Lvl	60.0	6.6	8	-1.4
R22-08	412	1	0.0	67.8	66	67.8	10	Snd Lvl	60.6	7.2	8	-0.8
R22-09	413	1	0.0	68.4	66	68.4	10	Snd Lvl	61.5	6.9	8	-1.1
R22-10	414	1	0.0	68.5	66	68.5	10	Snd Lvl	62.2	6.3	8	-1.7
R22-11	415	1	0.0	67.8	66	67.8	10	Snd Lvl	62.4	5.4	8	-2.6
R22-12	416	1	0.0	68.0	66	68.0	10	Snd Lvl	63.3	4.7	8	-3.3

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	12	4.7	6.3	7.7
All Impacted	7	4.7	6.2	7.2
All that meet NR Goal	0	0.0	0.0	0.0

Kaskaskia Engineering Group, LLC
VPR

6 August 2021
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: I-39 Reconstruction
RUN: Base Model - Existing
BARRIER DESIGN: Barrier23_2021_07_26
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R23-1	417	1	0.0	71.1	66	71.1	10	Snd Lvl	67.5	3.6	8	-4.4
R23-2	418	1	0.0	70.2	66	70.2	10	Snd Lvl	63.3	6.9	8	-1.1
R23-3	420	1	0.0	70.8	66	70.8	10	Snd Lvl	66.0	4.8	8	-3.2
R23-4	421	1	0.0	67.7	66	67.7	10	Snd Lvl	62.7	5.0	8	-3.0
R23-5	422	1	0.0	69.3	66	69.3	10	Snd Lvl	63.7	5.6	8	-2.4

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	5	3.6	5.2	6.9
All Impacted	5	3.6	5.2	6.9
All that meet NR Goal	0	0.0	0.0	0.0

The following table details the barrier alignment alternatives for the CNEs represented in the recommended noise wall 8-10, 21.

- Barrier 8-10, 21 was modelled along the outside shoulder of the proposed roadway design. This alignment, at a height of 13 ft, was deemed feasible and reasonable in the noise mitigation analysis. This alignment spans across the UP railroad.
- Barrier 5-9, 21 was modelled along the right-of-way line for CNE 9 area and roughly followed the clear zone area along the interchange and Harrison portions.
- Barrier 9 was modelled approximately along the clear zone (not the right-of-way line) which was estimated as 30 ft from the edge of proposed travel lane; it avoids major utility conflicts. This alignment terminates north of the UP railroad.
- Barrier 10 was modelled approximately along the clear zone (not the right-of-way line) which was estimated as 30 ft from the edge of proposed travel lane; it avoids major utility conflicts. Barrier 10 was discussed as a possible replacement with the 8-10, 21 version so that community across the railroad might receive the same barrier outcome. This alignment begins south of the UP railroad.

Barrier	Average Height of Wall (ft)	Length (ft)	Cost (Assume $30/SF cost)	Benefited Receptors	Cost/Benefited Receptor	Result
Barrier 5-9, 21 (Iteration 9)	23.08	5,747	$3.98M	56	$71,058	Not Cost Effective
Barrier 9 (Iteration 3)	23.52	1,714	$1.21M	24	$50,392	Not Costs Effective
Barrier 10 (Iteration 5)	17	2,316	$1.18M	32	$36,911	Recommended with cost averaging
Barrier 8-10, 21: Ground Mount w/ Guardrail near outside shoulder	13	6,482	$2,527,980	82	$30,829	Recommended with cost averaging
Barrier 8-10, 21: Barrier Mount w/ Moment Slab outside shoulder	13	6,482	$2,527,980	82	$30,829	Recommended with cost averaging

EXHIBIT F

BARRIER WALL LOCATIONS

Representative Receptor

Existing Wall

Feasible and Reasonable

Feasible and Reasonable (with cost-averaging)

Not Cost-Effective

Does not meet design goal

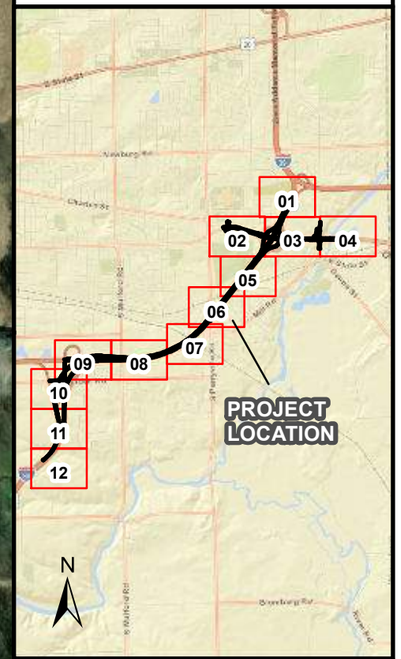
Design EOP and Shoulder

CNE

Exhibit F

Barrier Wall Locations

I-39 Reconstruction - US 20 to Harrison Ave.



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Representative Receptor

Existing Wall

Feasible and Reasonable

Feasible and Reasonable (with cost-averaging)

Not Cost-Effective

Does not meet design goal

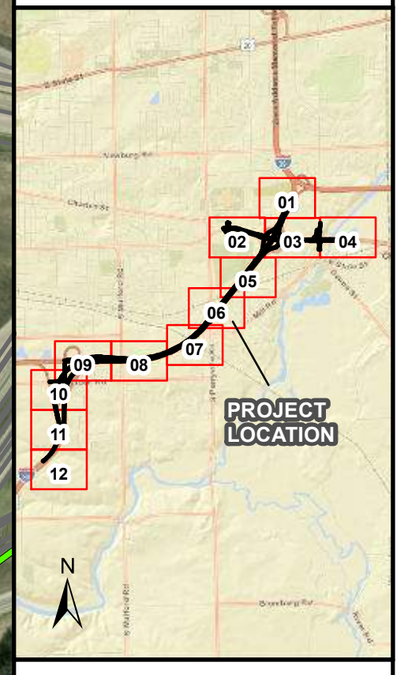
Design EOP and Shoulder

CNE

Exhibit F

Barrier Wall Locations

I-39 Reconstruction - US 20 to Harrison Ave.



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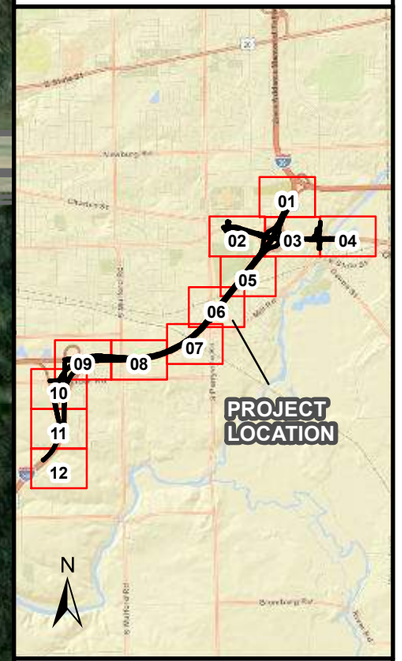
Representative Receptor
Existing Wall
Feasible and Reasonable
Feasible and Reasonable (with cost-averaging)
Not Cost-Effective
Does not meet design goal
Design EOP and Shoulder
CNE

Exhibit F

Barrier Wall Locations

I-39 Reconstruction - US 20 to Harrison Ave.



