

# Highway Traffic Noise Analysis

**Mobility Improvements to Support the South Lakefront  
Framework Plan  
City of Chicago, Illinois**

Section No. 17-B7203-00-ES

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Prepared For:



Chicago Department of Transportation  
30 North LaSalle Street #1100  
Chicago, Illinois 60602

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## I. INTRODUCTION

The City of Chicago (City) is proposing to close roadways within Jackson Park in Chicago, Illinois to meet the planning and development objectives for the park as described in the 2018 South Lakefront Framework Plan, which was approved by the Chicago Park District Board in April 2018. Some of the closures are necessary to accommodate the development of the Obama Presidential Center (OPC), and some are proposed to allow for continuous parkland within Jackson Park. These roadway closures will require roadway modifications and/or capacity improvements in some locations to mitigate traffic impacts.

The roadway modifications and capacity improvements are a Federal action and therefore a Phase I Study with the preparation of an Environmental Assessment (EA) meeting Federal-aid and National Environmental Policy Act (NEPA) requirements is being conducted by the Federal Highway Administration (FHWA).

**Exhibit A-1a** in **Appendix A** is a regional project location map. Jackson Park is located south of downtown Chicago along the shore of Lake Michigan. **Exhibit A-1b** is a local location map, and **Exhibit A-1c** is an existing conditions aerial photo map. The study area is generally bounded by 56th Street on the north; 67th Street on the south; Lake Shore Drive/Marquette Drive on the east; and Stony Island Avenue on the west. These roadways generally form the border of Jackson Park, a Chicago Park District facility. Arterial and collector streets within Jackson Park include Lake Shore Drive, Cornell Drive, Hayes Drive, Marquette Drive and Richards Drive. The study area includes portions of the Hyde Park, Woodlawn, and South Shore neighborhoods. The primary land uses in the study are park/recreation, museum, school, commercial, and multi-family residential. Notable sites within the study area include the Museum of Science and Industry, Jackson Park Golf Course, 57th Street and 63rd Street Beaches, the Lakefront Trail, Hyde Park Academy, some University of Chicago buildings and facilities, LaRabida Children's Hospital, 59<sup>th</sup> Street Harbor, Jackson Park Harbor, the East and West Lagoons, ball fields, basketball and tennis courts, and other recreational and historical sites in the park.

The purpose of the FHWA Federal action is to 1) address changes in travel patterns resulting from closing certain roadways in Jackson Park, and 2) to improve bicycle and pedestrian access and circulation. The proposed action is the Mobility Improvement alternative, which is described in detail in Section A. below.

A highway traffic noise analysis is required on all Federal-aid highway projects which include the construction of a highway on a new location or the physical alternation of an existing highway which significantly changes either the vertical or horizontal location or increases the number of through traffic lanes. According to the Code of Federal Regulations (23 CFR 772), with respect to highway traffic noise, this type of project is classified as Type I project (versus a Type II project, which is the consideration of noise abatement along existing highways). Note that IDOT does not maintain a Type II program. Since the Mobility Improvement alternative (proposed improvement) increases the number of through lanes and significantly changes the horizontal location near the intersection

of Cornell Drive and Hayes Drive, it is considered a Type I project, and a noise analysis must be performed as part of the Phase I Engineering Study. The purpose of a highway noise analysis is to evaluate potential noise impacts from the proposed roadway improvements and to consider abatement measures where impacts are identified.

## A. Project Description

The proposed improvement (the 2040 Build Alternative) is the Mobility Improvement/Widen Stony Island Avenue East alternative. This is described in detail in Section 2 below, however it is first important to describe the existing condition as it relates to the highway traffic noise analysis.

