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Noise and Vibration Analysis Technical Memorandum

Technical Memorandum No. MDOT – TM 48
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1 Executive Summary

This report evaluates the potential noise impacts of the proposed improvements along I-94 from approximately 1,000 feet east of the I-94/I-96 interchange to 1,000 feet east of the I-94/Conner Avenue interchange, including M-10 from Seward Street to Martin Luther King Jr. Boulevard, and I-75 from East Grand Boulevard to Warren Avenue (I-94 noise and vibration study area) in conformance with corresponding Federal regulations and guidance, and the National Environmental Policy Act (NEPA).

The location of this project is shown in **Figure 1**.

Figure 1. I-94 Study Corridor

The project is being studied as a Type I project because of the addition of a through-lane in both directions.

This report evaluates the potential noise impacts of the proposed improvements of the project in conformance with corresponding Federal regulations and guidance, and the NEPA. The noise analysis presents the existing and future acoustical environment at receptors located in the I-94 noise and vibration study area.

The determination of noise abatement measures and locations complies with the Federal Highway Administration's (FHWA's) Procedures for Abatement of Highway Traffic Noise and Construction Noise as presented in the Code of Federal Regulations, Title 23 Part 772 (23 CFR 722), and the Michigan Department of Transportation (MDOT): *Highway Noise Analysis and Abatement Handbook*, dated July 2011 (Handbook). The Handbook complies with the State Transportation Commission Policy 10136 Noise Abatement, dated July 31, 2003.

Automobiles, trucks and buses do not typically generate enough vibration to be a concern, except under specific situations, such as where there are pavement irregularities adjacent to sensitive locations. Studies to assess the impact of operational traffic induced vibrations have shown that both measured and predicted vibration levels are less than any known criteria for structural damage to buildings. In fact, normal living activities (e.g., closing doors, walking across floors, operating appliances) within a building have been shown to create greater levels of vibration than highway traffic. There are no Federal requirements directed specifically to highway traffic induced vibration.

Existing noise level measurements were conducted on May 23, 2018 at 11 representative sites in the project vicinity. Fifteen-minute measurements were taken at each site. Measurement locations are shown in **Appendix A**. Traffic classification counts along the major roadways (I-94, M-10, I-75, and frontage roads) and local cross streets and frontage roads were taken at each site concurrent with the noise measurements. FHWA's Traffic Noise Model version 2.5 (TNM) was used to validate the predicted noise levels through comparison with the measured and predicted noise levels.

TNM was used to model existing (2014) and future (2040) Build worst-case traffic noise levels within the I-94 noise and vibration study area for the Approved Selected Alternative with Modifications (ASAM). **Appendix A** shows the modeled receptors and highlights the receptors along the project corridor that are impacted, that is, they approach or exceed the FHWA Noise Abatement Criteria (NAC).

This analysis modeled 2,643 receptors (or units). Noise levels at 386 receptors would approach or exceed the FHWA NAC or substantially exceed the existing noise level.

Twenty noise barriers have been evaluated for this noise study. The locations of the noise barriers are shown in **Table 1** and in the exhibits in **Appendix A**.

NB 1, NB 3 NB 6, NB 7, NB 11, NB 14, NB 17, NB 18, NB 19, and NB 20 are not acoustically feasible, as they did not achieve a 5 dB(A) reduction at 75 percent of the impacted receptors.

NB 2, NB 5, NB 9, NB 15 and NB 16 meet preliminary feasibility criteria but did not meet the reasonableness criteria as they did not meet the design goal of 10 dB(A) for at least one benefited receptor and at least a 7 dB(A) reduction for 50 percent or more of the benefited receptor sites.

NB 8, NB 10, NB 12, and NB 13 meets preliminary feasibility criteria but did not meet the reasonableness criteria as the estimated cost of these barriers per benefitted receptor would exceed the allowable cost per benefitted receptor ($46,967)[1].

NB 4 meets preliminary feasibility criteria and reasonableness criteria. The estimated cost of this barrier per benefitted receptor would also meet the allowable cost per benefitted receptor of ($46,967).

[1]Thomas Hanf, MDOT Air Quality & Noise Abatement, email regarding "Re: Noise and Air Quality Guidance – I-375", April 17, 2018.

Table 1. Noise Barrier Summary

Noise Barrier ID	Receiver IDs	Feasible[1]	Meets Design Goal[2]	Benefited Receptors	Length (ft)	Height (ft)	Square Footage (sq ft)	Barrier Cost ($45 per sq ft)	Cost per Benefited Receptor	Reasonable
NB 1	B2.1 – B9	No	No	0	1,861	24	44,667	$2,010,015	NA[3]	No
NB 2	II4 – II39	Yes	No	15	1,910	24	45,834	$2,062,530	NA	No
NB 3	B18 – B43	No	No	0	920	24	22,069	$993,105	NA	No
NB 4	BB1 – BB4 CC1.1 – CC19	Yes	Yes	20	383	24	9,203	$414,135	$20,707	Yes
NB 5	BB21 – BB23 CC22 – CC24	Yes	No	2	544	24	13,061	$587,745	NA	No
NB 6	F16 – F21 G1.1 – G60	No	No	36	3,904	24	93,707	$4,216,815	NA	No
NB 7	AA1 – AA73 Z1 – Z4.2	No	No	32	2,064	24	49,536	$2,229,120	NA	No
NB 8	H14 – H28	Yes	Yes	14	1,078	18 - 24	23,815	$1,071,675	$76,548	No
NB 9	I62 – I84	Yes	No	1	1,779	24	42,703	$1,921,635	NA	No
NB 10	K11 – K35	Yes	Yes	3	1,273	18 - 21	25,940	$1,167,300	$389,100	No
NB 11	M67 – M120	No	Yes	6	848	24	20,369	$916,605	NA	No
NB 12	V3 – V31	Yes	Yes	2	931	15 - 24	19,598	$881,910	$440,955	No
NB 13	N45 – N55	Yes	Yes	2	992	21	20,827	$937,215	$468,608	No
NB 14	T7 – T21	No	No	1	988	24	23,703	$1,066,635	NA	No
NB 15	N107 – N135	Yes	No	3	516	18 - 24	11,216	$504,720	NA	No
NB 16	P1 – P24	Yes	No	3	917	9 - 24	18,024	$811,080	NA	No
NB 17	BB19 DD1 – DD18.14	No	Yes	111	1,871	24	44,881	$2,019,645	NA	No
NB 18	D33 – D121	No	No	90	2,391	24	57,384	$2,582,280	NA	No
NB 19	E1 – E86	No	No	0	2,681	24	64,339	$2,895,255	NA	No
NB 20	G117 – G129	No	No	0	1,929	24	46,299	$2,083,455	NA	No

[1] MDOT requires that noise barriers achieve a 5-dB reduction at 75 percent of the impacted receptors. If a barrier cannot achieve this, abatement is considered to not be acoustically feasible.

[2] The design year attenuation requirement for Michigan is to provide a noise reduction of 10 dB(A) for at least one benefited receptor and at least a 7 dB(A) reduction for 50 percent) or more of the benefited receptor sites.

[3] NA – Noise barrier is not feasible or does not meet the design goal.

MDOT's noise policy states that all noise abatement measures determined to be feasible and reasonable shall be incorporated into the transportation improvement project. Based on the study completed, preliminary abatement of noise impacts for the project does not meet the MDOT feasibility and reasonableness factors for the residential units.

2 Purpose of this Report

As part of the I-94 Modernization Project Owners Representative Work Task #1, Subtask 4a Noise and Vibration Analysis, this technical memorandum is intended to reevaluate potential noise impacts of the proposed improvements of the I-94 Modernization Project based on existing and proposed traffic data and engineering designs for the project. The reevaluation is needed to update the noise analysis based on the proposed local road network, changes in land use, the use of FHWA's Traffic Noise Model version 2.5 versus version 2.0, and MDOT's 2011 Handbook. The proposed local road network changes from providing continuous one-way service drives through the corridor as previously analyzed in the approved selected alternative (ASA), to providing complete streets that better accommodate bicycles and pedestrians in the ASAM. This includes changes to provide more locations with complete street bridges over I-94. In addition, several areas of the corridor will retain two-way service drives to facilitate local traffic flow. Changes in land use include reduced residential density in some areas of the corridor while other areas of the corridor have experienced land use changes. This report is part of a Supplemental Environmental Impact Statement (EIS) to an EIS completed in 2004/2005 for modifications to the ASA from that time. This report addresses the ASAM. This report evaluates the I-94 noise and vibration study area in conformance with corresponding Federal regulations and guidance, and the NEPA.

2.1 Project Description

The I-94 Modernization Project consists of planned improvements to approximately 6.7 miles of interstate freeway in the city of Detroit, Michigan. These improvements add a travel lane in each direction, modernize system and service interchanges, reconstruct bridges crossing over the freeway, and change existing service drives to maximize efficiencies of connected local travel patterns.

The I-94 noise and vibration study area is shown in **Figure 1**. The Project also includes improvements to the service drives that extend along and outside the east and westbound lanes of I-94, M-10 and I-75 within the project limits. The purpose of the Project is to improve safety, capacity, local connectivity, and condition of the I-94 roadway, service drives, bridges, and interchanges between I-96 and Conner Avenue.

3 Traffic Noise and Vibration Concepts, Policy and Guidelines

3.1 Basic Noise Information

Noise is defined as unwanted sound. Sound is what we hear when there are variations in air pressure. The ear is sensitive to this pressure variation and perceives it as sound. The intensity of these pressure variations causes the ear to discern different levels of loudness. These pressure differences are most commonly measured in decibels.

The decibel (dB) is the unit of measurement for sound. The decibel scale audible to humans spans approximately 140 dB. A level of zero decibels corresponds to the lower limit of audibility, while 140 dB produces a sensation more akin to pain than sound. The decibel scale is a logarithmic representation of the actual sound pressure variations. Therefore, a 26 percent change in the energy level only changes the sound level 1-dB. The human ear would not detect this change except in an acoustical laboratory. A doubling of the energy level would result in a 3-dB increase, which would be barely perceptible in the natural environment. A tripling in energy sound level would result in a clearly noticeable change of 5-dB in the sound level. A change of 10 times the energy level would result in a 10-dB change in the sound level. This would be perceived as a doubling (or halving) of the apparent loudness. **Table 2** provides a comparison of sound level changes with relative loudness.

The human ear has a non-linear sensitivity to noise. To account for this in noise measurements, electronic weighting scales are used to define the relative loudness of different frequencies. The "A" weighting scale is widely used in environmental work because it closely resembles the non-linearity of human hearing. Therefore, the unit of measurement for an A-weighted noise level is dB(A).

Table 2. Logarithmic Nature of Sound

Change in $L_{eq(1h)}$ Sound Level Relative Loudness in the Natural Environment	Change in $L_{eq(1h)}$ Sound Level Relative Loudness in the Natural Environment
+/- 3 dB(A)	Barely Perceptible Change
+/- 5 dB(A)	Readily Perceptible Change
+/- 10 dB(A)	Considered Twice or Half as Loud

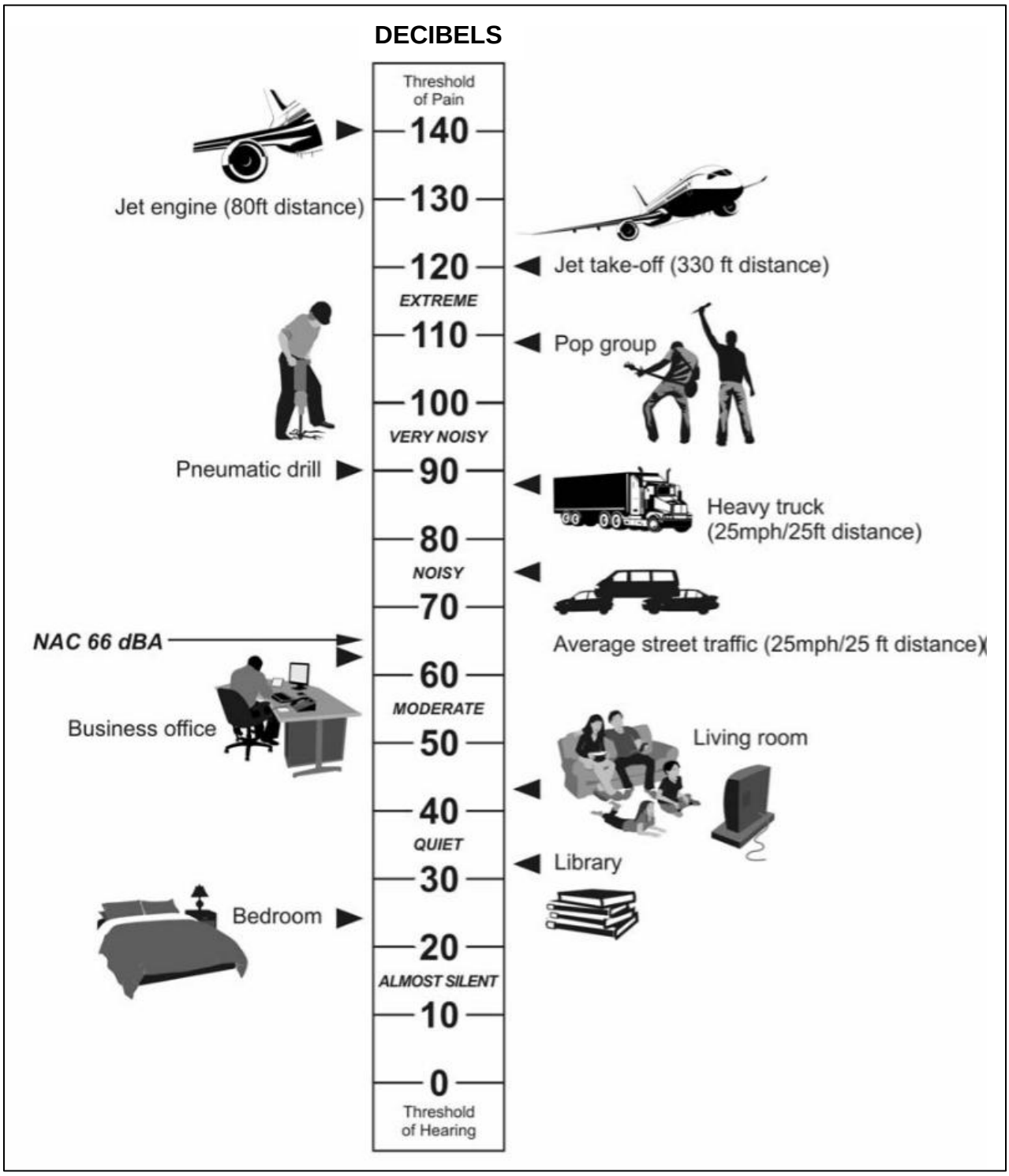
Traffic noise is not constant. It varies as each vehicle passes through a certain location. The time-varying characteristics of environmental noise are analyzed statistically to determine the duration and intensity of noise exposure. In an urban environment, noise is made up of two distinct components. One is ambient or background noise. Wind noise and distant traffic noise make up the ambient acoustical environment surrounding the project. These sounds are not readily recognized but combine to produce a non-irritating ambient sound level. This background sound level varies throughout the day, being lowest at night and highest during the day. The other component of urban noise is intermittent and louder than the background noise. Transportation noise and local industrial noise are examples of this type of noise. It is for these reasons that environmental noise is analyzed statistically.

It is necessary to use a method of measure that will account for the time-varying nature of sound when studying environmental noise. The equivalent sound pressure level (L_{eq}) is defined as the continuous steady sound level that would have the same total A-weighted sound energy as the real fluctuating sound measured over a given period of time. As a result, the three characteristics of noise combine to form a single descriptor (L_{eq} in dB(A)) that helps to evaluate human response

to noise and has been chosen for use in this study. The time-period used to determine noise levels is typically one hour and uses the descriptor $L_{eq(1h)}$.

Traffic noise at a receiver is influenced by the following major factors: distance from the traffic to the receiver, volume of traffic, speed of traffic, vehicle mix, and acoustical shielding. Tire sound levels increase with vehicle speed but also depend upon road surface, vehicle weight, tread design and wear. Change in any of these can vary noise levels. At lower speeds, especially in trucks and buses, the dominant noise source is the engine and related accessories. **Figure 2** provides sound levels of typical noise sources.

Figure 2. Sound Levels of Typical Noise Sources



Adopted from "Environmental Criteria for Road Traffic Noise", Environmental Protection Authority, South Sydney, NSW, May 1999, Page 38.

3.2 Federal Regulations and Guidance

The FHWA's *Procedures for Abatement of Highway Traffic Noise and Construction Noise* is presented in the Code of Federal Regulations, Title 23 Part 772 (23 CFR 772). This regulation, along with other guidance documents written to explain the regulation, sets forth the process for performing a traffic noise analysis. The process includes the following:

1) Identification of highway traffic noise impacts;
2) Examination of potential abatement measures;
3) Gather public input approval for reasonable and feasible abatement measures;
4) Incorporation of reasonable and feasible highway traffic noise abatement measures into the highway project;
5) Coordination with local officials to provide helpful information on compatible land use planning and control; and
6) Identification and incorporation of necessary measures to abate construction noise.

The highway traffic noise impact identification process involves a review of the existing land use activity categories that parallel the highway corridor and determining existing and future noise levels within those areas. Existing land use of developed lands is identified by inspecting aerial photography and performing site reconnaissance. Highway traffic noise analyses are also performed for undeveloped lands that have received a building permit.

After the existing and proposed land uses are established, the model is validated if existing measured highway traffic noise levels and predicted highway traffic noise levels for the existing conditions are within +/- 3 dB(A)[2]. The existing noise environment is determined by gathering noise measurements and concurrent site and traffic information. The FHWA mandates the use of the most recent version of the TNM software be used to construct these models.

The FHWA Noise Abatement Criteria (NAC), which is presented in 23 CFR 772, establishes the NAC for various land uses, and is presented in **Table 3**. A traffic noise impact is defined as a future noise level that approaches or exceeds the NAC; or a future noise level that creates a substantial noise increase over existing noise levels. An approaching noise level is defined as being at least 1 dB(A) less than the noise level value listed in the NAC for Activity Category A through F. The FHWA allows states to define a substantial noise increase as an increase of anywhere between 5 and 15 dB(A).

[2] *Highway Noise Analysis and Abatement Handbook*, Michigan Department of Transportation, 2011, page 16.

Table 3. Noise Abatement Criteria (NAC)

Activity Category	Activity Criteria[1] [2]		Evaluation Locator	Activity Description
	$L_{eq(h)}$[3]	$L_{10(h)}$[4]		
A	57	60	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	67	70	Exterior	Residential
C	67	70	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, daycare 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	55	Interior	Auditoriums, daycare centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E[5]	72	75	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	N/A	N/A	N/A	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	N/A	N/A	N/A	Undeveloped lands that are not permitted.

[1] MDOT defines a noise impact as a 10 dB(A) increase between the existing noise level to the design year predicted noise level, OR a predicted design year noise level that is 1 dB(A) less than the levels shown in Table 3.

[2] Either $L_{eq(h)}$ or $L_{10(h)}$ (but not both) may be used on a project. MDOT uses $L_{eq(h)}$. The $L_{eq(h)}$ and $L_{10(h)}$ Activity Criteria values are for impact determination only and are not design standards for noise abatement measures.

[3] L_{eq} is the equivalent steady-state sound level which in a stated period of time contains the same acoustic energy as the time-varying sound level during the same time period, with $L_{eq(h)}$ being the hourly value of L_{eq}.

[4] L_{10} is the sound level that is exceeded 10 percent of the time (90th percentile) for the period under consideration, with L_{10} being the hourly value of L_{10}.

[5] Includes undeveloped lands permitted for this activity category

Source: *Highway Noise Analysis and Abatement Handbook*, Michigan Department of Transportation, 2011.

After traffic noise impacts were identified, potential abatement alternatives were examined. The following abatement alternatives, which are listed in 23 CFR 772.15(c) are permitted and can be evaluated where applicable:

1) Construction of noise barriers including acquisition of property rights, either within or outside the highway right-of-way;
2) Traffic management measures;
3) Alteration of horizontal and vertical alignments;
4) Acquisition of real property or interests therein to serve as a buffer zone to preempt development; and
5) Noise insulation of Activity Category D land use activities listed in **Table 3**.

At a minimum, state highway agencies are required to consider noise abatement in the form of noise barriers.

FHWA defines feasible highway traffic noise abatement as objective engineering considerations (e.g., can a barrier be built given the topography of the location; can a substantial noise reduction be achieved given certain access, drainage, safety, or maintenance requirements; are other noise

sources present in the area, etc.). An abatement measure must achieve a noise reduction of at least five dB(A) to be considered feasible, according 23 CFR 772.13 (d)(1)(i). MDOT's feasibility criteria are provided in **Section 5.1** of this document.

The FHWA lists three required reasonableness factors when considering noise barriers: cost effectiveness; viewpoints of benefitting receptors; and achievement of noise reduction design goals. For reasonableness, 23 CFR 772.13 (d)(2)(iii) requires state DOTs to define design year reduction goals somewhere between seven and 10 dB(A). FHWA lists optional reasonableness factors that can be added to but not overrule the required reasonableness factors.

3.3 State Rules and Procedures

The Handbook is the State's tool for implementing 23 CFR 772. The Handbook expands on 23 CFR 772 by refining definitions and establishing milestones within the design phase for the completion of noise impact analysis and mitigation development.

The Handbook includes the following definitions:

Noise Impact: A substantial noise increase or a predicted design year noise level that is one dB(A) less, equal to, or greater than the NAC level.

Substantial Noise Increase: A 10 dB(A) or greater increase between the existing noise level and the design year predicted noise level.

Feasible Noise Barrier: A barrier that has no construction impediments, meets safety requirements for the traveling public, and provides at least five dB(A) noise reduction at 75 percent of the impacted receptors.

Reasonable Noise Barrier: A barrier that is cost effective, favorable to the majority of benefited receptors, and achieves noise reduction design goals by meeting or exceeding the reasonableness factor.

Cost Effective Noise Barrier: A noise barrier analyzed for environmental clearance with a preliminary construction cost that is not more than three percent above the allowable cost per benefited receptor unit (CPBU) of $46,967 (year 2018), assuming a $45.00 per square foot noise barrier construction cost.

Benefited Receptor: A receptor that receives a five dB(A) or greater traffic noise reduction as a result of a proposed noise barrier.

Design Year Reduction Goal: Reduce design year traffic noise by 10 dB(A) for at least one benefited receptor and provide at least a seven dB(A) reduction for 50 percent or more of the benefited receptor sites.

Permitted Development: Any presently undeveloped lands that have received a building permit from the local township or city.

3.4 Highway Traffic Induced Vibration

Automobiles, trucks and buses do not typically generate enough vibration to be a concern, except under specific situations, such as where there are pavement irregularities adjacent to sensitive locations. Studies to assess the impact of operational traffic induced vibrations have shown that both measured and predicted vibration levels are less than any known criteria for structural

damage to buildings. In fact, normal living activities (e.g., closing doors, walking across floors, operating appliances) within a building have been shown to create greater levels of vibration than highway traffic. There are no Federal requirements directed specifically to highway traffic induced vibration.

4 Noise Analysis

4.1 FHWA Traffic Noise Model (TNM)

TNM version 2.5 is FHWA's "computer program for highway traffic noise prediction and analysis."[3] The following parameters are used in this model to calculate an hourly $L_{eq(1h)}$ at a specific receiver location:

- Distance between roadway and receiver
- Relative elevations of roadway and receiver
- Hourly traffic volume in light-duty (two axles, four tires), medium-duty (two axles, six tires), and heavy-duty (three or more axles) vehicles
- Vehicle speed
- Ground absorption
- Topographic features, including retaining walls and berms

Highway noise sources have been divided into five types of vehicles; automobiles, medium trucks, heavy trucks, Buses and Motorcycles. Each vehicle type is defined as follows[4]:

- Automobiles – all vehicles with two axles and four tires, includes passenger vehicles and light trucks, less than 10,000 pounds
- Medium trucks – all vehicles having two axles and six tires, vehicle weight between 10,000 and 26,000 pounds
- Heavy trucks – all vehicles having three or more axles, vehicle weight greater than 26,000 pounds
- Buses – all vehicles designed to carry more than nine passengers
- Motorcycles – all vehicles with two or three tires and an open-air driver/passenger compartment

Noise levels produced by highway vehicles can be attributed to three major categories:

- Running gear and accessories (tires, drive train, fan and other auxiliary equipment)
- Engine (intake and exhaust noise, radiation from engine casing)
- Aerodynamic and body noise

4.2 Analysis

4.2.1 Land Use and Field Measurement Levels

The I-94 noise study area includes residential, day care center, hospital, places of worship, school, picnic area, park, public and nonprofit institutional structure, active sport area, playground, recording studio, restaurant, office, motel, retail, maintenance, and industrial areas. The criteria stated in **Table 3** determines if the proposed project will produce noise levels that approach or exceed the NAC throughout the corridor.

The project corridor was divided into common noise environments (CNE) to facilitate the analysis of highway noise of areas of like land uses. The CNE boundaries are identified in **Table 4** and illustrated in **Appendix A**.

[3] "FHWA Traffic Noise Model®, Version 1.0 Users Guide", Report Documentation Page.
[4] G.S. Anderson, C.S.Y. Lee, G.G. Fleming and C. Menge, "FHWA Traffic Noise Model®, Version 1.0 User's Guide", Federal Highway Administration, January 1998, p.60.

Table 4. Project Area Common Noise Environments

CNE	Site Description
A	*Industrial* uses bounded by I-94 on the north, Merrick Street on the south, Grand River Avenue on the east and I-96 on the west.
B	CNE located south of I-94 between Grand River Avenue and Trumbull Street, north of Merrick Street. The area is primarily *residential* with pockets of *industrial* along 14th Street, Rosa Parks Boulevard and Trumbull Avenue. The area is also bisected by a railroad corridor.
C	Located in the south quadrant of the I-94 and M-10 extending from Trumbull Avenue to Warren Avenue. The CNE contains Wayne State University (*school*) and is the location of their athletic facilities including Adams Field, baseball facilities, tennis courts and indoor sporting building.
D	*Residential* uses along the west side of M-10 from Warren Avenue to Noble Street with Miracles Boulevard to the west.
E	Extends along the eastern side of M-10 from Peterboro Street to Warren Avenue. The area is a mix of *residential* and Wayne State University buildings (*school*), which are located along Warren Avenue.
F	Wayne State University (*school*) uses located in the east quadrant of the I-94 and M-10 from Warren Avenue to just east of Woodward Avenue and Anthony Wayne Drive and Palmer Street to the west and south. A small pocket of *retail* uses surrounds Woodward Avenue.
G	*Residential* area bounded by the I-94 and I-75 interchange from just east of Woodward Avenue to south of Warren Avenue and Palmer Street.
H	Area with *industrial* uses bounded by I-94/I-75 Interchange, Warren Avenue, Chene Street, Medbury Street and Russell Street.
I	*Residential* area located from Chene Street to Mt Elliott Street between I-94 to just south of Medbury Street.
J	Area of *industrial* uses located along I-94 between Mt Elliot Street and Concord Street extending 500 feet from the frontage road.
K	*Residential* area located from Concord Avenue to Townsend Street along I-94 to the north and approximately Hyde Street to the south.
L	Charles F Kettering *School* located south of I-94, between Townsend Street and Van Dyke Street.
M	*Residential* area located south of I-94 from Van Dyke Street and Gratiot Avenue with Lambert Street to the south. *Retail* uses located along Gratiot Avenue.
N	*Residential* area bounded by I-94, Gratiot Avenue, Shoemaker Street and the railroad corridor near Fairview Street.
O	Mixed use area containing *industrial*, Wayne County Community College (*school*) and *retail* uses located along the I-94 and Conner Avenue interchange from the railroad corridor near Fairview Street to Shoemaker Street.
P	*Residential* area in the southwest corner of the I-94 and Conner Avenue interchange extending from Chandler Park Drive to Norcross Street with Hern Street to the south.
R	*Retail* uses along Harper Avenue and Conner Avenue with *residential* uses behind along side streets. Extends from Annsbury Avenue to Conner Avenue with Evanston Street to the north.
S	Mixed use area containing *industrial* and *residential* extending from Conner Avenue to Lemay Street along I-94 just south of Harper Avenue.
T	*Residential* area located north of I-94 between Lemay Street to Hurlbut Street just south of Harper Avenue.
U	*Retail* area surrounding the I-94/Gratiot Avenue interchange from Hurlbut Street to approximately Raymond Avenue and extending north to Peter Hunt Street.
V	*Residential* area located between I-94 and Harper Avenue extending from Raymond Avenue to just east of Van Dyke Avenue.
W	*Retail* area surrounding Van Dyke Avenue between Harper Avenue and I-94.
X	*Residential* area north of I-94 between Baldwin Street and Sherwood Street with Strong Street to the north.
Y	*Industrial* area which includes GM Detroit-Hamtramck Assembly Plant. Located along 500' of frontage on north side I-94 from Sherwood Street west to I-75.
Z	*Industrial* area northwest of I-94/I-75 interchange extending from just north of General Motors Boulevard south to Beaubien Street.
AA	*Residential* uses located between I-94, Beaubien Street and Woodward Avenue to just north of Harper Avenue. Small pocket of *retail* uses located at Woodward Avenue.

CNE	Site Description
BB	Mixed use area that contains ***office***, ***retail***, ***school*** and ***industrial*** uses along north side of I-94 from Woodward Avenue and continuing north along M-10 to Lothrop Street/Scotten Avenue.
CC	***Residential*** area bounded by I-94, 3rd Avenue, Holden Street and M-10/John C Lodge Freeway.
DD	***Residential*** area north of Lothrop Street/Scotten Avenue continuing 200' north of Bethune Avenue along M-10/John C Lodge Freeway.
EE	Henry Ford ***Hospital*** located west of M-10 between Bethune Avenue and Grand Boulevard.
FF	***Industrial*** area extending 500' west of M-10 from Grand Boulevard south to Elijah McCoy Drive.
GG	***Residential*** area bounded by I-94, M-10, Elijah McCoy Drive and Trumbull Avenue.
HH	***Industrial*** uses north of I-94 between Trumbull Avenue, 14th Street and Stanley Street
II	***Residential*** area extending west from 14th Street to Grand River Avenue between I-94 and Stanley Street.

Existing noise level measurements were conducted on May 23, 2018 at 11 representative sites in the project corridor. A 15-minute measurement was taken at each site. The measurements were made in accordance with MDOT guidelines using an integrating sound level analyzer meeting ANSI and IEC Type 1 specifications. Sound level analyzer calibration certification documentation is provided in **Appendix B**. Traffic classification counts were taken concurrently with the noise measurements. The locations of the field measurement sites are presented in **Appendix A**. The data collected at the 11 sites are presented in **Table 5**.

Table 5. Measured Existing Noise Levels

Field Site #	Site Description	Date	Start Time	Duration	Traffic[1]							Noise Level, dB(A) $L_{eq(1h)}$
					Direction	Auto	Med. Truck	Heavy Truck	Buses	MC[2]	Speed mph	
1	At the right-of-way fence, north of I-94 and south of Edsel Ford Service Dr., between 15th St. and 16th St.	5/23/18	8:27 am	15 min	W. Edsel Ford Service Dr. (westbound)	6	0	0	0	0	30	75.2
					WB I-94 off ramp to Linwood St.	8	0	0	0	0	35	
					EB I-94	955	35	112	6	1	45	
					WB I-94	1099	43	99	5	2	55	
2	At the right-of-way fence, west of M-10 and east of John C Lodge Service Dr., between Forest Ave. and Martin Luther King Jr Blvd.	5/23/18	8:58 am	15 min	John C Lodge Service Dr. (southbound)	23	0	0	0	0	30	72.7
					NB M-10	457	6	13	11	0	55	
					SB M-10	965	3	15	1	1	55	
3	West of M-10 and north of I-94, at the right-of-way fence east of John C Lodge Service Dr. cul-de-sac.	5/23/18	9:27 am	15 min	SB M-10 off ramp to WB I-94	169	4	29	1	0	40	68.3
					EB I-94	815	53	120	4	4	55	
					WB I-94	1062	36	125	3	0	55	
4	Residence, 91 feet north of I-94 and 65 feet east of 2nd Ave. at the southern edge of the residence side walk.	5/23/18	9:58 am	15 min	2nd Ave	29	2	0	2	0	30	69.1
					EB I-94	788	33	148	2	0	40	
					WB I-94	1020	27	135	1	4	55	
5	At the right-of-way fence, north of I-94 and south of Edsel Ford Service Dr., between Brush St. and John R St.	5/23/18	10:28 am	15 min	E Edsel Ford Service Dr. (westbound)	91	0	5	0	0	25	71.0
					EB I-94	599	8	43	1	0	55	
					WB I-94	528	21	52	2	1	55	
6	At the right-of-way fence, west of I-75 and east of I-75 Frontage Rd., approximately 472 feet south of Ferry St.	5/23/18	10:53 am	15 min	I-75 Frontage Rd. (southbound)	40	0	5	0	0	35	69.2
					SB I-75 off ramp to Warren Ave.	54	0	2	0	0	35	
					SB on ramp from I-94 ramps to SB I-75	213	0	12	2	1	55	
					NB I-75	934	41	86	7	3	55	
					SB I-75	783	23	86	0	2	55	
7	At the right-of-way fence, south of I-94 and north of Edsel Ford Service Dr., approximately 500 feet west of Grand Blvd.	5/23/18	11:24 am	15 min	E Edsel Ford Service Dr. (eastbound)	39	0	8	0	0	30	78.4
					EB E Edsel Ford Service Dr. on ramp to EB I-94	8	0	5	0	0	55	
					EB I-94	829	26	119	2	2	55	
					WB I-94	1012	32	97	5	3	55	
8	At the right-of-way fence, south of I-94 and north of Edsel Ford Service Dr., approximately 250 feet east of Concord Ave.	5/23/18	12:00 pm	15 min	E Edsel Ford Service Dr. (eastbound)	11	0	0	0	0	30	77.1
					EB I-94	855	20	80	1	3	55	
					WB I-94	981	26	64	5	3	55	
9	At the right-of-way fence, north of I-94 and south of Edsel ford service Dr., approximately 427 feet east of Burns Ave.	5/23/18	12:25 pm	15 min	E Edsel Ford Service Dr. (westbound)	9	0	0	0	0	30	68.9
					EB I-94	796	14	110	1	0	55	
					WB I-94	1090	32	84	6	6	55	

Field Site #	Site Description	Date	Start Time	Duration	Traffic[1]							Noise Level, dB(A) $L_{eq(1h)}$
					Direction	Auto	Med. Truck	Heavy Truck	Buses	MC[2]	Speed mph	
10	At the right-of-way fence, south of I-94 and north of Edsel Ford Service Dr., approximately 687 feet east of Cadillac Ave.	5/23/18	12:48 pm	15 min	E Edsel Ford Service Dr. (eastbound)	1	0	0	0	0	30	76.9
					EB I-94	859	5	101	3	1	55	
					WB I-94	916	22	92	4	0	55	
11	At the right-of-way fence, south of I-94 and north of Edsel Ford Service Dr., approximately 555 feet east of Barrett Ave.	5/23/18	1:15 pm	15 min	E Edsel Ford Service Dr. (eastbound)	4	0	1	0	0	30	82.6
					EB I-94	891	1	76	13	4	55	
					WB I-94	929	25	62	6	0	55	

1) Autos defined as 2-axle, 4-tire; medium trucks as 2-axle, 6-tire; heavy trucks as 3 or more axles; buses as vehicles designed to carry more than 9 passengers; and motorcycles as vehicles with two or three axles.
2) MC - Motorcycle

Source: HNTB Corporation, May 23, 2018

4.2.2 Field Measurements versus Modeled Noise Levels

TNM was used to validate that the existing measured highway traffic noise levels and predicted highway traffic noise levels for the existing conditions are within +/- 3 dB(A). Traffic was counted and classified concurrently during the noise measurement by vehicle type: cars, medium trucks, heavy trucks, and buses. Comparing the modeled noise levels to the measured noise levels validates the TNM model for use on the specific project. Traffic counts were taken concurrently with the noise measurements at all the sites and used in the model. All the modeled data compared within three dB(A) of the measured levels, which satisfies the MDOT requirement for validating noise measurements. The site by site comparison is presented in **Table 6**.

Table 6. Comparison of Measured and Modeled Noise Levels

Field Site	Appendix A Map Page#	Noise Level, dB(A) $L_{eq(1h)}$		Difference in Noise Level, dB(A) $L_{eq(1h)}$ (Modeled Minus Measured)
		Measured	Modeled	
FS-1	1	75.2	77.2	2.0
FS-2	15	72.7	74.3	1.6
FS-3	3	68.3	70.6	2.3
FS-4	3	69.1	71.1	2.0
FS-5	4	71.0	73.3	2.3
FS-6	17	69.2	70.6	1.4
FS-7	6	78.4	77.1	-1.3
FS-8	8	77.1	77.7	0.6
FS-9	9	68.9	71.9	3.0
FS-10	10	76.9	75.4	-1.5
FS-11	12	82.6	80.2	-2.4

4.2.3 Traffic Noise Levels and Noise Impact Analysis

FHWA's TNM version 2.5 was used to model existing (2014) and design year (2040) worst hourly traffic noise levels within the I-94 noise and vibration study area.

Modeled receptors were placed in accordance with FHWA requirements in areas with evidence of frequent human use. This area is typically located between the highway and any structure, such as a residence. MDOT considers this as the back-yard area within 35 feet from the back of a residence. Balconies in apartment buildings are included when the balcony faces the highway and there are no ground-level areas of frequent human use between the highway and the building. Second floor balconies are included in noise impact and abatement analyses. Balconies on floors higher than the second floor may be included depending on their relationship to the level of the roadway.

FHWA's *Recommended Best Practices for the Use of the FHWA Traffic Noise Model (TNM)* states, 'The loudest hour of the day is dependent upon traffic conditions – vehicle volume, operating speed, and number of trucks – that combine to produce the highest hourly noise levels adjacent to the highway corridor. According to FHWA guidance, the "worst hourly traffic noise impact" usually occurs at a time when truck volumes and vehicle speeds are the greatest, typically when traffic is free flowing and at or near LOS C conditions. Based on this guidance, the use of traffic data that are based on LOS was the preferred approach.'

Traffic engineers determined that based on existing counts and speed data the time period from 9:00 a.m. to 10:00 a.m. most closely represented LOS C conditions. The design year volumes were developed with the traffic microsimulation model, *Paramics*, for the same time.

As shown in **Appendix A**, 1,667 representative noise receivers representing 2,643 receptors were modeled. Receivers, defined as single points in the noise model, represent noise receptors that are being analyzed. One receiver can represent multiple receptors in the noise analysis.

4.3 Impact Assessment

A traffic noise impact is defined as a future noise level that approaches or exceeds the FHWA NAC; or a future noise level that creates a substantial noise increase over existing noise levels. MDOT identifies a significant noise impact as a 10 dB(A) increase between the existing and predicted design year sound levels, or a modeled noise level 1 dB(A) less than the NAC standard. There are 2,643 modeled receptors for the future Build Alternative. The existing and design year noise levels table of modeled sites are presented in **Appendix C**.

4.3.1 Future Build

Predicted future design year (2040) noise levels adjacent to the future Build Alternative would approach or exceed the NAC at 189 receiver locations representing 386 receptors (382 residential, one park, one public or nonprofit institutional structure, one active sport area and one playground receptors). The future noise levels at these 386 impacted receptors would range from 66.0 to 75.2 dB(A) $L_{eq(h)}$.

Changes in L_{eq} noise levels under the future Build conditions will range from -9.0 to 9.7 dB(A) compared to existing conditions. No future noise levels would substantially exceed existing noise levels.

5 Noise Abatement Measures

5.1 MDOT Abatement Guidance

The Handbook has established the criteria for determining where noise abatement must be provided.[5]

The policy is summarized as follows:

- Where adverse noise impacts are expected to occur, noise abatement will be considered and will be implemented if found feasible and reasonable for existing developments, and future developments that were approved before the date of public knowledge of the project. Approved means that a building permit has been received. After the date of public knowledge, MDOT is not responsible for providing noise abatement for new developments. The date of the clearance of the Categorical Exclusion will be the date of public knowledge. The provision of noise abatement for new developments becomes the responsibility of local governments and private developers.

- All sites will be considered; however, it is generally known that commercial and industrial sites prefer that there be no interference with the view to their establishments. Therefore, when commercial and residential sites expected to convert to a commercial or industrial land use (e.g., some of the residential units have converted to commercial/industrial, or the area has been rezoned commercial) are found to be reasonable and feasible, they will be asked if they want noise abatement. If they do not want it, it will not be provided.

- Feasible – This refers to engineering considerations such as: constructability of a noise barrier on the existing topography; achievement of substantial noise reductions; the presence of other noise sources in the area; and the ability to maintain access, drainage, safety, utilities in the area. While every reasonable effort should be made to obtain a substantial noise reduction, a noise abatement measure is not feasible if it cannot achieve at least a 5 dB(A) noise reduction for 75 percent of impacted receivers during design year traffic noise.

- Reasonable - Noise mitigation will be considered reasonable if:
  - During the environmental clearance phase, the preliminary cost per benefiting unit is less than three percent above allowable per benefitting unit level ($46,967 in 2018 dollars);
  - MDOT receives generally positive comments from benefiting receptors during the environmental clearance phase; and
  - The noise barrier provides a design year traffic noise reduction of 10 dB(A) for at least one benefitted unit and at least a seven dB(A) for 50 percent or more of the benefitted units.

Highway traffic noise abatement alternatives, which are listed in 23 CFR 772.15(c) include:

1) Construction of noise barriers including acquisition of property rights, either within or outside the highway right-of-way;
2) Traffic management measures;

[5] The Handbook and other MDOT resources can be found at https://www.michigan.gov/mdot/0,4616,7-151-9621_11041_25846---,00.html.

3) Alteration of horizontal and vertical alignments;
4) Acquisition of real property or interests therein to serve as a buffer zone to preempt development;
5) Noise insulation of Activity Category D land use facilities listed in **Table 3**.

Upon review of the listed abatement alternatives, it has been determined that:

- Reductions of speed limits, although acoustically beneficial, are seldom practical unless the design speed of the proposed roadway is also reduced;
- Restriction or prohibition of trucks is extremely undesirable;
- Design criteria, project limits, and the existing alignment and land use preclude substantial horizontal and vertical alignment shifts that could potentially produce noticeable changes in the projected acoustical environment;
- Cost restrictions typically prohibit property acquisition; and
- The construction of noise berms is neither feasible nor reasonable because of the amount of space that would be required.

Therefore, the construction of noise barriers within the existing right-of-way was the only mitigation measure that received in-depth evaluation.

5.2 Abatement Analysis

Abatement analysis was completed for twenty noise barriers. At a minimum, the Handbook requires that noise barriers be analyzed as a noise abatement measure. To satisfy this requirement, a noise barrier has been evaluated for each of the CNE areas with impacted noise receptors as a part of this noise study. The locations of the noise barriers evaluated are mapped in **Appendix A**. The impact analysis results per receiver are found in **Appendix C** and the abatement analysis results per receiver are found in **Appendix D**.