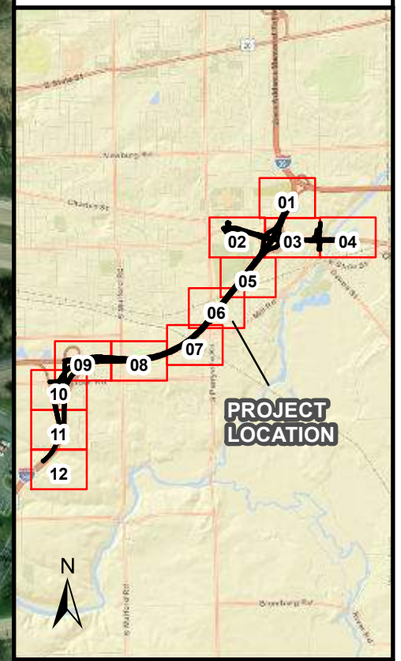
Kaskaskia Engineering Group, LLC
208 East Main Street, Suite 100
Belleville, Illinois 62220
618.233.5877 phone
618.233.5977 fax
www.kaskaskiaeng.com

Representative Receptor
Existing Wall
Feasible and Reasonable
Feasible and Reasonable (with cost-averaging)
Not Cost-Effective
Does not meet design goal
Design EOP and Shoulder
CNE

Exhibit F

Barrier Wall Locations

I-39 Reconstruction - US 20 to Harrison Ave.



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- CNE

Exhibit F

Barrier Wall Locations

I-39 Reconstruction - US 20 to Harrison Ave.

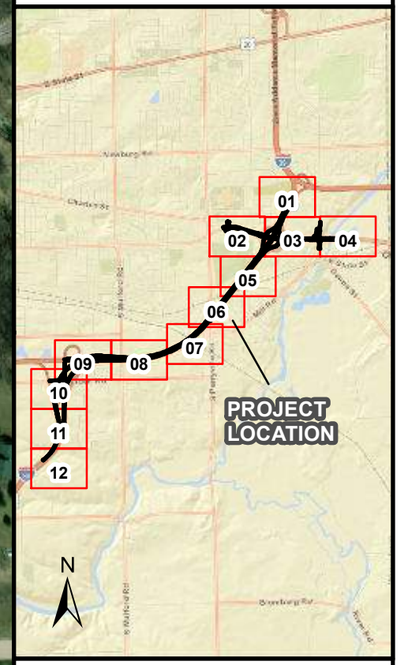

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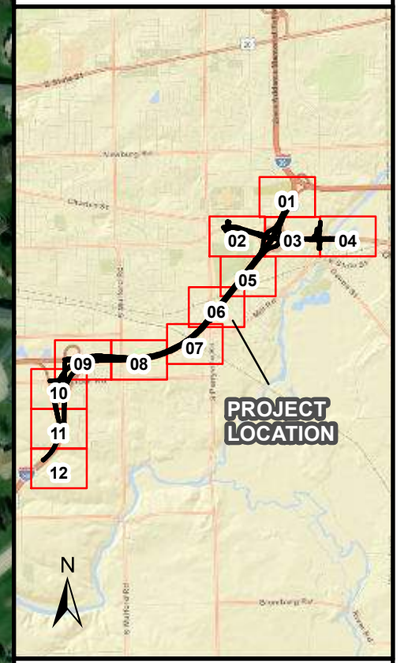
Exhibit F

Barrier Wall Locations

I-39 Reconstruction - US 20 to Harrison Ave.



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618.233.5877 phone
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Representative Receptor

Existing Wall

Feasible and Reasonable

Feasible and Reasonable (with cost-averaging)

Not Cost-Effective

Does not meet design goal

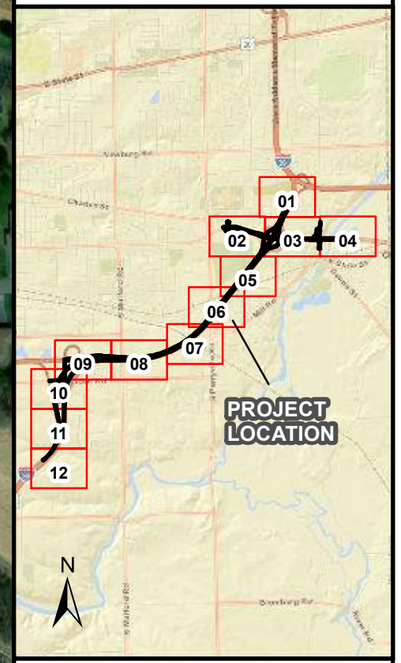
Design EOP and Shoulder

CNE

Exhibit F

Barrier Wall Locations

I-39 Reconstruction - US 20 to Harrison Ave.



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Barrier Wall Locations

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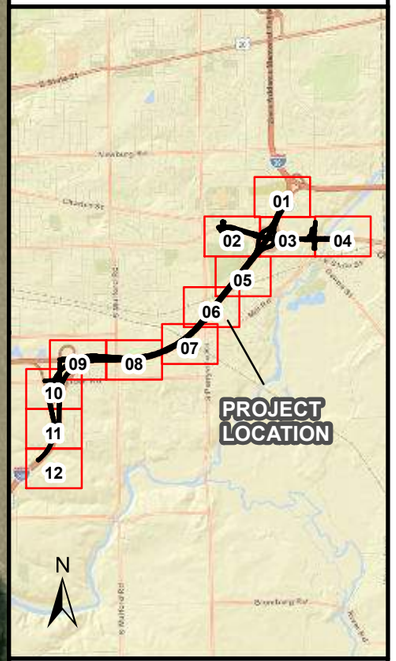

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Not Cost-Effective
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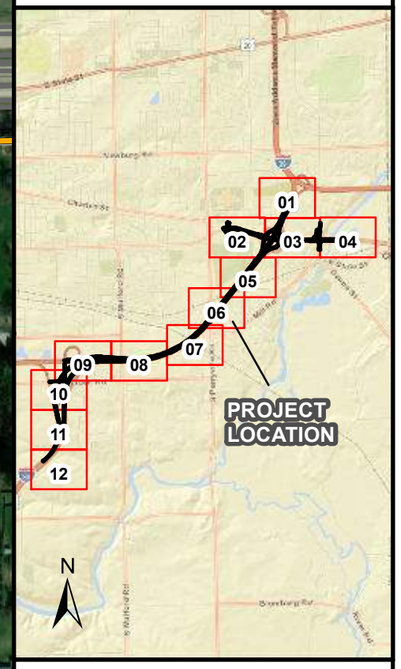
Exhibit F

Barrier Wall Locations

I-39 Reconstruction - US 20 to Harrison Ave.