### 1. Future Existing Condition

Through their planning and zoning process, the City of Chicago has officially proposed to locate the Obama Presidential Center (OPC) in Jackson Park and it is anticipated the permit to be issued by the City will be granted subject to the continuing review of the NEPA and National Historic Preservation Act (NHPA) evaluations. Federal regulations and State noise policies require that an assumption be made regarding the *date of public knowledge* of proposed improvements, and the date on which proposed development in the study area receives a *building permit*. For the purposes of this traffic noise analysis only, it is assumed that the Obama Presidential Center (OPC) will receive a building permit prior to the anticipated date of public knowledge of the proposed roadway improvements. An Environmental Assessment (EA) is currently being prepared, and assuming for now that the proposed improvements will not cause significant environmental impacts, the date of public knowledge will be the date that the Finding of No Significant Impact (FONSI) is signed.

The proposed OPC is situated in a location in Jackson Park that will require the closure of the following streets:

- Cornell Drive between 63rd Street and 59th Street.
- South Midway Plaisance (eastbound only) between Stony Island Avenue and Cornell Drive.

The following two street segments will also be closed to meet some of the objectives of the South Lakefront Framework Plan to allow for continuous parkland within Jackson Park:

- The northbound section of Cornell Drive between 68th Street and 65th Street.
- Marquette Drive between Stony Island Avenue and Richards Drive.

Additional Jackson Park modifications that will occur include:

- The running track and sports field located east of Stony Island Avenue, south of 60<sup>th</sup> Street will be relocated to the south, to the northeast corner of Stony Island Avenue and 63<sup>rd</sup> Street/Hayes Drive.
- The ball fields north of the intersection of Hayes Drive and Richards Drive will be increased in number from two to three, and reconfigured.

The scenario described above, which includes the construction of the OPC, the four roadway segment closures, and the two park modifications is not part of the Federal action with respect to the Federal Highway Administration action. It is considered to be the existing condition in the noise analysis, since all of these changes are assumed to be permitted prior to the FONSI for the EA. This “Future Existing” condition serves as the Existing condition with respect to the Highway Traffic Noise Analysis, and is shown on **Exhibit A-2a**. Noise receptors have been placed in the appropriate locations as if the OPC is in place in the Future Existing, 2040 No-Build, and 2040 Build conditions.

## 2. 2040 Build Condition

The construction of the OPC and the four roadway closures described above will require roadway modifications and/or capacity improvements in some locations to mitigate resulting traffic impacts. The proposed improvement is the Mobility Improvement/Widen Stony Island Avenue East alternative as shown in **Exhibit A-2b**. This alternative (the 2040 Build condition) assumes that the above-described “Future Existing” condition is in place, but also adds roadway capacity improvements, traffic signal improvements and modernization, and pedestrian and bicyclist safety and mobility improvements.

The roadway capacity improvements and modifications under the Mobility Improvement/Widen Stony Island Avenue East alternative are shown and noted on **Exhibit A-2b** and are as follows:

- Lake Shore Drive from 57th Drive to Hayes Drive would be widened to the west by 11 feet to provide a third southbound lane.
- The intersections of Lake Shore Drive at 57th Drive and at Hayes Drive would be modified to accommodate the additional southbound lane.
- Parking lanes along Hayes Drive from Cornell Drive to Lake Shore Drive would be removed to convert this section of roadway from one lane to two lanes in each direction with a barrier median.
- The intersections of Hayes Drive with Cornell Drive, Richards Drive, and Lake Shore Drive would be modified/reconfigured.
- Stony Island Avenue from 59th Street to 65th Street would be widened to the east to provide a consistent two lane section in each direction (versus varying between one and two), an all-day on-street parking or loading zone lane on each side of the road, and a raised median with left-turn channelization at intersections.
- From approximately 64th Street to 67th Street, Stony Island Avenue would be widened to provide a consistent cross section including three northbound lanes and four southbound lanes separated by a raised median.
- Intersections on Stony Island Avenue from 59th Street to 67th Street would be reconfigured to accommodate the roadway widening and provide additional turn lanes.
- To consolidate the four closely-spaced traffic signals on Stony Island Avenue at 59th Street, 60th Street, and North (westbound only) and South (eastbound only) Midway Plaisance, access at the intersections of 59th Street and 60th Street would be converted to right-in/right-out only and the traffic signals would be removed.