Based on the future design year noise levels, twenty noise barriers were modeled:

- Noise Barrier 1 (NB 1) – On the south side of I-94 between Grand River Avenue and 14th Street, designed to mitigate the noise impact for residences along the East I-94 Service Drive and Linwood Avenue. (Appendix A page 1)
- Noise Barrier 2 (NB 2) – On the north side of I-94 between Grand River Avenue and 14th Street, designed to mitigate the noise impact for residences along the West I-94 Service Drive and Hudson Street. (Appendix A page 1)
- Noise Barrier 3 (NB 3) – On the south side of I-94 between the Canadian National/Consolidated Rail Railroad and Trumbull Avenue, designed to mitigate the noise impact for residences along Hecla Street and Avery Street. (Appendix A page 2)
- Noise Barrier 4 (NB 4) – On the north side of I-94 off ramp to NB M-10 between 3rd Avenue and Holden Street, designed to mitigate the noise impact for residences along 3rd Avenue and 4th Street. (Appendix A page 3)
- Noise Barrier 5 (NB 5) – On the north side of I-94 between 3rd Avenue and Cass Street, designed to mitigate the noise impact for residences and motel along Palmer along 2nd Avenue. (Appendix A page 3)
- Noise Barrier 6 (NB 6) - On the south side of I-94 between Woodward Avenue and the I-94/I-75 interchange, designed to mitigate residences along Hendrie Street and St. Antoinette St. (Appendix A page 4)
- Noise Barrier 7 (NB 7) – On the north side of I-94 between John R Street and the I-94/I-75 interchange, designed to mitigate residences along East Edsel Ford Service Drive. (Appendix A page 4)

- Noise Barrier 8 (NB 8) – On the south side of I-94 between St. Aubin Street and Chene Street, designed to mitigate residences along East Edsel Ford Service Drive and Dubois Street. (Appendix A page 6)
- Noise Barrier 9 (NB 9) – On the south side of I-94 between Elmwood Street and Mount Elliott Street, designed to mitigate a residence along East Edsel Ford Service Drive. (Appendix A page 7)
- Noise Barrier 10 (NB 10) – On the south side of I-94 between Concord Avenue and Sheridan Street, designed to mitigate a residence along East Edsel Ford Service Drive. (Appendix A page 8)
- Noise Barrier 11 (NB 11) – On the south side of I-94 between Seneca Street and Rohns Street, designed to mitigate residences along Fischer Street and Rohns Street. (Appendix A page 9)
- Noise Barrier 12 (NB 12) - On the north side of I-94 between Maxwell Street and Iroquois Street, designed to mitigate a residence along East Edsel Ford Service Drive and Seminole Street. (Appendix A page 9)
- Noise Barrier 13 (NB 13) – On the south side of I-94 between Cadillac Avenue and Garland Street, designed to mitigate a residence along Hurlbut Street. (Appendix A page 10)
- Noise Barrier 14 (NB 14) – On the north side of I-94 between Bewick Street and Harding Street, designed to mitigate a residence along Saint Clair Street and East Edsel Ford Service Drive. (Appendix A page 11)
- Noise Barrier 15 (NB 15) – On the south side of I-94 between Lemay Street and just east of Springfield Street, designed to mitigate residences along Springfield Street. (Appendix A page 11)
- Noise Barrier 16 (NB 16) – On the south side of I-94 between Conner Avenue and Leidich Street, designed to mitigate residences along Gunston Street and Malcolm Street. (Appendix A page 12)
- Noise Barrier 17 (NB 17) - On the east side of M-10 between Grand Boulevard and Pallister Street, designed to mitigate residences along Grand Boulevard, North M-10 Service Drive, and Bethune Street. (Appendix A page 13)
- Noise Barrier 18 (NB 18) – On the west side of M-10, south of I-94, between Forest Street and Marvin Gaye Street, designed to mitigate residences along southbound M-10 Service Drive, Canfield Street, Four Tops Street, Temptations Street, and Alexandrine Street. (Appendix A page 15)
- Noise Barrier 19 (NB 19) – On the east side of M-10, south of I-94, between Forest Street and Martin Luther King Jr. Drive, designed to mitigate residences along Willis Street, Calumet Street, and northbound M-10 Service Drive. (Appendix A page 15)
- Noise Barrier 20 (NB 20) – On the west side of I-75, south of I-94, between Ferry Street and Warren Avenue, designed to mitigate residences along Grand Boulevard, southbound I-75 Service Drive, and Bethune Street. (Appendix A page 17)

There are several additional scattered receptors that approach or exceed the NAC. Noise barriers were not analyzed for these receptors for the following reasons:

- In CNE D, along southbound M-10, south of I-94, there is a residential complex with receptors facing M-10 that approach or exceed the NAC. Due to sight line requirements along the South M-10 Service Drive, the off-ramp from southbound M-10 to the Service Drive and the Forest Avenue bridge over M-10, it was not feasible to build an effective noise barrier in this area.
- In CNE E, along northbound M-10, south of I-94, there is a residential complex with receptors facing M-10 that approach or exceed the NAC. Due to sight line requirements

along the North M-10 Service Drive, the on-ramp from the Service Drive to southbound M-10, and the Forest Avenue bridge over M-10 it was not feasible to build an effective noise barrier in this area.

- In CNE M, along eastbound I-94, there is one residential receptor east of Rohns Street along the East Edsel Ford Service Drive that approaches or exceeds the NAC. Due to sight line requirements along the East Edsel Ford Service Drive for the Rohns Street vehicular bridge over I-94 it was not feasible to build an effective noise barrier in this area.

The results of each evaluated barrier, including future $L_{eq(1h)}$ noise levels without and with a barrier, barrier length and height, and the noise reduction provided by the barrier are presented in **Table 7**. Whether the barrier meets the design goal, total estimated cost (based on $45.00 per square foot), the number of benefited receivers (i.e. residential, commercial, or equivalent), the cost per benefited receiver, feasibility determination, and reasonableness determination for each of the barriers is presented in **Table 8**

NB 1, NB 3, NB 6, NB 7, NB 11, NB 14, NB 17, NB 18, NB 19, and NB 20 are not acoustically feasible, as they did not achieve a 5 dB(A) reduction at 75 percent of the impacted receptors.

NB 2, NB 5, NB 9, NB 15 and NB 16 meet preliminary feasibility criteria but did not meet the reasonableness criteria as they did not meet the design goal of 10 dB(A) for at least one benefited receptor and at least a 7 dB(A) reduction for 50 percent or more of the benefited receptor sites.

NB 8, NB 10, NB 12, and NB 13 meets preliminary feasibility criteria but did not meet the reasonableness criteria as the estimated cost of these barriers per benefitted receptor would exceed the allowable cost per benefitted receptor ($46,967 in 2018 dollars).

NB 4 meets preliminary feasibility criteria and reasonableness criteria. The estimated cost of this barrier per benefitted receptor would also meet the allowable cost per benefitted receptor of ($46,967 in 2018 dollars).

Table 7. Evaluated Noise Barriers

Noise Barrier ID	Figure Number	Existing Noise Levels dB(A)	Range of Future Noise Levels dB(A)		Noise Reduction dB(A)	Barrier Characteristics		
			w/o Barrier	With Barrier		Square Footage	Length (ft)	Height (ft)
NB 1	4.2	57.0 – 74.4	57.4 – 72.5	54.1 – 68.2	3.0 – 4.3	44,667	1,861	24
NB 2	4.2	49.0 – 71.8	48.8 – 73.3	47.2 – 67.7	0.0 – 9.1	45,834	1,910	24
NB 3	4.3	49.2 – 71.9	49.3 – 68.9	46.0 – 65.9	0.6 – 4.8	22,069	920	24
NB 4	4.4	47.3 – 71.7	47.2 – 70.6	46.0 – 66.3	0.0 – 12.1	9,203	383	24
NB 5	4.4	48.6 – 66.6	45.9 – 72.6	43.8 – 65.1	0.6 – 7.5	13,061	544	24
NB 6	4.5	42.9 – 65.9	42.9 – 69.7	56.4 – 61.6	0.1 – 9.3	93,707	3,904	24
NB 7	4.5	42.4 – 74.2	44.0 – 75.2	42.0 – 71.3	0.6 – 10.6	49,536	2,064	24
NB 8	4.7	61.2 – 74.2	58.2 – 72.8	53.4 – 65.7	1.9 – 11.6	23,815	1,078	18 – 24
NB 9	4.8	43.5 – 69.4	43.1 – 66.4	40.2 – 62.0	0.4 – 5.8	42,703	1,779	24
NB 10	4.9	50.2 – 73.9	48.9 – 69.9	46.3 – 60.1	2.4 – 10.7	25,940	1,273	18 - 21
NB 11	4.10	49.2 – 74.4	48.4 – 74.0	44.7 – 73.9	0.0 – 11.3	20,369	848	24
NB 12	4.10	49.4 – 71.6	49.1 – 67.7	48.5 – 58.9	0.0 – 10.0	19,598	931	15 – 24
NB 13	4.11	54.3 – 69.9	53.5 – 69.0	51.4 – 58.8	2.0 – 10.2	20,827	992	21
NB 14	4.12	60.3 – 68.2	59.8 – 66.1	56.3 – 61.6	1.5 – 5.0	23,703	988	24
NB 15	4.12	53.4 – 67.7	52.0 – 68.9	51.0 – 63.1	0.2 – 7.7	11,216	516	18 – 24
NB 16	4.13	56.7 – 66.0	53.5 – 67.2	52.8 – 60.9	0.7 – 9.8	18,024	917	9 – 24
NB 17	4.14	50.0 – 73.1	49.9 – 72.9	45.6 – 71.6	0.0 – 10.4	44,881	1,871	24
NB 18	4.16	37.8 – 74.3	38.5 – 73.0	35.6 – 70.2	0.0 – 13.0	57,384	2,391	24
NB 19	4.16	42.3 – 74.2	39.4 – 73.2	37.3 – 73.1	0.0 – 4.0	64,339	2,681	24
NB 20	4.18	48.4 – 71.4	50.3 – 70.9	50.2 – 70.8	0.0 – 4.1	46,299	1,929	24

Table 8. Noise Barrier Designs Analyzed

Barrier ID	# of Impacted Receptors Behind Proposed Barrier	Number of Attenuated Locations						Estimated Cost	Cost/Benefit	Feasible	Reasonable
		≥ 5 dB(A)			≥ 7 dB(A)		≥ 10 dB(A)				
		# of Benefitting	# of Impacted	% of Total Impacted	#	% of Benefited				(Y/N)	(Y/N)
NB 1	6	0	0	0	0	0	0	$2,010,015	NA[3]	N	N
NB 2	9	15	9	100	2	13	0	$2,062,530	NA	Y	N
NB 3	5	0	0	0	0	0	0	$993,105	NA	N	N
NB 4	8	20	6	75	12	60	5	$414,135	$20,707	Y	Y
NB 5	1	2	1	100	1	50	0	$587,745	NA	Y	N
NB 6	46	36	9	20	13	36	0	$4,216,815	NA	N	N
NB 7	64	32	28	44	6	19	1	$2,229,120	NA	N	N
NB 8	11	14	11	100	11	79	2	$1,071,675	$76,548	Y	N
NB 9	1	1	1	100	0	0	0	$1,921,635	NA	Y	N
NB 10	1	3	1	100	3	100	1	$1,167,300	$389,100	Y	N
NB 11	7	6	5	71	6	100	5	$916,605	NA	N	N
NB 12	1	2	1	100	2	100	1	$881,910	$440,955	Y	N
NB 13	1	2	1	100	1	50	1	$937,215	$468,608	Y	N
NB 14	1	1	0	0	0	0	0	$1,066,635	NA	N	N
NB 15	3	3	3	100	1	33	0	$504,720	NA	Y	N
NB 16	2	3	2	100	2	67	0	$811,080	NA	Y	N
NB 17	111	111	56	50	57	51	5	$2,019,645	NA	N	N
NB 18	14	90	7	50	38	42	4	$2,582,280	NA	N	N
NB 19	25	0	0	0	0	0	0	$2,895,255	NA	N	N
NB 20	63	0	0	0	0	0	0	$2,083,455	NA	N	N

Indicates feasible and reasonable noise barrier.

[1] MDOT requires that noise barriers achieve a 5-dB reduction at 75 percent of the impacted receptors. If a barrier cannot achieve this, abatement is considered to not be acoustically feasible.

[2] The design year attenuation requirement for Michigan is to provide a noise reduction of 10 dB(A) for at least one benefited receptor and at least a seven dB(A) reduction for 50 percent) or more of the benefited receptor sites.

[3] NA – Noise barrier is not feasible or does not meet the design goal.

6 Undeveloped Lands

The distances to 66 dB(A) $L_{eq(1h)}$, which vary along the project corridor, are presented to assist local planning authorities in developing land use control over the remaining undeveloped lands along the project to prevent further development of incompatible land use. While there are no undeveloped lands within the project corridor, there is potential for the redevelopment of existing vacant lands. The 66 dB(A) setback distances are mapped in Appendix A. The setback distances are typically between the first or second row of residences along the service drives and the curb line. Therefore, there is no 71 dB(A) setback in the study corridor.

It is recommended that any future development proposed in the project corridor be modeled with accurate survey data to avoid creating incompatible land uses adjacent to the project.

7 Conclusions and Recommendations

One of the twenty barriers (NB-4) analyzed did meet MDOT's preliminary feasible and reasonableness criteria. Nineteen analyzed barriers did not meet MDOT's preliminary feasible and reasonableness criteria. Additionally, based on the scattered location of noise impacts along the corridor, noise barriers are not reasonable for individual receptors.

7.1 Statement of Likelihood

Based on the studies thus far accomplished, MDOT intends to install highway traffic noise abatement in the form of the barriers presented in **Table 8** in this document. The preliminary assessment is based on preliminary design for barrier cost(s) and noise abatement as discussed in this document. If it subsequently develops during final design that these conditions have substantially changed, abatement measures might not be provided.

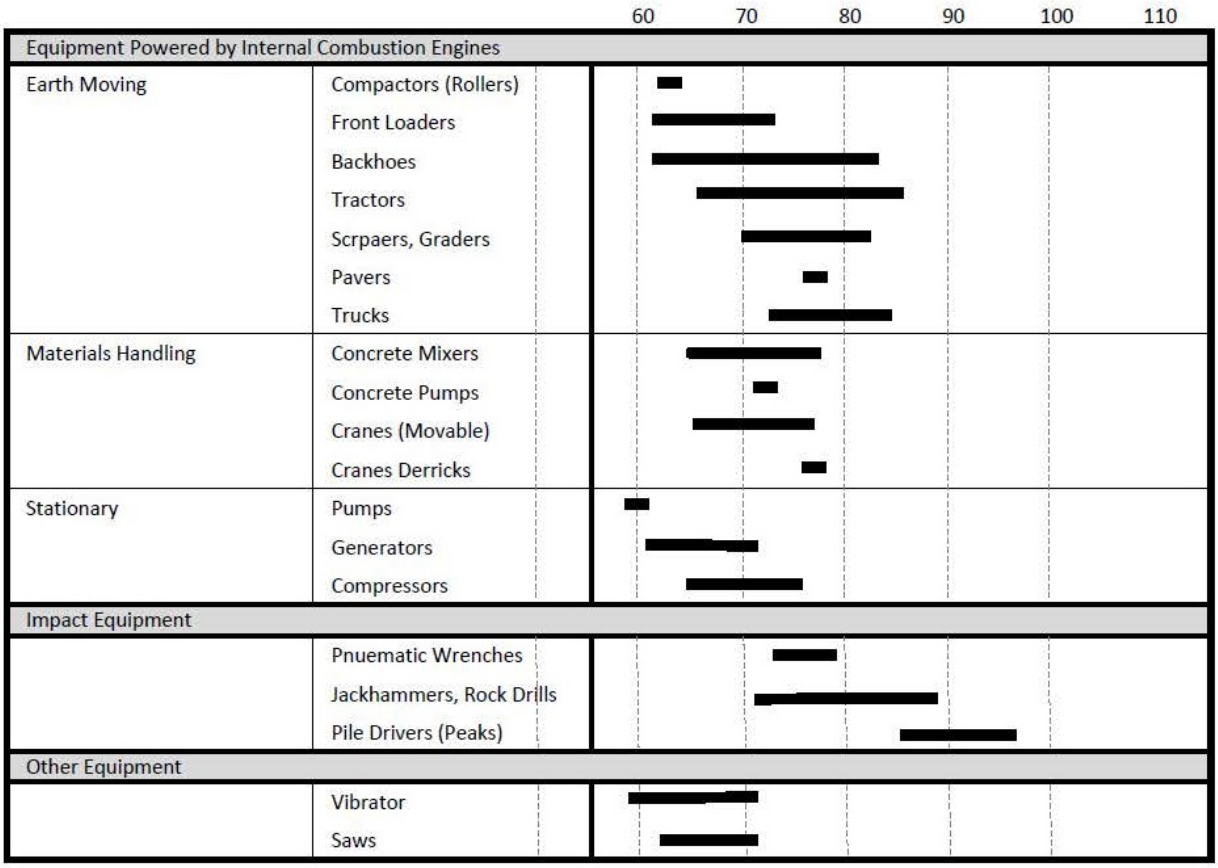
7.2 Construction Noise

In addition to noise from traffic, construction activities themselves can produce increased noise of a temporary nature. MDOT will be sensitive to local needs and may adjust work practices to reduce inconvenience to the public.

The major construction elements of this project are expected to be demolition, hauling, grading, paving, and bridge construction. Construction of the proposed improvements will result in a temporary increase in the ambient noise level along I-94. General construction noise impacts for passersby and those individuals living or working near the project can be expected particularly from demolition, earth moving, pile driving, and paving operations. Equipment associated with construction generally includes backhoes, graders, pavers, concrete trucks, compressors, and other miscellaneous heavy equipment. **Figure 3** lists some typical peak operating noise levels at a distance of 15 m (50 feet), grouping construction equipment according to mobility and operating characteristics. Considering the relatively short-term nature of construction noise, impacts are not expected to be substantial.

Figure 3. Construction Noise Sound Levels

Levels Sound levels [dB(A)] at 50 feet



Source: U.S. Report to the President and the Congress on Noise, February 1972.

7.3 Construction Vibration

Temporary vibration impacts could occur in residential areas and at other vibration-sensitive land uses from activities associated with construction of the project, such as excavation, demolition, and vibratory compaction, as well as pile-driving at bridges, noise walls, and retaining walls. The potential for vibration impact would be greatest at locations near pile-driving for bridges and other structures, pavement breaking, and at locations close to vibratory compactor operations.

The equipment with the highest vibration level for roadway construction is the vibratory roller, and the highest potential vibration level for pile driving is with the impact pile driver. For buildings near pile driving activities, short-term construction vibration impact can extend to approximately 100 feet from the construction site. For buildings near roadway construction activities, short-term construction vibration impact can extend to approximately 30 feet from the construction site.

Human annoyance from pile driving could extend to approximately 400 feet from the construction site while roadway construction annoyance could extend to approximately 100 feet from the construction site.

The primary means of mitigating short-term vibration impacts resulting from construction activities is to require the contractors to prepare a vibration control plan. Key elements of a plan include:

- Identify vibration sensitive buildings
- Conduct a pre-construction inspection of residences, historical and other vibration sensitive structures in the project corridor
- Prohibit certain activities that create higher vibration levels during nighttime hours
- Implement vibration control measures where appropriate
- Develop a method for responding to community complaints

8 References

Anderson, G. S., C.S.Y. Lee, G.G. Fleming and C. Menge, *FHWA Traffic Noise Model®, Version 1.0 User's Guide*, Federal Highway Administration, January 1998, p. 60.

FHWA, Noise Policy FAQs – Frequently Asked Questions
https://www.fhwa.dot.gov/environment/noise/regulations_and_guidance/faq_nois.cfm#D4e

FHWA's, Procedures for Abatement of Highway Traffic Noise and Construction Noise, Code of Federal Regulations, Title 23 Part 772 (23 CFR 722).

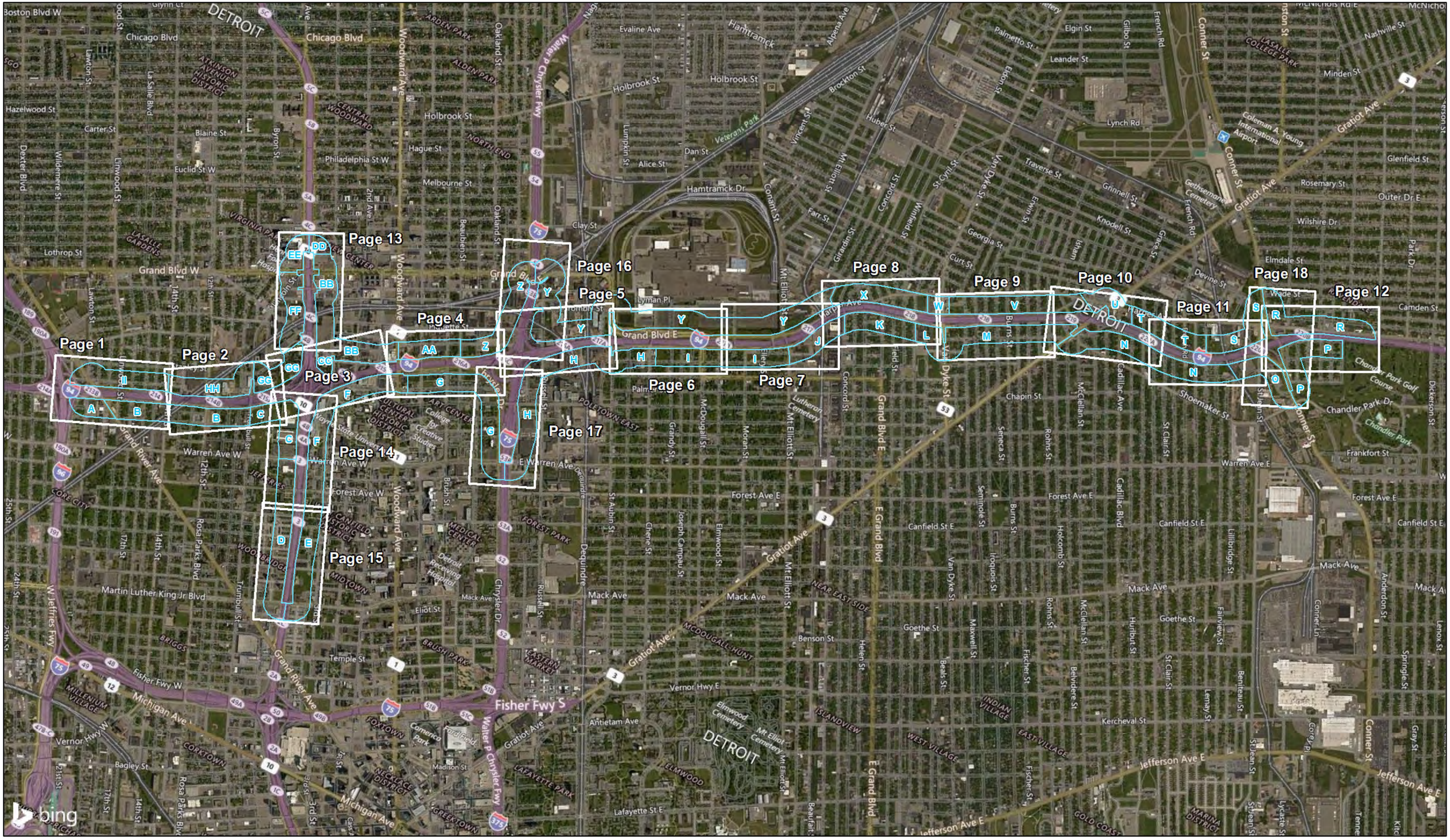
FHWA's, *Recommended Best Practices for the Use of the Traffic Noise Model, Code of Federal Regulations*, December 8, 2015.

Hanf, Thomas. Email regarding "Re: Noise and Air Quality Guidance – I-375". MDOT Air Quality & Noise Abatement, April 17, 2018.

Lau, Michael C., Cynthia S. Y. Lee, Gregg G. Judith L. Rochat, Eric R. Boeker, and Gregg C. Fleming. FHWA Traffic Noise Model® Users Guide (Version 2.5 Addendum). Federal Highway Administration, April 2004.

Michigan Department of Transportation. *Highway Noise Analysis and Abatement Handbook*, July 2011.

Appendix A: Traffic Noise Study Exhibits



MDOT Michigan Department of Transportation

HNTB

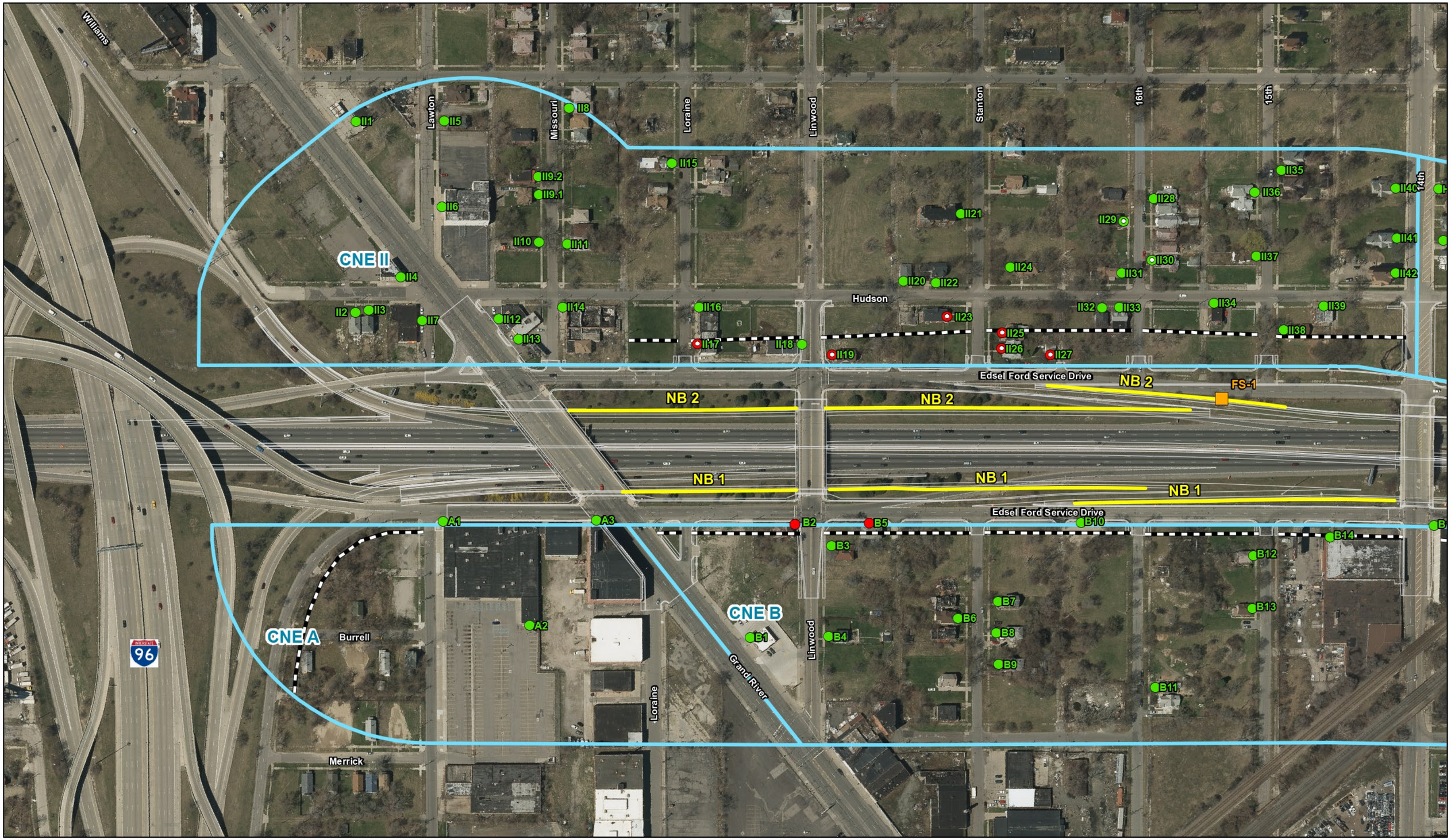
Legend

A Common Noise Environment

0 1 2

Miles

Traffic Noise Study
I-94 Downtown Improvement Project
Detroit, Michigan



Legend

TNM Receivers

- Not Impacted / Benefitted
- Impacted / Benefitted
- Not Impacted / Not Benefitted
- Impacted / Not Benefitted

- Field Sites
- Noise Barriers Analyzed
- Feasible and Reasonable Noise Barrier
- 66 Setback
- Alternative
- Common Noise Environment

Note: Each TNM receiver can represent multiple receivers. Appendix C provides details of the number of receptors per receiver shown on this exhibit.

0 200 400
Feet

Traffic Noise Study
I-94 Detroit Modernization Project
Detroit, Michigan

Figure 4.2

CNE II
II40
II41
II42
14th
HH1
HH2
Stanley
CNE HH
HH3
HH4
HH5
HH6
GG1
GG2
Elijah McCoy
GG22
GG2
GG16
GG21
GG24
GG15
GG17
GG18
GG25
GG26
GG7
GG8
GG9
GG10
CNE GG
GG3
GG4
GG5
GG6
GG11
GG12
GG13
GG14
GG20
GG19
Trumbull
B15
Edsel Ford Service Drive
INTERSTATE 94
NB 3
Edsel Ford Service Drive
Edsel Ford Service Drive
Mark
Wabash
Vermont
CNE B
B16
B18
B19
B21
B25
B26
B40
C1
CNE C
B22
B23
B24
B20
Rosa Parks
Hecla
Avery
B27
B28
B29
B30
B33
B34
B35
B36
B37
B38
B31
B32
B39
B41
B42
B43
Merrick
Bryant

Legend

TNM Receivers

- Not Impacted / Benefitted
- Impacted / Benefitted
- Not Impacted / Not Benefitted
- Impacted / Not Benefitted

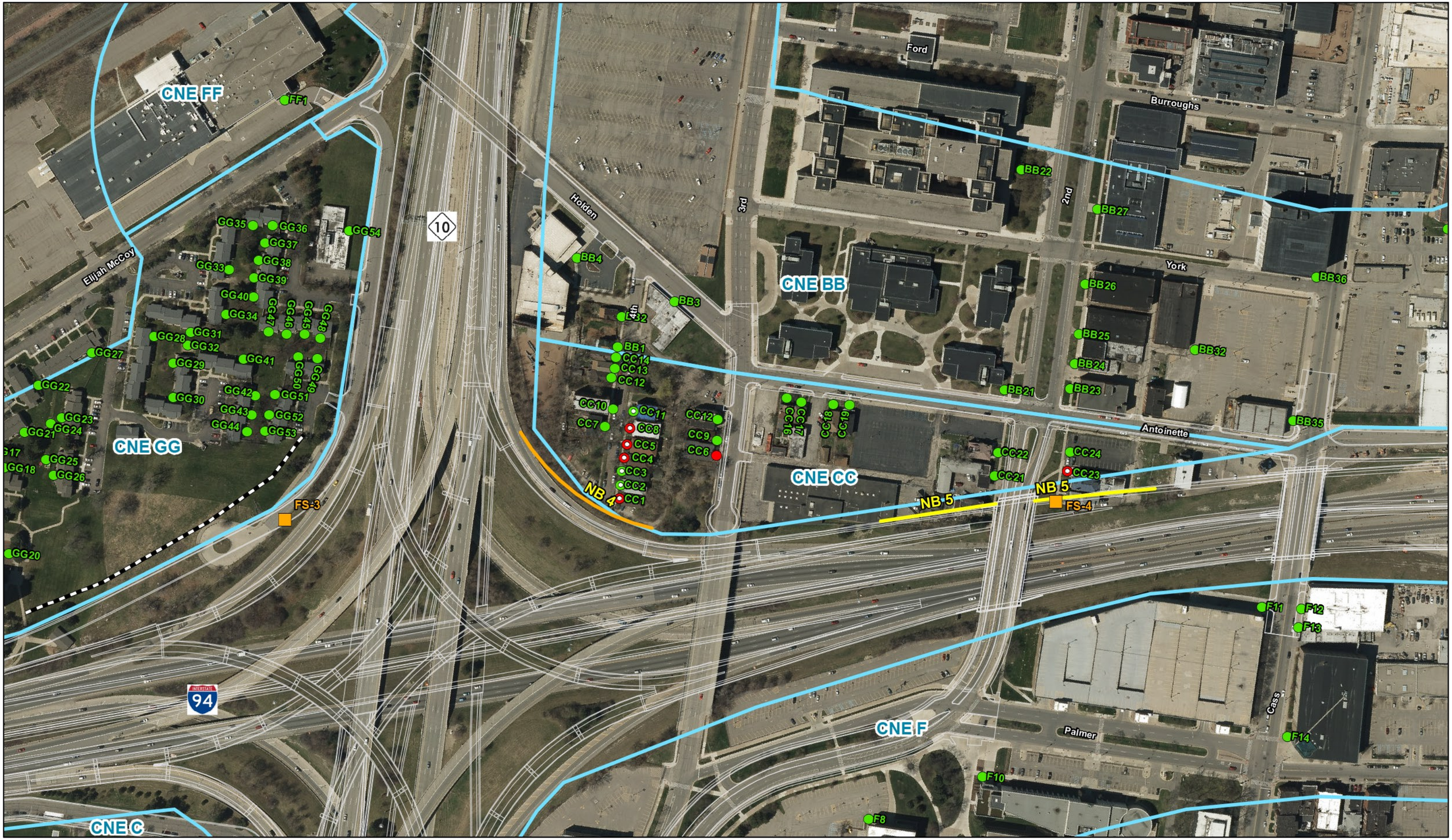
- Field Sites
- Noise Barriers Analyzed
- Feasible and Reasonable Noise Barrier
- 66 Setback
- Alternative Common Noise Environment

Note: Each TNM receiver can represent multiple receivers. Appendix C provides details of the number of receptors per receiver shown on this exhibit.

0 200 400
Feet

Traffic Noise Study
I-94 Detroit Modernization Project
Detroit, Michigan

Figure 4.3



Legend

TNM Receivers

- Not Impacted / Benefitted
- Impacted / Benefitted
- Not Impacted / Not Benefitted
- Impacted / Not Benefitted

- Field Sites
- Noise Barriers Analyzed
- Feasible and Reasonable Noise Barrier
- 66 Setback
- Alternative
- Common Noise Environment

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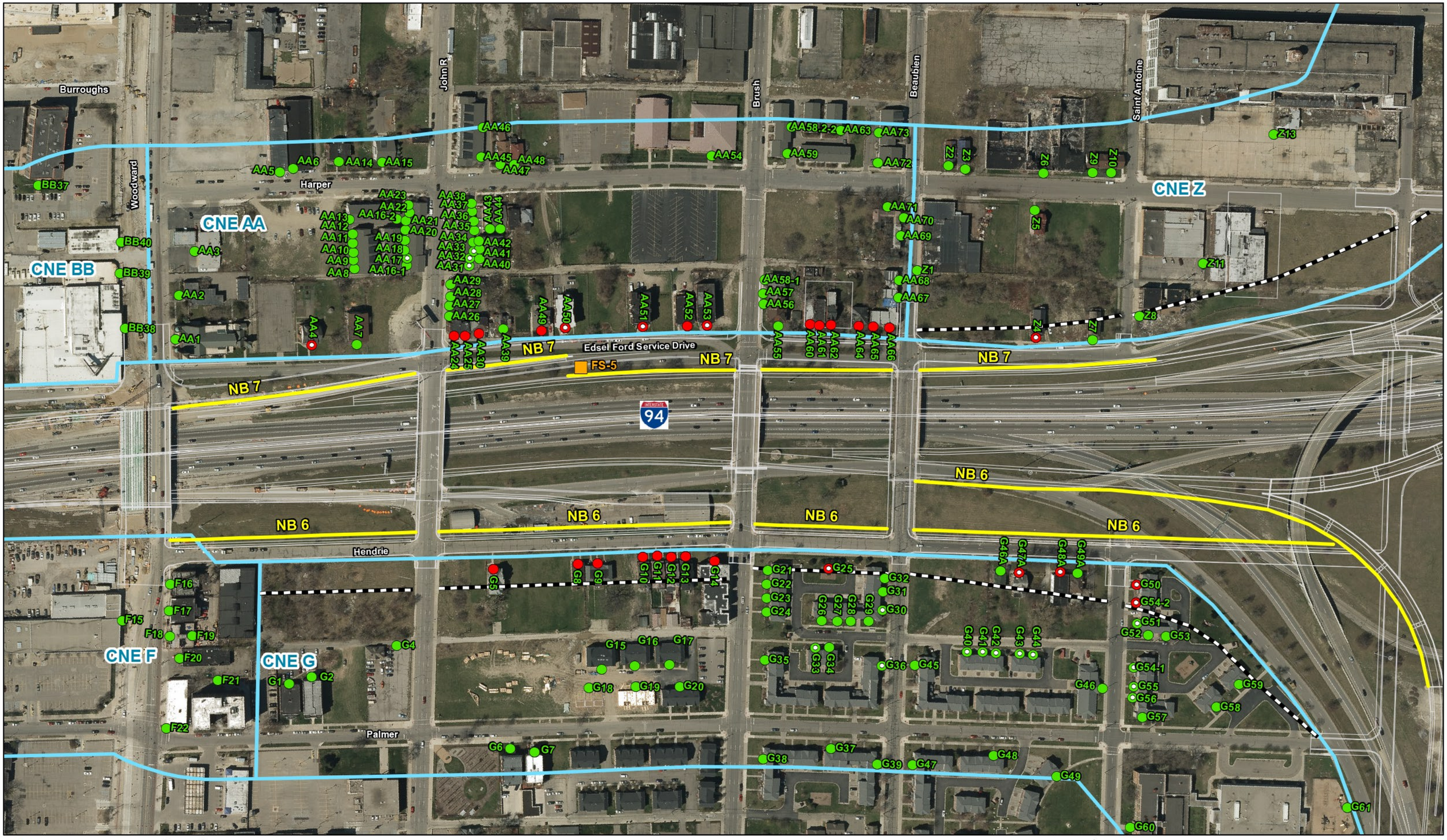
0 200 400
Feet

Traffic Noise Study
I-94 Detroit Modernization Project
Detroit, Michigan

Figure 4.4



Legend

TNM Receivers

- Not Impacted / Benefitted
- Impacted / Benefitted
- Not Impacted / Not Benefitted
- Impacted / Not Benefitted

- Field Sites
- Noise Barriers Analyzed
- Feasible and Reasonable Noise Barrier
- 66 Setback
- Alternative Common Noise Environment

Note: Each TNM receiver can represent multiple receivers. Appendix C provides details of the number of receptors per receiver shown on this exhibit.

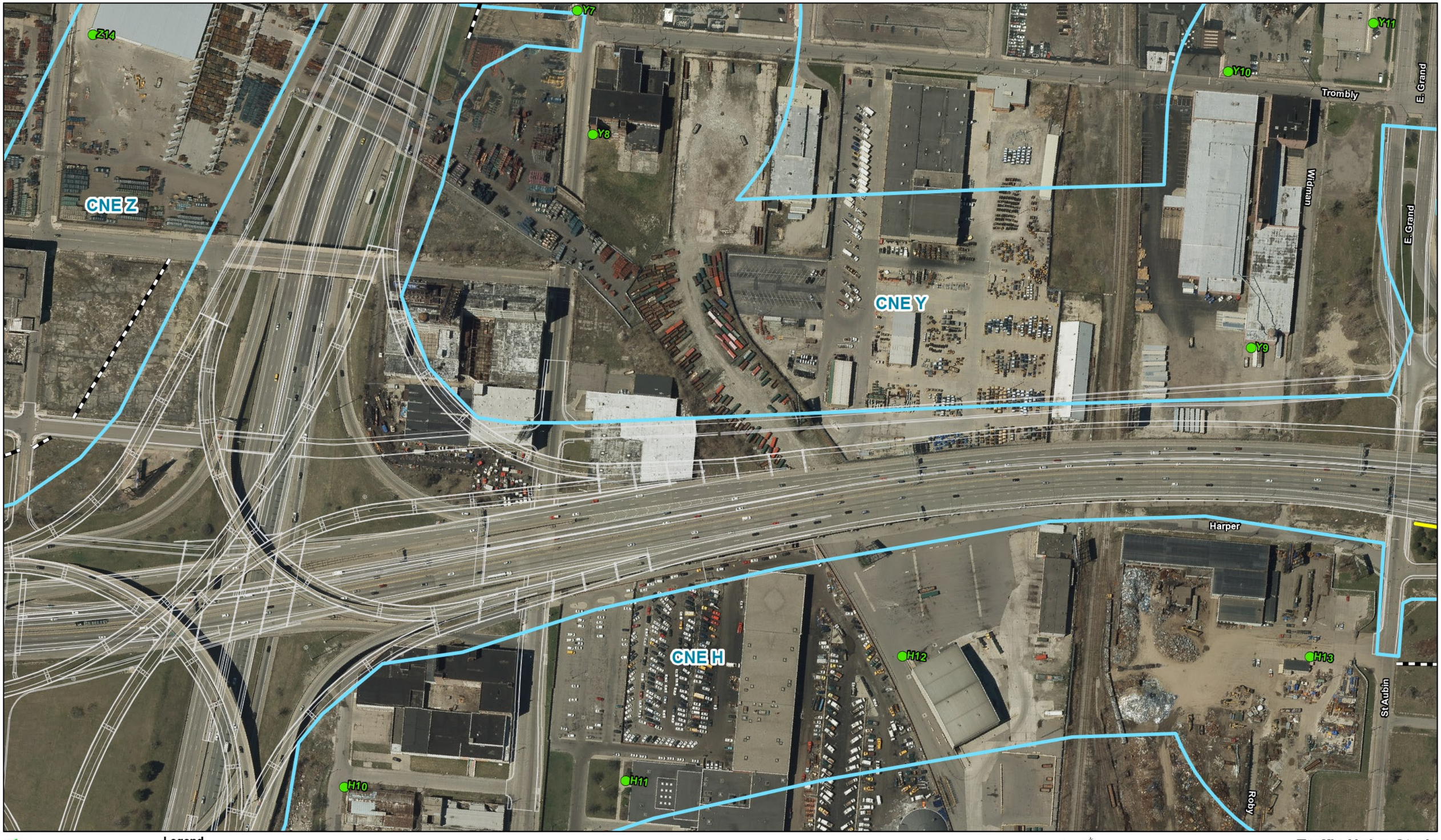
0 200 400 Feet

MDOT Michigan Department of Transportation

HNTB

Traffic Noise Study
I-94 Detroit Modernization Project
Detroit, Michigan

Figure 4.5



MDOT Michigan Department of Transportation

HNTB

Legend

TNM Receivers

- Not Impacted / Benefitted
- Impacted / Benefitted
- Not Impacted / Not Benefitted
- Impacted / Not Benefitted

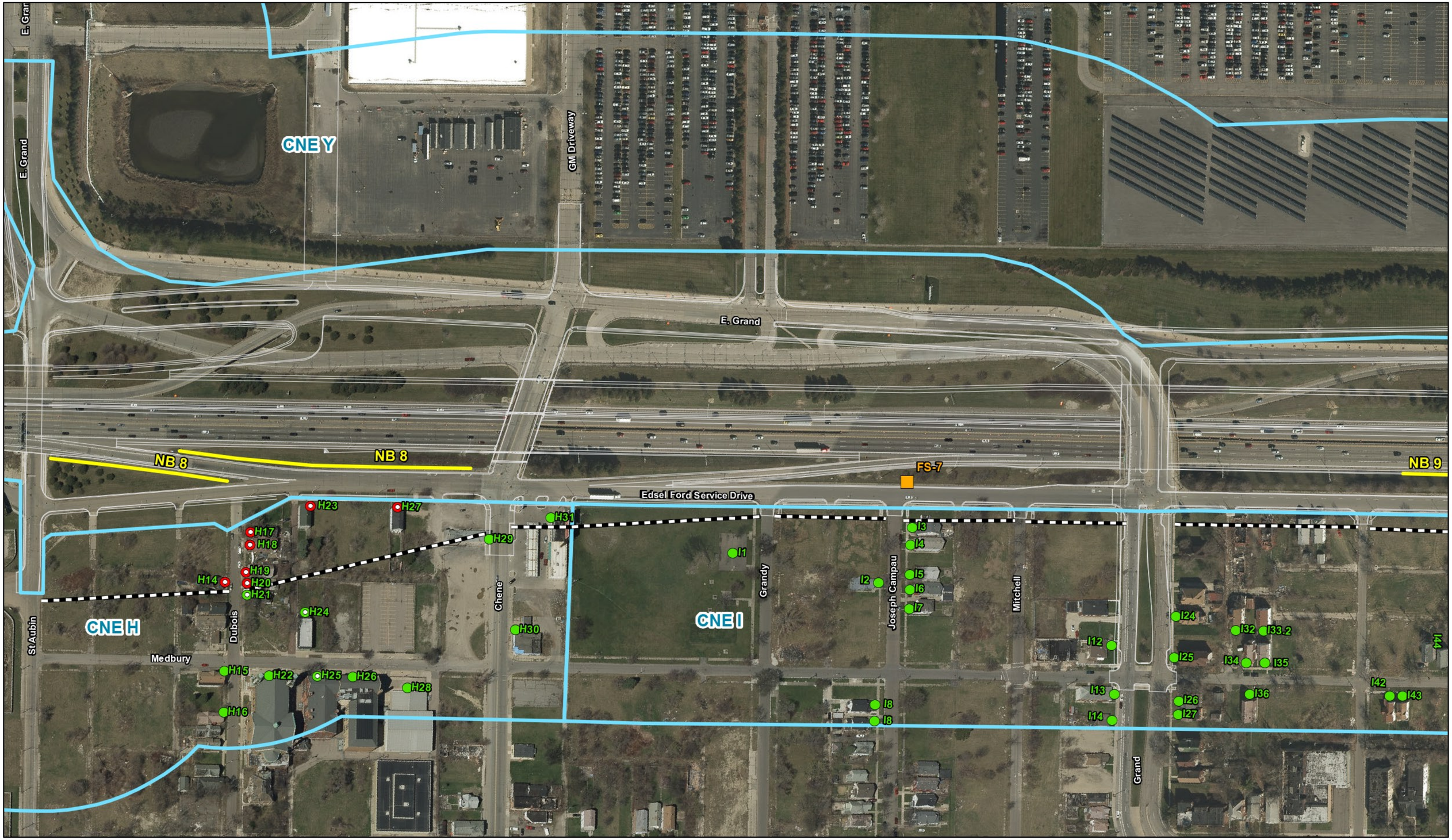
- Field Sites
- Noise Barriers Analyzed
- Feasible and Reasonable Noise Barrier
- 66 Setback
- Alternative Common Noise Environment

Note: Each TNM receiver can represent multiple receivers. Appendix C provides details of the number of receptors per receiver shown on this exhibit.