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208 East Main Street, Suite 300
Belleville, Illinois 62220
618.233.5877 phone
618.233.5977 fax
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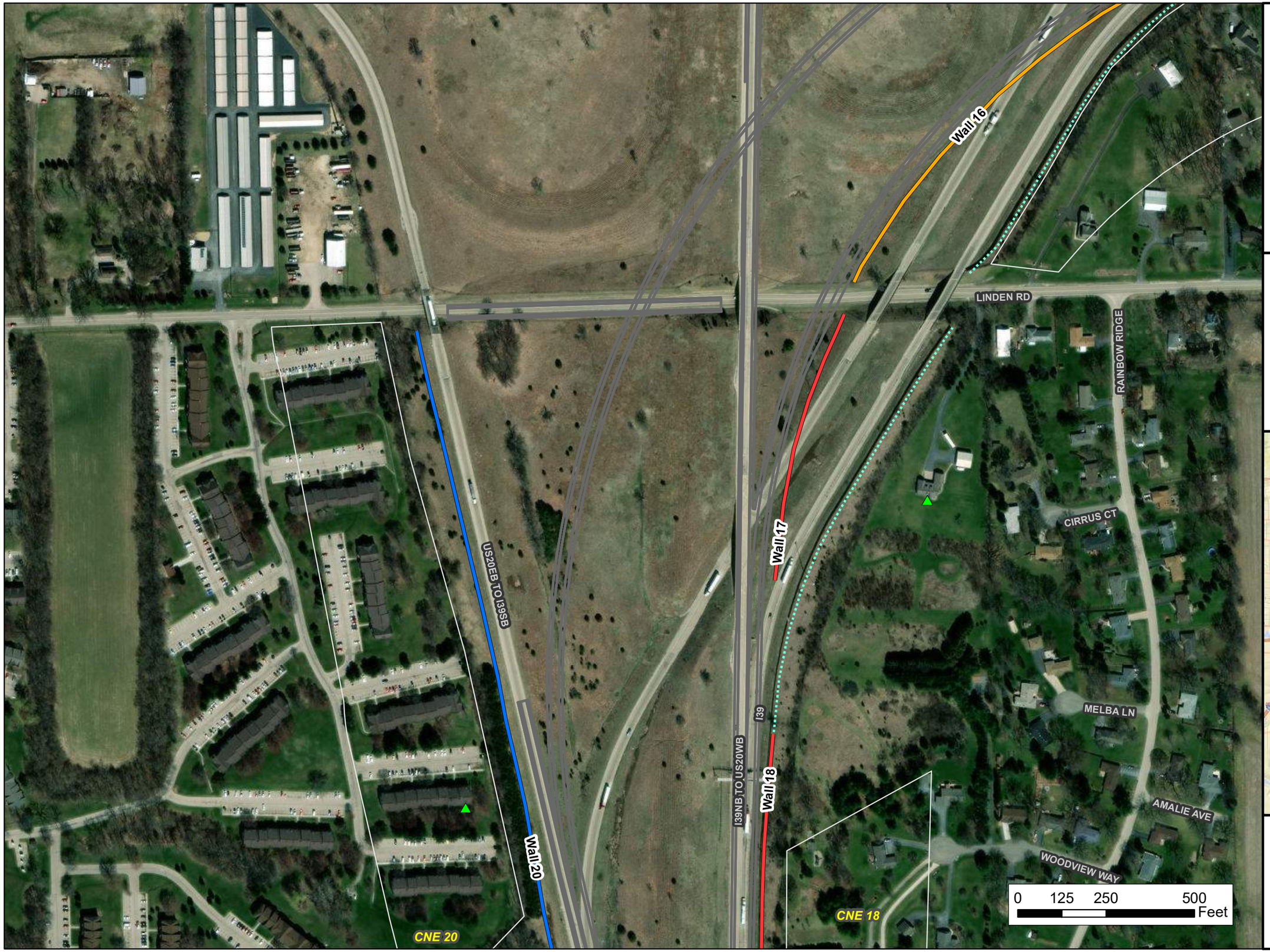
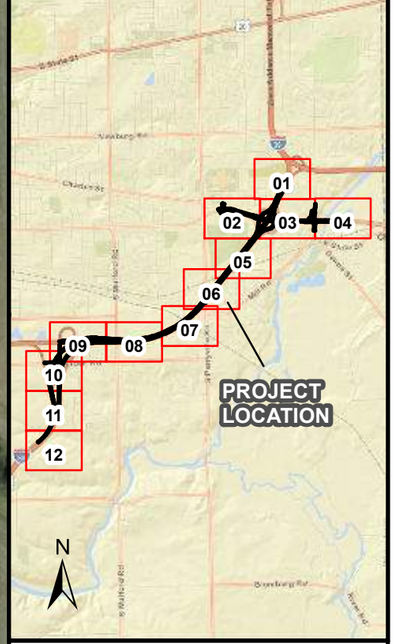


- Representative Receptor
- Existing Wall
- Feasible and Reasonable
- Feasible and Reasonable (with cost-averaging)
- Not Cost-Effective
- Does not meet design goal
- Design EOP and Shoulder
- CNE

Exhibit F

Barrier Wall Locations

I-39 Reconstruction - US 20 to Harrison Ave.



Kaskaskia Engineering Group, LLC
208 East Main Street, Suite 100
Belleville, Illinois 62220
618.233.5677 phone
618.233.5977 fax
www.kaskaskiaeng.com