- The existing stop-sign controlled intersection at Stony Island Avenue and 64th Street would be converted to a signalized intersection to enhance pedestrian safety and maintain traffic progression through interconnected signals on Stony Island Avenue.
- An additional traffic signal is proposed at 62<sup>nd</sup> Street to enhance pedestrian safety and maintain traffic progression through interconnected signals on Stony Island Avenue.
- The southbound-only segment of Cornell Avenue from Hayes Drive to Stony Island Avenue would be widened 8 feet to accommodate two-way traffic and provide two lanes in each direction.
- North Midway Plaisance (the westbound-only direction) to the east of Stony Island Avenue would be widened 8 feet to accommodate two-way traffic and provide two lanes in each direction.

## B. Highway Noise Concepts

Sound is produced when pressure waves generated by a vibrating source travel through the air and are of sufficient strength to be capable of causing an auditory response in the human ear and brain. Noise is more of a subjective term, generally used to describe sound coming into contact with the human ear that is either annoying, or perceived as a health hazard. Noise can negatively affect human quality of life if it becomes strong enough to interfere with thought, conversation, and/or sleep. There are three primary characteristics of sound: *magnitude*, *frequency*, and *duration*.

*Magnitude* refers to the intensity of a sound and is subjectively described by humans in terms of how “loud” or “soft” a particular sound is. Magnitude is quantified in terms of the sound pressure level generated by a vibrating source. Sound pressure level (L), also referred to as “noise level”, is measured in units called decibels (dB). The auditory threshold for humans with undamaged hearing is about 0 dB, while 140 dB is often described as the threshold of pain. Some common indoor and outdoor sound sources and their approximate noise levels are provided in **Exhibit A-3 in Appendix A**.

Due to the logarithmic nature of the decibel scale, decibels are not subject to simple mathematical rules. A doubling of the number of sound sources of the same magnitude, such as doubling the number of vehicles on a highway, increases the noise level by 3 dB. The combined noise level of two simultaneous 60-dB sound sources is 63 dB, not 120 dB.

For the average human with normal hearing, a 3-dB change in noise level is barely perceptible, especially if the change occurs gradually over time. A 5-dB change in noise level is perceptible if the change occurs within a short span of time, but less discernable if the change occurs gradually over time. A 10-dB increase or decrease is discernable and subjectively described by most humans as “twice as loud” or “twice as soft” as the original level.

The distance from a sound source is also a factor in its magnitude. With respect to traffic on a typical highway, a doubling of the distance between the highway and the receptor will reduce the noise level by approximately 3 dB to 4.5 dB. For example, if the noise level at 50 feet from a highway is 70 dB, the noise level at 100 feet would be approximately 65.5 dB to 67 dB.

*Frequency* refers to the length of a sound wave and the number of wavelengths that pass a given point in one second, and is measured in units of Hertz (Hz). Frequency is subjectively described by humans in terms of “pitch”. The frequencies on a piano keyboard range from about 32 Hz to 4,000

Hz. When struck, a single key on a piano emits a sound at a single frequency, or a pure tone. A complex tone comprised of many frequencies is emitted when multiple keys are struck simultaneously. If the multiple keys form a musical chord, the sound is harmonious and generally pleasing. Striking multiple non-harmonious keys can produce an unpleasing sound, or noise. Traffic noise is typically comprised of sounds in various non-harmonious frequencies, ranging from the low rumbles of a truck engine to the high-pitched sound of tires on concrete pavement. Most people will characterize higher frequencies as “more annoying” than lower frequencies.