0 200 400
Feet

Traffic Noise Study
I-94 Detroit Modernization Project
Detroit, Michigan

Figure 4.6



Legend

TNM Receivers

- Not Impacted / Benefitted
- Impacted / Benefitted
- Not Impacted / Not Benefitted
- Impacted / Not Benefitted

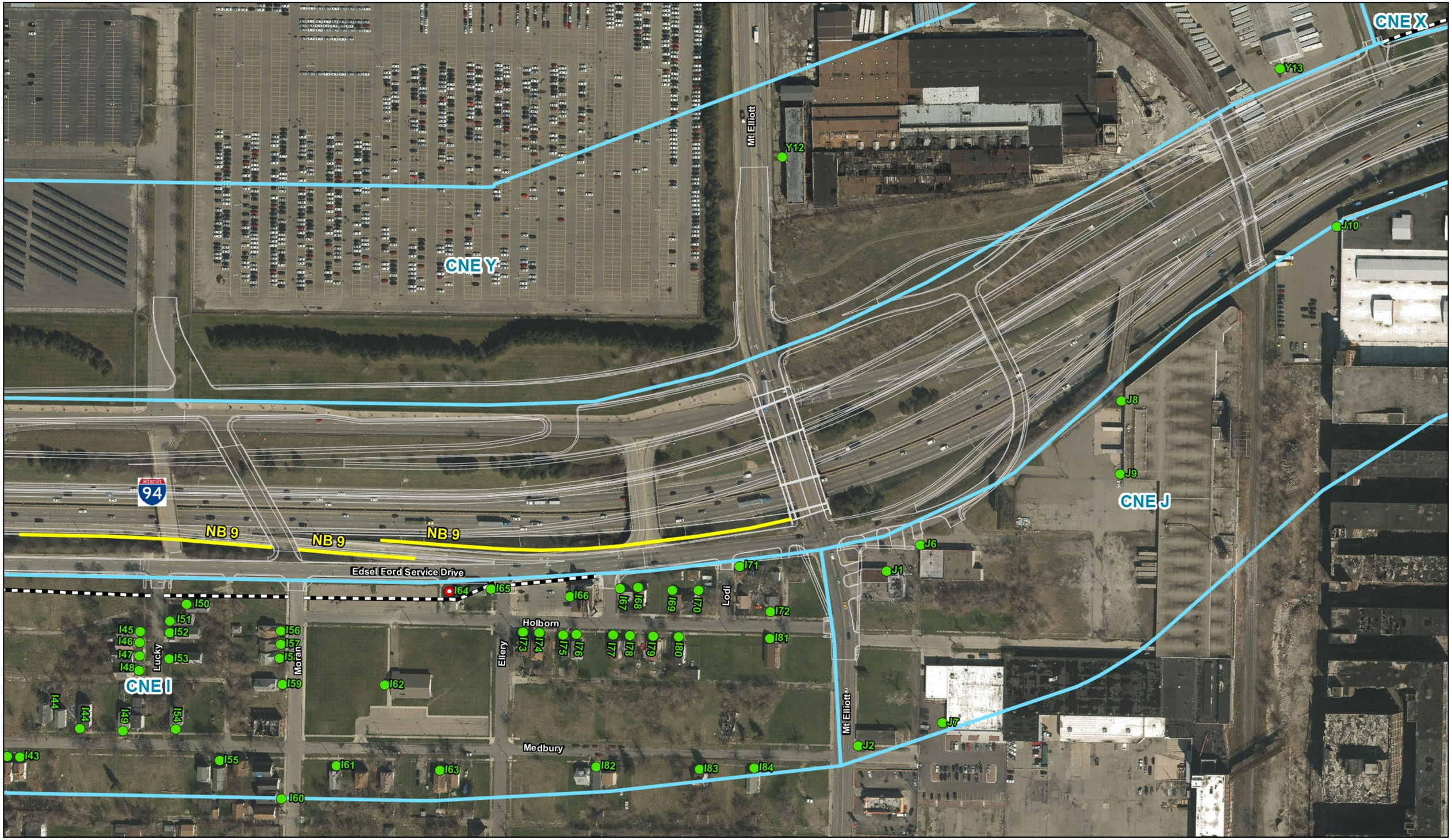
- Field Sites
- Noise Barriers Analyzed
- Feasible and Reasonable Noise Barrier
- 66 Setback
- Alternative Common Noise Environment

Note: Each TNM receiver can represent multiple receivers. Appendix C provides details of the number of receptors per receiver shown on this exhibit.

0 200 400
Feet

Traffic Noise Study
I-94 Detroit Modernization Project
Detroit, Michigan

Figure 4.7



Legend

TNM Receivers

- Not Impacted / Benefitted
- Impacted / Benefitted
- Not Impacted / Not Benefitted
- Impacted / Not Benefitted

- Field Sites
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0 200 400
Feet

MDOT Michigan Department of Transportation

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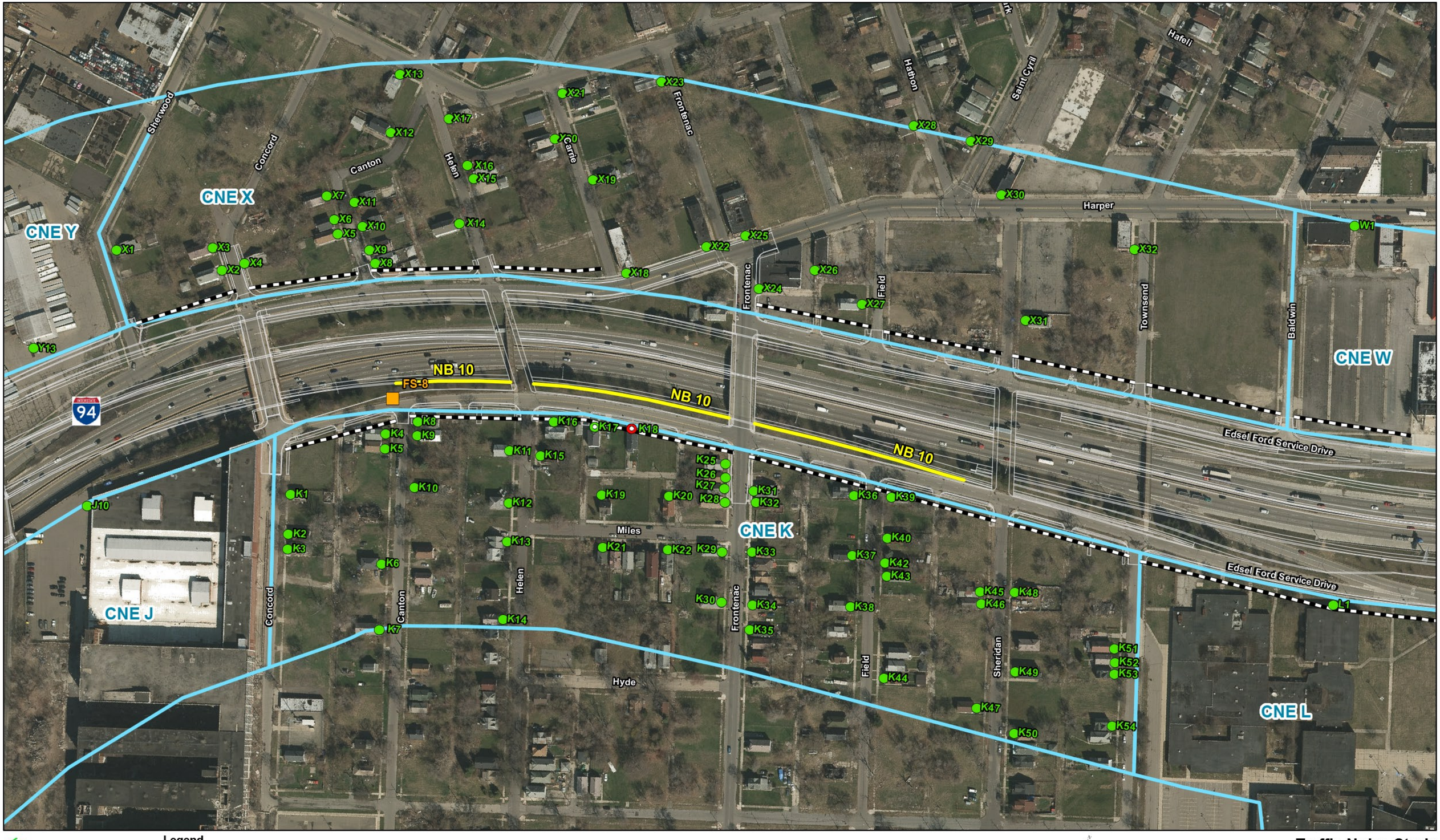
Traffic Noise Study
I-94 Detroit Modernization Project
Detroit, Michigan

Figure 4.8



Legend

TNM Receivers

- Not Impacted / Benefitted
- Impacted / Benefitted
- Not Impacted / Not Benefitted
- Impacted / Not Benefitted

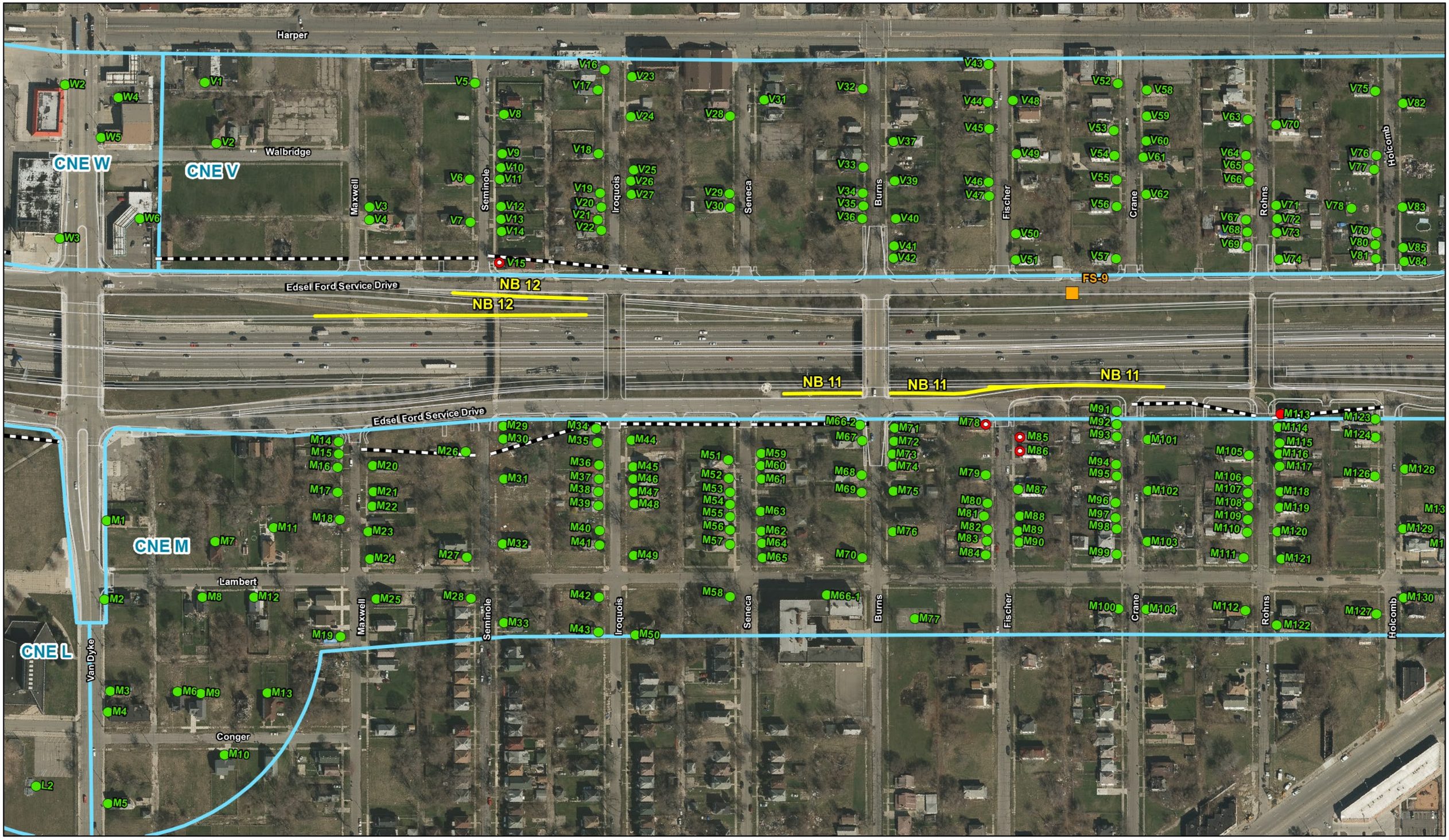
- Field Sites
- Noise Barriers Analyzed
- Feasible and Reasonable Noise Barrier
- 66 Setback Alternative
- Common Noise Environment

Note: Each TNM receiver can represent multiple receivers. Appendix C provides details of the number of receptors per receiver shown on this exhibit.

0 200 400
Feet

Traffic Noise Study
I-94 Detroit Modernization Project
Detroit, Michigan

Figure 4.9



Legend

TNM Receivers

- Not Impacted / Benefitted
- Impacted / Benefitted
- Not Impacted / Not Benefitted
- Impacted / Not Benefitted

- Field Sites
- Noise Barriers Analyzed
- Feasible and Reasonable Noise Barrier
- 66 Setback
- Alternative Common Noise Environment

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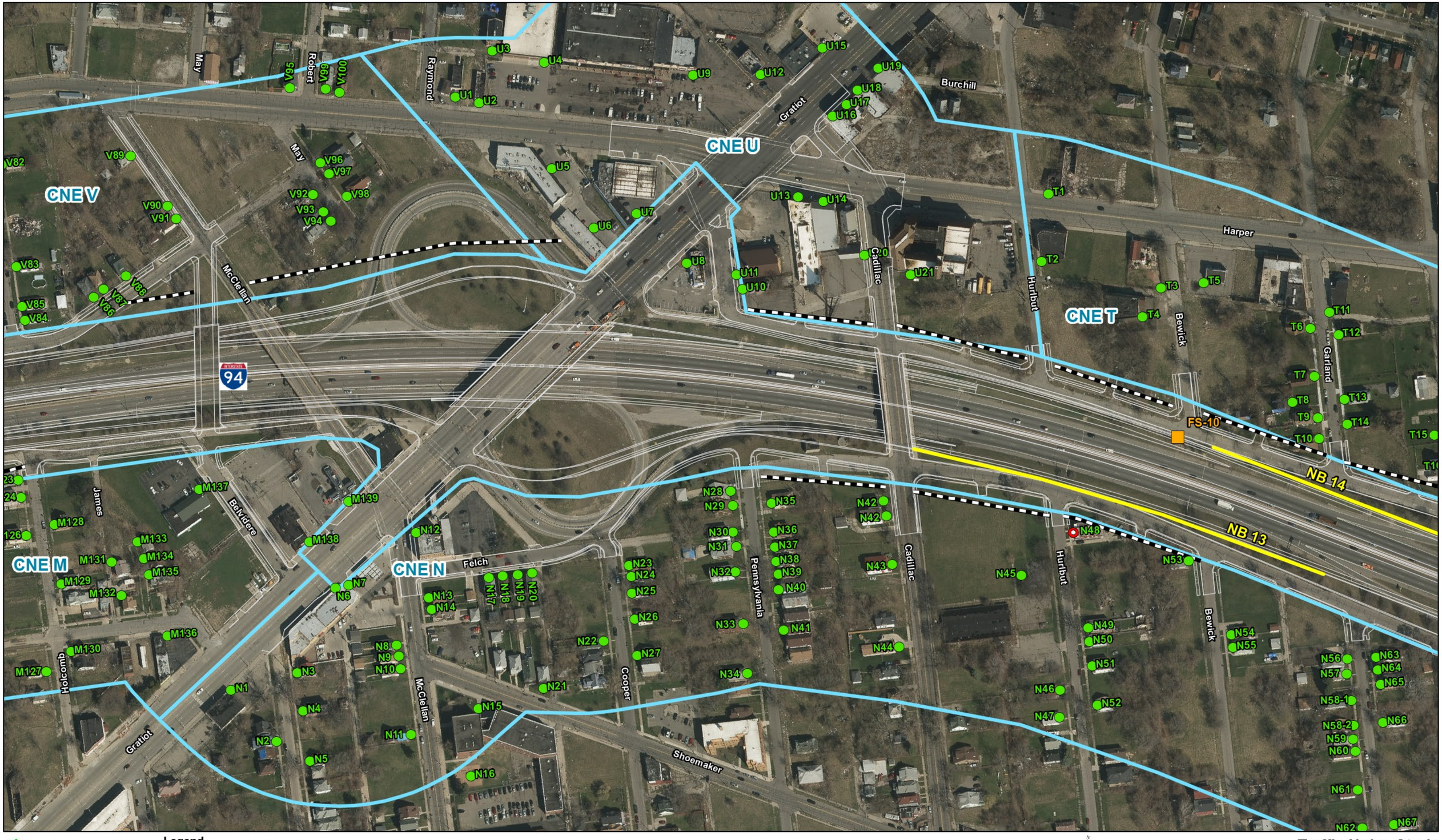
0 200 400
Feet

Traffic Noise Study
I-94 Detroit Modernization Project
Detroit, Michigan

Figure 4.10



Legend

TNM Receivers

- Not Impacted / Benefitted
- Impacted / Benefitted
- Not Impacted / Not Benefitted
- Impacted / Not Benefitted

- Field Sites
- Noise Barriers Analyzed
- Feasible and Reasonable Noise Barrier

- 66 Setback
- Alternative Common Noise Environment

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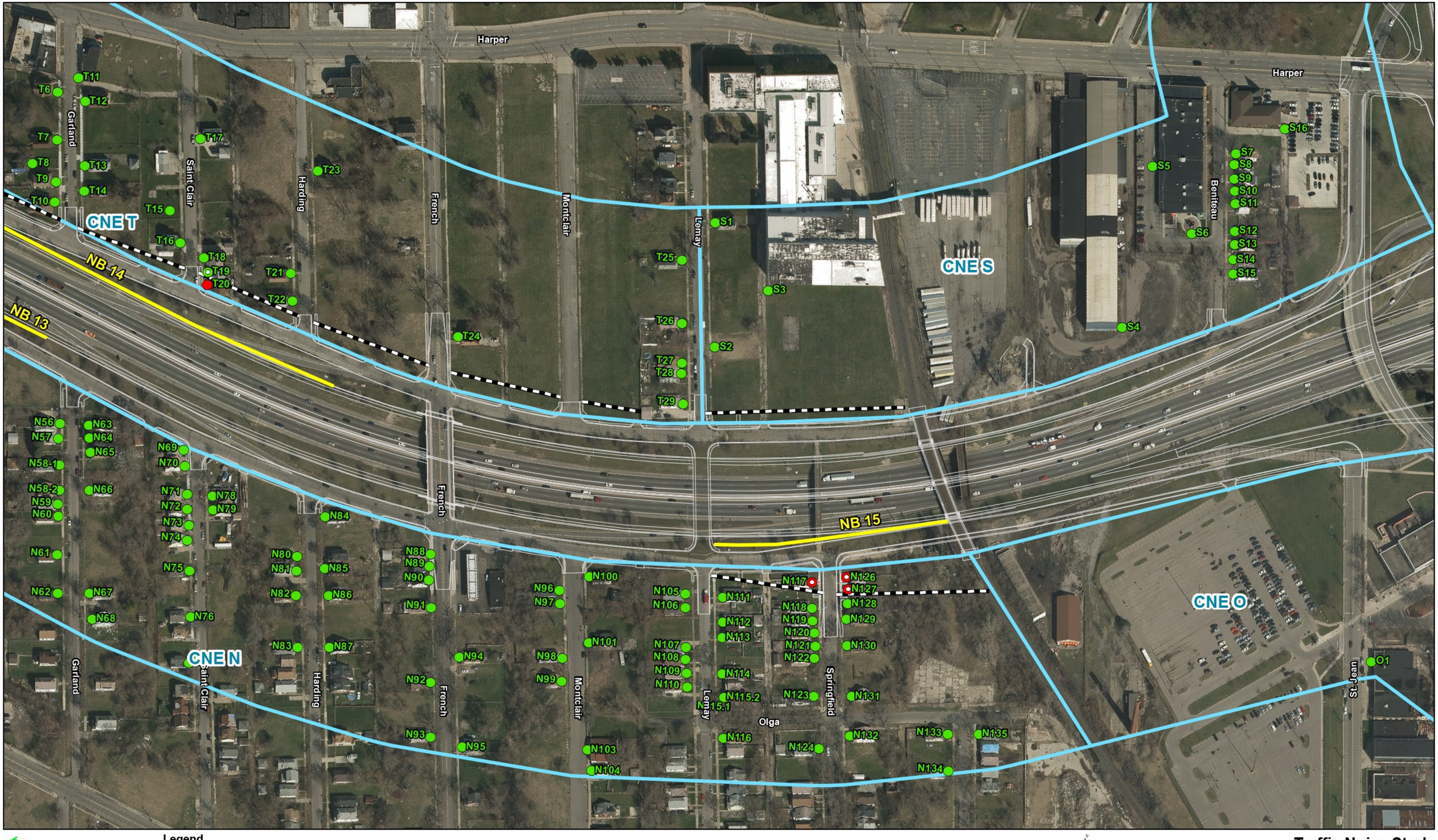
0 200 400
Feet

Traffic Noise Study
I-94 Detroit Modernization Project
Detroit, Michigan

Figure 4.11



Legend

TNM Receivers

- Not Impacted / Benefitted
- Impacted / Benefitted
- Not Impacted / Not Benefitted
- Impacted / Not Benefitted

- Field Sites
- Noise Barriers Analyzed
- Feasible and Reasonable Noise Barrier
- 66 Setback
- Alternative Common Noise Environment

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0 200 400
Feet

Traffic Noise Study
I-94 Detroit Modernization Project
Detroit, Michigan

Figure 4.12

CNE S
CNE R
CNE S
CNE P
CNE O
R8
R9
R10
R11
R12
R13
R14
R15
R16
R18
R20
R19
R21
R22
R23
R24
R31
R32
R33
R34
R35
R36
R37
R39
R40
R41
R42
R43
R44
R45
R25
R26
R27
R51
R52
R53
R54
R46
R47
R48
Conner
Barrett
Harrell
Norcross
Camden
Evanston
NB 16
FS-11
Edsel Ford Service Drive
94
P1
P2
P9
P18
P19
P22
P23
P24
P25
P26
P27
P28
P29
P30
P31
P32
P33
P34
P35
P36
P37
P38
P39
P40
P41
P42
P43
P44
P45
P46
P47
P48
P49
P13
P10
P20
P3
P14
P11
P15
P4
P5
P6
P7
P5
Gunston
Hern
Conner
Barrett
Harrell
Norcross
O2

Legend

TNM Receivers

- Not Impacted / Benefitted
- Impacted / Benefitted
- Not Impacted / Not Benefitted
- Impacted / Not Benefitted

- Field Sites
- Noise Barriers Analyzed
- Feasible and Reasonable Noise Barrier
- 66 Setback
- Alternative
- Common Noise Environment

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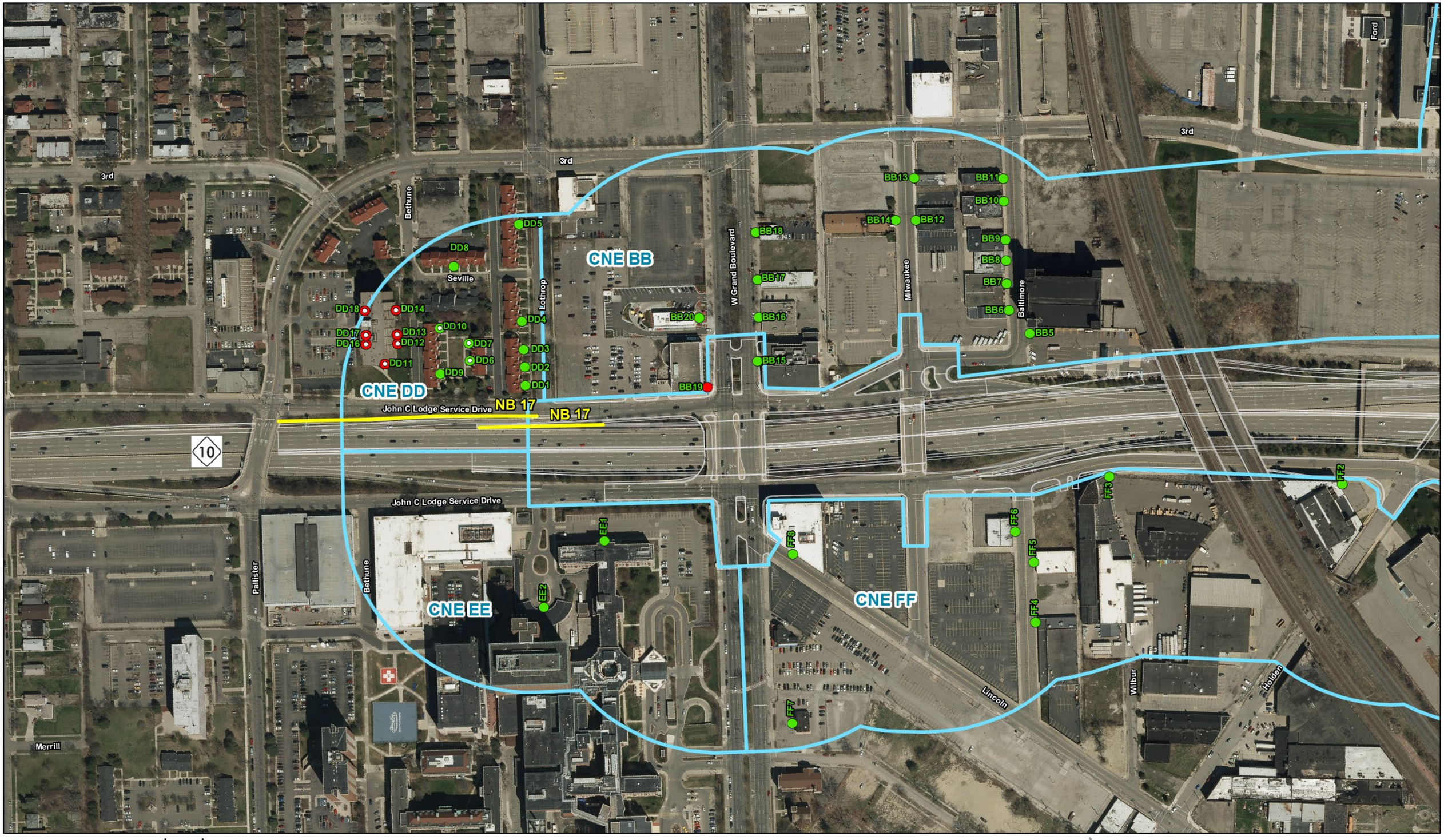
0 200 400
Feet

Traffic Noise Study
I-94 Detroit Modernization Project
Detroit, Michigan

Figure 4.13



Legend

TNM Receivers

- Not Impacted / Benefitted
- Impacted / Benefitted
- Not Impacted / Not Benefitted
- Impacted / Not Benefitted

- Field Sites
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- Common Noise Environment

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0 200 400
Feet

Traffic Noise Study
I-94 Detroit Modernization Project
Detroit, Michigan

Figure 4.14

Anthony Wayne

CNE F

CNE E

John C Lodge Service Drive

NB 19

F1 F2 F3 F4 F5

E1 E2 E3 E4 E5 E6 E7 E10 E12 E13 E14 E15

CNE C

CNE GG

CNE D

C1 C1.1 C1.2 C1.3 C2 C3

D4 D5 D6 D11 D12 D13 D14 D15 D16 D17 D18 D19 D21 D23 D25 D26 D28 D29 D30 D31

Warren

Forest

94

Legend

TNM Receivers

- Not Impacted / Benefitted
- Impacted / Benefitted
- Not Impacted / Not Benefitted
- Impacted / Not Benefitted

- Field Sites
- Noise Barriers Analyzed
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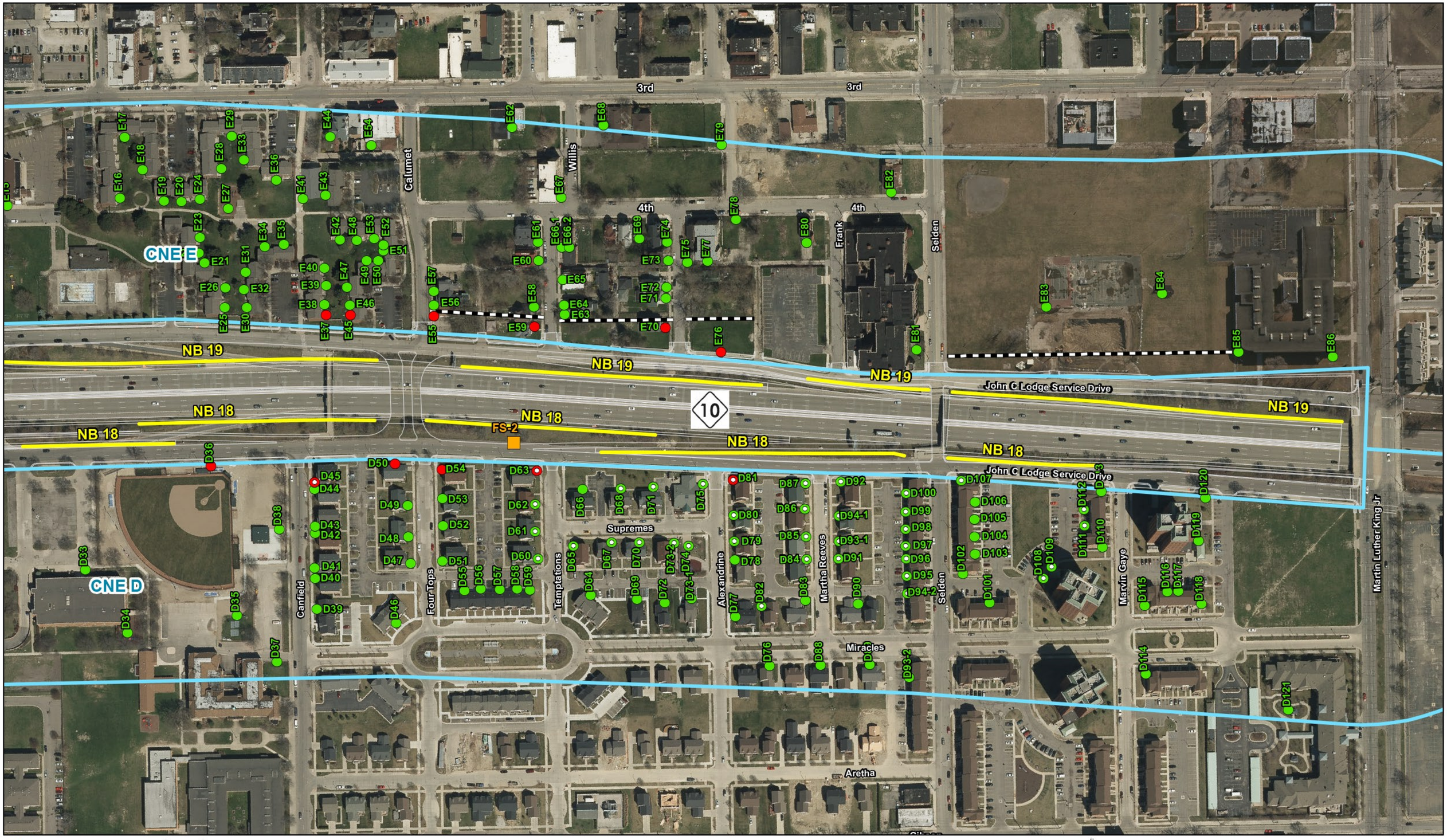
0 200 400

Feet

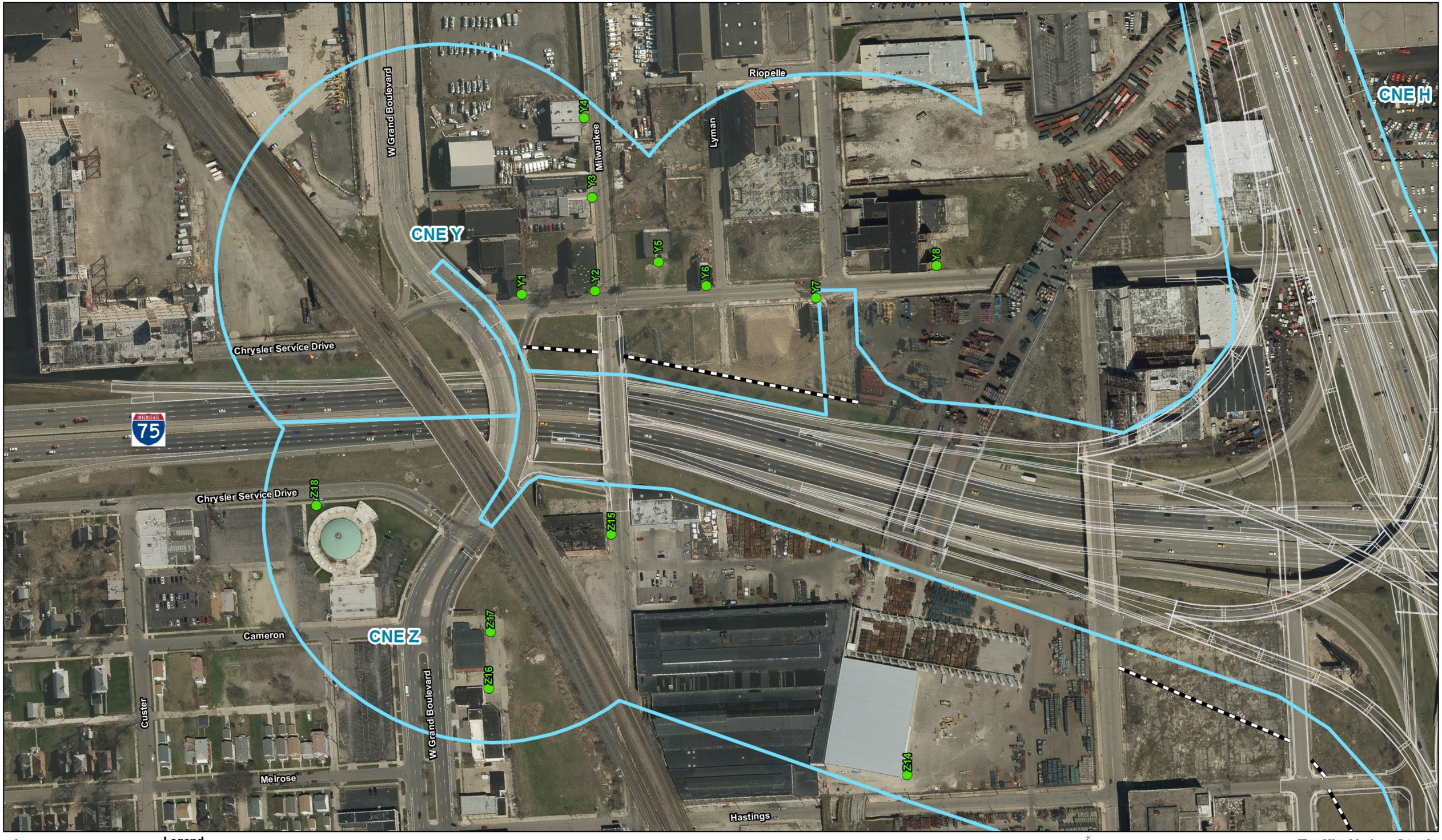
Traffic Noise Study
I-94 Detroit Modernization Project
Detroit, Michigan

Figure 4.15



Traffic Noise Study
I-94 Detroit Modernization Project
Detroit, Michigan

Figure 4.16



Legend

TNM Receivers

- Not Impacted / Benefitted
- Impacted / Benefitted
- Not Impacted / Not Benefitted
- Impacted / Not Benefitted

- Field Sites
- Noise Barriers Analyzed
- Feasible and Reasonable Noise Barrier
- 66 Setback
- Alternative Common Noise Environment

Note: Each TNM receiver can represent multiple receivers. Appendix C provides details of the number of receptors per receiver shown on this exhibit.