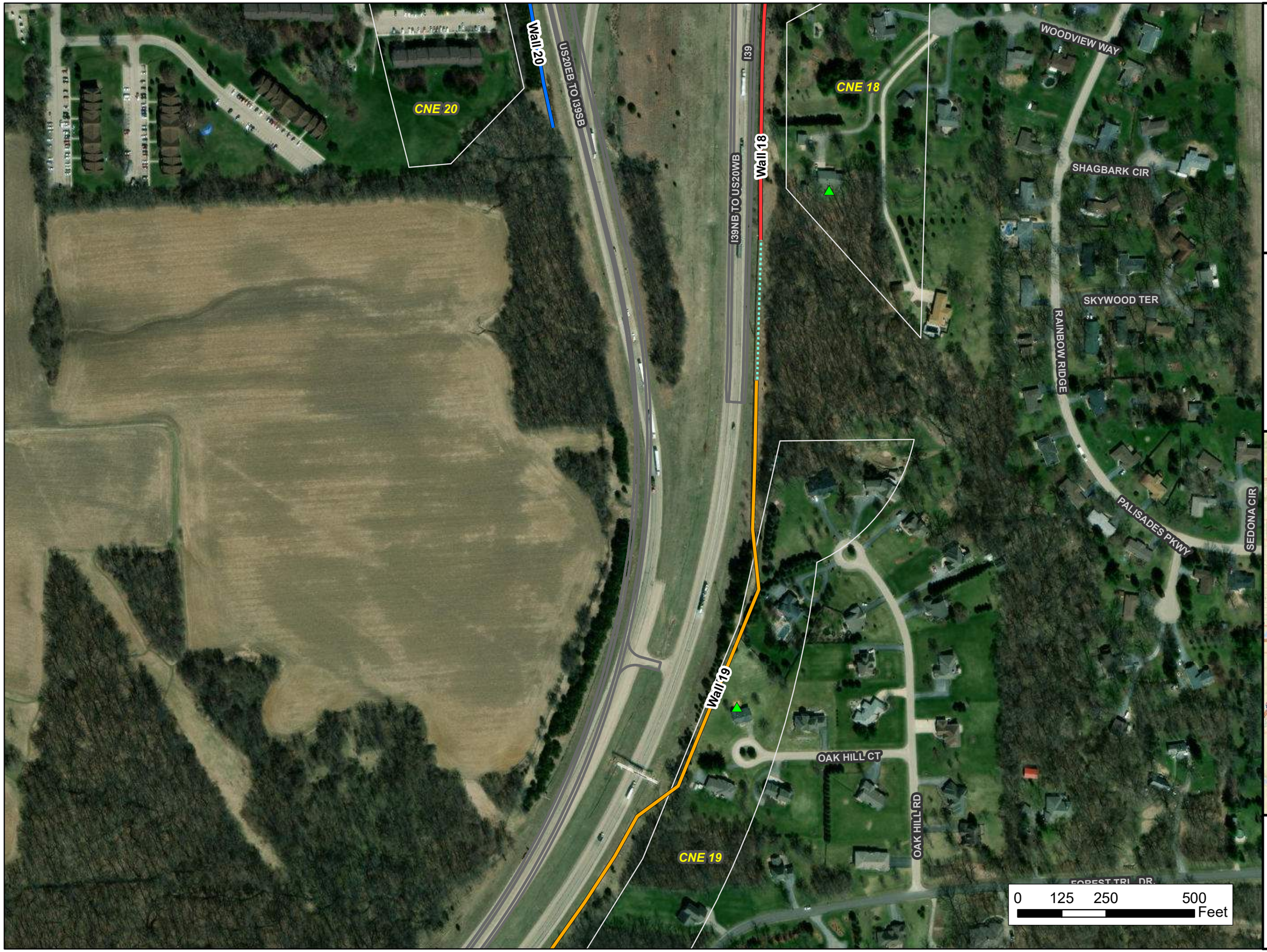


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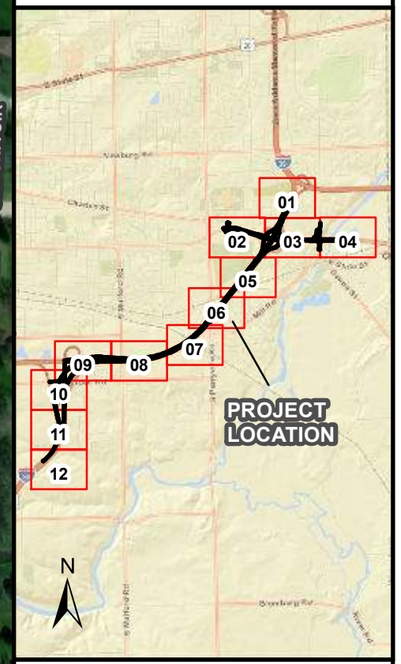
Exhibit F

Barrier Wall Locations

I-39 Reconstruction - US 20 to Harrison Ave.



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618.233.5877 phone
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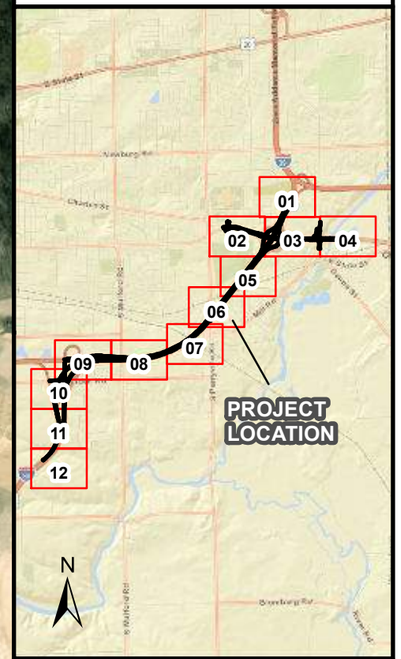
Exhibit F

Barrier Wall Locations

I-39 Reconstruction - US 20 to Harrison Ave.



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618.233.5877 phone
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www.kaskaskiaeng.com

EXHIBIT G

VIEWPOINT SOLICITATION LETTERS

Illinois Department of Transportation
Office of Highways Project Implementation / Region 2 / District 2
819 Depot Avenue / Dixon, Illinois 61021-3500

FAI 39 (I-39) & FAP 301 (US 20)
Sections (201-3) R & (4-1, 5) R
Winnebago County
Contract 64C24
I-39/US 20 from the US 20 System Interchange to I-90 Southeast of Rockford

November 22, 2022

«PIN»
«Full_Name»
«Mail_Address_1»

Re: Viewpoint Solicitation – First Notice
Noise Barrier Implementation

Dear Property Owner or Resident:

The Illinois Department of Transportation (Department) is requesting your vote "For" or "Against" construction of a new noise barrier between your property and the I-39/US 20 highway system.

The Department is currently engaged in the detailed design (Phase II) for the proposed improvements of I-39/US 20 from the US 20 system interchange to I-90. The I-39/US 20 reconstruction is currently funded in the department's FY 2023-2028 Proposed Highway Improvement Plan.

As part of the environmental studies required for this project, traffic noise was evaluated for the proposed improvements as well as the no-build (or do-nothing option). The analysis found that with the proposed improvements, the predicted future noise levels in your area may justify the installation of a noise barrier. Based on this study, a noise barrier to reduce traffic noise is recommended in your area. The enclosed exhibit shows the location of the potential noise barrier and lists the approximate barrier limits and height.

All property owners and tenants who would "benefit" from the potential noise barrier will receive this letter. A property is "benefited" by a barrier when the proposed barrier results in a noticeable reduction in noise level, which is defined as a reduction of five decibels or more. Each property "benefited" by a noise barrier may vote in favor of or against the barrier. If more than half of the votes received are in favor of the barrier, the barrier will likely be included in the upcoming I-39/US 20 construction project. A final decision on the installation of the barrier will be made upon completion of the project's final design and receipt of the requisite number of votes.

Your property/rental unit has been found to benefit from the noise wall shown in the enclosed exhibits. The Department respectfully requests your vote for or against the potential noise barrier. All viewpoints received from “benefited” property owners and tenants will be considered and used to determine if a noise barrier at your location will be installed as part of the project. Please state your preference for or against the recommended noise barrier in your area on the enclosed Viewpoint Form. For your vote to count, complete and return the form by December 14, 2022, using the provided self-addressed, stamped envelope. You may also submit your vote via email by providing the form or the information required on the form to i-39noise@keg-design.com.