Humans can hear sounds that range in frequency from about 20 Hz to 20,000 Hz. Our auditory response relative to frequency, however, is not linear. The human ear is considerably less sensitive to low frequencies in the 20 Hz to 200 Hz range, and most sensitive in the 1,000 Hz to 6,000 Hz range. In short, to compensate the curvilinear nature of human auditory response vs. frequency, the concept of “A-weighting” is applied to noise measurements so that less weight is given to lower-frequency sounds than those with higher frequencies. As a result, sound pressure levels in the highway noise field are reported as “A-weighted decibels”, or dBA.

*Duration* of highway noise is described in terms of an “equivalent sound pressure level” or Leq. Leq is a constant sound level that would result in the same total sound energy being produced by a time-varying sound level over a specified period of time. For example, a given sound lasting 10 seconds has the same Leq as a sound that has twice the acoustical energy, but lasts only 5 seconds. Highway traffic noise, though it can be a relatively constant “hum”, does contain peaks and valleys depending vehicle mix, spacing, and other variables. To simplify reporting and communication, highway traffic noise is reported in one-hour equivalent sound pressure levels, or Leq(h).

Other factors which influence the magnitude, frequency and/or duration of highway sound levels at a given receptor include vehicle volumes, speeds, acceleration, and truck percentage; atmospheric effects (temperature, wind, humidity, and pressure); the intervening topography and ground type (i.e., pavement vs. grass); and intervening buildings or other barriers. Vegetation can act as a sound barrier; however a very dense stand of vegetation between 100 and 200 feet in width and 16 to 18 feet tall would be required to obtain a perceivable noise reduction of 5 dB. Regardless, FHWA does not recognize vegetation as a noise abatement measure.

### C. Highway Noise Policies

The analyses of the traffic noise impacts and mitigation for this project comply with FHWA’s December 2011 publication, *Highway Traffic Noise: Analysis and Abatement Guidance*. This document was published to provide guidance in applying the Federal regulations contained in 23 CFR 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*. The analyses are also consistent with Illinois Department of Transportation’s (IDOT’s) 2017 update of its publication, *Highway Traffic Noise Assessment Manual*, which is also based on the latest 23 CFR 772 regulations and the Federal guidance document. This manual is a companion to IDOT’s noise policy, which is contained in Chapter 26 of IDOT’s Bureau of Design and Environment manual.

According to the Code of Federal Regulations (23 CFR 772), traffic noise impacts occur when the predicted noise levels approach, meet, or exceed the FHWA Noise Abatement Criteria (NAC) or when the predicted noise levels substantially exceed the existing noise levels. The following **Table I-1** contains the FHWA NAC (source: *Highway Traffic Noise Assessment Manual*, IDOT, 2017 Edition).

**Table I-1  
FHWA NOISE ABATEMENT CRITERIA - HOURLY WEIGHTED SOUND LEVEL**

Activity Category	L <sub>eq</sub> (h)	Evaluation Location	Description of Activity Category
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B <sup>1</sup>	67	Exterior	Residential.
C <sup>1</sup>	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E <sup>1</sup>	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	---	---	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	---	---	Undeveloped lands that are not permitted.

<sup>1</sup>Includes undeveloped lands permitted for this activity category.

The FHWA policy provides state highway agencies with flexibility to establish their own definitions of approach and substantial increase. State highway agencies must establish a definition of approach that is at least 1 dBA less than the NAC for the appropriate activity category. IDOT has established the following criteria that define the occurrence of a traffic noise impact:

- Design-year traffic noise levels are equal to or greater than one decibel less than the FHWA NAC.
- Design-year traffic noise levels are 15 dBA or more above existing (or in the case of this project, “Future Existing”) traffic generated noise levels.

It should be noted that the FHWA NAC are not goals for noise attenuation design. The NAC are noise impact thresholds that, if approached, met or exceeded, require the consideration of noise abatement. A predicted reduction in noise levels with the installation of a noise barrier may or may not result in a noise level that falls below the FHWA NAC.