0 200 400
Feet

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HNTB

Traffic Noise Study
I-94 Detroit Modernization Project
Detroit, Michigan

Figure 4.17

CNE H

CNE G

Chrysler Service Drive

I-75 Ramps to I-94

I-94 Ramps to I-75

NB 20

FS-6

NB 6

Ferry

Kirby

Warren

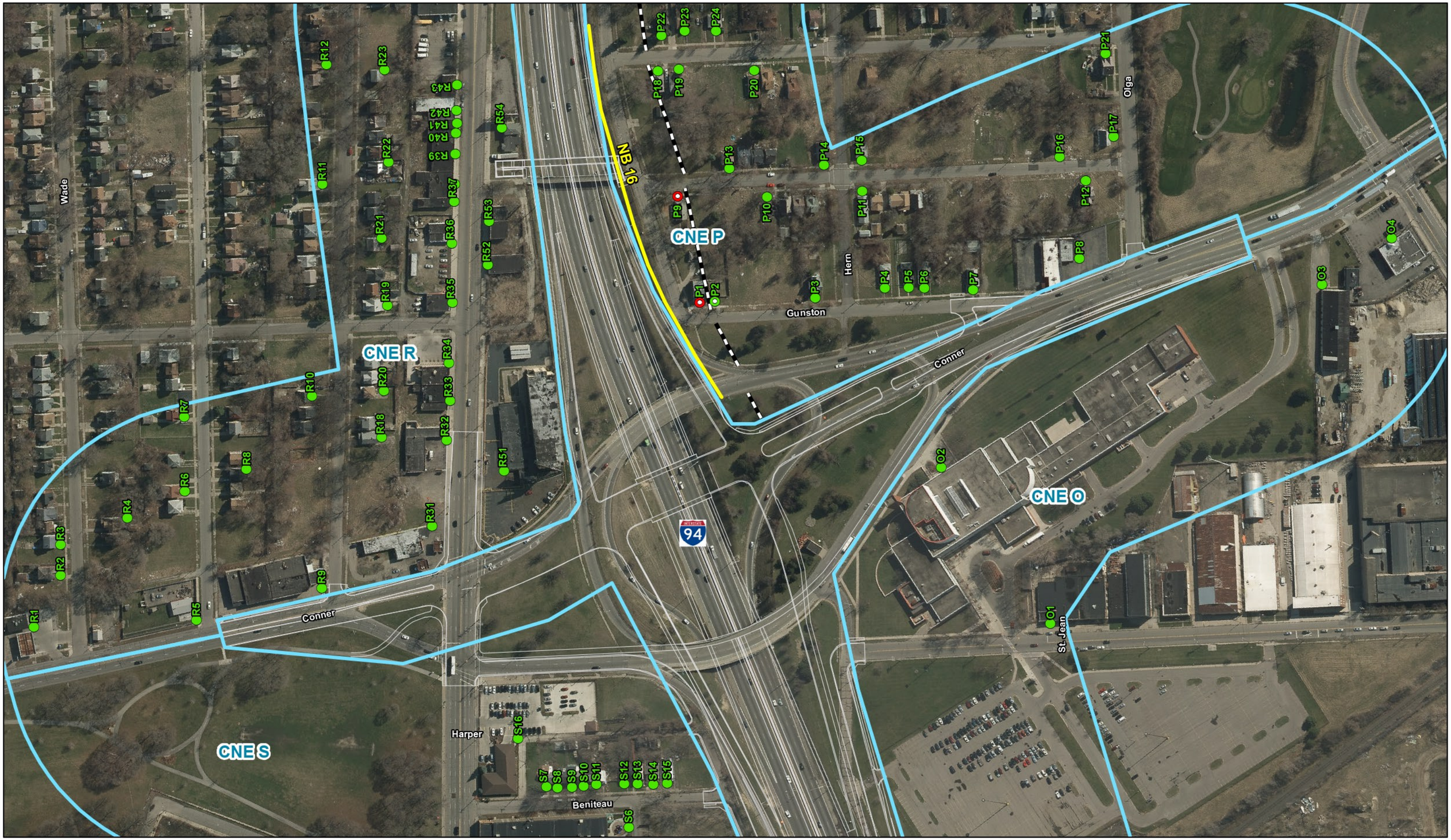
St Antoine

H1 H2 H3 H4 H5 H6 H7 H8 H9 H10

G46 G50 G51 G52 G53 G54-1 G54-2 G55 G56 G57 G58 G59 G60 G61 G62 G63 G64 G65 G66 G67 G68 G69 G70 G71 G72 G73 G74 G75-1 G75-2 G76 G78 G79 G80 G81 G82 G83 G84 G85 G86 G87 G88 G89 G90 G91 G92 G93 G94 G95 G96 G97 G98 G99 G101 G102 G103-1 G103-2 G104 G105 G106 G107 G108 G109 G110 G111 G112 G113 G114 G115 G116 G117 G118 G119 G120 G121 G122 G123 G127 G128 G129 G130 G131 G132

Traffic Noise Study
I-94 Detroit Modernization Project
Detroit, Michigan

Figure 4.18



MDOT Michigan Department of Transportation

HNTB

Legend

TNM Receivers

- Not Impacted / Benefitted
- Impacted / Benefitted
- Not Impacted / Not Benefitted
- Impacted / Not Benefitted

- Field Sites
- Noise Barriers Analyzed
- Feasible and Reasonable Noise Barrier
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- Alternative
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0 200 400

Feet

Traffic Noise Study
I-94 Detroit Modernization Project
Detroit, Michigan

Figure 4.19

Appendix B: Calibration Certificates

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.40684

Instrument: **Microphone**
Model: **1225**
Manufacturer: **Norsonic**
Serial number: **52318**
Composed of:

Date Calibrated: **5/7/2018** *Cal Due:*

Status:	**Received**	**Sent**
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: __**Yes** _**X**_ **No**

Customer: **HNTB Corporation**
Tel/Fax: **414-359-2300/414-359-2314**

Address: **11414 West Park Place, Suite 300, Milwaukee, WI 53224**

Tested in accordance with the following procedures and standards:
Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

Instrumentation used for calibration: N-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 28, 2017	Scantek, Inc./ NVLAP	Jul 28, 2018
DS-360-SRS	Function Generator	88077	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2018
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Sep 20, 2017	ACR Env./ A2LA	Sep 20, 2018
HM30-Thommen	Meteo Station	1040170/39633	Oct 25, 2017	ACR Env./ A2LA	Oct 25, 2018
PC Program 1017 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Nov 10, 2017	Scantek, Inc./ NVLAP	Nov 10, 2018
1203-Norsonic	Preamplifier	92268	Oct 18, 2017	Scantek, Inc./ NVLAP	Oct 18, 2018
4180-Brüel&Kjær	Microphone	2246115	Oct 24, 2017	DANAK / DPLA	Oct 24, 2019

Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)

Calibrated by:	Jeremy Gotwalt	**Authorized signatory:**	Steven E Marshall
Signature		Signature	
Date	5/7/18	Date	5/8/18

Document stored as: Z:\Calibration Lab\Mic 2018\NOR1225_52318_M1.doc

Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.40683

Instrument: **Sound Level Meter**
Model: **118**
Manufacturer: **Norsonic**
Serial number: **31483**
Tested with: **Microphone 1225 s/n 52318**
Preamplifier 1206 s/n 30522
Type (class): **1**
Customer: **HNTB Corporation**
Tel/Fax: **414-359-2300 / 414-359-2314**

Date Calibrated: **5/7/2018** *Cal Due:*

Status:	**Received**	**Sent**
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: __Yes _X_ No
Calibration service: __ Basic _X_ Standard
Address: **11414 West Park Place, Suite 300, Milwaukee, WI 53224**

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 28, 2017	Scantek, Inc./ NVLAP	Jul 28, 2018
DS-360-SRS	Function Generator	88077	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2018
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Sep 20, 2017	ACR Env./ A2LA	Sep 20, 2018
HM30-Thommen	Meteo Station	1040170/39633	Oct 25, 2017	ACR Env./ A2LA	Oct 25, 2018
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Nov 10, 2017	Scantek, Inc./ NVLAP	Nov 10, 2018

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
22.6	100.26	43.1

Calibrated by:	Jeremy Gotwalt	**Authorized signatory:**	Steven E. Marshall
Signature		Signature	
Date	5/7/18	Date	5/8/2018

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Scantek, Inc.
CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.40682

Instrument:	**Acoustical Calibrator**
Model:	**1251**
Manufacturer:	**Norsonic**
Serial number:	**30825**
Class (IEC 60942):	**1**
Barometer type:	
Barometer s/n:	
Customer:	**HNTB Corporation**
Tel/Fax:	**414-359-2300 / 414-359-2314**

Date Calibrated: **5/7/2018** *Cal Due:*

Status:	**Received**	**Sent**
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: __Yes _X_ No

Address: **11414 West Park Place, Suite 300, Milwaukee, WI 53224**

Tested in accordance with the following procedures and standards:
Calibration of Acoustical Calibrators, Scantek Inc., Rev. 10/1/2010

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 28, 2017	Scantek, Inc./ NVLAP	Jul 28, 2018
DS-360-SRS	Function Generator	88077	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2018
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Sep 20, 2017	ACR Env./ A2LA	Sep 20, 2018
HM30-Thommen	Meteo Station	1040170/39633	Oct 25, 2017	ACR Env./ A2LA	Oct 25, 2018
140-Norsonic	Real Time Analyzer	1403978	Mar 22, 2018	Scantek, Inc. / NVLAP	Mar 22, 2019
PC Program 1018 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
4192-Brüel&Kjær	Microphone	2854675	Nov 11, 2017	Scantek, Inc. / NVLAP	Nov 11, 2018
1203-Norsonic	Preamplifier	92268	Oct 18, 2017	Scantek, Inc./ NVLAP	Oct 18, 2018

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK)

Calibrated by:	Jeremy Gotwalt	**Authorized signatory:**	Steven E. Marshall
Signature		Signature	
Date	5/7/18	Date	5/8/2018

Document stored as: Z:\Calibration Lab\Cal 2018\NOR1251_30825_M1.doc

Appendix C: Impact Analysis Results, dB(A) $L_{eq(1h)}$

Table 9: Design Hour Noise Levels, dBA L_{eq}(1h)

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
A1	INDUSTRIAL	F	-	0	74.4	73.5	-0.9	No
A2	PICNIC TABLE	C	67	1	49.2	48.7	-0.5	No
A3	INDUSTRIAL	F	-	0	72.6	67.7	-4.9	No
B1	RESTAURANT	E	72	1	57.8	57.4	-0.4	No
B2.1	RESIDENTIAL	B	67	2	74.4	72.5	-1.9	Yes
B2.2	RESIDENTIAL	B	67	2	71.2	67.9	-3.3	Yes
B3	RESIDENTIAL	B	67	2	66.4	63.5	-2.9	No
B4	RESIDENTIAL	B	67	1	58.3	57.9	-0.4	No
B5	RESIDENTIAL	B	67	2	69.5	67.5	-2.0	Yes
B6	RESIDENTIAL	B	67	1	59.8	59.4	-0.4	No
B7	RESIDENTIAL	B	67	1	60.6	60.2	-0.4	No
B8	RESIDENTIAL	B	67	2	58.8	59.0	0.2	No
B9	RESIDENTIAL	B	67	5	57.0	57.6	0.6	No
B10	VACANT	G	-	0	68.8	68.3	-0.5	No
B11	RESIDENTIAL	B	67	2	56.1	57.5	1.4	No
B12	RESIDENTIAL	B	67	1	64.0	64.9	0.9	No
B13	RESIDENTIAL	B	67	1	60.5	61.8	1.3	No
B14	INDUSTRIAL	F	-	0	66.0	66.8	0.8	No
B15	INDUSTRIAL	F	-	0	70.7	72.9	2.2	No
B16	INDUSTRIAL	F	-	0	59.0	60.1	1.1	No
B18	RESIDENTIAL	B	67	1	59.4	60.0	0.6	No
B19	RESIDENTIAL	B	67	1	69.2	68.9	-0.3	Yes
B20	RESIDENTIAL	B	67	2	55.7	56.4	0.7	No
B21	RESIDENTIAL	B	67	2	70.9	68.2	-2.7	Yes
B22	RESIDENTIAL	B	67	2	58.9	58.4	-0.5	No
B23	RESIDENTIAL	B	67	3	55.8	54.8	-1.0	No
B24	RESIDENTIAL	B	67	2	54.6	53.6	-1.0	No

Boldface indicates noise levels that approach, equal or exceed the NAC and create an impact.

Receiver IDs with a decimal point (.) indicates floor. For example, B2.1, indicates first floor; B2.2, indicates second floor, etc. If there is not a decimal point, it is first floor.

NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
B25	RESIDENTIAL	B	67	2	71.9	67.4	-4.5	Yes
B26	VACANT	G	-	0	65.8	64.0	-1.8	No
B27	VACANT	G	-	0	56.4	56.3	-0.1	No
B28.1	RESIDENTIAL	B	67	1	54.6	54.0	-0.6	No
B28.2	RESIDENTIAL	B	67	1	57.5	56.5	-1.0	No
B29.1	RESIDENTIAL	B	67	1	53.0	52.8	-0.2	No
B29.2	RESIDENTIAL	B	67	1	55.9	55.3	-0.6	No
B30.1	RESIDENTIAL	B	67	3	51.6	51.4	-0.2	No
B30.2	RESIDENTIAL	B	67	4	54.4	53.7	-0.7	No
B31.1	RESIDENTIAL	B	67	4	49.2	49.3	0.1	No
B31.2	RESIDENTIAL	B	67	3	51.2	51.0	-0.2	No
B32.1	RESIDENTIAL	B	67	2	52.5	52.2	-0.3	No
B32.2	RESIDENTIAL	B	67	2	54.2	53.7	-0.5	No
B32.3	RESIDENTIAL	B	67	3	53.3	53.0	-0.3	No
B33	RESIDENTIAL	B	67	1	61.6	61.1	-0.5	No
B34	RESIDENTIAL	B	67	1	60.1	59.7	-0.4	No
B35.1	RESIDENTIAL	B	67	1	57.4	56.6	-0.8	No
B35.2	RESIDENTIAL	B	67	1	56.9	55.5	-1.4	No
B36.1	RESIDENTIAL	B	67	1	56.2	55.1	-1.1	No
B36.2	RESIDENTIAL	B	67	1	58.7	57.0	-1.7	No
B37.1	RESIDENTIAL	B	67	1	54.9	53.9	-1.0	No
B37.2	RESIDENTIAL	B	67	1	56.7	55.7	-1.0	No
B38.1	RESIDENTIAL	B	67	2	52.5	51.6	-0.9	No
B38.2	RESIDENTIAL	B	67	2	54.0	53.3	-0.7	No
B39	RESIDENTIAL	B	67	4	50.1	49.7	-0.4	No
B40	VACANT	G	-	0	69.0	62.0	-7.0	No
B41	MAINTENANCE FACILITY	F	-	0	59.2	57.3	-1.9	No
B42	INDUSTRIAL	F	-	0	54.4	54.2	-0.2	No

Boldface indicates noise levels that approach, equal or exceed the NAC and create an impact.

Receiver IDs with a decimal point (.) indicates floor. For example, B2.1, indicates first floor; B2.2, indicates second floor, etc. If there is not a decimal point, it is first floor.

NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
B43	PICNIC TABLE	C	67	1	51.5	51.0	-0.5	No
C1	ACTIVE SPORT AREA	C	67	1	67.1	63.6	-3.5	No
C1.1	ACTIVE SPORT AREA	C	67	1	63.6	59.9	-3.7	No
C1.2	ACTIVE SPORT AREA	C	67	1	57.3	53.0	-4.3	No
C1.3	ACTIVE SPORT AREA	C	67	1	70.1	64.9	-5.2	No
C2	ACTIVE SPORT AREA	C	67	1	69.0	64.1	-4.9	No
C3	ACTIVE SPORT AREA	C	67	1	68.2	62.3	-5.9	No
D4.2	RESIDENTIAL	B	67	2	54.8	50.0	-4.8	No
D4.3	RESIDENTIAL	B	67	2	57.2	52.4	-4.8	No
D4.4	RESIDENTIAL	B	67	2	59.0	54.0	-5.0	No
D4.5	RESIDENTIAL	B	67	2	60.2	55.1	-5.1	No
D4.6	RESIDENTIAL	B	67	2	61.3	56.4	-4.9	No
D4.7	RESIDENTIAL	B	67	2	62.2	57.7	-4.5	No
D4.8	RESIDENTIAL	B	67	2	63.1	59.7	-3.4	No
D5.2	RESIDENTIAL	B	67	2	54.3	49.5	-4.8	No
D5.3	RESIDENTIAL	B	67	2	57.5	52.9	-4.6	No
D5.4	RESIDENTIAL	B	67	2	59.7	54.5	-5.2	No
D5.5	RESIDENTIAL	B	67	2	60.8	55.7	-5.1	No
D5.6	RESIDENTIAL	B	67	2	61.9	56.8	-5.1	No
D5.7	RESIDENTIAL	B	67	2	62.9	58.3	-4.6	No
D5.8	RESIDENTIAL	B	67	2	63.6	60.3	-3.3	No
D6.2	RESIDENTIAL	B	67	2	52.4	50.2	-2.2	No
D6.3	RESIDENTIAL	B	67	2	57.9	54.0	-3.9	No
D6.4	RESIDENTIAL	B	67	2	60.1	55.2	-4.9	No
D6.5	RESIDENTIAL	B	67	2	61.4	56.4	-5.0	No
D6.6	RESIDENTIAL	B	67	2	62.5	57.8	-4.7	No
D6.7	RESIDENTIAL	B	67	2	63.5	59.9	-3.6	No
D6.8	RESIDENTIAL	B	67	2	64.7	61.1	-3.6	No

Boldface indicates noise levels that approach, equal or exceed the NAC and create an impact.

Receiver IDs with a decimal point (.) indicates floor. For example, B2.1, indicates first floor; B2.2, indicates second floor, etc. If there is not a decimal point, it is first floor.

NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
D11.2	RESIDENTIAL	B	67	2	47.5	44.2	-3.3	No
D11.3	RESIDENTIAL	B	67	2	52.0	47.6	-4.4	No
D11.4	RESIDENTIAL	B	67	2	53.4	48.7	-4.7	No
D11.5	RESIDENTIAL	B	67	2	54.3	50.0	-4.3	No
D11.6	RESIDENTIAL	B	67	2	55.2	51.4	-3.8	No
D11.7	RESIDENTIAL	B	67	2	56.4	53.1	-3.3	No
D11.8	RESIDENTIAL	B	67	2	58.3	55.5	-2.8	No
D12.2	RESIDENTIAL	B	67	2	46.6	44.1	-2.5	No
D12.3	RESIDENTIAL	B	67	2	51.4	47.5	-3.9	No
D12.4	RESIDENTIAL	B	67	2	53.3	49.0	-4.3	No
D12.5	RESIDENTIAL	B	67	2	54.2	50.3	-3.9	No
D12.6	RESIDENTIAL	B	67	2	55.6	51.8	-3.8	No
D12.7	RESIDENTIAL	B	67	2	56.8	53.4	-3.4	No
D12.8	RESIDENTIAL	B	67	2	58.4	55.6	-2.8	No
D13	RETAIL	F	-	0	66.5	62.7	-3.8	No
D14	RESIDENTIAL	B	67	1	54.8	50.2	-4.6	No
D15	RESIDENTIAL	B	67	1	55.7	50.8	-4.9	No
D16	RESIDENTIAL	B	67	1	57.1	51.4	-5.7	No
D17	RESIDENTIAL	B	67	1	60.8	55.2	-5.6	No
D18	RESIDENTIAL	B	67	1	62.8	57.8	-5.0	No
D19	RESIDENTIAL	B	67	1	67.0	61.5	-5.5	No
D21	RESIDENTIAL	B	67	3	49.5	46.3	-3.2	No
D23.1	RESIDENTIAL	B	67	2	73.8	70.9	-2.9	Yes
D23.2	RESIDENTIAL	B	67	2	74.2	74.0	-0.2	Yes
D25.1	RESIDENTIAL	B	67	2	73.4	69.6	-3.8	Yes
D25.2	RESIDENTIAL	B	67	2	74.0	73.6	-0.4	Yes
D26	RESIDENTIAL	B	67	3	50.8	47.6	-3.2	No
D28.1	RESIDENTIAL	B	67	2	55.5	52.0	-3.5	No

Boldface indicates noise levels that approach, equal or exceed the NAC and create an impact.

Receiver IDs with a decimal point (.) indicates floor. For example, B2.1, indicates first floor; B2.2, indicates second floor, etc. If there is not a decimal point, it is first floor.

NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
D28.2	RESIDENTIAL	B	67	2	58.6	54.7	-3.9	No
D29.1	RESIDENTIAL	B	67	2	61.2	54.6	-6.6	No
D29.2	RESIDENTIAL	B	67	2	63.7	57.4	-6.3	No
D30	RESIDENTIAL	B	67	2	59.5	55.8	-3.7	No
D31	RESIDENTIAL	B	67	2	66.9	63.2	-3.7	No
D33	SCHOOL	C	67	1	58.8	55.7	-3.1	No
D34	PLAYGROUND	C	67	1	52.5	50.9	-1.6	No
D35	PLAYGROUND	C	67	1	55.4	53.6	-1.8	No
D36	ACTIVE SPORT AREA	C	67	1	70.7	69.1	-1.6	Yes
D37	RESIDENTIAL	B	67	1	52.7	50.9	-1.8	No
D38	PICNIC TABLE	C	67	1	60.6	59.2	-1.4	No
D39	RESIDENTIAL	B	67	2	54.2	53.0	-1.2	No
D40	RESIDENTIAL	B	67	3	55.7	54.8	-0.9	No
D41	RESIDENTIAL	B	67	3	56.3	55.5	-0.8	No
D42	RESIDENTIAL	B	67	3	58.7	57.7	-1.0	No
D43	RESIDENTIAL	B	67	3	59.3	58.2	-1.1	No
D44	RESIDENTIAL	B	67	3	63.6	62.0	-1.6	No
D45	RESIDENTIAL	B	67	3	69.6	68.2	-1.4	Yes
D46	RESIDENTIAL	B	67	4	39.9	38.5	-1.4	No
D47	RESIDENTIAL	B	67	3	53.1	49.6	-3.5	No
D48	RESIDENTIAL	B	67	2	56.2	51.9	-4.3	No
D49	RESIDENTIAL	B	67	2	61.3	56.3	-5.0	No
D50	RESIDENTIAL	B	67	3	70.9	69.9	-1.0	Yes
D51	RESIDENTIAL	B	67	3	53.1	49.8	-3.3	No
D52	RESIDENTIAL	B	67	2	57.4	53.3	-4.1	No
D53	RESIDENTIAL	B	67	2	66.2	63.9	-2.3	No
D54	RESIDENTIAL	B	67	3	73.0	71.3	-1.7	Yes
D55	RESIDENTIAL	B	67	1	51.6	49.0	-2.6	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
D56	RESIDENTIAL	B	67	1	52.2	49.5	-2.7	No
D57	RESIDENTIAL	B	67	1	55.1	51.7	-3.4	No
D58	RESIDENTIAL	B	67	1	54.2	51.0	-3.2	No
D59	RESIDENTIAL	B	67	1	51.4	47.4	-4.0	No
D60	RESIDENTIAL	B	67	3	59.1	55.2	-3.9	No
D61	RESIDENTIAL	B	67	2	58.7	53.7	-5.0	No
D62	RESIDENTIAL	B	67	2	63.2	57.3	-5.9	No
D63	RESIDENTIAL	B	67	3	74.3	73.0	-1.3	Yes
D64	RESIDENTIAL	B	67	4	47.7	44.0	-3.7	No
D65	RESIDENTIAL	B	67	3	62.8	59.0	-3.8	No
D66	RESIDENTIAL	B	67	3	67.7	62.6	-5.1	No
D67	RESIDENTIAL	B	67	2	61.3	55.7	-5.6	No
D68	RESIDENTIAL	B	67	3	67.9	61.3	-6.6	No
D69	RESIDENTIAL	B	67	2	47.6	43.6	-4.0	No
D70	RESIDENTIAL	B	67	2	54.1	48.6	-5.5	No
D71	RESIDENTIAL	B	67	3	68.1	61.0	-7.1	No
D72	RESIDENTIAL	B	67	1	49.6	44.9	-4.7	No
D73-1	RESIDENTIAL	B	67	2	51.5	46.1	-5.4	No
D73-2	RESIDENTIAL	B	67	3	55.5	49.6	-5.9	No
D74	PICNIC TABLE	C	67	1	55.7	49.7	-6.0	No
D75	RESIDENTIAL	B	67	1	68.2	61.7	-6.5	No
D76	RESIDENTIAL	B	67	5	46.7	44.5	-2.2	No
D77	RESIDENTIAL	B	67	2	49.9	45.8	-4.1	No
D78	RESIDENTIAL	B	67	1	54.1	48.3	-5.8	No
D79	RESIDENTIAL	B	67	1	56.1	49.6	-6.5	No
D80	RESIDENTIAL	B	67	1	60.9	54.1	-6.8	No
D81	RESIDENTIAL	B	67	1	74.3	70.8	-3.5	Yes
D82	RESIDENTIAL	B	67	1	52.2	48.1	-4.1	No

Boldface indicates noise levels that approach, equal or exceed the NAC and create an impact.

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
D83	RESIDENTIAL	B	67	2	51.2	46.0	-5.2	No
D84	RESIDENTIAL	B	67	3	57.4	51.5	-5.9	No
D85	RESIDENTIAL	B	67	2	58.2	51.5	-6.7	No
D86	RESIDENTIAL	B	67	2	62.6	55.8	-6.8	No
D87	RESIDENTIAL	B	67	3	68.6	63.3	-5.3	No
D88	RESIDENTIAL	B	67	2	47.8	43.9	-3.9	No
D89	RESIDENTIAL	B	67	3	43.7	42.4	-1.3	No
D90	RESIDENTIAL	B	67	3	52.7	46.5	-6.2	No
D91	RESIDENTIAL	B	67	3	54.8	48.8	-6.0	No
D92	RESIDENTIAL	B	67	3	70.5	64.2	-6.3	No
D93-1	RESIDENTIAL	B	67	2	57.1	50.9	-6.2	No
D93-2	RESIDENTIAL	B	67	6	48.0	42.9	-5.1	No
D94-1	RESIDENTIAL	B	67	2	67.6	58.6	-9.0	No
D94-2	RESIDENTIAL	B	67	6	53.5	46.8	-6.7	No
D95	RESIDENTIAL	B	67	3	57.7	51.4	-6.3	No
D96	RESIDENTIAL	B	67	3	57.1	49.8	-7.3	No
D97	RESIDENTIAL	B	67	3	58.6	50.9	-7.7	No
D98	RESIDENTIAL	B	67	3	67.0	59.1	-7.9	No
D99	RESIDENTIAL	B	67	3	63.5	55.8	-7.7	No
D100	RESIDENTIAL	B	67	3	67.0	60.1	-6.9	No
D101	RESIDENTIAL	B	67	12	55.6	49.5	-6.1	No
D102	RESIDENTIAL	B	67	3	37.8	41.5	3.7	No
D103	RESIDENTIAL	B	67	3	59.1	53.1	-6.0	No
D104	RESIDENTIAL	B	67	3	60.6	56.9	-3.7	No
D105	RESIDENTIAL	B	67	3	62.8	57.0	-5.8	No
D106	RESIDENTIAL	B	67	3	63.3	57.6	-5.7	No
D107	RESIDENTIAL	B	67	3	71.9	65.4	-6.5	No
D108	PICNIC TABLE	C	67	1	61.5	57.2	-4.3	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
D109	RESIDENTIAL	B	67	1	62.9	58.1	-4.8	No
D110	RESIDENTIAL	B	67	3	54.3	48.9	-5.4	No
D111	RESIDENTIAL	B	67	3	62.7	55.5	-7.2	No
D112	RESIDENTIAL	B	67	3	64.5	57.8	-6.7	No
D113	RESIDENTIAL	B	67	3	68.9	63.8	-5.1	No
D114	RESIDENTIAL	B	67	12	51.5	50.5	-1.0	No
D115	RESIDENTIAL	B	67	3	53.7	47.8	-5.9	No
D116	RESIDENTIAL	B	67	3	56.2	54.1	-2.1	No
D117	RESIDENTIAL	B	67	3	56.1	53.7	-2.4	No
D118	RESIDENTIAL	B	67	3	55.8	54.5	-1.3	No
D119	RESIDENTIAL	B	67	1	62.7	58.4	-4.3	No
D120	RESIDENTIAL	B	67	1	69.5	65.2	-4.3	No
D121	RESIDENTIAL	B	67	1	40.1	40.0	-0.1	No
E1	SCHOOL (NO EXTERIOR USE)	D	52	1	47.9	44.8	-3.1	No
E2	SCHOOL (NO EXTERIOR USE)	D	52	1	48.5	44.8	-3.7	No
E3	SCHOOL	C	67	1	50.0	44.5	-5.5	No
E4.1	RESIDENTIAL	B	67	2	58.5	53.9	-4.6	No
E4.2	RESIDENTIAL	B	67	2	60.7	56.6	-4.1	No
E4.3	RESIDENTIAL	B	67	2	64.1	60.1	-4.0	No
E5.1	RESIDENTIAL	B	67	2	54.2	49.1	-5.1	No
E5.2	RESIDENTIAL	B	67	2	56.0	51.7	-4.3	No
E5.3	RESIDENTIAL	B	67	2	58.5	54.5	-4.0	No
E6.1	RESIDENTIAL	B	67	2	49.6	44.8	-4.8	No
E6.2	RESIDENTIAL	B	67	2	50.9	47.1	-3.8	No
E6.3	RESIDENTIAL	B	67	2	52.2	48.7	-3.5	No
E7.1	RESIDENTIAL	B	67	2	69.6	66.2	-3.4	Yes
E7.2	RESIDENTIAL	B	67	2	73.3	71.0	-2.3	Yes
E7.3	RESIDENTIAL	B	67	2	74.0	73.2	-0.8	Yes

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
E10.1	RESIDENTIAL	B	67	2	70.6	67.9	-2.7	Yes
E10.2	RESIDENTIAL	B	67	2	73.5	70.9	-2.6	Yes
E10.3	RESIDENTIAL	B	67	2	74.2	73.1	-1.1	Yes
E12.1	RESIDENTIAL	B	67	2	68.1	64.3	-3.8	No
E12.2	RESIDENTIAL	B	67	2	68.9	66.3	-2.6	Yes
E12.3	RESIDENTIAL	B	67	2	69.7	68.1	-1.6	Yes
E13.1	RESIDENTIAL	B	67	2	58.3	55.9	-2.4	No
E13.2	RESIDENTIAL	B	67	2	62.0	58.7	-3.3	No
E13.3	RESIDENTIAL	B	67	2	64.2	60.2	-4.0	No
E14	OFFICE	E	72	1	54.2	52.4	-1.8	No
E15	PLACE OF WORSHIP	C	67	1	57.1	55.0	-2.1	No
E16	RESIDENTIAL	B	67	8	55.5	53.5	-2.0	No
E17	RESIDENTIAL	B	67	8	50.6	48.2	-2.4	No
E18	RESIDENTIAL	B	67	6	53.1	51.4	-1.7	No
E19	RESIDENTIAL	B	67	2	55.1	53.0	-2.1	No
E20	RESIDENTIAL	B	67	2	52.0	49.8	-2.2	No
E21	RESIDENTIAL	B	67	2	48.0	46.6	-1.4	No
E22	RESIDENTIAL	B	67	2	49.8	48.1	-1.7	No
E23	RESIDENTIAL	B	67	2	53.3	51.0	-2.3	No
E24	RESIDENTIAL	B	67	2	51.3	49.5	-1.8	No
E25	RESIDENTIAL	B	67	2	67.9	65.7	-2.2	No
E26	RESIDENTIAL	B	67	2	62.5	60.4	-2.1	No
E27	PLAYGROUND	C	67	1	52.0	50.1	-1.9	No
E28	RESIDENTIAL	B	67	5	49.4	47.3	-2.1	No
E29	RESIDENTIAL	B	67	2	47.3	45.1	-2.2	No
E30	RESIDENTIAL	B	67	2	67.3	65.9	-1.4	No
E31	RESIDENTIAL	B	67	2	59.7	57.8	-1.9	No
E32	RESIDENTIAL	B	67	2	62.5	61.0	-1.5	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
E33	RESIDENTIAL	B	67	4	48.5	46.5	-2.0	No
E34	RESIDENTIAL	B	67	2	43.9	42.3	-1.6	No
E35	RESIDENTIAL	B	67	2	42.8	40.8	-2.0	No
E36	RESIDENTIAL	B	67	3	49.1	46.1	-3.0	No
E37	RESIDENTIAL	B	67	1	68.6	66.4	-2.2	Yes
E38	RESIDENTIAL	B	67	2	64.5	62.0	-2.5	No
E39	RESIDENTIAL	B	67	2	60.6	58.4	-2.2	No
E40	RESIDENTIAL	B	67	2	57.5	55.0	-2.5	No
E41	PICNIC AREA	C	67	1	52.0	49.9	-2.1	No
E42	RESIDENTIAL	B	67	2	54.4	51.2	-3.2	No
E43	RESIDENTIAL	B	67	5	51.2	49.4	-1.8	No
E44	RESIDENTIAL	B	67	1	49.9	47.5	-2.4	No
E45	RESIDENTIAL	B	67	2	68.0	66.0	-2.0	Yes
E46	RESIDENTIAL	B	67	2	65.3	63.0	-2.3	No
E47	RESIDENTIAL	B	67	2	61.5	59.1	-2.4	No
E48	RESIDENTIAL	B	67	2	53.1	48.9	-4.2	No
E49	RESIDENTIAL	B	67	2	43.5	41.3	-2.2	No
E50	RESIDENTIAL	B	67	2	42.3	39.4	-2.9	No
E51.1	RESIDENTIAL	B	67	2	44.3	42.4	-1.9	No
E51.2	RESIDENTIAL	B	67	2	47.6	45.1	-2.5	No
E52.1	RESIDENTIAL	B	67	2	45.0	43.1	-1.9	No
E52.2	RESIDENTIAL	B	67	2	47.3	45.0	-2.3	No
E53	RESIDENTIAL	B	67	2	46.5	44.3	-2.2	No
E54	PARK	C	67	1	52.1	49.3	-2.8	No
E55	RESIDENTIAL	B	67	1	68.9	66.6	-2.3	Yes
E56	RESIDENTIAL	B	67	1	67.4	65.0	-2.4	No
E57	RESIDENTIAL	B	67	1	65.8	63.4	-2.4	No
E58	RESIDENTIAL	B	67	1	67.2	64.3	-2.9	No

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Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
E59	RESIDENTIAL	B	67	1	70.8	67.8	-3.0	Yes
E60	RESIDENTIAL	B	67	2	62.3	58.8	-3.5	No
E61	RESIDENTIAL	B	67	4	60.7	57.3	-3.4	No
E62	RETAIL	F	-	0	54.1	51.2	-2.9	No
E63	RESIDENTIAL	B	67	1	68.8	65.1	-3.7	No
E64	RESIDENTIAL	B	67	2	66.5	63.4	-3.1	No
E65	RESIDENTIAL	B	67	2	64.1	60.6	-3.5	No
E66.1	RESIDENTIAL	B	67	1	61.0	57.6	-3.4	No
E66.2	RESIDENTIAL	B	67	2	64.3	59.8	-4.5	No
E67	RESIDENTIAL	B	67	12	57.5	54.2	-3.3	No
E68	RESIDENTIAL	B	67	1	53.8	50.9	-2.9	No
E69	RESIDENTIAL	B	67	1	60.0	56.1	-3.9	No
E70	RESIDENTIAL	B	67	1	70.4	66.5	-3.9	Yes
E71	RESIDENTIAL	B	67	1	65.2	61.1	-4.1	No
E72	RESIDENTIAL	B	67	1	64.0	59.9	-4.1	No
E73	RESIDENTIAL	B	67	2	61.7	57.3	-4.4	No
E74	RESIDENTIAL	B	67	2	60.1	56.0	-4.1	No
E75	RESIDENTIAL	B	67	1	61.6	57.2	-4.4	No
E76	PARK	C	67	1	72.5	69.5	-3.0	Yes
E77	RESIDENTIAL	B	67	1	61.3	56.8	-4.5	No
E78	PICNIC TABLE	C	67	1	55.7	50.7	-5.0	No
E79	RESTAURANT	E	72	1	53.9	50.9	-3.0	No
E80.1	RESIDENTIAL	B	67	1	58.4	54.1	-4.3	No
E80.2	RESIDENTIAL	B	67	1	61.4	56.7	-4.7	No
E81	SCHOOL	C	67	1	66.6	64.1	-2.5	No
E82	RESIDENTIAL	B	67	2	53.1	51.4	-1.7	No
E83	PLAYGROUND	C	67	1	63.4	60.7	-2.7	No
E84	PLAYGROUND	C	67	1	61.6	59.9	-1.7	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
E85	SCHOOL (NO EXTERIOR USE)	D	52	1	46.1	46.6	0.5	No
E86	SCHOOL (NO EXTERIOR USE)	D	52	1	45.9	47.5	1.6	No
F1	SCHOOL (NO EXTERIOR USE)	D	52	1	49.4	45.0	-4.4	No
F2	PARK	C	67	1	55.9	53.6	-2.3	No
F3	SCHOOL	C	67	1	56.9	51.9	-5.0	No
F4	PLACE OF WORSHIP (NO EXTERIOR USE)	D	52	1	49.3	47.9	-1.4	No
F5	PARKING GARAGE	F	-	0	70.4	64.1	-6.3	No
F7	SCHOOL	C	67	1	59.4	56.2	-3.2	No
F8	SCHOOL	C	67	1	61.2	58.4	-2.8	No
F9	PARK	C	67	1	56.4	53.9	-2.5	No
F10	SCHOOL	C	67	1	61.6	60.2	-1.4	No
F11	PARKING GARAGE	F	-	0	67.0	63.8	-3.2	No
F12	RETAIL	F	-	0	71.3	71.6	0.3	No
F13	RESTAURANT	E	72	1	67.1	66.6	-0.5	No
F14	SCHOOL	C	67	1	56.0	52.3	-3.7	No
F15	INDUSTRIAL	F	-	0	62.6	54.9	-7.7	No
F16	RESIDENTIAL	B	67	1	64.0	60.9	-3.1	No
F17	RESIDENTIAL	B	67	1	61.5	57.4	-4.1	No
F18	RESIDENTIAL	B	67	1	58.8	54.5	-4.3	No
F19	RESIDENTIAL	B	67	1	58.8	59.7	0.9	No
F20	RETAIL	F	-	0	48.0	46.5	-1.5	No
F21	RESIDENTIAL	B	67	1	53.1	54.3	1.2	No
F22	VACANT	G	-	0	53.8	47.4	-6.4	No
G1.1	RESIDENTIAL	B	67	2	55.9	56.6	0.7	No
G1.2	RESIDENTIAL	B	67	2	60.0	59.8	-0.2	No
G2.1	RESIDENTIAL	B	67	4	56.2	57.0	0.8	No
G2.2	RESIDENTIAL	B	67	4	60.0	60.1	0.1	No
G2.3	RESIDENTIAL	B	67	4	61.9	62.1	0.2	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
G4	RETAIL	F	-	0	57.0	57.9	0.9	No
G5.1	RESIDENTIAL	B	67	1	61.9	65.5	3.6	No
G5.2	RESIDENTIAL	B	67	1	64.9	67.5	2.6	Yes
G6	RESIDENTIAL	B	67	12	51.2	51.7	0.5	No
G7.1	RESIDENTIAL	B	67	2	50.7	51.2	0.5	No
G7.2	RESIDENTIAL	B	67	2	52.4	53.8	1.4	No
G7.3	RESIDENTIAL	B	67	2	54.1	55.2	1.1	No
G8.1	RESIDENTIAL	B	67	1	61.1	65.4	4.3	No
G8.2	RESIDENTIAL	B	67	1	63.7	67.1	3.4	Yes
G9	RESIDENTIAL	B	67	3	61.7	66.3	4.6	Yes
G10	RESIDENTIAL	B	67	2	61.8	67.1	5.3	Yes
G11	RESIDENTIAL	B	67	2	61.9	67.4	5.5	Yes
G12.1	RESIDENTIAL	B	67	1	61.8	67.2	5.4	Yes
G12.2	RESIDENTIAL	B	67	1	64.3	68.6	4.3	Yes
G13.1	RESIDENTIAL	B	67	1	62.0	67.6	5.6	Yes
G13.2	RESIDENTIAL	B	67	1	64.5	68.9	4.4	Yes
G14.1	RESIDENTIAL	B	67	8	61.4	66.7	5.3	Yes
G14.2	RESIDENTIAL	B	67	8	64.0	68.8	4.8	Yes
G14.3	RESIDENTIAL	B	67	8	65.9	69.7	3.8	Yes
G15	RESIDENTIAL	B	67	4	55.7	57.1	1.4	No
G16	RESIDENTIAL	B	67	4	54.3	55.8	1.5	No
G17	RESIDENTIAL	B	67	4	51.7	52.9	1.2	No
G18	RESIDENTIAL	B	67	4	53.9	55.9	2.0	No
G19	RESIDENTIAL	B	67	4	48.0	48.8	0.8	No
G20	RESIDENTIAL	B	67	4	44.9	46.2	1.3	No
G21	RESIDENTIAL	B	67	2	59.1	65.1	6.0	No
G22	RESIDENTIAL	B	67	2	56.5	61.1	4.6	No
G23	RESIDENTIAL	B	67	2	59.3	63.3	4.0	No

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Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
G24	RESIDENTIAL	B	67	2	53.7	56.6	2.9	No
G25	PLAYGROUND	C	67	1	61.2	66.9	5.7	Yes
G26	RESIDENTIAL	B	67	2	43.1	43.3	0.2	No
G27	RESIDENTIAL	B	67	2	42.9	42.9	0.0	No
G28	RESIDENTIAL	B	67	2	43.0	43.0	0.0	No
G29	RESIDENTIAL	B	67	2	43.3	43.3	0.0	No
G30	RESIDENTIAL	B	67	2	58.8	64.1	5.3	No
G31	RESIDENTIAL	B	67	2	58.8	63.2	4.4	No
G32	RESIDENTIAL	B	67	2	59.6	63.4	3.8	No
G33	RESIDENTIAL	B	67	2	55.3	58.8	3.5	No
G34	RESIDENTIAL	B	67	2	55.1	56.3	1.2	No
G35	RESIDENTIAL	B	67	6	50.3	52.9	2.6	No
G36	RESIDENTIAL	B	67	6	57.6	62.1	4.5	No
G37	RESIDENTIAL	B	67	6	44.5	44.3	-0.2	No
G38	RESIDENTIAL	B	67	5	46.2	47.8	1.6	No
G39	RESIDENTIAL	B	67	5	48.0	50.2	2.2	No
G40	RESIDENTIAL	B	67	2	57.7	61.7	4.0	No
G41	RESIDENTIAL	B	67	2	57.7	61.3	3.6	No
G42	RESIDENTIAL	B	67	2	57.6	60.8	3.2	No
G43	RESIDENTIAL	B	67	2	57.5	60.2	2.7	No
G44	RESIDENTIAL	B	67	2	57.3	59.8	2.5	No
G45	RESIDENTIAL	B	67	6	52.7	59.0	6.3	No
G46	RETAIL	F	-	0	51.1	53.4	2.3	No
G46A	VACANT	G	-	0	60.0	64.6	4.6	No
G47	RESIDENTIAL	B	67	6	45.5	47.6	2.1	No
G47A.1	RESIDENTIAL	B	67	1	59.3	64.0	4.7	No
G47A.2	RESIDENTIAL	B	67	1	62.6	69.0	6.4	Yes
G48	RESIDENTIAL	B	67	6	46.9	47.2	0.3	No

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Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
G48A.1	RESIDENTIAL	B	67	2	61.0	64.7	3.7	No
G48A.2	RESIDENTIAL	B	67	2	63.9	68.9	5.0	Yes
G49	RESIDENTIAL	B	67	2	49.5	50.6	1.1	No
G49A	RESIDENTIAL	B	67	1	61.0	64.5	3.5	No
G50	RESIDENTIAL	B	67	3	64.6	67.4	2.8	Yes
G51	RESIDENTIAL	B	67	2	60.8	64.6	3.8	No
G52	RESIDENTIAL	B	67	2	49.5	50.0	0.5	No
G53	RESIDENTIAL	B	67	2	51.4	50.6	-0.8	No
G54-1	RESIDENTIAL	B	67	2	53.2	55.8	2.6	No
G54-2	RESIDENTIAL	B	67	2	62.8	66.0	3.2	Yes
G55	RESIDENTIAL	B	67	2	51.8	54.9	3.1	No
G56	RESIDENTIAL	B	67	1	50.8	54.0	3.2	No
G57	RESIDENTIAL	B	67	3	48.1	46.2	-1.9	No
G58	RESIDENTIAL	B	67	2	57.5	57.8	0.3	No
G59	RESIDENTIAL	B	67	2	59.3	58.9	-0.4	No
G60	SCHOOL	C	67	1	48.4	49.1	0.7	No
G61	SCHOOL	C	67	1	64.4	61.7	-2.7	No
G62	RESIDENTIAL	B	67	1	64.9	63.3	-1.6	No
G63	RESIDENTIAL	B	67	1	53.2	53.7	0.5	No
G64.1	RESIDENTIAL	B	67	6	55.9	55.9	0.0	No
G64.2	RESIDENTIAL	B	67	6	58.8	58.3	-0.5	No
G65	RESIDENTIAL	B	67	3	58.2	57.8	-0.4	No
G66	RESIDENTIAL	B	67	3	59.5	58.6	-0.9	No
G67	RESIDENTIAL	B	67	3	61.6	60.7	-0.9	No
G68.1	RESIDENTIAL	B	67	6	51.5	49.7	-1.8	No
G68.2	RESIDENTIAL	B	67	6	53.9	51.4	-2.5	No
G69	RESIDENTIAL	B	67	3	57.1	55.9	-1.2	No
G70	RESIDENTIAL	B	67	3	58.0	56.7	-1.3	No

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	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
G71	RESIDENTIAL	B	67	3	61.8	60.8	-1.0	No
G72	RESIDENTIAL	B	67	3	54.2	52.4	-1.8	No
G73	RESIDENTIAL	B	67	3	57.7	57.1	-0.6	No
G74	RESIDENTIAL	B	67	3	57.6	54.6	-3.0	No
G75-1	RESIDENTIAL	B	67	3	60.2	57.6	-2.6	No
G75-2	RESIDENTIAL	B	67	2	52.5	51.7	-0.8	No
G76	RESIDENTIAL	B	67	2	53.5	52.4	-1.1	No
G78	RESIDENTIAL	B	67	2	50.3	48.1	-2.2	No
G79	RESIDENTIAL	B	67	2	51.9	49.6	-2.3	No
G80	RESIDENTIAL	B	67	3	51.7	50.0	-1.7	No
G81	RESIDENTIAL	B	67	3	53.6	52.2	-1.4	No
G82	RESIDENTIAL	B	67	2	62.0	61.9	-0.1	No
G83	RESIDENTIAL	B	67	2	62.3	61.4	-0.9	No
G84.1	RESIDENTIAL	B	67	1	52.1	48.8	-3.3	No
G84.2	RESIDENTIAL	B	67	1	54.3	52.5	-1.8	No
G85.1	RESIDENTIAL	B	67	3	52.2	48.1	-4.1	No
G85.2	RESIDENTIAL	B	67	3	55.0	52.8	-2.2	No
G86	RESIDENTIAL	B	67	3	54.7	50.0	-4.7	No
G87	RESIDENTIAL	B	67	3	57.0	53.2	-3.8	No
G88.1	RESIDENTIAL	B	67	1	59.4	56.0	-3.4	No
G88.2	RESIDENTIAL	B	67	1	61.4	59.9	-1.5	No
G89.1	RESIDENTIAL	B	67	1	62.4	61.2	-1.2	No
G89.2	RESIDENTIAL	B	67	1	60.6	57.4	-3.2	No
G90	RESIDENTIAL	B	67	2	62.9	60.6	-2.3	No
G91	RESIDENTIAL	B	67	2	64.3	62.4	-1.9	No
G92	RESIDENTIAL	B	67	2	45.5	43.9	-1.6	No
G93	RESIDENTIAL	B	67	8	47.5	46.0	-1.5	No
G94	PLAYGROUND	C	67	1	49.2	47.5	-1.7	No