For additional information regarding traffic noise, regulations and policy, noise analyses, or noise abatement, see IDOT's web site at: http://www.idot.illinois.gov/transportation-system/environment/index. Click on the "Community" tab and then the "Traffic Noise" tab to view this information.

IDOT will also be conducting a virtual public meeting to provide status updates on the overall I-39 Reconstruction project, including the status of the subject potential noise barrier. This meeting is anticipated to be held on January 18, 2023. Additional virtual public meeting information will be provided in advance of the meeting.

If you have any questions or need additional information, please contact Kent Ahrenholtz, Project Manager, at 812-314-7041, or via email at i-39noise@keg-design.com.

Sincerely,

Masood Ahmad, P.E.
Region Two Engineer

By: Rebecca A. Marruffo, P.E.
Engineer of Program Development

Noise Barrier: Southeast side of I-39 between Perryville Rd and Harrison Ave

I am in favor of a noise barrier:

_____ Yes _____ No

Name: _____

Signature: _____

Owner: _____ OR Tenant: _____

Address: _____

_____

Date: _____

Comments:

_____

_____

_____

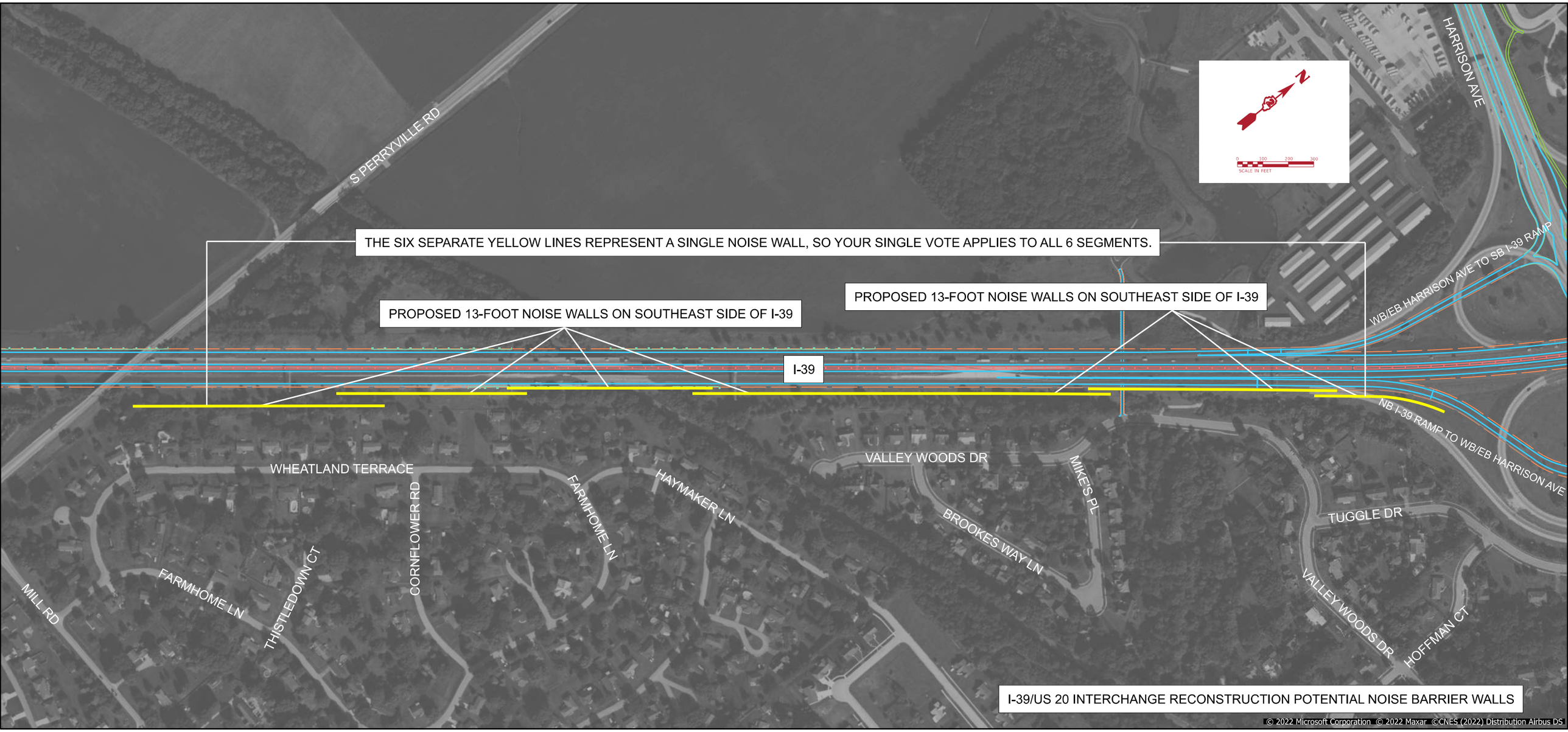
_____

_____

_____

_____

_____


THE SIX SEPARATE YELLOW LINES REPRESENT A SINGLE NOISE WALL, SO YOUR SINGLE VOTE APPLIES TO ALL 6 SEGMENTS.
PROPOSED 13-FOOT NOISE WALLS ON SOUTHEAST SIDE OF I-39
PROPOSED 13-FOOT NOISE WALLS ON SOUTHEAST SIDE OF I-39
I-39
S PERRYVILLE RD
HARRISON AVE
WB/EB HARRISON AVE TO SB I-39 RAMP
NB I-39 RAMP TO WB/EB HARRISON AVE
WHEATLAND TERRACE
CORNFLOWER RD
FARMHOME LN
HAYMAKER LN
VALLEY WOODS DR
MIKES PL
BROOKES WAY LN
TUGGLE DR
VALLEY WOODS DR
HOFFMAN CT
MILL RD
FARMHOME LN
THISTLEDOWN CT
0 100 200 300
SCALE IN FEET
I-39/US 20 INTERCHANGE RECONSTRUCTION POTENTIAL NOISE BARRIER WALLS
© 2022 Microsoft Corporation © 2022 Maxar ©CNES (2022) Distribution Airbus DS

Illinois Department of Transportation
Office of Highways Project Implementation / Region 2 / District 2
819 Depot Avenue / Dixon, Illinois 61021-3500

FAI 39 (I-39) & FAP 301 (US 20)
Sections (201-3) R & (4-1, 5) R
Winnebago County
Contract 64C24
I-39/US 20 from the US 20 System Interchange to I-90 Southeast of Rockford

December 28, 2022

Viewpoint Solicitation – First Notice
Noise Barrier Implementation

«PIN»
«AddressBlock»

Dear Property Owner or Resident:

The Illinois Department of Transportation (Department) is requesting your vote "For" or "Against" construction of a new noise barrier between your property and the I-39/US 20 highway system.