## II. METHODOLOGY

### A. Evaluation of Land Uses and Activity Category Assignment

According to FHWA and IDOT policies and guidance, highway traffic noise is not usually a serious problem for people who live more than 500 feet from heavily traveled freeways or more than 100 to 200 feet from lightly traveled roads. IDOT’s policy requires that land uses within 500 feet of proposed improvements be reviewed. Exhibits A-1c, 2a and 2b through A-2c show the Traffic Noise Study Limits, which cover an area that is 500 feet from proposed improvements that are included in the 2040 Build condition. Proposed improvements include roadway closures, modifications, and capacity improvements; traffic signal installations or retiming improvements; and pedestrian grade separation improvements.

The land uses within the project area were evaluated based on field visits, aerial photography, land use and zoning maps, and other online resources, and assigned to an FHWA Traffic Noise Analysis Activity Category based on the descriptions in **Table I-1**. **Exhibits A-4a** through **A-4c** illustrate the project area land uses and their respective FHWA Activity Categories. Land use areas are numbered for reference. **Tables A-1.1, 1.2, and 1.3** in **Appendix A** state the development status, zoning, business/property owner names, addresses, activity category and description, and if applicable, FHWA Noise Abatement Criterion for each of the land use areas.

## B. Determination of Receptor Locations

A noise receptor is a discrete point of frequent human use located within a project study area that has the potential to experience a traffic noise impact under future traffic and the proposed roadway improvement. For example, per IDOT policy, the receptor for a single family home is placed on a patio, deck, pool, playset, or other area of frequent outdoor activity. A building entrance also qualifies as a receptor for many receptor types. Receptors within parks are typically placed at ball fields, trail intersections, benches, monuments, or other points of frequent human activity such as golf course tee boxes or putting greens. Receptors are located five feet above the ground, as this represents the height of the average human ear. In the case of multi-story, multi-family buildings with upper-floor balconies, each upper floor balcony is also considered a receptor.

The land use areas described in Section A. above were evaluated and discrete receptor locations were identified within areas classified as Activity Category B, C and E. The remaining land uses within the project area are either industrial, manufacturing, utility, rail yard, and/or retail (Activity Category F) or vacant/undeveloped (Activity Category G). Activity Categories F and G are not considered noise sensitive land uses and thus do not have established FHWA Noise Abatement Criteria (NAC).

The identified receptors were grouped into Common Noise Environments (CNEs) which generally include receptors within the same Activity Category. Traffic volumes, terrain & potential for noise abatement were considerations the establishment of CNEs. The CNEs identified for this project are illustrated on **Exhibits A-5a** through **A-5c**. A total of 104 CNEs were identified. Of these, 40 are outside of Jackson Park or Midway Plaisance (as listed in **Table A-1.1**), and 64 are within Jackson Park and Midway Plaisance (as listed in **Table A-1.2**). All 64 CNEs within Jackson Park are considered to be in Activity Category C. The 40 receptors outside of Jackson Park are considered Activity Category B, C, and E.

Within all CNEs, a *representative* receptor was selected to represent the remainder of the receptors within the particular CNE. The representative receptor is located at the worst-case noise receptor under the 2040 Build condition within the CNE. The representative receptor is typically located on the first row of receptors adjacent to the roadway. In cases where a CNE is bordered by multiple roadways, or where it was not clear which receptor is the worst-case, multiple receptors were modeled to determine which one should be the representative receptor. Within Jackson Park, the representative receptor is quite often a park bench located at the back of the sidewalk or path that is next to the adjacent roadway. The representative receptors are shown as yellow dots on **Exhibits A-5a** through **A-5c**.

For land use areas containing undeveloped properties (Activity Category G), a series of noise level prediction points was set at varying distances from the proposed project. These points are used to help determine the approximate offset beyond which future noise levels might approach, meet or exceed the FHWA NAC on undeveloped parcels should they develop in the future. Traffic noise analyses on undeveloped lands is discussed in Section IV.