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Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
G95	RESIDENTIAL	B	67	4	40.7	39.7	-1.0	No
G96	RESIDENTIAL	B	67	2	49.8	45.8	-4.0	No
G97	RESIDENTIAL	B	67	2	52.5	49.0	-3.5	No
G98	RESIDENTIAL	B	67	2	51.5	49.5	-2.0	No
G99	RESIDENTIAL	B	67	2	47.0	46.3	-0.7	No
G100	RESIDENTIAL	B	67	2	43.9	42.9	-1.0	No
G101	RESIDENTIAL	B	67	2	51.6	50.5	-1.1	No
G102	RESIDENTIAL	B	67	2	58.1	57.8	-0.3	No
G103-1	PLAYGROUND	C	67	1	56.3	52.5	-3.8	No
G103-2	RESIDENTIAL	B	67	2	45.1	44.1	-1.0	No
G104	RESIDENTIAL	B	67	2	47.3	45.8	-1.5	No
G105	RESIDENTIAL	B	67	2	55.1	53.5	-1.6	No
G106	RESIDENTIAL	B	67	2	57.3	55.9	-1.4	No
G107	RESIDENTIAL	B	67	2	61.8	59.7	-2.1	No
G108	RESIDENTIAL	B	67	2	45.3	44.3	-1.0	No
G109	RESIDENTIAL	B	67	2	45.0	44.1	-0.9	No
G110	RESIDENTIAL	B	67	2	56.3	53.1	-3.2	No
G111	RESIDENTIAL	B	67	2	55.0	53.0	-2.0	No
G112	RESIDENTIAL	B	67	2	54.4	52.1	-2.3	No
G113	RESIDENTIAL	B	67	2	56.4	54.9	-1.5	No
G114	RESIDENTIAL	B	67	2	60.8	58.8	-2.0	No
G115	RESIDENTIAL	B	67	2	62.9	60.8	-2.1	No
G116	RESIDENTIAL	B	67	2	66.0	64.3	-1.7	No
G117	RESIDENTIAL	B	67	7	48.4	50.3	1.9	No
G118	RESIDENTIAL	B	67	2	66.8	66.4	-0.4	Yes
G119	RESIDENTIAL	B	67	3	59.4	59.0	-0.4	No
G120	RESIDENTIAL	B	67	2	63.7	63.0	-0.7	No
G121	RESIDENTIAL	B	67	7	52.5	54.0	1.5	No

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	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
G122	RESIDENTIAL	B	67	3	49.7	52.4	2.7	No
G123	RESIDENTIAL	B	67	2	53.0	54.2	1.2	No
G127.2	RESIDENTIAL	B	67	3	71.1	70.6	-0.5	Yes
G127.3	RESIDENTIAL	B	67	3	71.2	70.7	-0.5	Yes
G127.4	RESIDENTIAL	B	67	3	71.2	70.7	-0.5	Yes
G127.5	RESIDENTIAL	B	67	3	71.2	70.8	-0.4	Yes
G127.6	RESIDENTIAL	B	67	3	71.1	70.7	-0.4	Yes
G127.7	RESIDENTIAL	B	67	3	71.2	70.8	-0.4	Yes
G127.8	RESIDENTIAL	B	67	3	71.1	70.7	-0.4	Yes
G128.1	RESIDENTIAL	B	67	5	71.0	70.6	-0.4	Yes
G128.2	RESIDENTIAL	B	67	5	71.2	70.8	-0.4	Yes
G128.3	RESIDENTIAL	B	67	5	71.3	70.9	-0.4	Yes
G128.4	RESIDENTIAL	B	67	5	71.3	70.9	-0.4	Yes
G128.5	RESIDENTIAL	B	67	5	71.4	70.9	-0.5	Yes
G128.6	RESIDENTIAL	B	67	5	71.3	70.9	-0.4	Yes
G128.7	RESIDENTIAL	B	67	5	71.3	70.9	-0.4	Yes
G128.8	RESIDENTIAL	B	67	5	71.3	70.8	-0.5	Yes
G129	PLACE OF WORSHIP	C	67	1	57.0	57.9	0.9	No
G130	PLACE OF WORSHIP	C	67	1	57.0	56.2	-0.8	No
G131	RETAIL	F	-	0	66.4	65.8	-0.6	No
G132	RETAIL	F	-	0	69.8	69.8	0.0	No
H1	RETAIL	F	-	0	72.3	71.9	-0.4	No
H2	RESIDENTIAL	B	67	1	61.3	60.4	-0.9	No
H3	PLACE OF WORSHIP	C	67	1	57.6	60.1	2.5	No
H4	RETAIL	F	-	0	66.7	66.1	-0.6	No
H5	OFFICE	E	72	1	56.7	59.3	2.6	No
H6	INDUSTRIAL	F	-	0	64.0	64.9	0.9	No
H7	INDUSTRIAL	F	-	0	59.5	61.2	1.7	No

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	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
H8	INDUSTRIAL	F	-	0	57.6	58.4	0.8	No
H9	INDUSTRIAL	F	-	0	58.6	59.4	0.8	No
H10	VACANT	G	-	0	64.3	68.5	4.2	No
H11	PUBLIC OR NONPROFIT INSTITUTIONAL STRUCTURE (NO EXTERIOR USE)	D	52	1	43.0	46.2	3.2	No
H12	PUBLIC OR NONPROFIT INSTITUTIONAL STRUCTURE	C	67	1	63.9	62.7	-1.2	No
H13	INDUSTRIAL	F	-	0	66.4	65.8	-0.6	No
H14	RESIDENTIAL	B	67	1	67.5	66.7	-0.8	Yes
H15	RESIDENTIAL	B	67	1	61.9	60.6	-1.3	No
H16	RESIDENTIAL	B	67	2	61.2	60.4	-0.8	No
H17	RESIDENTIAL	B	67	1	71.3	70.2	-1.1	Yes
H18.1	RESIDENTIAL	B	67	1	68.5	68.1	-0.4	Yes
H18.2	RESIDENTIAL	B	67	1	69.3	68.9	-0.4	Yes
H19	RESIDENTIAL	B	67	2	67.6	67.2	-0.4	Yes
H20	RESIDENTIAL	B	67	1	66.8	66.3	-0.5	Yes
H21	RESIDENTIAL	B	67	1	64.7	64.5	-0.2	No
H22	PLACE OF WORSHIP	C	67	1	61.8	59.3	-2.5	No
H23.1	RESIDENTIAL	B	67	1	73.6	71.8	-1.8	Yes
H23.2	RESIDENTIAL	B	67	1	74.2	72.8	-1.4	Yes
H24	RESIDENTIAL	B	67	1	66.9	63.0	-3.9	No
H25	SCHOOL	C	67	1	62.1	58.8	-3.3	No
H26	SCHOOL	C	67	1	62.7	58.6	-4.1	No
H27	RESIDENTIAL	B	67	2	73.6	69.7	-3.9	Yes
H28	SCHOOL	C	67	1	62.6	58.2	-4.4	No
H29	RESTAURANT	E	72	1	71.1	64.5	-6.6	No
H30	VACANT	G	-	0	65.1	60.7	-4.4	No
H31	RETAIL	F	-	0	72.3	66.7	-5.6	No
I1	ACTIVE SPORT AREA	C	67	1	67.1	63.4	-3.7	No
I2	RESIDENTIAL	B	67	1	62.9	60.4	-2.5	No

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	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
I3	RESIDENTIAL	B	67	1	66.9	64.2	-2.7	No
I4	RESIDENTIAL	B	67	2	64.8	62.1	-2.7	No
I5	RESIDENTIAL	B	67	1	63.6	60.6	-3.0	No
I6	RESIDENTIAL	B	67	1	61.4	58.8	-2.6	No
I7	RESIDENTIAL	B	67	1	61.3	58.2	-3.1	No
I8.1	RESIDENTIAL	B	67	1	54.4	53.2	-1.2	No
I8.2	RESIDENTIAL	B	67	2	54.1	52.9	-1.2	No
I12	RESIDENTIAL	B	67	1	54.6	52.4	-2.2	No
I13	RESIDENTIAL	B	67	1	53.9	52.6	-1.3	No
I14	RESIDENTIAL	B	67	1	53.7	52.4	-1.3	No
I24	RESIDENTIAL	B	67	2	56.8	54.9	-1.9	No
I25	VACANT	G	-	0	54.6	52.3	-2.3	No
I26	RESIDENTIAL	B	67	1	51.9	50.9	-1.0	No
I27	RESIDENTIAL	B	67	1	51.9	50.5	-1.4	No
I32	VACANT	G	-	0	44.6	44.9	0.3	No
I33.1	RESIDENTIAL	B	67	1	50.6	49.6	-1.0	No
I33.2	RESIDENTIAL	B	67	1	53.5	52.7	-0.8	No
I34.1	RESIDENTIAL	B	67	1	45.9	46.1	0.2	No
I34.2	RESIDENTIAL	B	67	1	49.6	48.7	-0.9	No
I35.1	RESIDENTIAL	B	67	1	46.0	45.2	-0.8	No
I35.2	RESIDENTIAL	B	67	1	48.6	48.0	-0.6	No
I36	VACANT	G	-	0	52.0	51.2	-0.8	No
I42	RESIDENTIAL	B	67	1	54.8	53.2	-1.6	No
I43	RESIDENTIAL	B	67	1	54.7	53.3	-1.4	No
I44.1	RESIDENTIAL	B	67	3	55.5	54.0	-1.5	No
I44.2	RESIDENTIAL	B	67	1	59.0	55.5	-3.5	No
I45	RESIDENTIAL	B	67	1	61.7	57.7	-4.0	No
I46	RESIDENTIAL	B	67	1	58.2	55.0	-3.2	No

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	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
I47	RESIDENTIAL	B	67	1	56.8	53.9	-2.9	No
I48	RESIDENTIAL	B	67	1	53.6	51.4	-2.2	No
I49	RESIDENTIAL	B	67	2	55.2	53.7	-1.5	No
I50.1	RESIDENTIAL	B	67	1	69.2	64.2	-5.0	No
I50.2	RESIDENTIAL	B	67	1	64.8	60.8	-4.0	No
I51.1	VACANT	G	-	0	62.9	59.0	-3.9	No
I51.2	VACANT	G	-	0	66.1	62.0	-4.1	No
I52	VACANT	G	-	0	60.7	57.0	-3.7	No
I53	VACANT	G	-	0	56.5	53.6	-2.9	No
I54	RESIDENTIAL	B	67	1	55.0	53.6	-1.4	No
I55	RESIDENTIAL	B	67	3	53.5	53.2	-0.3	No
I56	RESIDENTIAL	B	67	1	62.7	59.7	-3.0	No
I57	RESIDENTIAL	B	67	1	59.8	57.5	-2.3	No
I58	RESIDENTIAL	B	67	1	57.9	56.1	-1.8	No
I59	VACANT	G	-	0	56.3	54.5	-1.8	No
I60.1	RESIDENTIAL	B	67	4	52.1	51.7	-0.4	No
I60.2	RESIDENTIAL	B	67	1	54.8	52.9	-1.9	No
I61	RESIDENTIAL	B	67	3	53.0	52.3	-0.7	No
I62	PLACE OF WORSHIP	C	67	1	56.5	54.6	-1.9	No
I63	RESIDENTIAL	B	67	3	52.1	51.7	-0.4	No
I64	RESIDENTIAL	B	67	1	69.1	66.4	-2.7	Yes
I65	RESIDENTIAL	B	67	1	65.5	63.2	-2.3	No
I66	RETAIL	F	-	0	63.4	61.5	-1.9	No
I67	RESIDENTIAL	B	67	1	66.1	64.0	-2.1	No
I68	RESIDENTIAL	B	67	1	69.4	65.4	-4.0	No
I69	RESIDENTIAL	B	67	1	68.0	63.0	-5.0	No
I70	RESIDENTIAL	B	67	1	58.5	56.8	-1.7	No
I71	RESIDENTIAL	B	67	1	66.9	64.2	-2.7	No

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	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
I72	RESIDENTIAL	B	67	1	43.5	43.1	-0.4	No
I73	RESIDENTIAL	B	67	1	60.0	59.2	-0.8	No
I74	RESIDENTIAL	B	67	1	59.1	58.6	-0.5	No
I75	RESIDENTIAL	B	67	1	60.3	58.9	-1.4	No
I76	RESIDENTIAL	B	67	1	57.7	57.3	-0.4	No
I77	RESIDENTIAL	B	67	1	55.3	54.9	-0.4	No
I78	RESIDENTIAL	B	67	1	54.3	54.2	-0.1	No
I79	RESIDENTIAL	B	67	1	55.1	53.8	-1.3	No
I80	RESIDENTIAL	B	67	1	54.9	54.7	-0.2	No
I81	RESIDENTIAL	B	67	1	57.6	56.4	-1.2	No
I82	RESIDENTIAL	B	67	3	52.3	51.0	-1.3	No
I83	VACANT	G	-	0	50.6	52.3	1.7	No
I84	RESIDENTIAL	B	67	1	51.6	53.4	1.8	No
J1	MAINTENANCE FACILITY	F	-	0	66.9	66.5	-0.4	No
J2	VACANT	G	-	0	45.8	49.5	3.7	No
J6	INDUSTRIAL	F	-	0	66.0	65.8	-0.2	No
J7	INDUSTRIAL	F	-	0	47.7	50.7	3.0	No
J8	INDUSTRIAL	F	-	0	70.8	69.9	-0.9	No
J9	PICNIC TABLE	C	67	1	62.3	62.8	0.5	No
J10	INDUSTRIAL	F	-	0	68.0	70.4	2.4	No
K1	VACANT	G	-	0	61.3	56.6	-4.7	No
K2	RESIDENTIAL	B	67	1	57.5	54.3	-3.2	No
K3	RESIDENTIAL	B	67	1	56.5	53.6	-2.9	No
K4	RESIDENTIAL	B	67	1	67.9	62.5	-5.4	No
K5	RESIDENTIAL	B	67	1	65.1	60.5	-4.6	No
K6	RESIDENTIAL	B	67	4	55.2	53.9	-1.3	No
K7.1	RESIDENTIAL	B	67	1	52.6	51.4	-1.2	No
K7.2	RESIDENTIAL	B	67	1	55.0	52.3	-2.7	No

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	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
K8	VACANT	G	-	0	68.4	63.5	-4.9	No
K9	VACANT	G	-	0	66.1	61.6	-4.5	No
K10	VACANT	G	-	0	59.8	57.4	-2.4	No
K11	RESIDENTIAL	B	67	1	65.3	61.9	-3.4	No
K12	RESIDENTIAL	B	67	1	58.4	56.7	-1.7	No
K13	RESIDENTIAL	B	67	2	56.6	55.2	-1.4	No
K14	RESIDENTIAL	B	67	2	53.0	52.0	-1.0	No
K15	RESIDENTIAL	B	67	1	65.8	62.5	-3.3	No
K16	RESIDENTIAL	B	67	1	67.6	65.0	-2.6	No
K17	RESIDENTIAL	B	67	1	69.9	65.8	-4.1	No
K18.1	RESIDENTIAL	B	67	1	69.0	65.3	-3.7	No
K18.2	RESIDENTIAL	B	67	1	73.9	69.9	-4.0	Yes
K19	RESIDENTIAL	B	67	2	59.5	57.5	-2.0	No
K20	RESIDENTIAL	B	67	1	59.6	57.4	-2.2	No
K21	RESIDENTIAL	B	67	3	56.6	55.3	-1.3	No
K22	RESIDENTIAL	B	67	4	56.4	55.4	-1.0	No
K25	VACANT	G	-	0	66.5	62.6	-3.9	No
K26	VACANT	G	-	0	65.7	61.4	-4.3	No
K27	VACANT	G	-	0	66.4	61.6	-4.8	No
K28.1	RESIDENTIAL	B	67	1	60.2	57.3	-2.9	No
K28.2	RESIDENTIAL	B	67	1	63.9	60.4	-3.5	No
K29.1	RESIDENTIAL	B	67	1	57.0	55.3	-1.7	No
K29.2	RESIDENTIAL	B	67	1	60.9	57.1	-3.8	No
K30	RESIDENTIAL	B	67	1	52.5	51.4	-1.1	No
K31	RESIDENTIAL	B	67	1	64.0	60.7	-3.3	No
K32	RESIDENTIAL	B	67	1	66.1	62.6	-3.5	No
K33	RESIDENTIAL	B	67	3	55.8	53.6	-2.2	No
K34	RESIDENTIAL	B	67	3	51.0	49.7	-1.3	No

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	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
K35	RESIDENTIAL	B	67	2	50.2	48.9	-1.3	No
K36	RESIDENTIAL	B	67	1	66.4	62.9	-3.5	No
K37	RESIDENTIAL	B	67	1	59.7	57.7	-2.0	No
K38	RESIDENTIAL	B	67	3	56.5	55.1	-1.4	No
K39	VACANT	G	-	0	70.3	68.3	-2.0	No
K40	RESIDENTIAL	B	67	1	62.0	59.5	-2.5	No
K42	RESIDENTIAL	B	67	1	59.8	58.1	-1.7	No
K43	RESIDENTIAL	B	67	1	58.8	57.3	-1.5	No
K44	RESIDENTIAL	B	67	3	53.7	52.8	-0.9	No
K45	RESIDENTIAL	B	67	1	59.4	58.0	-1.4	No
K46	VACANT	G	-	0	61.1	58.8	-2.3	No
K47	RESIDENTIAL	B	67	1	53.6	52.8	-0.8	No
K48	RESIDENTIAL	B	67	1	60.1	58.5	-1.6	No
K49	RESIDENTIAL	B	67	4	55.3	54.5	-0.8	No
K50	RESIDENTIAL	B	67	1	53.0	52.6	-0.4	No
K51	RESIDENTIAL	B	67	1	57.4	56.4	-1.0	No
K52	RESIDENTIAL	B	67	1	56.3	55.4	-0.9	No
K53	RESIDENTIAL	B	67	1	55.5	54.8	-0.7	No
K54	RESIDENTIAL	B	67	4	53.1	52.5	-0.6	No
L1	VACANT	G	-	0	70.0	66.5	-3.5	No
L2	ACTIVE SPORT AREA	C	67	1	48.7	49.0	0.3	No
M1	RESIDENTIAL	B	67	1	61.9	58.0	-3.9	No
M2	RETAIL	F	-	0	57.1	54.7	-2.4	No
M3	RESIDENTIAL	B	67	1	53.7	52.2	-1.5	No
M4	VACANT	G	-	0	54.0	52.1	-1.9	No
M5	RESIDENTIAL	B	67	1	49.9	49.9	0.0	No
M6	VACANT	G	-	0	52.7	52.2	-0.5	No
M7	VACANT	G	-	0	58.0	56.8	-1.2	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
M8	RESIDENTIAL	B	67	1	55.5	54.6	-0.9	No
M9	RESIDENTIAL	B	67	1	52.4	52.2	-0.2	No
M10	RESIDENTIAL	B	67	3	50.8	50.6	-0.2	No
M11	RESIDENTIAL	B	67	1	59.0	57.1	-1.9	No
M12	RESIDENTIAL	B	67	1	55.6	54.5	-1.1	No
M13	RESIDENTIAL	B	67	1	52.2	51.8	-0.4	No
M14	RESIDENTIAL	B	67	1	66.0	63.9	-2.1	No
M15	RESIDENTIAL	B	67	1	64.3	61.1	-3.2	No
M16	RESIDENTIAL	B	67	1	62.1	58.7	-3.4	No
M17	VACANT	G	-	0	60.9	58.1	-2.8	No
M18	VACANT	G	-	0	59.5	57.2	-2.3	No
M19	RESIDENTIAL	B	67	3	54.2	52.9	-1.3	No
M20	RESIDENTIAL	B	67	1	67.9	64.7	-3.2	No
M21	RESIDENTIAL	B	67	1	61.3	58.0	-3.3	No
M22	RESIDENTIAL	B	67	1	60.3	57.4	-2.9	No
M23	RESIDENTIAL	B	67	1	58.7	56.5	-2.2	No
M24	VACANT	G	-	0	57.9	56.3	-1.6	No
M25	RESIDENTIAL	B	67	2	55.7	53.8	-1.9	No
M26	VACANT	G	-	0	70.2	66.8	-3.4	No
M27.1	RESIDENTIAL	B	67	2	57.3	54.5	-2.8	No
M27.2	RESIDENTIAL	B	67	1	59.7	56.6	-3.1	No
M28	RESIDENTIAL	B	67	4	53.9	51.3	-2.6	No
M29	VACANT	G	-	0	73.3	70.0	-3.3	No
M30	VACANT	G	-	0	72.1	68.2	-3.9	No
M31	VACANT	G	-	0	62.7	58.9	-3.8	No
M32	VACANT	G	-	0	57.7	54.5	-3.2	No
M33	RESIDENTIAL	B	67	3	53.0	50.7	-2.3	No
M34	RESIDENTIAL	B	67	1	69.7	65.7	-4.0	No

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Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
M35	RESIDENTIAL	B	67	1	65.5	62.5	-3.0	No
M36	RESIDENTIAL	B	67	1	62.0	58.7	-3.3	No
M37	VACANT	G	-	0	59.1	55.4	-3.7	No
M38	RESIDENTIAL	B	67	1	56.8	53.5	-3.3	No
M39	RESIDENTIAL	B	67	1	54.7	51.9	-2.8	No
M40	VACANT	G	-	0	55.2	52.7	-2.5	No
M41	VACANT	G	-	0	55.1	52.6	-2.5	No
M42	RESIDENTIAL	B	67	1	54.1	52.1	-2.0	No
M43	RESIDENTIAL	B	67	1	53.2	51.3	-1.9	No
M44	RESIDENTIAL	B	67	1	64.7	62.6	-2.1	No
M45	RESIDENTIAL	B	67	1	62.9	59.1	-3.8	No
M46	RESIDENTIAL	B	67	1	60.0	55.8	-4.2	No
M47	RESIDENTIAL	B	67	2	57.6	53.8	-3.8	No
M48	RESIDENTIAL	B	67	1	55.8	52.4	-3.4	No
M49	VACANT	G	-	0	53.5	51.8	-1.7	No
M50	RESIDENTIAL	B	67	1	52.3	51.0	-1.3	No
M51	RESIDENTIAL	B	67	1	61.3	58.2	-3.1	No
M52	RESIDENTIAL	B	67	1	57.1	54.1	-3.0	No
M53	RESIDENTIAL	B	67	1	55.8	53.6	-2.2	No
M54	RESIDENTIAL	B	67	2	53.3	51.6	-1.7	No
M55	RESIDENTIAL	B	67	2	52.0	50.6	-1.4	No
M56	RESIDENTIAL	B	67	1	51.2	49.9	-1.3	No
M57	RESIDENTIAL	B	67	1	50.2	48.4	-1.8	No
M58	VACANT	G	-	0	50.5	49.6	-0.9	No
M59	RESIDENTIAL	B	67	1	63.4	59.9	-3.5	No
M60	RESIDENTIAL	B	67	1	60.6	56.9	-3.7	No
M61	RESIDENTIAL	B	67	1	58.7	55.6	-3.1	No
M62	RESIDENTIAL	B	67	1	50.6	49.3	-1.3	No

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Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
M63	RESIDENTIAL	B	67	2	54.3	51.9	-2.4	No
M64	VACANT	G	-	0	49.7	48.3	-1.4	No
M65	VACANT	G	-	0	48.5	47.7	-0.8	No
M66-1	SCHOOL	C	67	1	51.4	50.5	-0.9	No
M66-2	VACANT	G	-	0	69.8	65.4	-4.4	No
M67	RESIDENTIAL	B	67	1	65.0	61.9	-3.1	No
M68	RESIDENTIAL	B	67	1	59.9	57.1	-2.8	No
M69	RESIDENTIAL	B	67	1	57.8	55.3	-2.5	No
M70	VACANT	G	-	0	53.3	51.3	-2.0	No
M71	RESIDENTIAL	B	67	1	69.6	64.8	-4.8	No
M72	RESIDENTIAL	B	67	1	63.1	59.8	-3.3	No
M73	RESIDENTIAL	B	67	1	62.0	58.4	-3.6	No
M74	RESIDENTIAL	B	67	1	60.6	56.9	-3.7	No
M75	RESIDENTIAL	B	67	2	55.1	53.1	-2.0	No
M76	VACANT	G	-	0	54.2	52.5	-1.7	No
M77	ACTIVE SPORT AREA	C	67	1	50.5	49.6	-0.9	No
M78	RESIDENTIAL	B	67	2	74.4	72.2	-2.2	Yes
M79	RESIDENTIAL	B	67	1	57.9	56.2	-1.7	No
M80	RESIDENTIAL	B	67	1	54.8	53.6	-1.2	No
M81	RESIDENTIAL	B	67	1	52.7	51.6	-1.1	No
M82	RESIDENTIAL	B	67	1	51.0	50.1	-0.9	No
M83.1	RESIDENTIAL	B	67	1	50.3	49.4	-0.9	No
M83.2	RESIDENTIAL	B	67	1	52.9	51.0	-1.9	No
M84	RESIDENTIAL	B	67	1	49.2	48.4	-0.8	No
M85.1	RESIDENTIAL	B	67	1	70.2	69.4	-0.8	Yes
M85.2	RESIDENTIAL	B	67	1	73.5	71.4	-2.1	Yes
M86.1	RESIDENTIAL	B	67	1	68.7	67.9	-0.8	Yes
M86.2	RESIDENTIAL	B	67	1	67.8	65.0	-2.8	No

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	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
M87.1	RESIDENTIAL	B	67	1	56.0	54.6	-1.4	No
M87.2	RESIDENTIAL	B	67	1	59.5	56.6	-2.9	No
M88	RESIDENTIAL	B	67	1	53.7	52.8	-0.9	No
M89	RESIDENTIAL	B	67	1	53.1	52.5	-0.6	No
M90	RESIDENTIAL	B	67	1	51.8	51.2	-0.6	No
M91	RESIDENTIAL	B	67	1	66.4	63.7	-2.7	No
M92	RESIDENTIAL	B	67	1	62.4	60.6	-1.8	No
M93	RESIDENTIAL	B	67	1	60.2	58.8	-1.4	No
M94	RESIDENTIAL	B	67	2	57.6	56.4	-1.2	No
M95	VACANT	G	-	0	61.9	60.7	-1.2	No
M96	RESIDENTIAL	B	67	1	55.0	53.0	-2.0	No
M97	RESIDENTIAL	B	67	1	53.4	51.8	-1.6	No
M98	RESIDENTIAL	B	67	1	52.5	51.2	-1.3	No
M99	RESIDENTIAL	B	67	2	51.2	49.9	-1.3	No
M100	RESIDENTIAL	B	67	2	51.2	50.2	-1.0	No
M101	RESIDENTIAL	B	67	1	61.4	59.9	-1.5	No
M102	RESIDENTIAL	B	67	1	56.3	54.7	-1.6	No
M103	RESIDENTIAL	B	67	2	52.2	51.3	-0.9	No
M104	VACANT	G	-	0	50.9	50.7	-0.2	No
M105	RESIDENTIAL	B	67	1	60.8	58.2	-2.6	No
M106	RESIDENTIAL	B	67	1	57.1	53.5	-3.6	No
M107	RESIDENTIAL	B	67	1	55.6	52.1	-3.5	No
M108	VACANT	G	-	0	54.3	52.0	-2.3	No
M109	VACANT	G	-	0	54.1	51.8	-2.3	No
M110	RESIDENTIAL	B	67	1	53.8	51.5	-2.3	No
M111	RESIDENTIAL	B	67	1	54.7	52.4	-2.3	No
M112	RESIDENTIAL	B	67	2	53.6	51.5	-2.1	No
M113	RESIDENTIAL	B	67	2	73.7	74.0	0.3	Yes

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Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
M114	RESIDENTIAL	B	67	1	63.0	61.0	-2.0	No
M115.1	RESIDENTIAL	B	67	1	61.1	58.5	-2.6	No
M115.2	RESIDENTIAL	B	67	1	64.3	63.4	-0.9	No
M116	RESIDENTIAL	B	67	1	60.1	57.3	-2.8	No
M117.1	RESIDENTIAL	B	67	1	59.1	56.1	-3.0	No
M117.2	RESIDENTIAL	B	67	1	62.2	59.9	-2.3	No
M118	VACANT	G	-	0	56.6	55.0	-1.6	No
M119	RESIDENTIAL	B	67	1	56.3	54.5	-1.8	No
M120	RESIDENTIAL	B	67	1	56.5	53.6	-2.9	No
M121	VACANT	G	-	0	55.0	52.8	-2.2	No
M122.1	RESIDENTIAL	B	67	1	51.2	50.7	-0.5	No
M122.2	RESIDENTIAL	B	67	1	53.4	51.8	-1.6	No
M123	RESIDENTIAL	B	67	1	65.9	64.9	-1.0	No
M124	RESIDENTIAL	B	67	1	65.8	64.7	-1.1	No
M126	RESIDENTIAL	B	67	1	59.3	57.9	-1.4	No
M127	RESIDENTIAL	B	67	1	51.9	51.4	-0.5	No
M128	RESIDENTIAL	B	67	1	58.6	58.6	0.0	No
M129	RESIDENTIAL	B	67	3	55.3	54.9	-0.4	No
M130	RESIDENTIAL	B	67	2	52.6	52.4	-0.2	No
M131	RESIDENTIAL	B	67	1	55.6	55.7	0.1	No
M132	RESIDENTIAL	B	67	1	54.2	53.9	-0.3	No
M133	RESIDENTIAL	B	67	1	56.6	56.9	0.3	No
M134	RESIDENTIAL	B	67	1	55.4	55.4	0.0	No
M135	RESIDENTIAL	B	67	1	54.9	54.6	-0.3	No
M136	RETAIL	F	-	0	52.9	52.1	-0.8	No
M137	PLACE OF WORSHIP	C	67	1	60.8	60.8	0.0	No
M138	PLACE OF WORSHIP	C	67	1	57.5	54.1	-3.4	No
M139	RETAIL	F	-	0	60.6	56.9	-3.7	No

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Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
N1	PLACE OF WORSHIP	C	67	1	53.3	49.9	-3.4	No
N2	RESIDENTIAL	B	67	4	47.5	46.4	-1.1	No
N3	VACANT	G	-	0	50.9	49.0	-1.9	No
N4	VACANT	G	-	0	51.2	49.5	-1.7	No
N5	RESIDENTIAL	B	67	3	47.8	44.9	-2.9	No
N6	OFFICE	E	72	1	57.1	53.7	-3.4	No
N7	RETAIL	F	-	0	55.3	53.7	-1.6	No
N8	RESIDENTIAL	B	67	1	51.2	48.9	-2.3	No
N9.1	RESIDENTIAL	B	67	1	51.0	47.1	-3.9	No
N9.2	RESIDENTIAL	B	67	1	50.5	48.9	-1.6	No
N10	RESIDENTIAL	B	67	1	50.2	46.9	-3.3	No
N11	VACANT	G	-	0	49.2	47.4	-1.8	No
N12	RETAIL	F	-	0	58.5	56.3	-2.2	No
N13	RESIDENTIAL	B	67	1	56.1	52.5	-3.6	No
N14	RESIDENTIAL	B	67	1	51.3	47.9	-3.4	No
N15	SCHOOL	C	67	1	49.5	48.0	-1.5	No
N16	PLAYGROUND	C	67	1	48.8	47.6	-1.2	No
N17	RESIDENTIAL	B	67	1	59.7	57.4	-2.3	No
N18	RESIDENTIAL	B	67	1	59.5	56.4	-3.1	No
N19.1	RESIDENTIAL	B	67	1	60.7	56.6	-4.1	No
N19.2	RESIDENTIAL	B	67	1	63.1	59.1	-4.0	No
N20	RESIDENTIAL	B	67	1	63.5	58.8	-4.7	No
N21	RESIDENTIAL	B	67	4	42.6	42.7	0.1	No
N22	RESIDENTIAL	B	67	4	55.3	51.4	-3.9	No
N23	RESIDENTIAL	B	67	1	64.9	56.5	-8.4	No
N24	RESIDENTIAL	B	67	1	61.3	53.4	-7.9	No
N25	RESIDENTIAL	B	67	1	58.9	52.1	-6.8	No
N26	RESIDENTIAL	B	67	1	56.1	51.3	-4.8	No

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	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
N27	RESIDENTIAL	B	67	2	53.8	49.9	-3.9	No
N28	RESIDENTIAL	B	67	1	61.1	61.0	-0.1	No
N29	RESIDENTIAL	B	67	1	58.9	59.0	0.1	No
N30.1	RESIDENTIAL	B	67	1	61.2	58.5	-2.7	No
N30.2	RESIDENTIAL	B	67	1	65.5	62.4	-3.1	No
N31	RESIDENTIAL	B	67	1	54.9	54.4	-0.5	No
N32.1	RESIDENTIAL	B	67	1	53.8	52.8	-1.0	No
N32.2	RESIDENTIAL	B	67	1	56.5	54.6	-1.9	No
N33	VACANT	G	-	0	53.1	51.2	-1.9	No
N34	RESIDENTIAL	B	67	1	52.4	50.8	-1.6	No
N35	VACANT	G	-	0	67.6	64.4	-3.2	No
N36	RESIDENTIAL	B	67	1	56.5	56.3	-0.2	No
N37	RESIDENTIAL	B	67	1	52.8	53.0	0.2	No
N38	RESIDENTIAL	B	67	1	50.4	51.0	0.6	No
N39	RESIDENTIAL	B	67	1	50.1	50.1	0.0	No
N40.1	RESIDENTIAL	B	67	3	51.2	50.6	-0.6	No
N40.2	RESIDENTIAL	B	67	3	54.0	52.6	-1.4	No
N41.1	RESIDENTIAL	B	67	1	50.2	48.9	-1.3	No
N41.2	RESIDENTIAL	B	67	1	53.8	50.6	-3.2	No
N42.1	RESIDENTIAL	B	67	1	70.0	65.3	-4.7	No
N42.2	RESIDENTIAL	B	67	2	68.0	63.5	-4.5	No
N43.1	RESIDENTIAL	B	67	2	59.8	57.9	-1.9	No
N43.2	RESIDENTIAL	B	67	2	63.5	60.9	-2.6	No
N44	RESIDENTIAL	B	67	2	55.2	54.2	-1.0	No
N45	PLAYGROUND	C	67	1	60.7	58.6	-2.1	No
N46	RESIDENTIAL	B	67	1	55.4	54.5	-0.9	No
N47	RESIDENTIAL	B	67	1	54.3	53.5	-0.8	No
N48.1	RESIDENTIAL	B	67	1	66.6	63.8	-2.8	No