The Department is currently engaged in the detailed design (Phase II) for the proposed improvements of I-39/US 20 from the US 20 system interchange to I-90. The I-39/US 20 reconstruction is currently funded in the department's FY 2023-2028 Proposed Highway Improvement Plan.

As part of the environmental studies required for this project, traffic noise was evaluated for the proposed improvements as well as the no-build or do-nothing option. The analysis found that with the proposed improvements, the predicted future noise levels in your area may justify the installation of a noise barrier. Based on this study, a noise barrier to reduce traffic noise is recommended in your area. The enclosed exhibit shows the location of the potential noise barrier and lists the approximate barrier limits and height.

All property owners and tenants who would "benefit" from the potential noise barrier will receive this letter. A property is "benefited" by a barrier when the proposed barrier results in a noticeable reduction in noise level, which is defined as a reduction of five decibels or more. Each property "benefited" by a noise barrier may vote in favor of or against the barrier. If more than half of the votes received are in favor of the barrier, the barrier will likely be included in the upcoming I-39/US 20 construction project. A final decision on the installation of the barrier will be made upon completion of the project's final design and receipt of the requisite number of votes.

Your property/rental unit has been found to benefit from the noise wall shown in the enclosed exhibits. The Department respectfully requests your vote for or against the potential noise barrier. All viewpoints received from “benefited” property owners and tenants will be considered and used to determine if a noise barrier at your location will be installed as part of the project. Please state your preference for or against the recommended noise barrier in your area on the enclosed Viewpoint Form. For your vote to count, complete and return the form by January 13, 2023, using the provided self-addressed, stamped envelope. You may also submit your vote via email by providing the form or the information required on the form to i-39noise@keg-design.com.

For additional information regarding traffic noise, regulations and policy, noise analyses, or noise abatement, see IDOT's web site at: http://www.idot.illinois.gov/transportation-system/environment/index. Click on the "Community" tab and then the "Traffic Noise" tab to view this information.

IDOT will also be conducting a virtual public meeting to provide status updates on the overall I-39 Reconstruction project, including the status of the subject potential noise barrier. This meeting is anticipated to be held on January 18, 2023. Additional virtual public meeting information will be provided in advance of the meeting.

If you have any questions or need additional information, please contact Kent Ahrenholtz, Project Manager, at 812-314-7041, or via email at i-39noise@keg-design.com.

Sincerely,

Masood Ahmad, P.E.
Region Two Engineer

By: Rebecca A. Marruffo, P.E.
Engineer of Program Development

Project and Environmental Studies
I-39/US 20 from the US 20 System Interchange to I-90 Southeast of Rockford
Winnebago County

Noise Barrier: West side of I-39 south of Linden Rd

«PIN»
«AddressBlock»
December 28, 2022

I am in favor of a noise barrier:

_____ Yes _____ No

Name:
_____

Signature:
_____

Owner: _____ OR Tenant: _____

Address:
_____

_____

Date: _____

Comments:
_____

_____

_____

_____

_____

_____

_____


NB I-39 RAMP TO EB US 20
NB I-39 RAMP TO WB US 20
WB US 20 TO SB I-39 RAMP
NB I-39 RAMP TO WB/EB US 20
N
0
100
200
300
SCALE IN FEET
PROPOSED 20-FOOT HIGH NOISE WALL ON SOUTHWEST SIDE OF I-39 RAMP
EB US 20 TO SB I-39 RAMP
LINDEN RD
BEACON HILL
I-39/US 20 INTERCHANGE RECONSTRUCTION POTENTIAL NOISE BARRIER WALLS
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EXHIBIT H

NOISE CONTOURS FOR PUBLIC OFFICIALS

Illinois Department of Transportation
Office of Highways Project Implementation / Region 2 / District 2
819 Depot Avenue / Dixon, Illinois 61021-3500

PROGRAM DEVELOPMENT
STUDIES & PLANS
FAI 39 (I-39) and FAP 301 (US 20)
Section (201-3)K and (4-1,5)R
Winnebago County
Job No. P-92-111-06
I-39/US 20 Improvement Project from I-39/US 20 Interchange to Harrison Avenue

[MONTH] [DAY], 2021

INTERIM PUBLIC WORKS DIRECTOR
VILLAGE OF CHERRY VALLEY
DEPARTMENT OF PUBLIC WORKS
806 E. STATE STREET
CHERRY VALLEY, IL 61016

Dear Interim Public Works Director:

The Illinois Department of Transportation is currently conducting a re-evaluation of the previously approved (Phase I) preliminary engineering Traffic Noise Analysis for proposed improvements to I-39/US 20 from the I-39/US 20 interchange to the US 20/Harrison Avenue interchange. The noise level testing and noise re-evaluation is being performed per the updated 2017 Highway Traffic Noise Assessment Policy.

The roadway improvement scope includes:

- reconstruction of the I-39 and US 20 interchange
- reconstruction of the US 20 and Harrison Avenue interchange
- construction of additional lanes in each direction on US 20 from the I-39 interchange to Harrison Avenue

As part of the Phase I Environmental Study for this proposed project, Federal and State regulations require that projected future traffic noise levels be evaluated for lands (either currently under your jurisdiction or land that may come under your jurisdiction) near the proposed roadway improvement, and that this information be presented to local officials involved in land use planning. This study area includes undeveloped or agriculture land that is zoned for uses other than agriculture, or land that is planned for future development in a comprehensive land use plan.

A traffic noise analysis was completed to predict future traffic noise levels. Attached for your information are exhibits showing the predicted design year (2035) build traffic noise levels for these undeveloped lands identified along the project corridor.

We hope this information will be useful to you in planning and permitting future development in your area. For additional information on noise compatible land use planning, the Federal Highway Administration (FHWA) publication titled *Entering the Quiet Zone: Noise Compatible Land Use Planning* can be obtained from the FHWA website: http://www.fhwa.dot.gov/environment/noise/noise_compatible_planning/federal_approach/land_use/quitezon.pdf.

You can find additional information regarding traffic noise, regulations and policy, noise analyses or noise abatement on IDOT's website at: http://www.idot.illinois.gov/transportation-system/environment/index. Click on the "Community" link and then the "Traffic Noise" link to access this information.

If you have any questions, please contact Andrew Lee at 815/284-5343 or Mark Nardini at 815/284-5460.

Sincerely,

Masood Ahmad, P.E.
Region Two Engineer

By: Rebecca Marruffo, P.E.
Engineer of Program Development

Illinois Department of Transportation
Office of Highways Project Implementation / Region 2 / District 2
819 Depot Avenue / Dixon, Illinois 61021-3500

PROGRAM DEVELOPMENT
STUDIES & PLANS
FAI 39 (I-39) and FAP 301 (US 20)
Section (201-3)K and (4-1,5)R
Winnebago County
Job No. P-92-111-06
I-39/US 20 Improvement Project from I-39/US 20 Interchange to Harrison Avenue

[MONTH] [DAY], 2021

TODD CAGNONI
DIRECTOR
CITY OF ROCKFORD
DEPARTMENT OF COMMUNITY & ECONOMIC DEVELOPMENT
425 E. STATE STREET
ROCKFORD, IL 61104

Dear Mr. Cagnoni:

The Illinois Department of Transportation is currently conducting a re-evaluation of the previously approved (Phase I) preliminary engineering Traffic Noise Analysis for proposed improvements to I-39/US 20 from the I-39/US 20 interchange to the US 20/Harrison Avenue interchange. The noise level testing and noise re-evaluation is being performed per the updated 2017 Highway Traffic Noise Assessment Policy.