### C. Traffic Noise Model and Inputs

Future Existing traffic noise levels at receptors were modeled, future noise levels were predicted, and potential noise barriers were analyzed using FHWA’s Traffic Noise Model (TNM), Version 2.5. The Federal noise regulations require the use of FHWA TNM, or any FHWA-approved model that is equivalent to TNM, for all highway traffic noise analyses subject to 23 CFR 772.

The sole source of noise in TNM is motorized vehicles. The volumes input into TNM can be broken down into passenger cars, medium trucks, heavy trucks, busses, and motorcycles. Within the model, simulated noise is emitted at three vertical sub-source points: 1) at the ground, to represent tire-pavement noise, 2) five feet above the ground, to represent the engine of a truck, and 3) twelve feet above the ground, to represent the top of the exhaust stack of a truck. Emission levels vary depending on vehicle type and speed inputs. No other sources of noise, other than traffic, are modeled in TNM. A review of the existing traffic counts found that the highest hourly traffic volumes on most of the roadway segments within the study area occur during the morning peak commuter hour, and thus the morning peak hour was chosen as the critical hour for analysis in the noise modeling effort.

**Exhibit A-6a** in **Appendix A** shows the traffic volumes that were used in the TNM model for the Future Existing condition. **Exhibit A-6b** shows the traffic volumes for the 2040 No-Build scenario, and **Exhibit A-6c** shows the traffic volumes for the 2040 Build scenario.

The Future Existing condition TNM model used existing traffic volumes and bus/truck percentages collected as part of the Phase I engineering study that were reassigned due to the aforementioned roadway closures that are anticipated prior to the date of public knowledge of the Environmental Assessment. The 2040 No-Build and 2040 Build condition TNM models used 2040 traffic projections approved by the Chicago Metropolitan Agency for Planning (CMAP), and existing bus/truck percentages. It should be noted that trucks are prohibited on Lake Shore Drive, though there are two bus routes (J14 [Jeffery Jump] and #26). For all conditions, the weekday A.M. peak hour was chosen as the critical peak hour for analysis because it contains the highest two-way hourly volumes of all hours throughout the day along most of the roadway segments within the study area.

Traffic speeds on the roadways in the TNM models were generally set at the posted speed limits, however there are a number of stretches of roadways within the study area that experience congestion during the A.M. peak hour. Based on test drives along the various corridors in the study area, and on Google traffic maps showing typical congestion over the five weekdays, traffic speeds in TNM were reduced by 5 mph below the posted speed limit in some locations as follows:

- Northbound and Southbound Lake Shore Drive approaching 57<sup>th</sup> Drive
- Northbound and Southbound Lake Shore Drive approaching Hayes Drive
- Eastbound and Westbound Marquette Drive between Lake Shore Drive to 67<sup>th</sup> Street
- Westbound 67<sup>th</sup> Street, South Shore Drive to Cregier Avenue

- Southbound Stony Island Avenue, 57<sup>th</sup> Street to 65<sup>th</sup> Street
- Northbound Stony Island Avenue, 69<sup>th</sup> Street to Marquette Drive
- Northbound Cornell Drive, 68<sup>th</sup> Street to Marquette Drive

The above adjustments were made in the Future Existing, 2040 No-Build, and 2040 Build models, because these analyze the A.M. Peak Hour. Vehicle speed assumptions used in the separate Validation model are discussed in Section III.A.1. below.

As described in Section I.B., other factors which influence highway sound levels at a given receptor include the intervening topography and ground type, and intervening buildings, vegetation, or other barriers. All of these factors are modeled in TNM based on topographic surveys, aerial photography, and field visits. In addition, TNM models variations in sound emission levels to due to roadway grades and acceleration away from a traffic control device. It should be noted that TNM does not account for temperature, humidity or wind variations, which can have a large effect on noise levels, though primarily at distances greater than about 500 feet from the highway.