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	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
N48.2	RESIDENTIAL	B	67	1	69.9	69.0	-0.9	Yes
N49.1	RESIDENTIAL	B	67	1	58.8	57.3	-1.5	No
N49.2	RESIDENTIAL	B	67	1	62.5	60.2	-2.3	No
N50	RESIDENTIAL	B	67	1	58.2	56.9	-1.3	No
N51	RESIDENTIAL	B	67	1	57.0	55.7	-1.3	No
N52	VACANT	G	-	0	55.1	54.0	-1.1	No
N53	VACANT	G	-	0	67.5	65.2	-2.3	No
N54	RESIDENTIAL	B	67	1	62.7	61.0	-1.7	No
N55	RESIDENTIAL	B	67	1	60.1	58.9	-1.2	No
N56	RESIDENTIAL	B	67	1	63.4	60.9	-2.5	No
N57	RESIDENTIAL	B	67	1	60.3	58.3	-2.0	No
N58-1	RESIDENTIAL	B	67	1	57.7	56.5	-1.2	No
N58-2	VACANT	G	-	0	55.7	54.8	-0.9	No
N59	VACANT	G	-	0	54.0	53.3	-0.7	No
N60	RESIDENTIAL	B	67	1	53.1	52.6	-0.5	No
N61	RESIDENTIAL	B	67	1	53.5	52.7	-0.8	No
N62	VACANT	G	-	0	54.5	53.8	-0.7	No
N63	RESIDENTIAL	B	67	1	65.6	62.5	-3.1	No
N64	RESIDENTIAL	B	67	1	63.5	61.1	-2.4	No
N65	RESIDENTIAL	B	67	1	65.0	62.6	-2.4	No
N66	VACANT	G	-	0	56.9	56.0	-0.9	No
N67	RESIDENTIAL	B	67	1	54.8	54.1	-0.7	No
N68	RESIDENTIAL	B	67	1	54.6	53.8	-0.8	No
N69	RESIDENTIAL	B	67	1	67.0	62.9	-4.1	No
N70	RESIDENTIAL	B	67	1	64.9	61.8	-3.1	No
N71	RESIDENTIAL	B	67	1	61.1	58.9	-2.2	No
N72	RESIDENTIAL	B	67	1	59.8	57.8	-2.0	No
N73	RESIDENTIAL	B	67	1	58.8	56.8	-2.0	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
N74	RESIDENTIAL	B	67	1	58.1	56.2	-1.9	No
N75	RESIDENTIAL	B	67	1	58.0	57.0	-1.0	No
N76	RESIDENTIAL	B	67	2	56.8	55.7	-1.1	No
N77	RESIDENTIAL	B	67	1	55.4	54.3	-1.1	No
N78	RESIDENTIAL	B	67	1	63.5	61.0	-2.5	No
N79	RESIDENTIAL	B	67	1	64.2	62.1	-2.1	No
N80	VACANT	G	-	0	61.0	58.7	-2.3	No
N81	RESIDENTIAL	B	67	1	60.2	57.8	-2.4	No
N82	RESIDENTIAL	B	67	1	58.6	56.5	-2.1	No
N83	RESIDENTIAL	B	67	4	56.0	54.3	-1.7	No
N84	VACANT	G	-	0	66.2	62.9	-3.3	No
N85	VACANT	G	-	0	61.0	58.6	-2.4	No
N86	RESIDENTIAL	B	67	1	59.3	57.3	-2.0	No
N87	RESIDENTIAL	B	67	3	56.7	55.1	-1.6	No
N88	RESIDENTIAL	B	67	1	66.5	62.3	-4.2	No
N89	RESIDENTIAL	B	67	1	65.2	61.1	-4.1	No
N90	RESIDENTIAL	B	67	1	64.2	60.0	-4.2	No
N91	RESIDENTIAL	B	67	1	61.9	58.2	-3.7	No
N92	RESIDENTIAL	B	67	1	57.5	55.5	-2.0	No
N93	RESIDENTIAL	B	67	1	54.8	53.2	-1.6	No
N94	RESIDENTIAL	B	67	1	59.1	56.6	-2.5	No
N95	RESIDENTIAL	B	67	1	54.7	52.6	-2.1	No
N96	RESIDENTIAL	B	67	1	64.4	61.6	-2.8	No
N97	RESIDENTIAL	B	67	1	62.9	60.5	-2.4	No
N98	RESIDENTIAL	B	67	1	59.0	58.2	-0.8	No
N99	RESIDENTIAL	B	67	1	57.5	55.8	-1.7	No
N100	RESIDENTIAL	B	67	1	67.0	63.8	-3.2	No
N101	RESIDENTIAL	B	67	1	60.2	59.4	-0.8	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
N103	RESIDENTIAL	B	67	1	53.1	52.6	-0.5	No
N104	RESIDENTIAL	B	67	1	52.6	52.1	-0.5	No
N105	VACANT	G	-	0	65.6	63.4	-2.2	No
N106	VACANT	G	-	0	63.9	62.6	-1.3	No
N107	RESIDENTIAL	B	67	1	58.9	56.0	-2.9	No
N108	RESIDENTIAL	B	67	1	56.8	53.1	-3.7	No
N109	RESIDENTIAL	B	67	1	55.5	52.0	-3.5	No
N110	RESIDENTIAL	B	67	1	54.5	51.1	-3.4	No
N111	RESIDENTIAL	B	67	1	65.5	64.3	-1.2	No
N112	RESIDENTIAL	B	67	1	61.8	58.8	-3.0	No
N113	RESIDENTIAL	B	67	1	60.0	57.4	-2.6	No
N114	RESIDENTIAL	B	67	1	55.8	54.2	-1.6	No
N115.1	RESIDENTIAL	B	67	2	53.4	52.3	-1.1	No
N115.2	RESIDENTIAL	B	67	1	56.2	54.2	-2.0	No
N116	RESIDENTIAL	B	67	5	54.3	52.8	-1.5	No
N117	RESIDENTIAL	B	67	1	66.4	67.7	1.3	Yes
N118	RESIDENTIAL	B	67	1	63.2	63.1	-0.1	No
N119	RESIDENTIAL	B	67	1	64.0	65.9	1.9	No
N120	RESIDENTIAL	B	67	1	63.0	64.3	1.3	No
N121	RESIDENTIAL	B	67	1	61.8	61.9	0.1	No
N122	VACANT	G	-	0	60.8	58.7	-2.1	No
N123	RESIDENTIAL	B	67	1	60.0	55.7	-4.3	No
N124	RESIDENTIAL	B	67	1	58.1	53.0	-5.1	No
N126	RESIDENTIAL	B	67	1	67.7	68.8	1.1	Yes
N127	RESIDENTIAL	B	67	1	67.7	68.9	1.2	Yes
N128	VACANT	G	-	0	64.8	63.9	-0.9	No
N129	VACANT	G	-	0	63.5	59.4	-4.1	No
N130	VACANT	G	-	0	63.3	63.3	0.0	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
N131	VACANT	G	-	0	60.3	54.3	-6.0	No
N132	RESIDENTIAL	B	67	1	58.9	53.5	-5.4	No
N133	RESIDENTIAL	B	67	1	60.2	53.1	-7.1	No
N134	RESIDENTIAL	B	67	1	58.6	52.5	-6.1	No
N135	RESIDENTIAL	B	67	2	61.2	54.1	-7.1	No
O1	RESIDENTIAL	B	67	1	56.2	54.0	-2.2	No
O2	SCHOOL	C	67	1	57.6	54.0	-3.6	No
O3	INDUSTRIAL	F	-	0	48.6	50.3	1.7	No
O4	RETAIL	F	-	0	48.2	50.4	2.2	No
P1	RESIDENTIAL	B	67	1	66.0	67.2	1.2	Yes
P2	RESIDENTIAL	B	67	1	64.0	64.1	0.1	No
P3	RESIDENTIAL	B	67	1	58.9	57.5	-1.4	No
P4	RESIDENTIAL	B	67	1	57.5	55.7	-1.8	No
P5	RESIDENTIAL	B	67	1	57.3	55.0	-2.3	No
P6	RESIDENTIAL	B	67	1	57.5	54.8	-2.7	No
P7	RESIDENTIAL	B	67	1	59.5	53.5	-6.0	No
P8	RETAIL	F	-	0	56.4	51.5	-4.9	No
P9	RESIDENTIAL	B	67	1	65.4	66.4	1.0	Yes
P10	RESIDENTIAL	B	67	4	58.8	58.6	-0.2	No
P11	RESIDENTIAL	B	67	3	56.7	56.0	-0.7	No
P12	VACANT	G	-	0	52.3	52.0	-0.3	No
P13	RESIDENTIAL	B	67	4	60.5	60.6	0.1	No
P14	RESIDENTIAL	B	67	1	56.9	56.3	-0.6	No
P15	VACANT	G	-	0	55.8	55.2	-0.6	No
P16	VACANT	G	-	0	52.0	52.1	0.1	No
P17	VACANT	G	-	0	51.2	52.2	1.0	No
P18	RESIDENTIAL	B	67	1	64.4	64.0	-0.4	No
P19	VACANT	G	-	0	62.6	62.2	-0.4	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
P20	RESIDENTIAL	B	67	1	57.8	57.1	-0.7	No
P21	RESIDENTIAL	B	67	1	50.9	52.8	1.9	No
P22	RESIDENTIAL	B	67	1	63.8	63.1	-0.7	No
P23	RESIDENTIAL	B	67	1	61.3	60.8	-0.5	No
P24	RESIDENTIAL	B	67	3	59.4	58.6	-0.8	No
P25	RESIDENTIAL	B	67	1	66.0	64.7	-1.3	No
P26	RESIDENTIAL	B	67	1	59.4	58.0	-1.4	No
P27	VACANT	G	-	0	70.8	68.6	-2.2	No
P28	VACANT	G	-	0	67.3	65.9	-1.4	No
P29	VACANT	G	-	0	63.4	61.6	-1.8	No
P30	VACANT	G	-	0	59.2	58.3	-0.9	No
P31	VACANT	G	-	0	57.3	56.6	-0.7	No
P32	RESIDENTIAL	B	67	1	66.5	63.5	-3.0	No
P33	RESIDENTIAL	B	67	1	58.1	55.8	-2.3	No
P34	RESIDENTIAL	B	67	1	57.0	54.7	-2.3	No
P35	RESIDENTIAL	B	67	1	55.2	53.4	-1.8	No
P36	RESIDENTIAL	B	67	1	53.9	52.6	-1.3	No
P37	VACANT	G	-	0	61.1	58.5	-2.6	No
P38	RESIDENTIAL	B	67	2	51.9	50.6	-1.3	No
P39	VACANT	G	-	0	65.0	62.1	-2.9	No
P40	RESIDENTIAL	B	67	1	62.4	59.8	-2.6	No
P41	RESIDENTIAL	B	67	1	58.3	55.7	-2.6	No
P42	RESIDENTIAL	B	67	1	56.8	53.7	-3.1	No
P43	RESIDENTIAL	B	67	3	53.9	52.4	-1.5	No
P44	VACANT	G	-	0	62.6	65.6	3.0	No
P45	RESIDENTIAL	B	67	1	60.8	64.3	3.5	No
P46	RESIDENTIAL	B	67	1	60.3	63.9	3.6	No
P47	RESIDENTIAL	B	67	1	59.5	63.4	3.9	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
P48	RESIDENTIAL	B	67	1	58.8	63.0	4.2	No
P49	RESIDENTIAL	B	67	2	57.9	62.3	4.4	No
P50	RESIDENTIAL	B	67	3	56.0	61.0	5.0	No
R1	RETAIL	F	-	0	46.1	46.4	0.3	No
R2	RESIDENTIAL	B	67	1	45.6	46.3	0.7	No
R3	RESIDENTIAL	B	67	2	44.9	45.0	0.1	No
R4	RESIDENTIAL	B	67	2	45.5	46.2	0.7	No
R5	RETAIL	F	-	0	47.3	48.8	1.5	No
R6	RESIDENTIAL	B	67	2	45.4	45.5	0.1	No
R7	RESIDENTIAL	B	67	1	45.8	45.8	0.0	No
R8	RESIDENTIAL	B	67	3	48.2	49.3	1.1	No
R9	VACANT	G	-	0	50.1	51.5	1.4	No
R10	RESIDENTIAL	B	67	1	48.0	47.1	-0.9	No
R11	RESIDENTIAL	B	67	3	49.5	47.6	-1.9	No
R12	RESIDENTIAL	B	67	4	52.8	52.5	-0.3	No
R13	RESIDENTIAL	B	67	3	54.2	54.6	0.4	No
R14	VACANT	G	-	0	57.3	54.2	-3.1	No
R15	RESIDENTIAL	B	67	1	58.2	56.1	-2.1	No
R16	RESIDENTIAL	B	67	1	56.6	54.8	-1.8	No
R18	RESIDENTIAL	B	67	2	47.9	48.0	0.1	No
R19	RESIDENTIAL	B	67	3	56.3	54.8	-1.5	No
R20	RESIDENTIAL	B	67	3	51.3	51.2	-0.1	No
R21	RESIDENTIAL	B	67	3	56.4	55.0	-1.4	No
R22	RESIDENTIAL	B	67	3	51.1	50.5	-0.6	No
R23	RESIDENTIAL	B	67	3	56.6	56.0	-0.6	No
R24	VACANT	G	-	0	56.1	53.7	-2.4	No
R25	RESIDENTIAL	B	67	1	64.2	62.4	-1.8	No
R26	RESIDENTIAL	B	67	3	57.4	56.1	-1.3	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
R27	VACANT	G	-	0	57.7	54.0	-3.7	No
R31	RESIDENTIAL	B	67	1	62.9	61.9	-1.0	No
R32	RETAIL	F	-	0	66.1	64.8	-1.3	No
R33	VACANT	G	-	0	66.8	65.4	-1.4	No
R34	RETAIL	F	-	0	66.3	65.0	-1.3	No
R35	VACANT	G	-	0	67.0	65.7	-1.3	No
R36	RETAIL	F	-	0	65.9	64.7	-1.2	No
R37	VACANT	G	-	0	67.0	66.1	-0.9	No
R38	VACANT	G	-	0	67.3	66.3	-1.0	No
R39	VACANT	G	-	0	67.7	66.7	-1.0	No
R40	VACANT	G	-	0	68.6	66.8	-1.8	No
R41	RETAIL	F	-	0	69.3	67.0	-2.3	No
R42	RETAIL	F	-	0	68.0	67.0	-1.0	No
R43	VACANT	G	-	0	68.0	67.3	-0.7	No
R44	PLACE OF WORSHIP (NO EXTERIOR USE)	D	52	1	48.8	47.1	-1.7	No
R45	RETAIL	F	-	0	67.7	65.4	-2.3	No
R46	RETAIL	F	-	0	72.3	68.9	-3.4	No
R47	RETAIL	F	-	0	74.2	69.8	-4.4	No
R48	RETAIL	F	-	0	74.4	71.5	-2.9	No
R51	MOTEL	E	72	1	62.4	61.7	-0.7	No
R52	VACANT	G	-	0	65.8	65.7	-0.1	No
R53	VACANT	G	-	0	65.8	65.7	-0.1	No
R54	RETAIL	F	-	0	65.7	64.8	-0.9	No
S1	RESIDENTIAL	B	67	1	55.9	53.0	-2.9	No
S2	RESIDENTIAL	B	67	1	60.7	57.6	-3.1	No
S3	INDUSTRIAL	F	-	0	60.4	55.2	-5.2	No
S4	INDUSTRIAL	F	-	0	65.6	65.6	0.0	No
S5	DAY CARE CENTER	C	67	1	55.4	51.6	-3.8	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
S6	PLAYGROUND	C	67	1	59.5	57.2	-2.3	No
S7	RESIDENTIAL	B	67	1	51.5	50.6	-0.9	No
S8	RESIDENTIAL	B	67	1	52.8	51.4	-1.4	No
S9	RESIDENTIAL	B	67	1	54.7	52.5	-2.2	No
S10	VACANT	G	-	0	55.8	53.2	-2.6	No
S11	VACANT	G	-	0	56.2	53.8	-2.4	No
S12	RESIDENTIAL	B	67	1	56.8	55.5	-1.3	No
S13	RESIDENTIAL	B	67	1	57.7	56.7	-1.0	No
S14	RESIDENTIAL	B	67	1	58.9	58.9	0.0	No
S15	RESIDENTIAL	B	67	1	61.2	61.6	0.4	No
S16	PLACE OF WORSHIP	C	67	1	53.8	57.2	3.4	No
T1	VACANT	G	-	0	54.7	54.2	-0.5	No
T2	PLACE OF WORSHIP	C	67	1	58.6	57.6	-1.0	No
T3	INDUSTRIAL	F	-	0	58.6	57.4	-1.2	No
T4	INDUSTRIAL	F	-	0	60.4	59.3	-1.1	No
T5	VACANT	G	-	0	58.5	57.1	-1.4	No
T6	RESIDENTIAL	B	67	1	60.0	59.4	-0.6	No
T7	RESIDENTIAL	B	67	1	60.3	59.8	-0.5	No
T8	RESIDENTIAL	B	67	1	63.4	62.1	-1.3	No
T9	RESIDENTIAL	B	67	1	64.0	62.8	-1.2	No
T10	RESIDENTIAL	B	67	1	67.0	65.3	-1.7	No
T11	RETAIL	F	-	0	58.8	58.1	-0.7	No
T12	RESIDENTIAL	B	67	1	59.6	58.9	-0.7	No
T13	RESIDENTIAL	B	67	1	62.9	62.2	-0.7	No
T14	VACANT	G	-	0	63.5	62.3	-1.2	No
T15	PARK	C	67	1	61.0	59.9	-1.1	No
T16	RESIDENTIAL	B	67	1	64.1	62.1	-2.0	No
T17	RESIDENTIAL	B	67	1	57.5	56.9	-0.6	No

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Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
T18	RESIDENTIAL	B	67	1	64.4	62.2	-2.2	No
T19	RESIDENTIAL	B	67	1	66.0	63.5	-2.5	No
T20	RESIDENTIAL	B	67	1	68.2	66.1	-2.1	Yes
T21	RESIDENTIAL	B	67	1	61.3	59.8	-1.5	No
T22	VACANT	G	-	0	64.7	62.7	-2.0	No
T23	RESIDENTIAL	B	67	1	56.0	55.5	-0.5	No
T24	RESIDENTIAL	B	67	2	63.1	60.9	-2.2	No
T25	RESIDENTIAL	B	67	1	57.9	54.7	-3.2	No
T26	RESIDENTIAL	B	67	1	59.5	56.5	-3.0	No
T27	RESIDENTIAL	B	67	1	59.7	57.2	-2.5	No
T28	RESIDENTIAL	B	67	1	60.8	59.0	-1.8	No
T29	RESIDENTIAL	B	67	1	65.7	64.8	-0.9	No
U1	RETAIL	F	-	0	55.8	53.6	-2.2	No
U2	VACANT	G	-	0	55.8	53.9	-1.9	No
U3	PLACE OF WORSHIP	C	67	1	49.5	50.5	1.0	No
U4	OFFICE	E	72	1	51.7	50.8	-0.9	No
U5	RETAIL	F	-	0	45.9	47.9	2.0	No
U6	RETAIL	F	-	0	54.0	54.9	0.9	No
U7	RETAIL	F	-	0	53.5	55.2	1.7	No
U8	RESTAURANT	E	72	1	64.4	63.0	-1.4	No
U9	RETAIL	F	-	0	50.9	51.6	0.7	No
U10	RESIDENTIAL	B	67	1	65.4	64.4	-1.0	No
U11	PLACE OF WORSHIP	C	67	1	63.9	61.8	-2.1	No
U12	RESTAURANT	E	72	1	51.2	52.2	1.0	No
U13	RETAIL	F	-	0	48.8	55.8	7.0	No
U14	VACANT	G	-	0	42.5	42.0	-0.5	No
U15	RETAIL	F	-	0	45.3	49.9	4.6	No
U16	VACANT	G	-	0	55.1	56.0	0.9	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
U17	VACANT	G	-	0	53.7	55.0	1.3	No
U18	VACANT	G	-	0	49.4	52.0	2.6	No
U19	VACANT	G	-	0	49.0	50.8	1.8	No
U20	PLACE OF WORSHIP	C	67	1	59.6	58.2	-1.4	No
U21	PICNIC TABLE	C	67	1	61.6	60.5	-1.1	No
V1	RETAIL	F	-	0	50.4	49.9	-0.5	No
V2	RESIDENTIAL	B	67	3	55.7	55.4	-0.3	No
V3	RESIDENTIAL	B	67	1	62.4	57.9	-4.5	No
V4	RESIDENTIAL	B	67	1	66.6	59.9	-6.7	No
V5	VACANT	G	-	0	52.3	51.7	-0.6	No
V6	RESIDENTIAL	B	67	1	59.2	57.0	-2.2	No
V7	RESIDENTIAL	B	67	1	61.5	58.8	-2.7	No
V8	RESIDENTIAL	B	67	2	52.7	51.7	-1.0	No
V9	RESIDENTIAL	B	67	1	54.5	53.1	-1.4	No
V10	RESIDENTIAL	B	67	1	55.3	53.7	-1.6	No
V11	RESIDENTIAL	B	67	1	56.1	54.4	-1.7	No
V12	RESIDENTIAL	B	67	1	58.2	56.0	-2.2	No
V13	RESIDENTIAL	B	67	1	59.5	57.1	-2.4	No
V14	RESIDENTIAL	B	67	1	61.1	57.9	-3.2	No
V15.1	RESIDENTIAL	B	67	1	66.3	63.9	-2.4	No
V15.2	RESIDENTIAL	B	67	1	71.6	67.7	-3.9	Yes
V16	RETAIL	F	-	0	49.1	49.7	0.6	No
V17	RESIDENTIAL	B	67	2	49.9	50.2	0.3	No
V18	RESIDENTIAL	B	67	1	52.1	52.7	0.6	No
V19	VACANT	G	-	0	55.4	55.6	0.2	No
V20	RESIDENTIAL	B	67	1	56.6	56.6	0.0	No
V21	VACANT	G	-	0	57.6	57.4	-0.2	No
V22	RESIDENTIAL	B	67	1	59.9	59.9	0.0	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
V23	RESIDENTIAL	B	67	1	50.2	50.1	-0.1	No
V24	RESIDENTIAL	B	67	1	51.4	51.5	0.1	No
V25	VACANT	G	-	0	51.1	51.8	0.7	No
V26	RESIDENTIAL	B	67	1	52.3	53.1	0.8	No
V27	VACANT	G	-	0	55.0	55.2	0.2	No
V28	RESIDENTIAL	B	67	3	51.4	51.3	-0.1	No
V29	RESIDENTIAL	B	67	1	55.9	54.5	-1.4	No
V30	RESIDENTIAL	B	67	1	58.3	57.5	-0.8	No
V31	RESIDENTIAL	B	67	3	49.4	49.1	-0.3	No
V32	VACANT	G	-	0	51.0	51.0	0.0	No
V33	RESIDENTIAL	B	67	4	53.8	52.8	-1.0	No
V34	RESIDENTIAL	B	67	1	55.5	54.5	-1.0	No
V35	RESIDENTIAL	B	67	1	56.6	55.1	-1.5	No
V36	RESIDENTIAL	B	67	1	58.2	56.4	-1.8	No
V37	RESIDENTIAL	B	67	2	53.2	52.8	-0.4	No
V39	RESIDENTIAL	B	67	1	56.5	55.4	-1.1	No
V40	RESIDENTIAL	B	67	1	60.4	58.4	-2.0	No
V41	RESIDENTIAL	B	67	1	63.2	60.4	-2.8	No
V42	RESIDENTIAL	B	67	1	64.6	61.6	-3.0	No
V43	RESIDENTIAL	B	67	1	48.0	48.3	0.3	No
V44	RESIDENTIAL	B	67	2	49.4	49.6	0.2	No
V45	RESIDENTIAL	B	67	1	52.6	52.4	-0.2	No
V46	RESIDENTIAL	B	67	1	55.3	54.8	-0.5	No
V47	RESIDENTIAL	B	67	1	57.7	57.1	-0.6	No
V48.1	RESIDENTIAL	B	67	1	49.5	49.5	0.0	No
V48.2	RESIDENTIAL	B	67	1	51.7	51.4	-0.3	No
V49	RESIDENTIAL	B	67	1	53.0	52.8	-0.2	No
V50	RESIDENTIAL	B	67	1	62.4	60.5	-1.9	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
V51	RESIDENTIAL	B	67	1	65.7	63.4	-2.3	No
V52	PLACE OF WORSHIP	C	67	1	49.5	49.4	-0.1	No
V53	RESIDENTIAL	B	67	3	52.4	52.3	-0.1	No
V54.1	RESIDENTIAL	B	67	1	55.6	55.1	-0.5	No
V54.2	RESIDENTIAL	B	67	1	59.5	56.8	-2.7	No
V55	RESIDENTIAL	B	67	1	57.3	56.5	-0.8	No
V56	RESIDENTIAL	B	67	1	59.4	58.3	-1.1	No
V57	VACANT	G	-	0	65.1	63.7	-1.4	No
V58.1	RESIDENTIAL	B	67	1	50.7	50.8	0.1	No
V58.2	RESIDENTIAL	B	67	1	53.6	52.1	-1.5	No
V59	RESIDENTIAL	B	67	1	52.3	52.0	-0.3	No
V60	VACANT	G	-	0	53.1	52.5	-0.6	No
V61	RESIDENTIAL	B	67	1	54.9	54.5	-0.4	No
V62	RESIDENTIAL	B	67	1	58.1	57.2	-0.9	No
V63	RESIDENTIAL	B	67	4	49.6	49.4	-0.2	No
V64	RESIDENTIAL	B	67	1	52.1	51.1	-1.0	No
V65	RESIDENTIAL	B	67	1	52.7	51.7	-1.0	No
V66	RESIDENTIAL	B	67	1	53.9	52.7	-1.2	No
V67	RESIDENTIAL	B	67	1	58.1	56.6	-1.5	No
V68	RESIDENTIAL	B	67	1	60.4	58.4	-2.0	No
V69	RESIDENTIAL	B	67	1	63.9	61.6	-2.3	No
V70	RESIDENTIAL	B	67	3	50.0	49.2	-0.8	No
V71	RESIDENTIAL	B	67	1	54.9	53.6	-1.3	No
V72	RESIDENTIAL	B	67	1	57.0	55.3	-1.7	No
V73	RESIDENTIAL	B	67	1	60.7	58.6	-2.1	No
V74	RESIDENTIAL	B	67	1	65.9	64.5	-1.4	No
V75	RESIDENTIAL	B	67	2	53.0	52.0	-1.0	No
V76	RESIDENTIAL	B	67	1	54.4	53.2	-1.2	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
V77	RESIDENTIAL	B	67	1	54.9	54.2	-0.7	No
V78	PLAYGROUND	C	67	1	57.5	56.2	-1.3	No
V79	RESIDENTIAL	B	67	1	58.2	56.9	-1.3	No
V80	RESIDENTIAL	B	67	1	61.5	59.5	-2.0	No
V81	RESIDENTIAL	B	67	1	65.1	63.6	-1.5	No
V82	RESIDENTIAL	B	67	1	53.7	52.5	-1.2	No
V83	RESIDENTIAL	B	67	1	57.8	56.6	-1.2	No
V84	VACANT	G	-	0	66.7	65.9	-0.8	No
V85	RESIDENTIAL	B	67	1	61.9	59.8	-2.1	No
V86	RESIDENTIAL	B	67	1	64.8	63.4	-1.4	No
V87	RESIDENTIAL	B	67	1	63.9	62.6	-1.3	No
V88	RESIDENTIAL	B	67	1	63.4	62.5	-0.9	No
V89	VACANT	G	-	0	56.6	53.8	-2.8	No
V90	VACANT	G	-	0	59.8	56.9	-2.9	No
V91	VACANT	G	-	0	60.6	58.2	-2.4	No
V92.1	VACANT	G	-	0	57.8	56.6	-1.2	No
V92.2	VACANT	G	-	0	63.5	60.0	-3.5	No
V93	VACANT	G	-	0	59.8	57.8	-2.0	No
V94	VACANT	G	-	0	60.9	59.7	-1.2	No
V95	RESIDENTIAL	B	67	1	54.1	52.0	-2.1	No
V96	RESIDENTIAL	B	67	1	56.0	55.1	-0.9	No
V97	RESIDENTIAL	B	67	2	58.3	56.9	-1.4	No
V98	RESIDENTIAL	B	67	1	61.9	58.6	-3.3	No
V99	VACANT	G	-	0	54.1	52.2	-1.9	No
V100	VACANT	G	-	0	54.7	52.6	-2.1	No
W1	VACANT	G	-	0	49.3	49.5	0.2	No
W2	RETAIL	F	-	0	53.1	51.4	-1.7	No
W3	VACANT	G	-	0	65.9	63.6	-2.3	No

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Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
W4	RETAIL	F	-	0	47.6	52.3	4.7	No
W5	PLACE OF WORSHIP	C	67	1	58.4	55.8	-2.6	No
W6	RETAIL	F	-	0	61.8	60.5	-1.3	No
X1	RESIDENTIAL	B	67	1	56.0	56.2	0.2	No
X2	VACANT	G	-	0	61.6	60.0	-1.6	No
X3	VACANT	G	-	0	59.9	57.6	-2.3	No
X4	VACANT	G	-	0	62.2	62.8	0.6	No
X5	RESIDENTIAL	B	67	1	57.4	56.5	-0.9	No
X6	RESIDENTIAL	B	67	1	54.3	53.6	-0.7	No
X7	VACANT	G	-	0	51.3	50.8	-0.5	No
X8	RESIDENTIAL	B	67	1	63.3	63.7	0.4	No
X9	RESIDENTIAL	B	67	1	61.6	61.1	-0.5	No
X10	RESIDENTIAL	B	67	1	59.0	58.3	-0.7	No
X11	RESIDENTIAL	B	67	1	54.4	53.4	-1.0	No
X12	RESIDENTIAL	B	67	1	52.7	52.7	0.0	No
X13	RESIDENTIAL	B	67	1	47.2	46.9	-0.3	No
X14.1	RESIDENTIAL	B	67	1	60.1	58.3	-1.8	No
X14.2	RESIDENTIAL	B	67	1	62.6	60.9	-1.7	No
X15	RESIDENTIAL	B	67	1	56.4	54.5	-1.9	No
X16.1	RESIDENTIAL	B	67	1	54.7	52.1	-2.6	No
X16.2	RESIDENTIAL	B	67	1	55.0	54.0	-1.0	No
X17	RESIDENTIAL	B	67	1	51.8	51.1	-0.7	No
X18	VACANT	G	-	0	69.1	67.8	-1.3	No
X19	RESIDENTIAL	B	67	1	58.1	57.0	-1.1	No
X20	VACANT	G	-	0	50.3	50.0	-0.3	No
X21	RESIDENTIAL	B	67	3	48.8	49.0	0.2	No
X22	VACANT	G	-	0	63.4	60.7	-2.7	No
X23	RESIDENTIAL	B	67	1	52.7	52.2	-0.5	No

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Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
X24	VACANT	G	-	0	67.8	63.5	-4.3	No
X25	VACANT	G	-	0	62.9	60.4	-2.5	No
X26	VACANT	G	-	0	59.5	56.9	-2.6	No
X27	RESIDENTIAL	B	67	1	62.5	60.4	-2.1	No
X28	RESIDENTIAL	B	67	2	52.9	52.9	0.0	No
X29	RESIDENTIAL	B	67	1	53.9	52.8	-1.1	No
X30	RESTAURANT	E	72	1	54.8	54.7	-0.1	No
X31	RESIDENTIAL	B	67	1	63.0	61.7	-1.3	No
X32	PLACE OF WORSHIP	C	67	1	57.4	56.9	-0.5	No
Y1	VACANT	G	-	0	66.4	66.8	0.4	No
Y2	VACANT	G	-	0	64.9	63.0	-1.9	No
Y3	INDUSTRIAL	F	-	0	56.4	53.8	-2.6	No
Y4	VACANT	G	-	0	56.0	55.4	-0.6	No
Y5	VACANT	G	-	0	59.2	59.2	0.0	No
Y6	VACANT	G	-	0	61.6	61.0	-0.6	No
Y7	VACANT	G	-	0	59.9	61.5	1.6	No
Y8	VACANT	G	-	0	58.9	60.9	2.0	No
Y9	INDUSTRIAL	F	-	0	65.4	66.6	1.2	No
Y10	INDUSTRIAL	F	-	0	51.9	52.0	0.1	No
Y11	INDUSTRIAL	F	-	0	55.8	56.6	0.8	No
Y12	VACANT	G	-	0	52.0	53.2	1.2	No
Y13	INDUSTRIAL	F	-	0	65.4	75.1	9.7	No
Z1	RESIDENTIAL	B	67	1	61.1	58.0	-3.1	No
Z2	VACANT	G	-	0	54.8	56.1	1.3	No
Z3	VACANT	G	-	0	55.4	56.6	1.2	No
Z4.1	RESIDENTIAL	B	67	1	68.8	66.2	-2.6	Yes
Z4.2	RESIDENTIAL	B	67	1	74.0	71.3	-2.7	Yes
Z5	VACANT	G	-	0	57.5	57.5	0.0	No

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Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
Z6	VACANT	G	-	0	56.3	57.4	1.1	No
Z7	VACANT	G	-	0	70.2	66.3	-3.9	No
Z8	VACANT	G	-	0	72.6	69.7	-2.9	No
Z9	RESIDENTIAL	B	67	2	56.1	57.6	1.5	No
Z10	RESIDENTIAL	B	67	2	56.0	57.7	1.7	No
Z11	PICNIC TABLE	C	67	1	56.8	53.6	-3.2	No
Z13	VACANT	G	-	0	57.6	60.8	3.2	No
Z14	INDUSTRIAL	F	-	0	55.6	57.8	2.2	No
Z15	VACANT	G	-	0	64.8	62.1	-2.7	No
Z16	OFFICE	E	72	1	57.3	57.4	0.1	No
Z17	VACANT	G	-	0	62.9	62.8	-0.1	No
Z18	PLACE OF WORSHIP (NO EXTERIOR USE)	D	52	1	48.9	48.7	-0.2	No
AA1	PLACE OF WORSHIP	C	67	1	64.0	58.5	-5.5	No
AA2	MAINTENANCE FACILITY	F	-	0	58.1	54.7	-3.4	No
AA3	RETAIL	F	-	0	48.7	49.3	0.6	No
AA4	RESIDENTIAL	B	67	4	67.6	66.5	-1.1	Yes
AA5	VACANT	G	-	0	51.4	51.6	0.2	No
AA6	RETAIL	F	-	0	51.0	51.4	0.4	No
AA7	VACANT	G	-	0	68.1	68.3	0.2	No
AA8	RESIDENTIAL	B	67	1	56.2	54.6	-1.6	No
AA9	RESIDENTIAL	B	67	1	55.7	54.0	-1.7	No
AA10	RESIDENTIAL	B	67	1	55.4	53.6	-1.8	No
AA11	RESIDENTIAL	B	67	1	55.1	53.4	-1.7	No
AA12	RESIDENTIAL	B	67	1	54.6	52.9	-1.7	No
AA13	RESIDENTIAL	B	67	3	54.0	52.5	-1.5	No
AA14.1	RESIDENTIAL	B	67	2	50.1	50.7	0.6	No
AA14.2	RESIDENTIAL	B	67	2	52.5	52.3	-0.2	No
AA15	RESIDENTIAL	B	67	4	48.4	48.8	0.4	No

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Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
AA16-1	RESIDENTIAL	B	67	1	57.4	57.6	0.2	No
AA16-2	RESIDENTIAL	B	67	3	46.9	46.3	-0.6	No
AA17	RESIDENTIAL	B	67	1	55.1	56.1	1.0	No
AA18	RESIDENTIAL	B	67	1	54.2	54.1	-0.1	No
AA19	RESIDENTIAL	B	67	1	50.5	51.3	0.8	No
AA20	RESIDENTIAL	B	67	1	50.0	50.6	0.6	No
AA21	RESIDENTIAL	B	67	1	50.1	50.7	0.6	No
AA22	RESIDENTIAL	B	67	1	43.6	45.5	1.9	No
AA23	RESIDENTIAL	B	67	1	42.4	44.0	1.6	No
AA24	RESIDENTIAL	B	67	1	67.0	67.9	0.9	Yes
AA25	RESIDENTIAL	B	67	1	66.8	68.0	1.2	Yes
AA26	RESIDENTIAL	B	67	1	59.9	59.8	-0.1	No
AA27	RESIDENTIAL	B	67	1	59.5	59.2	-0.3	No
AA28	RESIDENTIAL	B	67	1	58.6	58.0	-0.6	No
AA29	RESIDENTIAL	B	67	1	57.2	56.7	-0.5	No
AA30	RESIDENTIAL	B	67	1	66.3	68.0	1.7	Yes
AA31	RESIDENTIAL	B	67	1	51.0	52.5	1.5	No
AA32	RESIDENTIAL	B	67	1	50.6	52.3	1.7	No
AA33	RESIDENTIAL	B	67	1	48.0	49.8	1.8	No
AA34	RESIDENTIAL	B	67	1	47.3	48.9	1.6	No
AA35	RESIDENTIAL	B	67	1	46.1	47.5	1.4	No
AA36	RESIDENTIAL	B	67	1	44.3	45.6	1.3	No
AA37	RESIDENTIAL	B	67	1	47.4	47.9	0.5	No
AA38	RESIDENTIAL	B	67	1	47.5	49.0	1.5	No
AA39	VACANT	G	-	0	65.4	67.0	1.6	No
AA40	RESIDENTIAL	B	67	1	48.1	48.3	0.2	No
AA41	RESIDENTIAL	B	67	1	46.5	47.3	0.8	No
AA42	RESIDENTIAL	B	67	1	45.9	46.8	0.9	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
AA43.1	RESIDENTIAL	B	67	1	43.3	44.0	0.7	No
AA43.2	RESIDENTIAL	B	67	1	45.2	46.4	1.2	No
AA44.1	RESIDENTIAL	B	67	1	49.6	50.5	0.9	No
AA44.2	RESIDENTIAL	B	67	1	51.9	52.7	0.8	No
AA45	RESIDENTIAL	B	67	3	50.9	51.6	0.7	No
AA46	RESIDENTIAL	B	67	3	50.6	51.1	0.5	No
AA47	RESIDENTIAL	B	67	1	50.7	51.4	0.7	No
AA48	RESIDENTIAL	B	67	1	51.0	51.7	0.7	No
AA49	RESIDENTIAL	B	67	2	66.0	68.2	2.2	Yes
AA50.1	RESIDENTIAL	B	67	2	71.4	74.2	2.8	Yes
AA50.2	RESIDENTIAL	B	67	2	73.8	75.1	1.3	Yes
AA50.3	RESIDENTIAL	B	67	2	74.0	75.2	1.2	Yes
AA51.1	RESIDENTIAL	B	67	6	73.8	74.4	0.6	Yes
AA51.2	RESIDENTIAL	B	67	6	74.2	74.8	0.6	Yes
AA52.1	RESIDENTIAL	B	67	4	66.5	67.0	0.5	Yes
AA52.2	RESIDENTIAL	B	67	4	69.5	70.0	0.5	Yes
AA53.1	RESIDENTIAL	B	67	6	66.8	67.1	0.3	Yes
AA53.2	RESIDENTIAL	B	67	6	70.1	70.0	-0.1	Yes
AA53.3	RESIDENTIAL	B	67	6	72.6	72.4	-0.2	Yes
AA54	PLACE OF WORSHIP	C	67	1	52.2	52.4	0.2	No
AA55	VACANT	G	-	0	66.7	66.3	-0.4	No
AA56	VACANT	G	-	0	61.5	60.4	-1.1	No
AA57	VACANT	G	-	0	59.9	58.8	-1.1	No
AA58-1	VACANT	G	-	0	57.6	56.7	-0.9	No
AA58-2	RESIDENTIAL	B	67	3	45.7	45.8	0.1	No
AA59	RESIDENTIAL	B	67	3	51.7	51.5	-0.2	No
AA60	RESIDENTIAL	B	67	2	67.0	66.5	-0.5	Yes
AA61	RESIDENTIAL	B	67	2	68.2	67.3	-0.9	Yes

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
AA62	RESIDENTIAL	B	67	1	67.3	66.7	-0.6	Yes
AA63	RESIDENTIAL	B	67	3	50.0	50.4	0.4	No
AA64	RESIDENTIAL	B	67	1	67.6	66.8	-0.8	Yes
AA65	RESIDENTIAL	B	67	1	67.0	66.5	-0.5	Yes
AA66	RESIDENTIAL	B	67	2	67.6	66.7	-0.9	Yes
AA67	VACANT	G	-	0	61.1	59.4	-1.7	No
AA68	VACANT	G	-	0	59.6	58.1	-1.5	No
AA69	VACANT	G	-	0	57.9	57.2	-0.7	No
AA70	VACANT	G	-	0	55.7	55.1	-0.6	No
AA71	VACANT	G	-	0	47.4	49.5	2.1	No
AA72.1	RESIDENTIAL	B	67	2	48.3	48.5	0.2	No
AA72.2	RESIDENTIAL	B	67	2	49.6	49.4	-0.2	No
AA73	RESIDENTIAL	B	67	3	49.0	50.7	1.7	No
BB1	RESIDENTIAL	B	67	1	50.6	50.4	-0.2	No
BB2	RESIDENTIAL	B	67	1	55.1	59.7	4.6	No
BB3	RESIDENTIAL	B	67	1	59.1	61.9	2.8	No
BB4	SCHOOL	C	67	1	47.3	47.2	-0.1	No
BB5	RETAIL	F	-	0	63.1	66.5	3.4	No
BB6	INDUSTRIAL	F	-	0	56.9	58.6	1.7	No
BB7	INDUSTRIAL	F	-	0	51.6	51.4	-0.2	No
BB8	INDUSTRIAL	F	-	0	49.0	48.1	-0.9	No
BB9	INDUSTRIAL	F	-	0	46.9	45.8	-1.1	No
BB10	INDUSTRIAL	F	-	0	45.4	51.6	6.2	No
BB11	VACANT	G	-	0	46.1	54.3	8.2	No
BB12	INDUSTRIAL	F	-	0	50.6	49.7	-0.9	No
BB13	INDUSTRIAL	F	-	0	47.7	46.9	-0.8	No
BB14	INDUSTRIAL	F	-	0	50.5	49.9	-0.6	No
BB15	OFFICE	E	72	1	62.4	60.0	-2.4	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
BB16	RESIDENTIAL	B	67	1	55.5	53.9	-1.6	No
BB17	RESIDENTIAL	B	67	1	51.8	51.1	-0.7	No
BB18	RESIDENTIAL	B	67	1	49.4	48.7	-0.7	No
BB19	PUBLIC OR NONPROFIT INSTITUTIONAL STRUCTURE	C	67	1	69.2	66.9	-2.3	Yes
BB20	RETAIL	F	-	0	54.2	53.2	-1.0	No
BB21	SCHOOL	C	67	1	59.5	59.7	0.2	No
BB22	HOSPITAL	C	67	1	48.6	45.9	-2.7	No
BB23	SCHOOL	C	67	1	58.4	56.4	-2.0	No
BB24	RETAIL	F	-	0	55.8	57.0	1.2	No
BB25	RETAIL	F	-	0	53.6	52.6	-1.0	No
BB26	VACANT	G	-	0	51.8	52.0	0.2	No
BB27	INDUSTRIAL	F	-	0	47.6	47.2	-0.4	No
BB32	VACANT	G	-	0	52.7	57.7	5.0	No
BB35	RETAIL	F	-	0	67.0	68.9	1.9	No
BB36	INDUSTRIAL	F	-	0	56.2	56.5	0.3	No
BB37	SCHOOL	C	67	1	52.5	51.7	-0.8	No
BB38	SCHOOL	C	67	1	65.3	62.7	-2.6	No
BB39	RETAIL	F	-	0	59.7	54.3	-5.4	No
BB40	SCHOOL	C	67	1	57.9	59.4	1.5	No
CC1.1	RESIDENTIAL	B	67	1	69.7	67.0	-2.7	Yes
CC1.2	RESIDENTIAL	B	67	1	71.7	70.6	-1.1	Yes
CC2	RESIDENTIAL	B	67	2	65.8	61.4	-4.4	No
CC3	RESIDENTIAL	B	67	2	66.2	61.8	-4.4	No
CC4.1	RESIDENTIAL	B	67	1	66.0	62.2	-3.8	No
CC4.2	RESIDENTIAL	B	67	1	67.7	66.5	-1.2	Yes
CC5.1	RESIDENTIAL	B	67	2	65.5	62.2	-3.3	No
CC5.2	RESIDENTIAL	B	67	2	67.1	66.1	-1.0	Yes
CC6	RESIDENTIAL	B	67	2	62.0	66.3	4.3	Yes

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Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
CC7	RESIDENTIAL	B	67	2	58.0	54.0	-4.0	No
CC8.1	RESIDENTIAL	B	67	1	65.6	64.9	-0.7	No
CC8.2	RESIDENTIAL	B	67	1	66.8	66.3	-0.5	Yes
CC9	RESIDENTIAL	B	67	1	58.0	64.9	6.9	No
CC10	RESIDENTIAL	B	67	20	55.3	52.0	-3.3	No
CC11	RESIDENTIAL	B	67	6	63.3	63.0	-0.3	No
CC12	RESIDENTIAL	B	67	2	61.1	64.8	3.7	No
CC12.1	RESIDENTIAL	B	67	1	52.0	52.2	0.2	No
CC12.2	RESIDENTIAL	B	67	1	55.5	54.5	-1.0	No
CC13	RESIDENTIAL	B	67	1	51.9	51.2	-0.7	No
CC14	RESIDENTIAL	B	67	1	51.3	51.3	0.0	No
CC16	RESIDENTIAL	B	67	2	55.8	58.0	2.2	No
CC17	RESIDENTIAL	B	67	2	56.4	57.3	0.9	No
CC18	RESIDENTIAL	B	67	2	52.3	54.2	1.9	No
CC19	RESIDENTIAL	B	67	2	50.3	52.7	2.4	No
CC21	VACANT	G	-	0	66.8	62.3	-4.5	No
CC22	RESIDENTIAL	B	67	6	64.4	58.0	-6.4	No
CC23.1	RESIDENTIAL	B	67	1	64.1	65.1	1.0	No
CC23.2	RESIDENTIAL	B	67	1	66.6	72.6	6.0	Yes
CC24	RECORDING STUDIO	D	52	1	42.6	39.5	-3.1	No
DD1	RESIDENTIAL	B	67	2	66.9	65.8	-1.1	No
DD2	RESIDENTIAL	B	67	2	62.8	61.5	-1.3	No
DD3	RESIDENTIAL	B	67	2	59.9	59.4	-0.5	No
DD4	RESIDENTIAL	B	67	5	56.7	56.0	-0.7	No
DD5	RESIDENTIAL	B	67	6	51.2	50.3	-0.9	No
DD6	RESIDENTIAL	B	67	2	61.2	61.4	0.2	No
DD7	RESIDENTIAL	B	67	2	57.8	57.6	-0.2	No
DD8	RESIDENTIAL	B	67	6	50.0	49.9	-0.1	No

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Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
DD9	RESIDENTIAL	B	67	2	63.1	63.4	0.3	No
DD10	RESIDENTIAL	B	67	5	55.7	55.3	-0.4	No
DD11.10	RESIDENTIAL	B	67	2	72.7	72.5	-0.2	Yes
DD11.11	RESIDENTIAL	B	67	2	72.7	72.3	-0.4	Yes
DD11.12	RESIDENTIAL	B	67	2	72.6	72.3	-0.3	Yes
DD11.13	RESIDENTIAL	B	67	2	72.5	72.2	-0.3	Yes
DD11.14	RESIDENTIAL	B	67	2	72.5	72.1	-0.4	Yes
DD11.2	RESIDENTIAL	B	67	2	68.5	66.6	-1.9	Yes
DD11.3	RESIDENTIAL	B	67	2	71.2	70.3	-0.9	Yes
DD11.4	RESIDENTIAL	B	67	2	71.9	71.4	-0.5	Yes
DD11.5	RESIDENTIAL	B	67	2	72.5	72.6	0.1	Yes
DD11.6	RESIDENTIAL	B	67	2	73.0	72.8	-0.2	Yes
DD11.7	RESIDENTIAL	B	67	2	73.1	72.9	-0.2	Yes
DD11.8	RESIDENTIAL	B	67	2	72.9	72.9	0.0	Yes
DD11.9	RESIDENTIAL	B	67	2	72.9	72.6	-0.3	Yes
DD12.2	RESIDENTIAL	B	67	1	59.5	58.5	-1.0	No
DD12.3	RESIDENTIAL	B	67	1	61.7	61.6	-0.1	No
DD12.4	RESIDENTIAL	B	67	1	65.0	64.0	-1.0	No
DD12.5	RESIDENTIAL	B	67	1	65.8	64.6	-1.2	No
DD12.6	RESIDENTIAL	B	67	1	66.8	66.2	-0.6	Yes
DD12.7	RESIDENTIAL	B	67	1	67.9	67.3	-0.6	Yes
DD12.8	RESIDENTIAL	B	67	1	68.8	68.2	-0.6	Yes
DD12.9	RESIDENTIAL	B	67	1	69.0	68.5	-0.5	Yes
DD12.10	RESIDENTIAL	B	67	1	69.2	68.8	-0.4	Yes
DD12.11	RESIDENTIAL	B	67	1	69.9	69.5	-0.4	Yes
DD12.12	RESIDENTIAL	B	67	1	71.5	71.0	-0.5	Yes
DD12.13	RESIDENTIAL	B	67	1	71.5	71.2	-0.3	Yes
DD12.14	RESIDENTIAL	B	67	1	71.5	71.1	-0.4	Yes

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Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
DD13.2	RESIDENTIAL	B	67	2	57.5	57.0	-0.5	No
DD13.3	RESIDENTIAL	B	67	2	60.0	59.0	-1.0	No
DD13.4	RESIDENTIAL	B	67	2	63.3	62.3	-1.0	No
DD13.5	RESIDENTIAL	B	67	2	64.1	63.3	-0.8	No
DD13.6	RESIDENTIAL	B	67	2	65.3	64.4	-0.9	No
DD13.7	RESIDENTIAL	B	67	2	66.9	66.3	-0.6	Yes
DD13.8	RESIDENTIAL	B	67	2	67.6	67.0	-0.6	Yes
DD13.9	RESIDENTIAL	B	67	2	68.2	67.6	-0.6	Yes
DD13.10	RESIDENTIAL	B	67	2	68.5	68.0	-0.5	Yes
DD13.11	RESIDENTIAL	B	67	2	69.3	68.8	-0.5	Yes
DD13.12	RESIDENTIAL	B	67	2	69.8	69.4	-0.4	Yes
DD13.13	RESIDENTIAL	B	67	2	70.8	70.3	-0.5	Yes
DD13.14	RESIDENTIAL	B	67	2	71.0	70.6	-0.4	Yes
DD14.2	RESIDENTIAL	B	67	2	54.5	54.0	-0.5	No
DD14.3	RESIDENTIAL	B	67	2	56.3	55.0	-1.3	No
DD14.4	RESIDENTIAL	B	67	2	58.3	58.5	0.2	No
DD14.5	RESIDENTIAL	B	67	2	61.2	60.5	-0.7	No
DD14.6	RESIDENTIAL	B	67	2	61.9	61.4	-0.5	No
DD14.7	RESIDENTIAL	B	67	2	63.6	63.0	-0.6	No
DD14.8	RESIDENTIAL	B	67	2	64.8	63.8	-1.0	No
DD14.9	RESIDENTIAL	B	67	2	65.8	65.2	-0.6	No
DD14.10	RESIDENTIAL	B	67	2	66.6	66.1	-0.5	Yes
DD14.11	RESIDENTIAL	B	67	2	68.0	67.5	-0.5	Yes
DD14.12	RESIDENTIAL	B	67	2	68.6	68.1	-0.5	Yes
DD14.13	RESIDENTIAL	B	67	2	69.0	68.5	-0.5	Yes
DD14.14	RESIDENTIAL	B	67	2	69.2	68.6	-0.6	Yes
DD16.2	RESIDENTIAL	B	67	1	64.9	62.9	-2.0	No
DD16.3	RESIDENTIAL	B	67	1	67.8	64.8	-3.0	No

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	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
DD16.4	RESIDENTIAL	B	67	1	68.7	67.4	-1.3	Yes
DD16.5	RESIDENTIAL	B	67	1	69.1	68.0	-1.1	Yes
DD16.6	RESIDENTIAL	B	67	1	69.3	68.4	-0.9	Yes
DD16.7	RESIDENTIAL	B	67	1	69.4	69.2	-0.2	Yes
DD16.8	RESIDENTIAL	B	67	1	69.5	69.2	-0.3	Yes
DD16.9	RESIDENTIAL	B	67	1	69.5	69.1	-0.4	Yes
DD16.10	RESIDENTIAL	B	67	1	69.5	69.3	-0.2	Yes
DD16.11	RESIDENTIAL	B	67	1	70.1	69.8	-0.3	Yes
DD16.12	RESIDENTIAL	B	67	1	71.6	71.0	-0.6	Yes
DD16.13	RESIDENTIAL	B	67	1	71.5	71.1	-0.4	Yes
DD16.14	RESIDENTIAL	B	67	1	71.5	71.0	-0.5	Yes
DD17.2	RESIDENTIAL	B	67	2	63.4	62.3	-1.1	No
DD17.3	RESIDENTIAL	B	67	2	67.0	63.6	-3.4	No
DD17.4	RESIDENTIAL	B	67	2	67.8	65.6	-2.2	No
DD17.5	RESIDENTIAL	B	67	2	68.6	67.0	-1.6	Yes
DD17.6	RESIDENTIAL	B	67	2	68.6	67.7	-0.9	Yes
DD17.7	RESIDENTIAL	B	67	2	68.8	67.9	-0.9	Yes
DD17.8	RESIDENTIAL	B	67	2	68.9	68.6	-0.3	Yes
DD17.9	RESIDENTIAL	B	67	2	68.9	68.6	-0.3	Yes
DD17.10	RESIDENTIAL	B	67	2	69.0	68.7	-0.3	Yes
DD17.11	RESIDENTIAL	B	67	2	69.6	69.2	-0.4	Yes
DD17.12	RESIDENTIAL	B	67	2	70.0	69.7	-0.3	Yes
DD17.13	RESIDENTIAL	B	67	2	71.0	70.5	-0.5	Yes
DD17.14	RESIDENTIAL	B	67	2	71.1	70.7	-0.4	Yes
DD18.2	RESIDENTIAL	B	67	2	61.3	60.9	-0.4	No
DD18.3	RESIDENTIAL	B	67	2	64.1	61.2	-2.9	No
DD18.4	RESIDENTIAL	B	67	2	66.4	62.8	-3.6	No
DD18.5	RESIDENTIAL	B	67	2	67.0	64.7	-2.3	No

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Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
DD18.6	RESIDENTIAL	B	67	2	67.7	66.0	-1.7	Yes
DD18.7	RESIDENTIAL	B	67	2	67.6	66.2	-1.4	Yes
DD18.8	RESIDENTIAL	B	67	2	67.6	66.3	-1.3	Yes
DD18.9	RESIDENTIAL	B	67	2	67.6	66.5	-1.1	Yes
DD18.10	RESIDENTIAL	B	67	2	67.8	67.3	-0.5	Yes
DD18.11	RESIDENTIAL	B	67	2	68.3	67.8	-0.5	Yes
DD18.12	RESIDENTIAL	B	67	2	68.7	68.2	-0.5	Yes
DD18.13	RESIDENTIAL	B	67	2	69.1	68.6	-0.5	Yes
DD18.14	RESIDENTIAL	B	67	2	69.2	68.8	-0.4	Yes
EE1	HOSPITAL (NO EXTERIOR USE)	D	52	1	44.8	44.0	-0.8	No
EE2	HOSPITAL (NO EXTERIOR USE)	D	52	1	33.7	35.5	1.8	No
FF1	INDUSTRIAL	F	-	0	63.8	56.6	-7.2	No
FF2	VACANT	G	-	0	73.7	69.8	-3.9	No
FF3	INDUSTRIAL	F	-	0	70.5	69.6	-0.9	No
FF4	INDUSTRIAL	F	-	0	53.2	53.9	0.7	No
FF5	INDUSTRIAL	F	-	0	58.3	59.1	0.8	No
FF6	OFFICE	E	72	1	63.0	62.8	-0.2	No
FF7	VACANT	G	-	0	55.0	56.2	1.2	No
FF8	OFFICE	E	72	1	65.5	65.5	0.0	No
GG1	RESIDENTIAL	B	67	4	54.7	52.1	-2.6	No
GG2	RESIDENTIAL	B	67	3	51.0	50.2	-0.8	No
GG3	RESIDENTIAL	B	67	2	54.9	53.8	-1.1	No
GG4	RESIDENTIAL	B	67	2	56.0	54.6	-1.4	No
GG5	RESIDENTIAL	B	67	2	58.3	55.4	-2.9	No
GG6	RESIDENTIAL	B	67	2	60.2	56.8	-3.4	No
GG7	RESIDENTIAL	B	67	2	55.1	53.0	-2.1	No
GG8	RESIDENTIAL	B	67	2	52.7	51.9	-0.8	No
GG9	RESIDENTIAL	B	67	2	53.1	52.3	-0.8	No

Boldface indicates noise levels that approach, equal or exceed the NAC and create an impact.