The roadway improvement scope includes:

- reconstruction of the I-39 and US 20 interchange
- reconstruction of the US 20 and Harrison Avenue interchange
- construction of additional lanes in each direction on US 20 from the I-39 interchange to Harrison Avenue

As part of the Phase I Environmental Study for this proposed project, Federal and State regulations require that projected future traffic noise levels be evaluated for lands (either currently under your jurisdiction or land that may come under your jurisdiction) near the proposed roadway improvement, and that this information be presented to local officials involved in land use planning. This study area includes undeveloped or agriculture land that is zoned for uses other than agriculture, or land that is planned for future development in a comprehensive land use plan.

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You can find additional information regarding traffic noise, regulations and policy, noise analyses or noise abatement on IDOT's website at: http://www.idot.illinois.gov/transportation-system/environment/index. Click on the "Community" link and then the "Traffic Noise" link to access this information.

If you have any questions, please contact Andrew Lee at 815/284-5343 or Mark Nardini at 815/284-5460.

Sincerely,

Masood Ahmad, P.E.
Region Two Engineer

By: Rebecca Marruffo, P.E.
Engineer of Program Development

Illinois Department of Transportation
Office of Highways Project Implementation / Region 2 / District 2
819 Depot Avenue / Dixon, Illinois 61021-3500

PROGRAM DEVELOPMENT
STUDIES & PLANS
FAI 39 (I-39) and FAP 301 (US 20)
Section (201-3)K and (4-1,5)R
Winnebago County
Job No. P-92-111-06
I-39/US 20 Improvement Project from I-39/US 20 Interchange to Harrison Avenue

[MONTH] [DAY], 2021

CHRIS DORNBUSH
DIRECTOR OF DEVELOPMENT SERVICES
WINNEBAGO COUNTY
DEPARTMENT OF REGIONAL PLANNING & ECONOMIC DEVELOPMENT
404 ELM STREET, ROOM 403
ROCKFORD, IL 61101

Dear Mr. Dornbush:

The Illinois Department of Transportation is currently conducting a re-evaluation of the previously approved (Phase I) preliminary engineering Traffic Noise Analysis for proposed improvements to I-39/US 20 from the I-39/US 20 interchange to the US 20/Harrison Avenue interchange. The noise level testing and noise re-evaluation is being performed per the updated 2017 Highway Traffic Noise Assessment Policy.

The roadway improvement scope includes:

- reconstruction of the I-39 and US 20 interchange
- reconstruction of the US 20 and Harrison Avenue interchange
- construction of additional lanes in each direction on US 20 from the I-39 interchange to Harrison Avenue

As part of the Phase I Environmental Study for this proposed project, Federal and State regulations require that projected future traffic noise levels be evaluated for lands (either currently under your jurisdiction or land that may come under your jurisdiction) near the proposed roadway improvement, and that this information be presented to local officials involved in land use planning. This study area includes undeveloped or agriculture land that is zoned for uses other than agriculture, or land that is planned for future development in a comprehensive land use plan.

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If you have any questions, please contact Andrew Lee at 815/284-5343 or Mark Nardini at 815/284-5460.

Sincerely,

Masood Ahmad, P.E.
Region Two Engineer

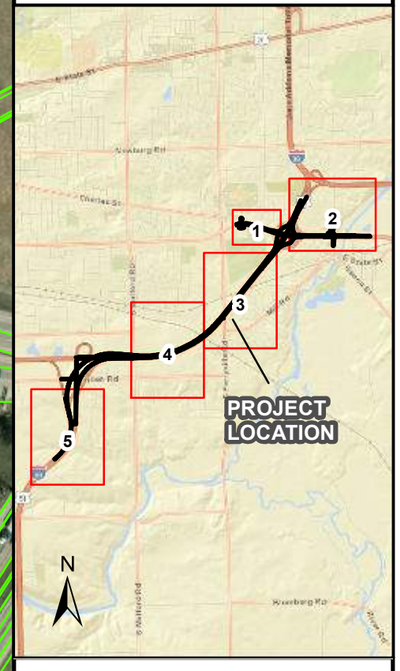
By: Rebecca Marruffo, P.E.
Engineer of Program Development

Noise Contours

- 66 dBA
- 71 dBA
- Design EOP and Shoulder

Exhibit G

Noise Contours for Public Officials I-39 Reconstruction - US 20 to Harrison Ave.



Kaskaskia Engineering Group, LLC
208 East Main Street, Suite 100
Belleville, Illinois 62220
618.233.5877 phone
618.233.5977 fax
www.kaskaskiaeng.com

Noise Contours

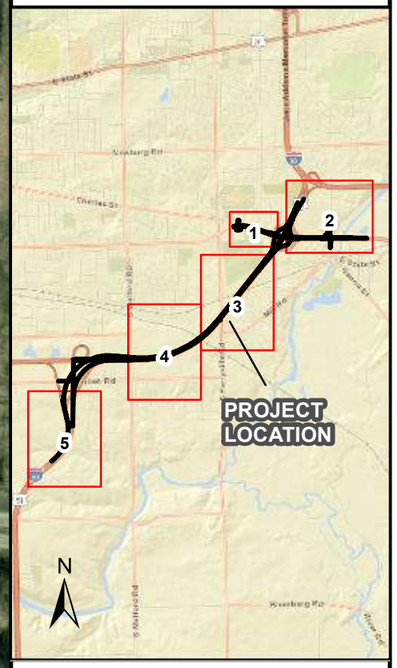
66 dBA

71 dBA

Design EOP and Shoulder

Exhibit G

Noise Contours for Public Officials I-39 Reconstruction - US 20 to Harrison Ave.