Receiver IDs with a decimal point (.) indicates floor. For example, B2.1, indicates first floor; B2.2, indicates second floor, etc. If there is not a decimal point, it is first floor.

NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
GG10	RESIDENTIAL	B	67	2	54.6	53.2	-1.4	No
GG11	RESIDENTIAL	B	67	2	50.6	49.7	-0.9	No
GG12	RESIDENTIAL	B	67	2	50.9	49.9	-1.0	No
GG13	RESIDENTIAL	B	67	2	51.9	51.0	-0.9	No
GG14	RESIDENTIAL	B	67	2	52.5	51.5	-1.0	No
GG15	RESIDENTIAL	B	67	8	50.0	48.7	-1.3	No
GG16	RESIDENTIAL	B	67	4	46.6	46.4	-0.2	No
GG17	PLAYGROUND	C	67	1	46.6	46.1	-0.5	No
GG18	RESIDENTIAL	B	67	8	44.4	43.6	-0.8	No
GG19	RESIDENTIAL	B	67	150	67.2	63.8	-3.4	No
GG20	PLAYGROUND	C	67	1	62.9	59.3	-3.6	No
GG21	RESIDENTIAL	B	67	4	55.5	52.9	-2.6	No
GG22	RESIDENTIAL	B	67	4	46.5	45.1	-1.4	No
GG23	RESIDENTIAL	B	67	4	49.5	46.7	-2.8	No
GG24	PLAYGROUND	C	67	1	53.1	50.6	-2.5	No
GG25	PLAYGROUND	C	67	1	54.6	50.3	-4.3	No
GG26	RESIDENTIAL	B	67	4	53.7	50.2	-3.5	No
GG27	RESIDENTIAL	B	67	10	56.3	52.5	-3.8	No
GG28	RESIDENTIAL	B	67	8	51.6	47.8	-3.8	No
GG29	RESIDENTIAL	B	67	4	43.2	42.8	-0.4	No
GG30	RESIDENTIAL	B	67	4	46.8	46.9	0.1	No
GG31	RESIDENTIAL	B	67	6	54.8	51.3	-3.5	No
GG32	PLAYGROUND	C	67	1	55.8	51.8	-4.0	No
GG33	RESIDENTIAL	B	67	6	49.2	46.8	-2.4	No
GG34	RESIDENTIAL	B	67	4	54.1	51.1	-3.0	No
GG35	RESIDENTIAL	B	67	2	48.8	47.0	-1.8	No
GG36	RESIDENTIAL	B	67	2	54.1	50.1	-4.0	No
GG37	RESIDENTIAL	B	67	2	43.4	42.7	-0.7	No

Boldface indicates noise levels that approach, equal or exceed the NAC and create an impact.

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
GG38	RESIDENTIAL	B	67	2	43.9	43.1	-0.8	No
GG39	RESIDENTIAL	B	67	2	46.8	46.8	0.0	No
GG40	RESIDENTIAL	B	67	2	47.8	47.4	-0.4	No
GG41	RESIDENTIAL	B	67	6	57.4	53.5	-3.9	No
GG42	RESIDENTIAL	B	67	2	57.4	55.6	-1.8	No
GG43	RESIDENTIAL	B	67	2	61.1	59.7	-1.4	No
GG44	RESIDENTIAL	B	67	2	63.8	63.4	-0.4	No
GG45	RESIDENTIAL	B	67	2	63.2	58.6	-4.6	No
GG46	RESIDENTIAL	B	67	2	60.5	55.1	-5.4	No
GG47	RESIDENTIAL	B	67	2	58.5	53.8	-4.7	No
GG48	RESIDENTIAL	B	67	2	66.5	63.5	-3.0	No
GG49	RESIDENTIAL	B	67	2	65.7	61.1	-4.6	No
GG50	RESIDENTIAL	B	67	2	60.6	57.2	-3.4	No
GG51	RESIDENTIAL	B	67	2	53.9	50.5	-3.4	No
GG52	RESIDENTIAL	B	67	2	55.6	52.7	-2.9	No
GG53	RESIDENTIAL	B	67	2	58.3	57.2	-1.1	No
GG54	INDUSTRIAL	F	-	0	71.4	65.0	-6.4	No
HH1	RESIDENTIAL	B	67	3	51.7	53.6	1.9	No
HH2	RESIDENTIAL	B	67	1	53.6	55.8	2.2	No
HH3	INDUSTRIAL	F	-	0	62.7	61.9	-0.8	No
HH4	VACANT	G	-	0	62.8	65.8	3.0	No
HH5	VACANT	G	-	0	52.2	50.1	-2.1	No
HH6	INDUSTRIAL	F	-	0	57.2	55.1	-2.1	No
II1	VACANT	G	-	0	56.6	57.0	0.4	No
II2	VACANT	G	-	0	59.3	57.7	-1.6	No
II3	VACANT	G	-	0	54.5	55.0	0.5	No
II4	PLACE OF WORSHIP	C	67	1	59.1	59.3	0.2	No
II5	RESIDENTIAL	B	67	4	54.6	53.4	-1.2	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
II6	PLACE OF WORSHIP	C	67	1	57.0	55.7	-1.3	No
II7	RETAIL	F	-	0	60.8	60.9	0.1	No
II8.1	RESIDENTIAL	B	67	2	50.1	48.8	-1.3	No
II8.2	RESIDENTIAL	B	67	1	51.9	51.2	-0.7	No
II9.1	RESIDENTIAL	B	67	2	50.6	51.4	0.8	No
II9.2	RESIDENTIAL	B	67	1	51.0	52.7	1.7	No
II10.1	RESIDENTIAL	B	67	1	55.7	56.3	0.6	No
II10.2	RESIDENTIAL	B	67	1	57.8	58.5	0.7	No
II11	RESIDENTIAL	B	67	3	54.0	54.4	0.4	No
II12	RETAIL	F	-	0	66.5	67.8	1.3	No
II13	RETAIL	F	-	0	65.6	66.5	0.9	No
II14	VACANT	G	-	0	58.4	59.4	1.0	No
II15.1	RESIDENTIAL	B	67	3	51.2	52.6	1.4	No
II15.2	RESIDENTIAL	B	67	1	53.7	54.2	0.5	No
II16	RETAIL	F	-	0	60.8	61.9	1.1	No
II17	RESIDENTIAL	B	67	4	68.0	68.0	0.0	Yes
II18	RESIDENTIAL	B	67	1	65.6	65.7	0.1	No
II19	RESIDENTIAL	B	67	1	71.8	73.3	1.5	Yes
II20	VACANT	G	-	0	57.1	59.1	2.0	No
II21	RESIDENTIAL	B	67	2	54.7	56.6	1.9	No
II22	RESIDENTIAL	B	67	1	56.8	59.0	2.2	No
II23.1	RESIDENTIAL	B	67	1	58.6	62.6	4.0	No
II23.2	RESIDENTIAL	B	67	1	62.0	66.1	4.1	Yes
II24	VACANT	G	-	0	57.0	59.2	2.2	No
II25	RESIDENTIAL	B	67	1	62.8	67.5	4.7	Yes
II26	RESIDENTIAL	B	67	1	65.9	70.8	4.9	Yes
II27	RESIDENTIAL	B	67	1	67.1	69.5	2.4	Yes
II28	RESIDENTIAL	B	67	3	51.2	53.1	1.9	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Receiver ID	Noise Abatement Criteria (NAC)			Receptors	Noise Level dB(A) L_{eq}(1h)			
	Description	Category	Criteria L_{eq}(h)		Existing	Future Build Alternative		
						NL	Change from Existing	Impact (Yes/No)
II29.1	RESIDENTIAL	B	67	1	53.6	56.2	2.6	No
II29.2	RESIDENTIAL	B	67	1	57.4	59.4	2.0	No
II30	RESIDENTIAL	B	67	3	55.2	56.9	1.7	No
II31	RESIDENTIAL	B	67	1	56.1	59.3	3.2	No
II32	VACANT	G	-	0	51.6	55.5	3.9	No
II33	VACANT	G	-	0	53.2	56.5	3.3	No
II34	RESIDENTIAL	B	67	2	55.3	58.6	3.3	No
II35	RESIDENTIAL	B	67	3	49.0	51.3	2.3	No
II36.1	RESIDENTIAL	B	67	2	51.8	53.5	1.7	No
II36.2	RESIDENTIAL	B	67	1	54.1	56.7	2.6	No
II37	VACANT	G	-	0	55.5	58.3	2.8	No
II38	VACANT	G	-	0	60.2	65.0	4.8	No
II39	RESIDENTIAL	B	67	2	50.8	53.6	2.8	No
II40	VACANT	G	-	0	52.9	55.1	2.2	No
II41	PLACE OF WORSHIP	C	67	1	55.8	58.0	2.2	No
II42	RESIDENTIAL	B	67	1	57.8	60.0	2.2	No

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NAC Category D – Building – All, window closed – Ordinary sash; Noise reduction due to exterior of structure – 20 dB.

Appendix D: Abatement Analysis Results per Receiver, dB(A) $L_{eq(1h)}$

Table 10: Abatement Analysis Results per Receiver, dB(A) L_{eq}(1h)

RECEIVER ID	DESCRIPTION	CATEGORY	CRITERIA	RECEPTORS	FUTURE W/O BARRIER	IMPACT	FUTURE W/ BARRIER	NOISE BARRIER REDUCTION	BENEFITED RECEPTOR
NB 1									
B1 - REC 4	Restaurant	E	72	1	57.4	No	54.2	3.2	No
B2.1 - REC 78	Residential	B	67	2	72.5	Yes	68.2	4.3	No
B2.2 - REC 6	Residential	B	67	2	67.9	Yes	64.9	3.0	No
B3 - REC 5	Residential	B	67	2	63.5	No	60.2	3.3	No
B4 - REC 8	Residential	B	67	1	57.9	No	54.6	3.3	No
B5 - REC 7	Residential	B	67	2	67.5	Yes	63.5	4.0	No
B6 - REC 11	Residential	B	67	1	59.4	No	55.5	3.9	No
B7 - REC 9	Residential	B	67	1	60.2	No	56.2	4.0	No
B8 - REC 10	Residential	B	67	2	59	No	55.1	3.9	No
B9 - REC 13	Residential	B	67	5	57.6	No	54.1	3.5	No
NB 2									
II4 - REC 2231	Place of Worship	C	67	1	59.3	No	59.1	0.2	No
II5 - REC 2249	Residential	B	67	4	53.4	No	53.3	0.1	No
II8.1 - REC 2223	Residential	B	67	2	48.8	No	48.6	0.2	No
II8.2 - REC 2247	Residential	B	67	1	51.2	No	51.1	0.1	No
II9.1 - REC 2226	Residential	B	67	2	51.4	No	50.4	1.0	No
II9.2 - REC 2246	Residential	B	67	1	52.7	No	50.7	2.0	No
II10.1 - REC 2227	Residential	B	67	1	56.3	No	54.9	1.4	No
II10.2 - REC 2244	Residential	B	67	1	58.5	No	57.4	1.1	No
II11 - REC 2219	Residential	B	67	3	54.4	No	54	0.4	No
II15.1 - REC 2214	Residential	B	67	3	52.6	No	48.9	3.7	No
II15.2 - REC 2243	Residential	B	67	1	54.2	No	51.1	3.1	No
II6 - REC 2230	Place of Worship	C	67	1	55.7	No	55.7	0.0	No
II17 - REC 2242	Residential	B	67	4	68.0	Yes	63	5.0	Yes
II18 - REC 2211	Residential	B	67	1	65.7	No	62.1	3.6	No
II19 - REC 2210	Residential	B	67	1	73.3	Yes	67.7	5.6	Yes
II21 - REC 2207	Residential	B	67	2	56.6	No	53.4	3.2	No
II22 - REC 2208	Residential	B	67	1	59.0	No	54.8	4.2	No
II23.1 - REC 2209	Residential	B	67	1	62.6	No	57.5	5.1	Yes
II23.2 - REC 2240	Residential	B	67	1	66.1	Yes	59.5	6.6	Yes
II25 - REC 2203	Residential	B	67	1	67.5	Yes	59.5	8.0	Yes
II26 - REC 2204	Residential	B	67	1	70.8	Yes	61.7	9.1	Yes
II27 - REC 2205	Residential	B	67	1	69.5	Yes	63.5	6.0	Yes
II28 - REC 2190	Residential	B	67	3	53.1	No	48.4	4.7	No
II29.1 - REC 2197	Residential	B	67	1	56.2	No	51.3	4.9	Yes
II29.2 - REC 2237	Residential	B	67	1	59.4	No	53.2	6.2	Yes
II30 - REC 2195	Residential	B	67	3	56.9	No	51.5	5.4	Yes
II31 - REC 2196	Residential	B	67	1	59.3	No	55.1	4.2	No
II34 - REC 2200	Residential	B	67	2	58.6	No	56.1	2.5	No
II35 - REC 2184	Residential	B	67	3	51.3	No	47.2	4.1	No
II36.1 - REC 2187	Residential	B	67	2	53.5	No	52.4	1.1	No
II39 - REC 2235	Residential	B	67	2	53.6	No	51.4	2.2	No
NB 3									
B18 - REC 25	Residential	B	67	1	60	No	58.8	1.2	No
B19 - REC 24	Residential	B	67	1	68.9	Yes	65.9	3.0	No
B20 - REC 26	Residential	B	67	2	56.4	No	55.3	1.1	No
B21 - REC 29	Residential	B	67	2	68.2	Yes	64.3	3.9	No
B22 - REC 33	Residential	B	67	2	58.4	No	55.7	2.7	No
B23 - REC 34	Residential	B	67	3	54.8	No	51.9	2.9	No
B24 - REC 31	Residential	B	67	2	53.6	No	50.4	3.2	No
B25 - REC 28	Residential	B	67	2	67.4	Yes	63.1	4.3	No
B28.1 - REC 81	Residential	B	67	1	54	No	50.2	3.8	No
B28.2 - REC 82	Residential	B	67	1	56.5	No	51.9	4.6	No
B29.1 - REC 54	Residential	B	67	1	52.8	No	49.2	3.6	No
B29.2 - REC 55	Residential	B	67	1	55.3	No	51.5	3.8	No
B30.1 - REC 50	Residential	B	67	3	51.4	No	47.8	3.6	No
B30.2 - REC 51	Residential	B	67	4	53.7	No	49.9	3.8	No
B31.1 - REC 53	Residential	B	67	4	49.3	No	46.5	2.8	No
B31.2 - REC 46	Residential	B	67	3	51	No	47.7	3.3	No
B32.1 - REC 41	Residential	B	67	2	52.2	No	49.5	2.7	No
B32.2 - REC 43	Residential	B	67	2	53.7	No	50.7	3.0	No
B32.3 - REC 47	Residential	B	67	3	53	No	49.9	3.1	No
B33 - REC 56	Residential	B	67	1	61.1	No	57.7	3.4	No
B34 - REC 57	Residential	B	67	1	59.7	No	56.5	3.2	No
B35.1 - REC 72	Residential	B	67	1	56.6	No	53.3	3.3	No
B35.2 - REC 73	Residential	B	67	1	55.5	No	50.7	4.8	No
B36.1 - REC 58	Residential	B	67	1	55.1	No	51.2	3.9	No
B36.2 - REC 59	Residential	B	67	1	57	No	52.7	4.3	No
B37.1 - REC 60	Residential	B	67	1	53.9	No	49.8	4.1	No
B37.2 - REC 61	Residential	B	67	1	55.7	No	51.5	4.2	No
B38.1 - REC 64	Residential	B	67	2	51.6	No	47.4	4.2	No
B38.2 - REC 65	Residential	B	67	2	53.3	No	49.1	4.2	No
B39 - REC 68	Residential	B	67	4	49.7	No	46	3.7	No
B43 - REC 74	Picnic Table	C	67	1	51	No	50.4	0.6	No
NB 4									
BB1 - REC 1924	Residential	B	67	1	50.4	No	48.9	1.5	No
BB2 - REC 1923	Residential	B	67	1	59.7	No	59.6	0.1	No
BB3 - REC 1922	Residential	B	67	1	61.9	No	61.9	0.0	No
BB4 - REC 1921	School	C	67	1	47.2	No	46	1.2	No
CC1.1 - REC 1937	Residential	B	67	1	67	Yes	56	11.0	Yes
CC1.2 - REC 1938	Residential	B	67	1	70.6	Yes	58.5	12.1	Yes
CC2 - REC 1939	Residential	B	67	2	61.4	No	54.7	6.7	Yes
CC3 - REC 1936	Residential	B	67	2	61.8	No	54.6	7.2	Yes
CC4.1 - REC 1940	Residential	B	67	1	62.2	No	54.6	7.6	Yes

Table 10: Abatement Analysis Results per Receiver, dB(A) L_{eq}(1h)

RECEIVER ID	DESCRIPTION	CATEGORY	CRITERIA	RECEPTORS	FUTURE W/O BARRIER	IMPACT	FUTURE W/ BARRIER	NOISE BARRIER REDUCTION	BENEFITED RECEPTOR
CC4.2 - REC 1941	Residential	B	67	1	66.5	Yes	55.4	11.1	Yes
CC5.1 - REC 1934	Residential	B	67	2	62.2	No	54.5	7.7	Yes
CC5.2 - REC 1935	Residential	B	67	2	66.1	Yes	55.8	10.3	Yes
CC6 - REC 1920	Residential	B	67	2	66.3	Yes	66.3	0.0	No
CC7 - REC 1931	Residential	B	67	2	54	No	50.3	3.7	No
CC8.1 - REC 1932	Residential	B	67	1	64.9	No	55.6	9.3	Yes
CC8.2 - REC 1933	Residential	B	67	1	66.3	Yes	59.1	7.2	Yes
CC9 - REC 1919	Residential	B	67	1	64.9	No	64.8	0.1	No
CC10 - REC 1930	Residential	B	67	20	52	No	48.8	3.2	No
CC11 - REC 1927	Residential	B	67	6	63	No	56.4	6.6	Yes
CC12 - REC 1918	Residential	B	67	2	64.8	No	64.8	0.0	No
CC12.1 - REC 1928	Residential	B	67	1	52.2	No	50.5	1.7	No
CC12.2 - REC 1929	Residential	B	67	1	54.5	No	51.8	2.7	No
CC13 - REC 1926	Residential	B	67	1	51.2	No	49.4	1.8	No
CC14 - REC 1925	Residential	B	67	1	51.3	No	50	1.3	No
CC16 - REC 1914	Residential	B	67	2	58	No	58	0.0	No
CC17 - REC 1915	Residential	B	67	2	57.3	No	57.3	0.0	No
CC18 - REC 1916	Residential	B	67	2	54.2	No	54.2	0.0	No
CC19 - REC 1917	Residential	B	67	2	52.7	No	52.7	0.0	No
NB 5									
BB21 - REC 1909	School	C	67	1	59.7	No	58.9	0.8	No
BB22 - REC 1906	Hospital	C	67	1	45.9	No	43.8	2.1	No
BB23 - REC 1895	School	C	67	1	56.4	No	55.8	0.6	No
CC22 - REC 1910	Residential	B	67	6	58	No	55.8	2.2	No
CC23.1 - REC 1893	Residential	B	67	1	65.1	No	60	5.1	Yes
CC23.2 - REC 1894	Residential	B	67	1	72.6	Yes	65.1	7.5	Yes
CC24 - REC 1892	Recording Studio	D	52	1	39.5	No	35.9	3.6	No
NB 6									
F16 - REC 467	Residential	B	67	1	60.9	No	60.8	0.1	No
F17 - REC 469	Residential	B	67	1	57.4	No	57.3	0.1	No
F18 - REC 470	Residential	B	67	1	54.5	No	54.4	0.1	No
F19 - REC 471	Residential	B	67	1	59.7	No	56.6	3.1	No
F21 - REC 474	Residential	B	67	1	54.3	No	52	2.3	No
G1.1 - REC 477	Residential	B	67	2	56.6	No	54.3	2.3	No
G1.2 - REC 478	Residential	B	67	2	59.8	No	56.5	3.3	No
G2.1 - REC 479	Residential	B	67	4	57	No	54.8	2.2	No
G2.2 - REC 480	Residential	B	67	4	60.1	No	57	3.1	No
G2.3 - REC 481	Residential	B	67	4	62.1	No	58	4.1	No
G5.1 - REC 483	Residential	B	67	1	65.5	No	63.7	1.8	No
G5.2 - REC 484	Residential	B	67	1	67.5	Yes	64.2	3.3	No
G6 - REC 512	Residential	B	67	12	51.7	No	50	1.7	No
G7.1 - REC 506	Residential	B	67	2	51.2	No	49.5	1.7	No
G7.2 - REC 507	Residential	B	67	2	53.8	No	51.5	2.3	No
G7.3 - REC 508	Residential	B	67	2	55.2	No	52.6	2.6	No
G8.1 - REC 485	Residential	B	67	1	65.4	No	63.9	1.5	No
G8.2 - REC 486	Residential	B	67	1	67.1	Yes	64.1	3.0	No
G9 - REC 487	Residential	B	67	3	66.3	Yes	64.1	2.2	No
G10 - REC 488	Residential	B	67	2	67.1	Yes	65.2	1.9	No
G11 - REC 489	Residential	B	67	2	67.4	Yes	65.5	1.9	No
G12.1 - REC 493	Residential	B	67	1	67.2	Yes	65.2	2.0	No
G12.2 - REC 492	Residential	B	67	1	68.6	Yes	65.4	3.2	No
G13.1 - REC 491	Residential	B	67	1	67.6	Yes	65.6	2.0	No
G13.2 - REC 490	Residential	B	67	1	68.9	Yes	65.9	3.0	No
G14.1 - REC 495	Residential	B	67	8	66.7	Yes	64.7	2.0	No
G14.2 - REC 496	Residential	B	67	8	68.8	Yes	65.9	2.9	No
G14.3 - REC 494	Residential	B	67	8	69.7	Yes	66.5	3.2	No
G15 - REC 499	Residential	B	67	4	57.1	No	54.8	2.3	No
G16 - REC 498	Residential	B	67	4	55.8	No	53.7	2.1	No
G17 - REC 497	Residential	B	67	4	52.9	No	51.5	1.4	No
G18 - REC 500	Residential	B	67	4	55.9	No	53.4	2.5	No
G19 - REC 501	Residential	B	67	4	48.8	No	47.6	1.2	No
G20 - REC 502	Residential	B	67	4	46.2	No	45.1	1.1	No
G21 - REC 513	Residential	B	67	2	65.1	No	60.4	4.7	No
G22 - REC 514	Residential	B	67	2	61.1	No	58.1	3.0	No
G23 - REC 515	Residential	B	67	2	63.3	No	59.8	3.5	No
G24 - REC 516	Residential	B	67	2	56.6	No	54.2	2.4	No
G25 - REC 555	Playground	C	67	1	66.9	Yes	60.6	6.3	Yes
G26 - REC 519	Residential	B	67	2	43.3	No	43.1	0.2	No
G27 - REC 520	Residential	B	67	2	42.9	No	42.7	0.2	No
G28 - REC 521	Residential	B	67	2	43	No	42.7	0.3	No
G29 - REC 525	Residential	B	67	2	43.3	No	43	0.3	No
G30 - REC 524	Residential	B	67	2	64.1	No	58.8	5.3	Yes

Table 10: Abatement Analysis Results per Receiver, dB(A) L_{eq}(1h)

RECEIVER ID	DESCRIPTION	CATEGORY	CRITERIA	RECEPTORS	FUTURE W/O BARRIER	IMPACT	FUTURE W/ BARRIER	NOISE BARRIER REDUCTION	BENEFITED RECEPTOR
G31 - REC 522	Residential	B	67	2	63.2	No	58.8	4.4	No
G32 - REC 523	Residential	B	67	2	63.4	No	59.4	4.0	No
G33 - REC 517	Residential	B	67	2	58.8	No	53.5	5.3	Yes
G34 - REC 518	Residential	B	67	2	56.3	No	53.1	3.2	No
G35 - REC 526	Residential	B	67	6	52.9	No	51.1	1.8	No
G36 - REC 537	Residential	B	67	6	62.1	No	57.1	5.0	Yes
G37 - REC 559	Residential	B	67	6	44.3	No	43.6	0.7	No
G38 - REC 563	Residential	B	67	5	47.8	No	46.4	1.4	No
G39 - REC 562	Residential	B	67	5	50.2	No	47.6	2.6	No
G40 - REC 554	Residential	B	67	2	61.7	No	55	6.7	Yes
G41 - REC 553	Residential	B	67	2	61.3	No	54.5	6.8	Yes
G42 - REC 552	Residential	B	67	2	60.8	No	54.2	6.6	Yes
G43 - REC 551	Residential	B	67	2	60.2	No	53.8	6.4	Yes
G44 - REC 550	Residential	B	67	2	59.8	No	53.6	6.2	Yes
G45 - REC 538	Residential	B	67	6	59	No	54.6	4.4	No
G46A	Residential	B	67	0	64.6	No	60	4.6	No
G47 - REC 564	Residential	B	67	6	47.6	No	46.1	1.5	No
G47A.1	Residential	B	67	1	64	No	59.7	4.3	No
G47A.2	Residential	B	67	1	69	Yes	60.6	8.4	Yes
G48 - REC 569	Residential	B	67	6	47.2	No	46.6	0.6	No
G48A.1	Residential	B	67	2	64.7	No	60	4.7	No
G48A.2	Residential	B	67	2	68.9	Yes	60.4	8.5	Yes
G49 - REC 570	Residential	B	67	2	50.6	No	50.2	0.4	No
G49A	Residential	B	67	1	64.5	No	59.9	4.6	No
G50 - REC 572	Residential	B	67	3	67.4	Yes	58.5	8.9	Yes
G51 - REC 573	Residential	B	67	2	64.6	No	55.3	9.3	Yes
G52 - REC 574	Residential	B	67	2	50	No	49.8	0.2	No
G53 - REC 575	Residential	B	67	2	50.6	No	50.4	0.2	No
G54-1 - REC 580	Residential	B	67	2	55.8	No	49.4	6.4	Yes
G54-2 - REC 576	Residential	B	67	2	66	Yes	56.8	9.2	Yes
G55 - REC 579	Residential	B	67	2	54.9	No	47.8	7.1	Yes
G56 - REC 577	Residential	B	67	1	54	No	45.5	8.5	Yes
G57 - REC 578	Residential	B	67	3	46.2	No	46	0.2	No
G58 - REC 582	Residential	B	67	2	57.8	No	57.7	0.1	No
G59 - REC 583	Residential	B	67	2	58.9	No	58.6	0.3	No
G60 - REC 585	School	C	67	1	49.1	No	46.6	2.5	No
NB 7									
AA46 - REC 1823	Residential	B	67	3	51.1	No	49.5	1.6	No
AA1 - REC 1881	Place of Worship	C	67	1	58.5	No	57.9	0.6	No
AA4 - REC 1880	Residential	B	67	4	66.5	Yes	61.4	5.1	Yes
AA8 - REC 1858	Residential	B	67	1	54.6	No	50.6	4.0	No
AA9 - REC 1857	Residential	B	67	1	54	No	49.1	4.9	No
AA10 - REC 1856	Residential	B	67	1	53.6	No	48.8	4.8	No
AA11 - REC 1855	Residential	B	67	1	53.4	No	48.5	4.9	No
AA12 - REC 1854	Residential	B	67	1	52.9	No	48.3	4.6	No
AA13 - REC 1859	Residential	B	67	3	52.5	No	48	4.5	No
AA14.1 - REC 1865	Residential	B	67	2	50.7	No	48.8	1.9	No
AA14.2 - REC 2268	Residential	B	67	2	52.3	No	50.5	1.8	No
AA15 - REC 1866	Residential	B	67	4	48.8	No	47.8	1.0	No
AA16-1 - REC 1853	Residential	B	67	1	57.6	No	53	4.6	No
AA16-2 - REC 1864	Residential	B	67	3	46.3	No	45.1	1.2	No
AA17 - REC 1852	Residential	B	67	1	56.1	No	49.8	6.3	Yes
AA18 - REC 1851	Residential	B	67	1	54.1	No	50.5	3.6	No
AA19 - REC 1850	Residential	B	67	1	51.3	No	47	4.3	No
AA20 - REC 1849	Residential	B	67	1	50.6	No	47.8	2.8	No
AA21 - REC 1848	Residential	B	67	1	50.7	No	48.9	1.8	No
AA22 - REC 1847	Residential	B	67	1	45.5	No	44.6	0.9	No
AA23 - REC 1846	Residential	B	67	1	44	No	42	2.0	No
AA24 - REC 1841	Residential	B	67	1	67.9	Yes	64.2	3.7	No
AA25 - REC 1840	Residential	B	67	1	68	Yes	63.9	4.1	No
AA26 - REC 1845	Residential	B	67	1	59.8	No	56.4	3.4	No
AA27 - REC 1844	Residential	B	67	1	59.2	No	56.7	2.5	No
AA28 - REC 1843	Residential	B	67	1	58	No	55.7	2.3	No
AA29 - REC 1842	Residential	B	67	1	56.7	No	54.2	2.5	No
AA30 - REC 1869	Residential	B	67	1	68	Yes	63.8	4.2	No
AA31 - REC 1829	Residential	B	67	1	52.5	No	47.5	5.0	Yes
AA32 - REC 1835	Residential	B	67	1	52.3	No	46.9	5.4	Yes
AA33 - REC 1836	Residential	B	67	1	49.8	No	44.8	5.0	Yes
AA34 - REC 1832	Residential	B	67	1	48.9	No	44.3	4.6	No
AA35 - REC 1831	Residential	B	67	1	47.5	No	44.6	2.9	No
AA36 - REC 1830	Residential	B	67	1	45.6	No	42.6	3.0	No
AA37 - REC 1828	Residential	B	67	1	47.9	No	46.4	1.5	No

Table 10: Abatement Analysis Results per Receiver, dB(A) L_{eq}(1h)

RECEIVER ID	DESCRIPTION	CATEGORY	CRITERIA	RECEPTORS	FUTURE W/O BARRIER	IMPACT	FUTURE W/ BARRIER	NOISE BARRIER REDUCTION	BENEFITED RECEPTOR
AA38 - REC 1827	Residential	B	67	1	49	No	48.1	0.9	No
AA40 - REC 1839	Residential	B	67	1	48.3	No	47.5	0.8	No
AA41 - REC 1838	Residential	B	67	1	47.3	No	46.2	1.1	No
AA42 - REC 1837	Residential	B	67	1	46.8	No	45.5	1.3	No
AA43.1 - REC 1833	Residential	B	67	1	44	No	42.3	1.7	No
AA43.2 - REC 2266	Residential	B	67	1	46.4	No	44.2	2.2	No
AA44.1 - REC 1834	Residential	B	67	1	50.5	No	47.2	3.3	No
AA44.2 - REC 2267	Residential	B	67	1	52.7	No	48.8	3.9	No
AA45 - REC 1826	Residential	B	67	3	51.6	No	50.2	1.4	No
AA47 - REC 1820	Residential	B	67	1	51.4	No	49.4	2.0	No
AA48 - REC 1819	Residential	B	67	1	51.7	No	49.6	2.1	No
AA49 - REC 1871	Residential	B	67	2	68.2	Yes	63.4	4.8	No
AA50.1 - REC 1872	Residential	B	67	2	74.2	Yes	65.2	9.0	Yes
AA50.2 - REC 2263	Residential	B	67	2	75.1	Yes	66.5	8.6	Yes
AA50.3 - REC 2264	Residential	B	67	2	75.2	Yes	71.3	3.9	No
AA51.1 - REC 1873	Residential	B	67	6	74.4	Yes	68.1	6.3	Yes
AA51.2 - REC 2265	Residential	B	67	6	74.8	Yes	69.2	5.6	Yes
AA52.1 - REC 1877	Residential	B	67	4	67	Yes	65	2.0	No
AA52.2 - REC 1878	Residential	B	67	4	70	Yes	66.2	3.8	No
AA53.1 - REC 1874	Residential	B	67	6	67.1	Yes	65.3	1.8	No
AA53.2 - REC 1875	Residential	B	67	6	70	Yes	66.2	3.8	No
AA53.3 - REC 1876	Residential	B	67	6	72.4	Yes	67.2	5.2	Yes
AA54 - REC 1818	Place of Worship	C	67	1	52.4	No	50.6	1.8	No
AA58-2 - REC 1815	Residential	B	67	3	45.8	No	43.5	2.3	No
AA59 - REC 1812	Residential	B	67	3	51.5	No	48.9	2.6	No
AA60 - REC 1785	Residential	B	67	2	66.5	Yes	63.6	2.9	No
AA61 - REC 1784	Residential	B	67	2	67.3	Yes	64.1	3.2	No
AA62 - REC 1783	Residential	B	67	1	66.7	Yes	63.6	3.1	No
AA63 - REC 1806	Residential	B	67	3	50.4	No	48.8	1.6	No
AA64 - REC 1781	Residential	B	67	1	66.8	Yes	63.4	3.4	No
AA65 - REC 1782	Residential	B	67	1	66.5	Yes	63.3	3.2	No
AA66 - REC 1780	Residential	B	67	2	66.7	Yes	63.4	3.3	No
AA72.1 - REC 1795	Residential	B	67	2	48.5	No	47.1	1.4	No
AA72.2 - REC 2269	Residential	B	67	2	49.4	No	47.6	1.8	No
AA73 - REC 1798	Residential	B	67	3	50.7	No	49.5	1.2	No
Z1 - REC 1775	Residential	B	67	1	58	No	54.3	3.7	No
Z4.1 - REC 1777	Residential	B	67	1	66.2	Yes	59.1	7.1	Yes
Z4.2 - REC 1778	Residential	B	67	1	71.3	Yes	60.7	10.6	Yes
NB 8									
H14 - REC 738	Residential	B	67	1	66.7	Yes	55.1	11.6	Yes
H15 - REC 739	Residential	B	67	1	60.6	No	58.7	1.9	No
H16 - REC 741	Residential	B	67	2	60.4	No	57.8	2.6	No
H17 - REC 732	Residential	B	67	1	70.2	Yes	64.2	6.0	Yes
H18.1 - REC 733	Residential	B	67	1	68.1	Yes	59	9.1	Yes
H18.2 - REC 734	Residential	B	67	1	68.9	Yes	60.3	8.6	Yes
H19 - REC 735	Residential	B	67	2	67.2	Yes	60.2	7.0	Yes
H20 - REC 737	Residential	B	67	1	66.3	Yes	59.4	6.9	Yes
H21 - REC 736	Residential	B	67	1	64.5	No	54.4	10.1	Yes
H22 - REC 744	Place of Worship	C	67	1	59.3	No	55.6	3.7	No
H23.1 - REC 747	Residential	B	67	1	71.8	Yes	64.3	7.5	Yes
H23.2 - REC 748	Residential	B	67	1	72.8	Yes	65.7	7.1	Yes
H24 - REC 745	Residential	B	67	1	63	No	55.7	7.3	Yes
H25 - REC 743	School	C	67	1	58.8	No	53.7	5.1	Yes
H26 - REC 751	School	C	67	1	58.6	No	53.7	4.9	No
H27 - REC 746	Residential	B	67	2	69.7	Yes	62.7	7.0	Yes
H28 - REC 752	School	C	67	1	58.2	No	53.4	4.8	No
H29 - REC 749	Restaurant	E	72	1	64.5	No	61.4	3.1	No
NB 9									
I62 - REC 841	Place of Worship	C	67	1	54.6	No	51	3.6	No
I64 - REC 852	Residential	B	67	1	66.4	Yes	60.6	5.8	Yes
I65 - REC 851	Residential	B	67	1	63.2	No	59.9	3.3	No
I67 - REC 863	Residential	B	67	1	64	No	60.2	3.8	No
I68 - REC 864	Residential	B	67	1	65.4	No	61.2	4.2	No
I69 - REC 865	Residential	B	67	1	63	No	59.5	3.5	No
I70 - REC 866	Residential	B	67	1	56.8	No	54.8	2.0	No
I71 - REC 868	Residential	B	67	1	64.2	No	62	2.2	No
I72 - REC 867	Residential	B	67	1	43.1	No	40.2	2.9	No
I73 - REC 853	Residential	B	67	1	59.2	No	56.5	2.7	No
I74 - REC 854	Residential	B	67	1	58.6	No	56	2.6	No
I75 - REC 855	Residential	B	67	1	58.9	No	56	2.9	No
I76 - REC 856	Residential	B	67	1	57.3	No	54.7	2.6	No
I77 - REC 857	Residential	B	67	1	54.9	No	52.8	2.1	No

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RECEIVER ID	DESCRIPTION	CATEGORY	CRITERIA	RECEPTORS	FUTURE W/O BARRIER	IMPACT	FUTURE W/ BARRIER	NOISE BARRIER REDUCTION	BENEFITED RECEPTOR
I78 - REC 858	Residential	B	67	1	54.2	No	52	2.2	No
I79 - REC 859	Residential	B	67	1	53.8	No	51.4	2.4	No
I80 - REC 860	Residential	B	67	1	54.7	No	52.7	2.0	No
I81 - REC 861	Residential	B	67	1	56.4	No	56	0.4	No
I82 - REC 870	Residential	B	67	3	51	No	49.4	1.6	No
I84 - REC 873	Residential	B	67	1	53.4	No	52.8	0.6	No
NB 10									
K11 - REC 908	Residential	B	67	1	61.9	No	58	3.9	No
K12 - REC 910	Residential	B	67	1	56.7	No	54.1	2.6	No
K15 - REC 907	Residential	B	67	1	62.5	No	57.8	4.7	No
K16 - REC 909	Residential	B	67	1	65	No	60.1	4.9	No
K17 - REC 923	Residential	B	67	1	65.8	No	58.8	7.0	Yes
K18.1 - REC 924	Residential	B	67	1	65.3	No	58.3	7.0	Yes
K18.2 - REC 925	Residential	B	67	1	69.9	Yes	59.2	10.7	Yes
K19 - REC 915	Residential	B	67	2	57.5	No	53.8	3.7	No
K20 - REC 922	Residential	B	67	1	57.4	No	52.9	4.5	No
K21 - REC 917	Residential	B	67	3	55.3	No	52.8	2.5	No
K22 - REC 921	Residential	B	67	4	55.4	No	52.6	2.8	No
K28.1 - REC 931	Residential	B	67	1	57.3	No	54.6	2.7	No
K28.2 - REC 932	Residential	B	67	1	60.4	No	58	2.4	No
K29.1 - REC 937	Residential	B	67	1	55.3	No	52.6	2.7	No
K29.2 - REC 938	Residential	B	67	1	57.1	No	54	3.1	No
K30 - REC 943	Residential	B	67	1	51.4	No	48.3	3.1	No
K31 - REC 926	Residential	B	67	1	60.7	No	57.4	3.3	No
K32 - REC 927	Residential	B	67	1	62.6	No	59.2	3.4	No
K33 - REC 933	Residential	B	67	3	53.6	No	50.6	3.0	No
K34 - REC 940	Residential	B	67	3	49.7	No	47	2.7	No
K35 - REC 941	Residential	B	67	2	48.9	No	46.3	2.6	No
NB 11									
M67 - REC 1052	Residential	B	67	1	61.9	No	59.2	2.7	No
M68 - REC 1053	Residential	B	67	1	57.1	No	54.8	2.3	No
M69 - REC 1054	Residential	B	67	1	55.3	No	53	2.3	No
M71 - REC 1055	Residential	B	67	1	64.8	No	62.2	2.6	No
M72 - REC 1056	Residential	B	67	1	59.8	No	57.9	1.9	No
M73 - REC 1057	Residential	B	67	1	58.4	No	56.5	1.9	No
M74 - REC 1058	Residential	B	67	1	56.9	No	55.1	1.8	No
M75 - REC 1060	Residential	B	67	2	53.1	No	51.3	1.8	No
M77 - REC 1051	Active Sport Area	C	67	1	49.6	No	47.7	1.9	No
M78 - REC 1064	Residential	B	67	2	72.2	Yes	62.2	10.0	Yes
M79 - REC 1065	Residential	B	67	1	56.2	No	51.4	4.8	No
M80 - REC 1066	Residential	B	67	1	53.6	No	49.4	4.2	No
M81 - REC 1067	Residential	B	67	1	51.6	No	47.6	4.0	No
M82 - REC 1068	Residential	B	67	1	50.1	No	46.3	3.8	No
M83.1 - REC 1079	Residential	B	67	1	49.4	No	45.6	3.8	No
M83.2 - REC 1080	Residential	B	67	1	51	No	46.5	4.5	No
M84 - REC 1069	Residential	B	67	1	48.4	No	44.7	3.7	No
M85.1 - REC 1073	Residential	B	67	1	69.4	Yes	58.2	11.2	Yes
M85.2 - REC 1074	Residential	B	67	1	71.4	Yes	60.1	11.3	Yes
M86.1 - REC 1075	Residential	B	67	1	67.9	Yes	57.7	10.2	Yes
M86.2 - REC 1076	Residential	B	67	1	65	No	55.7	9.3	Yes
M87.1 - REC 1078	Residential	B	67	1	54.6	No	50.9	3.7	No
M87.2 - REC 1077	Residential	B	67	1	56.6	No	52.4	4.2	No
M88 - REC 1070	Residential	B	67	1	52.8	No	48.6	4.2	No
M89 - REC 1071	Residential	B	67	1	52.5	No	48.4	4.1	No
M90 - REC 1072	Residential	B	67	1	51.2	No	47	4.2	No
M91 - REC 1081	Residential	B	67	1	63.7	No	60.2	3.5	No
M92 - REC 1082	Residential	B	67	1	60.6	No	57.9	2.7	No
M93 - REC 1083	Residential	B	67	1	58.8	No	56.6	2.2	No
M94 - REC 1093	Residential	B	67	2	56.4	No	54.4	2.0	No
M96 - REC 1084	Residential	B	67	1	53	No	52	1.0	No
M97 - REC 1085	Residential	B	67	1	51.8	No	50.9	0.9	No
M98 - REC 1086	Residential	B	67	1	51.2	No	50.3	0.9	No
M99 - REC 1088	Residential	B	67	2	49.9	No	49.1	0.8	No
M100 - REC 1091	Residential	B	67	2	50.2	No	49	1.2	No
M101 - REC 1089	Residential	B	67	1	59.9	No	58.1	1.8	No
M102 - REC 1090	Residential	B	67	1	54.7	No	53.5	1.2	No
M103 - REC 1096	Residential	B	67	2	51.3	No	50.6	0.7	No
M105 - REC 1099	Residential	B	67	1	58.2	No	57.8	0.4	No
M106 - REC 1100	Residential	B	67	1	53.5	No	53.4	0.1	No
M107 - REC 1101	Residential	B	67	1	52.1	No	52	0.1	No
M110 - REC 1102	Residential	B	67	1	51.5	No	51.5	0.0	No
M111 - REC 1103	Residential	B	67	1	52.4	No	52.1	0.3	No

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RECEIVER ID	DESCRIPTION	CATEGORY	CRITERIA	RECEPTORS	FUTURE W/O BARRIER	IMPACT	FUTURE W/ BARRIER	NOISE BARRIER REDUCTION	BENEFITED RECEPTOR
M112 - REC 1108	Residential	B	67	2	51.5	No	51	0.5	No
M113 - REC 1110	Residential	B	67	2	74	Yes	73.9	0.1	No
M114 - REC 1104	Residential	B	67	1	61	No	60.6	0.4	No
M115.1 - REC 1111	Residential	B	67	1	58.5	No	58.1	0.4	No
M115.2 - REC 1112	Residential	B	67	1	63.4	No	63	0.4	No
M116 - REC 1105	Residential	B	67	1	57.3	No	56.9	0.4	No
M117.1 - REC 1113	Residential	B	67	1	56.1	No	55.6	0.5	No
M117.2 - REC 1114	Residential	B	67	1	59.9	No	59.4	0.5	No
M119 - REC 1106	Residential	B	67	1	54.5	No	54.4	0.1	No
M120 - REC 1107	Residential	B	67	1	53.6	No	53.5	0.1	No
NB 12									
V3 - REC 1690	Residential	B	67	1	57.9	No	56.4	1.5	No
V4 - REC 1691	Residential	B	67	1	59.9	No	57.8	2.1	No
V6 - REC 1676	Residential	B	67	1	57	No	53.6	3.4	No
V7 - REC 1678	Residential	B	67	1	58.8	No	55.1	3.7	No
V8 - REC 1680	Residential	B	67	2	51.7	No	49.5	2.2	No
V9 - REC 1681	Residential	B	67	1	53.1	No	50.6	2.5	No
V10 - REC 1682	Residential	B	67	1	53.7	No	51	2.7	No
V11 - REC 1683	Residential	B	67	1	54.4	No	51.3	3.1	No
V12 - REC 1684	Residential	B	67	1	56	No	52.5	3.5	No
V13 - REC 1685	Residential	B	67	1	57.1	No	53.3	3.8	No
V14 - REC 1686	Residential	B	67	1	57.9	No	53.9	4.0	No
V15.1 - REC 1688	Residential	B	67	1	63.9	No	56.2	7.7	Yes
V15.2 - REC 1689	Residential	B	67	1	67.7	Yes	57.7	10.0	Yes
V17 - REC 1665	Residential	B	67	2	50.2	No	49.2	1.0	No
V18 - REC 1666	Residential	B	67	1	52.7	No	52.3	0.4	No
V20 - REC 1667	Residential	B	67	1	56.6	No	56.5	0.1	No
V22 - REC 1668	Residential	B	67	1	59.9	No	58.9	1.0	No
V23 - REC 1669	Residential	B	67	1	50.1	No	49.4	0.7	No
V24 - REC 1670	Residential	B	67	1	51.5	No	50.7	0.8	No
V26 - REC 1671	Residential	B	67	1	53.1	No	51.5	1.6	No
V28 - REC 1655	Residential	B	67	3	51.3	No	51.3	0.0	No
V29 - REC 1656	Residential	B	67	1	54.5	No	54.5	0.0	No
V30 - REC 1657	Residential	B	67	1	57.5	No	57.5	0.0	No
V31 - REC 1660	Residential	B	67	3	49.1	No	48.5	0.6	No
NB 13									
N45 - REC 1218	Playground	C	67	1	58.6	No	55.3	3.3	No
N46 - REC 1214	Residential	B	67	1	54.5	No	52.5	2.0	No
N47 - REC 1215	Residential	B	67	1	53.5	No	51.4	2.1	No
N48.1 - REC 1216	Residential	B	67	1	63.8	No	57.7	6.1	Yes
N48.2 - REC 1217	Residential	B	67	1	69	Yes	58.8	10.2	Yes
N49.1 - REC 1219	Residential	B	67	1	57.3	No	54.7	2.6	No
N49.2 - REC 1220	Residential	B	67	1	60.2	No	56.5	3.7	No
N50 - REC 1212	Residential	B	67	1	56.9	No	54.6	2.3	No
N51 - REC 1213	Residential	B	67	1	55.7	No	53.3	2.4	No
N54 - REC 1222	Residential	B	67	1	61	No	57.5	3.5	No
N55 - REC 1223	Residential	B	67	1	58.9	No	56.2	2.7	No
NB 14									
T7 - REC 1530	Residential	B	67	1	59.8	No	58.3	1.5	No
T8 - REC 1536	Residential	B	67	1	62.1	No	59.1	3.0	No
T9 - REC 1531	Residential	B	67	1	62.8	No	59.4	3.4	No
T10 - REC 1532	Residential	B	67	1	65.3	No	61.6	3.7	No
T13 - REC 1533	Residential	B	67	1	62.2	No	58.9	3.3	No
T15 - REC 1527	Park	C	67	1	59.9	No	56.4	3.5	No
T16 - REC 1525	Residential	B	67	1	62.1	No	57.8	4.3	No
T18 - REC 1524	Residential	B	67	1	62.2	No	57.5	4.7	No
T19 - REC 1523	Residential	B	67	1	63.5	No	58.5	5.0	Yes
T20 - REC 1522	Residential	B	67	1	66.1	Yes	61.6	4.5	No
T21 - REC 1519	Residential	B	67	1	59.8	No	56.8	3.0	No
NB 15									
N107 - REC 1283	Residential	B	67	1	56	No	55.2	0.8	No
N108 - REC 1284	Residential	B	67	1	53.1	No	52.1	1.0	No
N109 - REC 1285	Residential	B	67	1	52	No	51	1.0	No
N111 - REC 1289	Residential	B	67	1	64.3	No	60.6	3.7	No
N112 - REC 1290	Residential	B	67	1	58.8	No	57.7	1.1	No
N113 - REC 1291	Residential	B	67	1	57.4	No	56.5	0.9	No
N114 - REC 1292	Residential	B	67	1	54.2	No	53.5	0.7	No
N115.1 - REC 1297	Residential	B	67	2	52.3	No	51.7	0.6	No
N115.2 - REC 1298	Residential	B	67	1	54.2	No	53.1	1.1	No
N116 - REC 1294	Residential	B	67	5	52.8	No	52.5	0.3	No
N117 - REC 1299	Residential	B	67	1	67.7	Yes	60	7.7	Yes
N118 - REC 1300	Residential	B	67	1	63.1	No	58.5	4.6	No

Table 10: Abatement Analysis Results per Receiver, dB(A) L_{eq}(1h)

RECEIVER ID	DESCRIPTION	CATEGORY	CRITERIA	RECEPTORS	FUTURE W/O BARRIER	IMPACT	FUTURE W/ BARRIER	NOISE BARRIER REDUCTION	BENEFITED RECEPTOR
N119 - REC 1301	Residential	B	67	1	65.9	No	61.9	4.0	No
N120 - REC 1302	Residential	B	67	1	64.3	No	61	3.3	No
N121 - REC 1303	Residential	B	67	1	61.9	No	59.3	2.6	No
N123 - REC 1304	Residential	B	67	1	55.7	No	54.8	0.9	No
N124 - REC 1305	Residential	B	67	1	53	No	52.3	0.7	No
N126 - REC 1306	Residential	B	67	1	68.8	Yes	62.6	6.2	Yes
N127 - REC 1307	Residential	B	67	1	68.9	Yes	63.1	5.8	Yes
N132 - REC 1308	Residential	B	67	1	53.5	No	53.1	0.4	No
N133 - REC 1313	Residential	B	67	1	53.1	No	52.9	0.2	No
N134 - REC 1315	Residential	B	67	1	52.5	No	52.1	0.4	No
N135 - REC 1316	Residential	B	67	2	54.1	No	53.8	0.3	No
NB 16									
P1 - REC 1331	Residential	B	67	1	67.2	Yes	57.4	9.8	Yes
P2 - REC 1330	Residential	B	67	1	64.1	No	57.5	6.6	Yes
P3 - REC 1329	Residential	B	67	1	57.5	No	55.8	1.7	No
P4 - REC 1328	Residential	B	67	1	55.7	No	54.8	0.9	No
P5 - REC 1327	Residential	B	67	1	55	No	54.2	0.8	No
P6 - REC 1326	Residential	B	67	1	54.8	No	54	0.8	No
P7 - REC 1324	Residential	B	67	1	53.5	No	52.8	0.7	No
P9 - REC 1332	Residential	B	67	1	66.4	Yes	58.5	7.9	Yes
P10 - REC 1333	Residential	B	67	4	58.6	No	55.3	3.3	No
P11 - REC 1337	Residential	B	67	3	56	No	54.6	1.4	No
P13 - REC 1340	Residential	B	67	4	60.6	No	56.9	3.7	No
P14 - REC 1344	Residential	B	67	1	56.3	No	54.7	1.6	No
P18 - REC 1351	Residential	B	67	1	64	No	60.7	3.3	No
P20 - REC 1352	Residential	B	67	1	57.1	No	55.3	1.8	No
P22 - REC 1353	Residential	B	67	1	63.1	No	60.9	2.2	No
P23 - REC 1354	Residential	B	67	1	60.8	No	58.8	2.0	No
P24 - REC 1355	Residential	B	67	3	58.6	No	57	1.6	No
NB 17									
BB19 - REC 1957	Public or Nonprofit Institutional Structure	C	67	1	66.9	Yes	66.9	0.0	No
DD1 - REC 1958	Residential	B	67	2	65.8	No	62.4	3.4	No
DD2 - REC 1959	Residential	B	67	2	61.5	No	59	2.5	No
DD3 - REC 1960	Residential	B	67	2	59.4	No	56.1	3.3	No
DD4 - REC 1961	Residential	B	67	5	56	No	52.9	3.1	No
DD5 - REC 1965	Residential	B	67	6	50.3	No	47.4	2.9	No
DD6 - REC 1970	Residential	B	67	2	61.4	No	55.9	5.5	Yes
DD7 - REC 1971	Residential	B	67	2	57.6	No	51.8	5.8	Yes
DD8 - REC 1973	Residential	B	67	6	49.9	No	45.6	4.3	No
DD9 - REC 1967	Residential	B	67	2	63.4	No	58.5	4.9	No
DD10 - REC 1975	Residential	B	67	5	55.3	No	49.4	5.9	Yes
DD11.10 - REC 1984	Residential	B	67	2	72.5	Yes	70.2	2.3	No
DD11.11 - REC 1985	Residential	B	67	2	72.3	Yes	70.5	1.8	No
DD11.12 - REC 1986	Residential	B	67	2	72.3	Yes	71	1.3	No
DD11.13 - REC 1987	Residential	B	67	2	72.2	Yes	71.4	0.8	No
DD11.14 - REC 1988	Residential	B	67	2	72.1	Yes	71.6	0.5	No
DD11.2 - REC 1976	Residential	B	67	2	66.6	Yes	60.9	5.7	Yes
DD11.3 - REC 1977	Residential	B	67	2	70.3	Yes	61.4	8.9	Yes
DD11.4 - REC 1978	Residential	B	67	2	71.4	Yes	61.8	9.6	Yes
DD11.5 - REC 1979	Residential	B	67	2	72.6	Yes	62.8	9.8	Yes
DD11.6 - REC 1980	Residential	B	67	2	72.8	Yes	64.1	8.7	Yes
DD11.7 - REC 1981	Residential	B	67	2	72.9	Yes	65.9	7.0	Yes
DD11.8 - REC 1982	Residential	B	67	2	72.9	Yes	68.7	4.2	No
DD11.9 - REC 1983	Residential	B	67	2	72.6	Yes	70	2.6	No
DD12.10 - REC 2022	Residential	B	67	1	68.8	Yes	65.3	3.5	No
DD12.11 - REC 2023	Residential	B	67	1	69.5	Yes	67.1	2.4	No
DD12.12 - REC 2026	Residential	B	67	1	71	Yes	69.1	1.9	No
DD12.13 - REC 2016	Residential	B	67	1	71.2	Yes	69.2	2.0	No
DD12.14 - REC 2019	Residential	B	67	1	71.1	Yes	69.4	1.7	No
DD12.2 - REC 2017	Residential	B	67	1	58.5	No	53	5.5	Yes
DD12.3 - REC 2021	Residential	B	67	1	61.6	No	53.1	8.5	Yes
DD12.4 - REC 2027	Residential	B	67	1	64	No	53.6	10.4	Yes
DD12.5 - REC 2020	Residential	B	67	1	64.6	No	54.7	9.9	Yes
DD12.6 - REC 2024	Residential	B	67	1	66.2	Yes	57.2	9.0	Yes
DD12.7 - REC 2015	Residential	B	67	1	67.3	Yes	59.4	7.9	Yes
DD12.8 - REC 2025	Residential	B	67	1	68.2	Yes	60.9	7.3	Yes
DD12.9 - REC 2018	Residential	B	67	1	68.5	Yes	63	5.5	Yes
DD13.10 - REC 2029	Residential	B	67	2	68	Yes	63.3	4.7	No
DD13.11 - REC 2035	Residential	B	67	2	68.8	Yes	65.5	3.3	No
DD13.12 - REC 2037	Residential	B	67	2	69.4	Yes	67.1	2.3	No
DD13.13 - REC 2034	Residential	B	67	2	70.3	Yes	68.6	1.7	No

Table 10: Abatement Analysis Results per Receiver, dB(A) L_{eq}(1h)

RECEIVER ID	DESCRIPTION	CATEGORY	CRITERIA	RECEPTORS	FUTURE W/O BARRIER	IMPACT	FUTURE W/ BARRIER	NOISE BARRIER REDUCTION	BENEFITED RECEPTOR
DD13.14 - REC 2039	Residential	B	67	2	70.6	Yes	68.7	1.9	No
DD13.2 - REC 2036	Residential	B	67	2	57	No	51.7	5.3	Yes
DD13.3 - REC 2028	Residential	B	67	2	59	No	51.9	7.1	Yes
DD13.4 - REC 2038	Residential	B	67	2	62.3	No	52.2	10.1	Yes
DD13.5 - REC 2031	Residential	B	67	2	63.3	No	53.3	10.0	Yes
DD13.6 - REC 2040	Residential	B	67	2	64.4	No	55.7	8.7	Yes
DD13.7 - REC 2032	Residential	B	67	2	66.3	Yes	58.2	8.1	Yes
DD13.8 - REC 2033	Residential	B	67	2	67	Yes	59.8	7.2	Yes
DD13.9 - REC 2030	Residential	B	67	2	67.6	Yes	61.2	6.4	Yes
DD14.10 - REC 2002	Residential	B	67	2	66.1	Yes	59.7	6.4	Yes
DD14.11 - REC 2008	Residential	B	67	2	67.5	Yes	61.8	5.7	Yes
DD14.12 - REC 2010	Residential	B	67	2	68.1	Yes	63.8	4.3	No
DD14.13 - REC 2011	Residential	B	67	2	68.5	Yes	64.9	3.6	No
DD14.14 - REC 2012	Residential	B	67	2	68.6	Yes	66.2	2.4	No
DD14.2 - REC 2014	Residential	B	67	2	54	No	48.8	5.2	Yes
DD14.3 - REC 2007	Residential	B	67	2	55	No	49.1	5.9	Yes
DD14.4 - REC 2006	Residential	B	67	2	58.5	No	49.3	9.2	Yes
DD14.5 - REC 2003	Residential	B	67	2	60.5	No	50.6	9.9	Yes
DD14.6 - REC 2013	Residential	B	67	2	61.4	No	52.8	8.6	Yes
DD14.7 - REC 2009	Residential	B	67	2	63	No	56	7.0	Yes
DD14.8 - REC 2005	Residential	B	67	2	63.8	No	57.1	6.7	Yes
DD14.9 - REC 2004	Residential	B	67	2	65.2	No	58.4	6.8	Yes
DD16.10 - REC 2049	Residential	B	67	1	69.3	Yes	65.6	3.7	No
DD16.11 - REC 2061	Residential	B	67	1	69.8	Yes	67.7	2.1	No
DD16.12 - REC 2066	Residential	B	67	1	71	Yes	69	2.0	No
DD16.13 - REC 2055	Residential	B	67	1	71.1	Yes	69.2	1.9	No
DD16.14 - REC 2072	Residential	B	67	1	71	Yes	69.3	1.7	No
DD16.2 - REC 2068	Residential	B	67	1	62.9	No	57.8	5.1	Yes
DD16.3 - REC 2043	Residential	B	67	1	64.8	No	58.5	6.3	Yes
DD16.4 - REC 2075	Residential	B	67	1	67.4	Yes	59.8	7.6	Yes
DD16.5 - REC 2050	Residential	B	67	1	68	Yes	59.9	8.1	Yes
DD16.6 - REC 2063	Residential	B	67	1	68.4	Yes	60.4	8.0	Yes
DD16.7 - REC 2077	Residential	B	67	1	69.2	Yes	61.2	8.0	Yes
DD16.8 - REC 2041	Residential	B	67	1	69.2	Yes	61.9	7.3	Yes
DD16.9 - REC 2047	Residential	B	67	1	69.1	Yes	63.3	5.8	Yes
DD17.10 - REC 2067	Residential	B	67	2	68.7	Yes	63.6	5.1	Yes
DD17.11 - REC 2060	Residential	B	67	2	69.2	Yes	65.8	3.4	No
DD17.12 - REC 2044	Residential	B	67	2	69.7	Yes	67.6	2.1	No
DD17.13 - REC 2069	Residential	B	67	2	70.5	Yes	68.6	1.9	No
DD17.14 - REC 2073	Residential	B	67	2	70.7	Yes	68.7	2.0	No
DD17.2 - REC 2062	Residential	B	67	2	62.3	No	57.2	5.1	Yes
DD17.3 - REC 2045	Residential	B	67	2	63.6	No	57.9	5.7	Yes
DD17.4 - REC 2078	Residential	B	67	2	65.6	No	58.9	6.7	Yes
DD17.5 - REC 2056	Residential	B	67	2	67	Yes	59.5	7.5	Yes
DD17.6 - REC 2054	Residential	B	67	2	67.7	Yes	60	7.7	Yes
DD17.7 - REC 2046	Residential	B	67	2	67.9	Yes	60.3	7.6	Yes
DD17.8 - REC 2052	Residential	B	67	2	68.6	Yes	61.1	7.5	Yes
DD17.9 - REC 2064	Residential	B	67	2	68.6	Yes	61.8	6.8	Yes
DD18.10 - REC 2074	Residential	B	67	2	67.3	Yes	60.8	6.5	Yes
DD18.11 - REC 2070	Residential	B	67	2	67.8	Yes	62.4	5.4	Yes
DD18.12 - REC 2048	Residential	B	67	2	68.2	Yes	63.6	4.6	No
DD18.13 - REC 2057	Residential	B	67	2	68.6	Yes	65	3.6	No
DD18.14 - REC 2071	Residential	B	67	2	68.8	Yes	66.1	2.7	No
DD18.2 - REC 2058	Residential	B	67	2	60.9	No	55.7	5.2	Yes
DD18.3 - REC 2051	Residential	B	67	2	61.2	No	56.2	5.0	Yes
DD18.4 - REC 2079	Residential	B	67	2	62.8	No	57.1	5.7	Yes
DD18.5 - REC 2065	Residential	B	67	2	64.7	No	58.2	6.5	Yes
DD18.6 - REC 2042	Residential	B	67	2	66	Yes	58.9	7.1	Yes
DD18.7 - REC 2059	Residential	B	67	2	66.2	Yes	59	7.2	Yes
DD18.8 - REC 2076	Residential	B	67	2	66.3	Yes	59.2	7.1	Yes
DD18.9 - REC 2053	Residential	B	67	2	66.5	Yes	59.5	7.0	Yes
NB 18									
D33 - REC 191	School	C	67	1	55.7	No	53.4	2.3	No
D34 - REC 192	Playground	C	67	1	50.9	No	47.7	3.2	No
D35 - REC 196	Playground	C	67	1	53.6	No	50.9	2.7	No
D36 - REC 194	Active Sport Area	C	67	1	69.1	Yes	65	4.1	No
D37 - REC 195	Residential	B	67	1	50.9	No	48	2.9	No
D38 - REC 193	Picnic Table	C	67	1	59.2	No	56.4	2.8	No
D39 - REC 203	Residential	B	67	2	53	No	50.2	2.8	No
D40 - REC 202	Residential	B	67	3	54.8	No	52.2	2.6	No
D41 - REC 201	Residential	B	67	3	55.5	No	52.8	2.7	No
D42 - REC 200	Residential	B	67	3	57.7	No	54.9	2.8	No

Table 10: Abatement Analysis Results per Receiver, dB(A) L_{eq}(1h)

RECEIVER ID	DESCRIPTION	CATEGORY	CRITERIA	RECEPTORS	FUTURE W/O BARRIER	IMPACT	FUTURE W/ BARRIER	NOISE BARRIER REDUCTION	BENEFITED RECEPTOR
D43 - REC 199	Residential	B	67	3	58.2	No	55.4	2.8	No
D44 - REC 198	Residential	B	67	3	62	No	59.2	2.8	No
D45 - REC 197	Residential	B	67	3	68.2	Yes	61.1	7.1	Yes
D46 - REC 208	Residential	B	67	4	38.5	No	35.6	2.9	No
D47 - REC 209	Residential	B	67	3	49.6	No	49.3	0.3	No
D48 - REC 206	Residential	B	67	2	51.9	No	51.8	0.1	No
D49 - REC 205	Residential	B	67	2	56.3	No	56.3	0.0	No
D50 - REC 207	Residential	B	67	3	69.9	Yes	68.3	1.6	No
D51 - REC 215	Residential	B	67	3	49.8	No	49.6	0.2	No
D52 - REC 217	Residential	B	67	2	53.3	No	53.2	0.1	No
D53 - REC 218	Residential	B	67	2	63.9	No	63.3	0.6	No
D54 - REC 216	Residential	B	67	3	71.3	Yes	70.2	1.1	No
D55 - REC 214	Residential	B	67	2	49	No	47.3	1.7	No
D56 - REC 213	Residential	B	67	0	49.5	No	48.2	1.3	No
D57 - REC 212	Residential	B	67	0	51.7	No	50.6	1.1	No
D58 - REC 211	Residential	B	67	2	51	No	50.3	0.7	No
D59 - REC 210	Residential	B	67	1	47.4	No	43.6	3.8	No
D60 - REC 220	Residential	B	67	3	55.2	No	48.6	6.6	Yes
D61 - REC 222	Residential	B	67	2	53.7	No	47.7	6.0	Yes
D62 - REC 221	Residential	B	67	2	57.3	No	51.8	5.5	Yes
D63 - REC 219	Residential	B	67	3	73	Yes	68.1	4.9	Yes
D64 - REC 223	Residential	B	67	4	44	No	40.8	3.2	No
D65 - REC 225	Residential	B	67	3	59	No	50.1	8.9	Yes
D66 - REC 236	Residential	B	67	3	62.6	No	58	4.6	No
D67 - REC 226	Residential	B	67	2	55.7	No	48.6	7.1	Yes
D68 - REC 235	Residential	B	67	3	61.3	No	56.3	5.0	Yes
D69 - REC 232	Residential	B	67	2	43.6	No	40.7	2.9	No
D70 - REC 227	Residential	B	67	2	48.6	No	43.5	5.1	Yes
D71 - REC 234	Residential	B	67	3	61	No	55.3	5.7	Yes
D72 - REC 231	Residential	B	67	1	44.9	No	40.9	4.0	No
D73-1 - REC 230	Residential	B	67	2	46.1	No	41.6	4.5	No
D73-2 - REC 228	Residential	B	67	3	49.6	No	44.3	5.3	Yes
D74 - REC 229	Picnic Table	C	67	1	49.7	No	44	5.7	Yes
D75 - REC 233	Residential	B	67	1	61.7	No	53.6	8.1	Yes
D76 - REC 253	Residential	B	67	5	44.5	No	41.7	2.8	No
D77 - REC 241	Residential	B	67	2	45.8	No	43	2.8	No
D78 - REC 240	Residential	B	67	1	48.3	No	43.5	4.8	No
D79 - REC 239	Residential	B	67	1	49.6	No	44.5	5.1	Yes
D80 - REC 238	Residential	B	67	1	54.1	No	48.2	5.9	Yes
D81 - REC 237	Residential	B	67	1	70.8	Yes	57.8	13.0	Yes
D82 - REC 242	Residential	B	67	1	48.1	No	41.4	6.7	Yes
D83 - REC 244	Residential	B	67	2	46	No	41.2	4.8	No
D84 - REC 245	Residential	B	67	3	51.5	No	44	7.5	Yes
D85 - REC 246	Residential	B	67	2	51.5	No	44.9	6.6	Yes
D86 - REC 247	Residential	B	67	2	55.8	No	48.1	7.7	Yes
D87 - REC 248	Residential	B	67	3	63.3	No	54.9	8.4	Yes
D88 - REC 251	Residential	B	67	2	43.9	No	40.4	3.5	No
D89 - REC 252	Residential	B	67	3	42.4	No	41	1.4	No
D90 - REC 256	Residential	B	67	3	46.5	No	42.8	3.7	No
D91 - REC 258	Residential	B	67	3	48.8	No	42.6	6.2	Yes
D92 - REC 259	Residential	B	67	3	64.2	No	55.2	9.0	Yes
D93-1 - REC 260	Residential	B	67	2	50.9	No	44.1	6.8	Yes
D93-2 - REC 270	Residential	B	67	6	42.9	No	38.9	4.0	No
D94-1 - REC 261	Residential	B	67	2	58.6	No	48.8	9.8	Yes
D94-2 - REC 267	Residential	B	67	6	46.8	No	41.3	5.5	Yes
D95 - REC 266	Residential	B	67	3	51.4	No	44.4	7.0	Yes
D96 - REC 265	Residential	B	67	3	49.8	No	43.6	6.2	Yes
D97 - REC 264	Residential	B	67	3	50.9	No	44.5	6.4	Yes
D98 - REC 263	Residential	B	67	3	59.1	No	49.1	10.0	Yes
D99 - REC 262	Residential	B	67	3	55.8	No	48.3	7.5	Yes
D100 - REC 268	Residential	B	67	3	60.1	No	51.5	8.6	Yes
D101 - REC 277	Residential	B	67	12	49.5	No	45	4.5	No
D102 - REC 279	Residential	B	67	3	41.5	No	41.2	0.3	No
D103 - REC 275	Residential	B	67	3	53.1	No	48.4	4.7	No
D104 - REC 273	Residential	B	67	3	56.9	No	55.6	1.3	No
D105 - REC 272	Residential	B	67	3	57	No	53.2	3.8	No
D106 - REC 274	Residential	B	67	3	57.6	No	53.5	4.1	No
D107 - REC 278	Residential	B	67	3	65.4	No	58.3	7.1	Yes
D108 - REC 282	Picnic Table	C	67	1	57.2	No	52.2	5.0	Yes
D109 - REC 330	Residential	B	67	1	58.1	No	51.6	6.5	Yes
D110 - REC 319	Residential	B	67	3	48.9	No	48.9	0.0	No
D111 - REC 316	Residential	B	67	3	55.5	No	49.5	6.0	Yes

Table 10: Abatement Analysis Results per Receiver, dB(A) L_{eq}(1h)

RECEIVER ID	DESCRIPTION	CATEGORY	CRITERIA	RECEPTORS	FUTURE W/O BARRIER	IMPACT	FUTURE W/ BARRIER	NOISE BARRIER REDUCTION	BENEFITED RECEPTOR
D112 - REC 317	Residential	B	67	3	57.8	No	51.1	6.7	Yes
D113 - REC 318	Residential	B	67	3	63.8	No	62.9	0.9	No
D114 - REC 328	Residential	B	67	12	50.5	No	50.4	0.1	No
D115 - REC 323	Residential	B	67	3	47.8	No	46.5	1.3	No
D116 - REC 324	Residential	B	67	3	54.1	No	53.9	0.2	No
D117 - REC 321	Residential	B	67	3	53.7	No	53.5	0.2	No
D118 - REC 322	Residential	B	67	3	54.5	No	54.5	0.0	No
D119 - REC 320	Residential	B	67	1	58.4	No	58.4	0.0	No
D120 - REC 283	Residential	B	67	1	65.2	No	64.9	0.3	No
D121 - REC 325	Residential	B	67	1	40	No	39.1	0.9	No
NB 19									
E1 - REC 452	School	C	67	1	64.8	No	64.8	0.0	No
E2 - REC 450	School	C	67	1	64.8	No	64.7	0.1	No
E3 - REC 451	School	C	67	1	44.5	No	44.1	0.4	No
E4.1 - REC 431	Residential	B	67	2	53.9	No	53.9	0.0	No
E4.2 - REC 432	Residential	B	67	2	56.6	No	56.6	0.0	No
E4.3 - REC 433	Residential	B	67	2	60.1	No	60.1	0.0	No
E5.1 - REC 434	Residential	B	67	2	49.1	No	49.1	0.0	No
E5.2 - REC 435	Residential	B	67	2	51.7	No	51.7	0.0	No
E5.3 - REC 436	Residential	B	67	2	54.5	No	54.5	0.0	No
E6.1 - REC 437	Residential	B	67	2	44.8	No	44.8	0.0	No
E6.2 - REC 438	Residential	B	67	2	47.1	No	47.1	0.0	No
E6.3 - REC 439	Residential	B	67	2	48.7	No	48.7	0.0	No
E7.1 - REC 428	Residential	B	67	2	66.2	Yes	66	0.2	No
E7.2 - REC 429	Residential	B	67	2	71	Yes	70.8	0.2	No
E7.3 - REC 430	Residential	B	67	2	73.2	Yes	73.1	0.1	No
E10.1 - REC 425	Residential	B	67	2	67.9	Yes	67.7	0.2	No
E10.2 - REC 426	Residential	B	67	2	70.9	Yes	70.6	0.3	No
E10.3 - REC 427	Residential	B	67	2	73.1	Yes	72.8	0.3	No
E12.1 - REC 422	Residential	B	67	2	64.3	No	61.6	2.7	No
E12.2 - REC 423	Residential	B	67	2	66.3	Yes	63.9	2.4	No
E12.3 - REC 424	Residential	B	67	2	68.1	Yes	65.7	2.4	No
E13.1 - REC 419	Residential	B	67	2	55.9	No	54.4	1.5	No
E13.2 - REC 420	Residential	B	67	2	58.7	No	57.3	1.4	No
E13.3 - REC 421	Residential	B	67	2	60.2	No	58.4	1.8	No
E14 - REC 449	Office	E	72	1	52.4	No	50.2	2.2	No
E15 - REC 418	Place of Worship	C	67	1	55	No	53.1	1.9	No
E16 - REC 413	Residential	B	67	8	53.5	No	50.3	3.2	No
E17 - REC 408	Residential	B	67	8	48.2	No	44.9	3.3	No
E18 - REC 403	Residential	B	67	6	51.4	No	48	3.4	No
E19 - REC 402	Residential	B	67	2	53	No	51	2.0	No
E20 - REC 401	Residential	B	67	2	49.8	No	48.2	1.6	No
E21 - REC 397	Residential	B	67	2	46.6	No	44.2	2.4	No
E22 - REC 398	Residential	B	67	2	48.1	No	45.4	2.7	No
E23 - REC 399	Residential	B	67	2	51	No	47.6	3.4	No
E24 - REC 400	Residential	B	67	2	49.5	No	46.8	2.7	No
E25 - REC 395	Residential	B	67	2	65.7	No	62.9	2.8	No
E26 - REC 396	Residential	B	67	2	60.4	No	57.7	2.7	No
E27 - REC 414	Playground	C	67	1	50.1	No	46.2	3.9	No
E28 - REC 394	Residential	B	67	5	47.3	No	43.5	3.8	No
E29 - REC 391	Residential	B	67	2	45.1	No	41.6	3.5	No
E30 - REC 387	Residential	B	67	2	65.9	No	62.3	3.6	No
E31 - REC 385	Residential	B	67	2	57.8	No	54.2	3.6	No
E32 - REC 386	Residential	B	67	2	61	No	58	3.0	No
E33 - REC 389	Residential	B	67	4	46.5	No	42.8	3.7	No
E34 - REC 384	Residential	B	67	2	42.3	No	40	2.3	No
E35 - REC 383	Residential	B	67	2	40.8	No	38.5	2.3	No
E36 - REC 388	Residential	B	67	3	46.1	No	43.7	2.4	No
E37 - REC 377	Residential	B	67	1	66.4	Yes	64.2	2.2	No
E38 - REC 378	Residential	B	67	2	62	No	60.3	1.7	No
E39 - REC 379	Residential	B	67	2	58.4	No	56.1	2.3	No
E40 - REC 380	Residential	B	67	2	55	No	51.9	3.1	No
E41 - REC 415	Picnic Area	C	67	1	49.9	No	46	3.9	No
E42 - REC 376	Residential	B	67	2	51.2	No	48.3	2.9	No
E43 - REC 381	Residential	B	67	5	49.4	No	45.6	3.8	No
E44 - REC 417	Residential	B	67	1	47.5	No	44.8	2.7	No
E45 - REC 365	Residential	B	67	2	66	Yes	63	3.0	No
E46 - REC 366	Residential	B	67	2	63	No	60.2	2.8	No
E47 - REC 367	Residential	B	67	2	59.1	No	56.4	2.7	No
E48 - REC 375	Residential	B	67	2	48.9	No	46.7	2.2	No
E49 - REC 368	Residential	B	67	2	41.3	No	39.5	1.8	No
E50 - REC 369	Residential	B	67	2	39.4	No	37.3	2.1	No

Table 10: Abatement Analysis Results per Receiver, dB(A) L_{eq}(1h)

RECEIVER ID	DESCRIPTION	CATEGORY	CRITERIA	RECEPTORS	FUTURE W/O BARRIER	IMPACT	FUTURE W/ BARRIER	NOISE BARRIER REDUCTION	BENEFITED RECEPTOR
E51.1 - REC 370	Residential	B	67	2	42.4	No	40.5	1.9	No
E51.2 - REC 371	Residential	B	67	2	45.1	No	43.2	1.9	No
E52.1 - REC 372	Residential	B	67	2	43.1	No	40.9	2.2	No
E52.2 - REC 373	Residential	B	67	2	45	No	42.9	2.1	No
E53 - REC 374	Residential	B	67	2	44.3	No	42.2	2.1	No
E54 - REC 416	Park	C	67	1	49.3	No	46.8	2.5	No
E55 - REC 363	Residential	B	67	1	66.6	Yes	65.6	1.0	No
E56 - REC 364	Residential	B	67	1	65	No	63.9	1.1	No
E57 - REC 362	Residential	B	67	1	63.4	No	62.3	1.1	No
E58 - REC 357	Residential	B	67	1	64.3	No	62.8	1.5	No
E59 - REC 358	Residential	B	67	1	67.8	Yes	66	1.8	No
E60 - REC 356	Residential	B	67	2	58.8	No	57.2	1.6	No
E61 - REC 359	Residential	B	67	4	57.3	No	55.6	1.7	No
E63 - REC 355	Residential	B	67	1	65.1	No	63.6	1.5	No
E64 - REC 351	Residential	B	67	2	63.4	No	62.2	1.2	No
E65 - REC 352	Residential	B	67	2	60.6	No	58.9	1.7	No
E66.1 - REC 353	Residential	B	67	1	57.6	No	55.8	1.8	No
E66.2 - REC 354	Residential	B	67	2	59.8	No	58.3	1.5	No
E67 - REC 360	Residential	B	67	12	54.2	No	52.4	1.8	No
E68 - REC 349	Residential	B	67	1	50.9	No	49	1.9	No
E69 - REC 350	Residential	B	67	1	56.1	No	54.3	1.8	No
E70 - REC 343	Residential	B	67	1	66.5	Yes	64.2	2.3	No
E71 - REC 344	Residential	B	67	1	61.1	No	59.8	1.3	No
E72 - REC 345	Residential	B	67	1	59.9	No	58.3	1.6	No
E73 - REC 342	Residential	B	67	2	57.3	No	55.5	1.8	No
E74 - REC 346	Residential	B	67	2	56	No	54.2	1.8	No
E75 - REC 341	Residential	B	67	1	57.2	No	55.5	1.7	No
E76 - REC 339	Park	C	67	1	69.5	Yes	68.6	0.9	No
E77 - REC 340	Residential	B	67	1	56.8	No	55.1	1.7	No
E78 - REC 338	Picnic Table	C	67	1	50.7	No	48.9	1.8	No
E79 - REC 348	Restaurant	E	72	1	50.9	No	49.3	1.6	No
E80.1 - REC 336	Residential	B	67	1	54.1	No	52.1	2.0	No
E80.2 - REC 337	Residential	B	67	1	56.7	No	55.3	1.4	No
E81 - REC 335	School	C	67	1	64.1	No	63.3	0.8	No
E82 - REC 347	Residential	B	67	2	51.4	No	48.7	2.7	No
E83 - REC 334	Playground	C	67	1	60.7	No	57.2	3.5	No
E84 - REC 333	Playground	C	67	1	59.9	No	56.2	3.7	No
E85 - REC 332	School (No Exterior Use)	D	52	1	46.6	No	42.6	4.0	No
E86 - REC 331	School (No Exterior Use)	D	52	1	47.5	No	44.4	3.1	No
NB 20									
G117 - REC 664	Residential	B	67	7	50.3	No	50.2	0.1	No
G118 - REC 668	Residential	B	67	2	66.4	Yes	62.3	4.1	No
G119 - REC 667	Residential	B	67	3	59	No	57.3	1.7	No
G120 - REC 669	Residential	B	67	2	63	No	59.7	3.3	No
G121 - REC 665	Residential	B	67	7	54	No	53.6	0.4	No
G122 - REC 666	Residential	B	67	3	52.4	No	52.3	0.1	No
G123 - REC 674	Residential	B	67	2	54.2	No	54.2	0.0	No
G127.2 - REC 675	Residential	B	67	3	70.6	Yes	69.8	0.8	No
G127.3 - REC 676	Residential	B	67	3	70.7	Yes	70.3	0.4	No
G127.4 - REC 677	Residential	B	67	3	70.7	Yes	70.5	0.2	No
G127.5 - REC 678	Residential	B	67	3	70.8	Yes	70.6	0.2	No
G127.6 - REC 679	Residential	B	67	3	70.7	Yes	70.7	0.0	No
G127.7 - REC 680	Residential	B	67	3	70.8	Yes	70.7	0.1	No
G127.8 - REC 681	Residential	B	67	3	70.7	Yes	70.6	0.1	No
G128.1 - REC 682	Residential	B	67	5	70.6	Yes	69.1	1.5	No
G128.2 - REC 683	Residential	B	67	5	70.8	Yes	69.9	0.9	No
G128.3 - REC 684	Residential	B	67	5	70.9	Yes	70.5	0.4	No
G128.4 - REC 685	Residential	B	67	5	70.9	Yes	70.7	0.2	No
G128.5 - REC 686	Residential	B	67	5	70.9	Yes	70.7	0.2	No
G128.6 - REC 687	Residential	B	67	5	70.9	Yes	70.8	0.1	No
G128.7 - REC 688	Residential	B	67	5	70.9	Yes	70.8	0.1	No
G128.8 - REC 689	Residential	B	67	5	70.8	Yes	70.8	0.0	No
G129 - REC 714	Place of Worship	C	67	1	57.9	No	57.4	0.5	No