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618.233.5977 fax
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Magic Waters
WESSMAN PKWY
HALE DR
I90WB TO I39SB
I90WB TO I39SB
I39NB TO I90EB
ROCKFORD BYPASS
I39SB TO HARRISON WB
I39SB TO US20EB
US20WB TO I39SB
I39NB TO US20EB
I90WB TO I39SB
JANE ADDAMS MEMORIAL TOLLWAY
OLD MILL RD
US 20 WB TO I90 NB
HARRISON AVE
TUGGLE DR
VALLEY WOODS DR
FRANKLIN ST
CAMP
ULSTER ST
STATE ST
SALEM ST
FITCH ST
WALNUT ST
CHERRY ST
ELGIN ST
ELGIN
0 250 500 1,000 Feet

Noise Contours

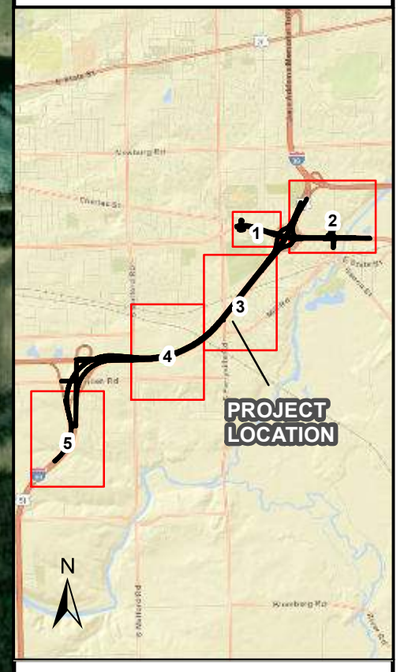
66 dBA

71 dBA

Design EOP and Shoulder

Exhibit G

Noise Contours for Public Officials I-39 Reconstruction - US 20 to Harrison Ave.



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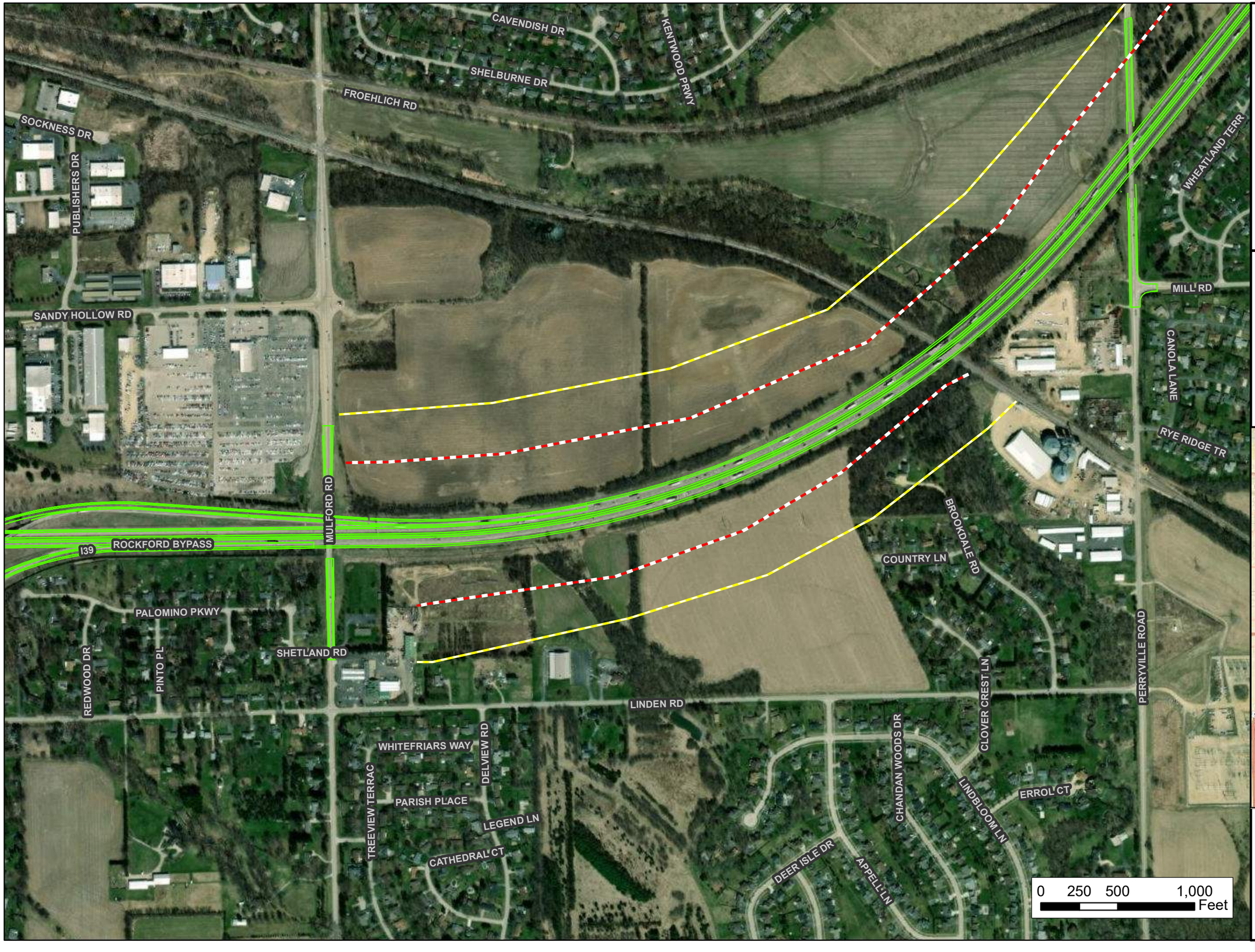
0 250 500 1,000 Feet



Noise Contours

- 66 dBA
- 71 dBA
- Design EOP and Shoulder

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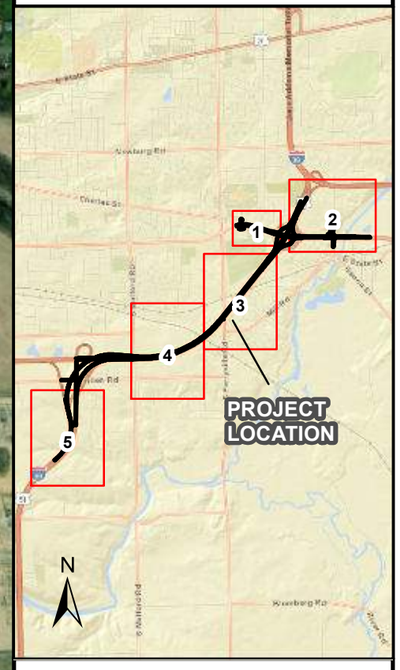

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Noise Contours

66 dBA

71 dBA

Design EOP and Shoulder

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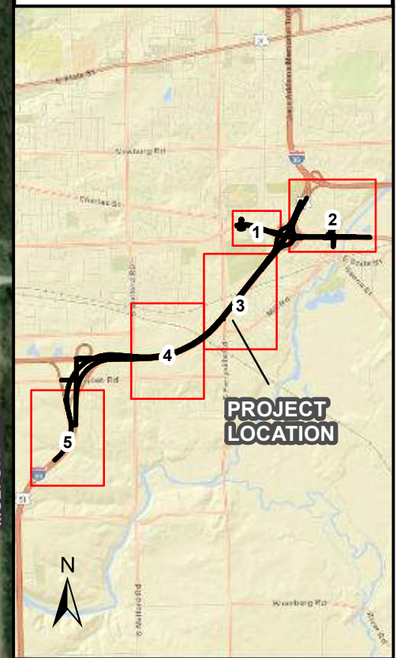

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