### **III. TRAFFIC NOISE ANALYSIS FOR DEVELOPED LANDS**

#### **A. TNM Results**

TNM was used to model Future Existing, 2040 No-Build, and 2040 Build conditions, and to identify where noise impacts would be expected to occur on developed lands (including undeveloped lands that have an approved building permit) as part of the proposed roadway improvements. Following is a summary of the noise analyses for developed lands. Additional details are provided in **Appendix B**.

#### **1. Future Existing Condition and Validation of TNM Model**

The modeled sound levels for the Future Existing conditions predicted by TNM provide a baseline for comparison to predicted noise levels under 2040 Build conditions to determine if noise impacts are expected to occur as a result of the proposed improvement.

Determining existing noise levels with the TNM computer model is a valid technique at locations where existing noise levels are predominantly from the adjacent roadway (FHWA, 2011). Noise at receptors along the project corridors are predominantly from roadway traffic, therefore TNM is appropriate for modeling highway noise along this corridor.

In addition to modeling future existing noise levels using TNM, noise monitoring was also performed at 35 locations in the study area. FHWA regulations and IDOT noise policy require that TNM models used to represent existing conditions be validated using field measurements of existing highway noise. Based on IDOT policy, a measured noise level should be within 3 dBA of modeled results for the model to be considered validated. If the Existing condition TNM model is validated, it is considered valid for use in predicting future noise levels at the particular project location.

As noted earlier, 8 locations within the project area are considered Activity Category F at which no noise analysis is required. The 35 noise monitoring points selected for this project

amount to 34% of the remaining 104 noise sensitive areas. The noise monitoring/validation points are shown on **Exhibits A-5a** through **A-5c**. Monitoring locations were between 30 and 140 feet from the centerlines of the nearest primary roadway. The number of validated measurement locations must be equal to or greater than 25% of the number of representative receptors/CNEs for the overall model to be considered validated.

While IDOT Policy suggests that the validation points should be at the representative receptor point for a given common noise environment, due to the urban and commercial nature of some of this area, this requirement was not possible at all of the monitoring locations. This is because many of the representative receptor locations are subject to considerable non-highway traffic noise, such as car doors opening and closing, cars in parking lots starting and stopping, car alarms and lock notification “beeps”, talkative shoppers/office users/clients, shopping carts rolling across pavement, and other similar noises which affect monitoring results. Monitoring points were chosen within sensitive common noise environments and in undeveloped parcels, but in some cases away from the receptor locations a sufficient distance to minimize background noise interference. The precise locations of the monitoring points were modeled in TNM (in addition to the chosen representative receptors) in order to provide a direct comparison to the noise measurements.

Measurements were taken using a Class I Sound Level Meter and were obtained on a Tuesday, Wednesday or Thursday, in the months of November/December 2017, and March/April 2018. Monitoring occurred between the hours of 9 A.M. and 6 P.M., and was suspended if congestion slowed the free-flow movement of traffic. All measurements were taken during dry weather conditions when wind speeds were less than 12 mph. Two individual 10 to 15-minute noise samples were generally obtained and then averaged to result in a single field-measured noise level at each location. Traffic volumes adjacent to the monitoring locations were counted during monitoring sessions and were used in the validation TNM model.

Noise monitoring was generally conducted during off-peak hours. Unlike during peak hours, when traffic speeds were generally lower than posted speeds in many locations (as discussed in Section II.C. above), speeds during the off peak hours were generally higher than posted speed limits. In the validation TNM model, the vehicle speeds on Lake Shore Drive and Marquette Drive east of Lake Shore Drive were set at 10 mph over the posted speed limits based on field observations and test drives using the floating car method along these routes during the off peak hours. This speed adjustment helped bring modeled results in line with field-measured results as part of the model validation process. The speeds used in the TNM validation model are as follows:

- Jeffery Drive, 67<sup>th</sup> Street to Marquette Drive: Posted 30 mph, Used 40 mph
- Lake Shore Drive, Marquette Drive to Hayes Drive: Posted 30 mph, Used 40 mph
- Lake Shore Drive, Hayes Drive to North Project Limit: Posted 35 mph, Used 45 mph
- All Other Streets in Project Area: Posted 30 mph, Used 30 mph

Noise monitoring results are summarized in **Table A-2**. The field-measured noise levels ranged from 54 to 71 dBA at the chosen monitoring points. The noise levels predicted by a true “Existing” condition TNM model at these same points ranged from 54 to 69 dBA. The

modeled Existing condition noise levels were all within 0 to 3 dBA of the field-measured noise levels, with the exception of two locations. It should be noted that the validation model used a true “existing condition” roadway network that represents the condition prior to the modifications discussed in Section I.A.1. above, i.e., the condition in place at the time of the field measurement.

Validation Point 1 is considered an outlier, as the field-measured noise level was 8 dBA greater than the modeled noise level at the same location. This location is in Promontory Point Park, which is a piece of park land that juts into Lake Michigan. During the measurements, while the wind speeds were within an acceptable range below 12 mph, the sound of waves crashing on the shoreline was considerable. It is likely that this was the cause of the considerable difference. This location was monitored on two separate days as a check. At Validation Point 18, there was construction, including the sound of drilling, in the neighboring building, likely causing the measured noise level to be 5 dBA greater than the modeled noise level.

Excluding Validation Points 1 and 18, a total of 33 monitoring locations were validated by the model. This is 32% of the 104 noise sensitive receptors, therefore the TNM model is considered validated.

As shown in **Table A-3.1**, the modeled A.M. peak hour Leq for the Future Existing condition ranged from 47 to 67 dBA at the representative receptors chosen for developed properties outside of Jackson Park. Within Jackson Park, as shown in **Table A-3.2**, the modeled Future Existing condition noise levels ranged from 49 to 70 dBA at the chosen representative receptors.

TNM files and PDF files of the input and output for the Future Existing condition are provided on the Compact Disc in **Appendix F**.

## 2. 2040 No-Build Condition

Traffic noise at each chosen receptor was also predicted for the 2040 No-Build alternative using TNM. This scenario uses projected 2040 traffic volumes on the No-Build scenario described in Section I.A. above to determine the sound levels at the chosen representative receptors both inside and outside of Jackson Park. The 2040 No-Build alternative sound levels are useful for public information and when analyzing the environmental impacts of various alternatives in environmental documentation.

**Tables A-3.1** and **A-3.2** list the TNM-modeled 2040 No-Build condition noise levels for the weekday A.M. peak hour at common noise environments outside and inside Jackson Park, respectively. 2040 No-Build noise levels are predicted to range between 47 and 67 dBA at the representative receptors outside of Jackson Park, and between 48 and 70 dBA within Jackson Park.

At the 40 representative receptors outside of Jackson Park, 32 predicted No-Build noise levels are the same as the modeled Future Existing condition noise levels, six locations are one decibel less, one location is one decibel more, and one location is two decibels more. At the 64 representative receptors within Jackson Park, 53 predicted No-Build noise levels

are the same as the modeled Future Existing condition noise levels, one location is two decibels less, four locations are one decibel less, and six locations are one decibel more. For the average human with normal hearing, a 3-dB change in noise level is barely perceptible, especially if the change occurs gradually over time, therefore the changes between the Future Existing condition and No-Build condition will likely be barely perceptible.

TNM files and PDF files of the input and output for the 2040 No-Build condition are provided on the Compact Disc in **Appendix F**.

### 3. 2040 Build Condition and Identification of Impacts

Traffic noise at each chosen receptor on developed lands was also predicted for the 2040 Build condition using the TNM computer model. This analysis used projected 2040 traffic volumes and proposed alignments, geometrics and roadway characteristics for the preferred improvement which is described in Section 1.A. above.

**Tables A-3.1** and **A-3.2** list the TNM-modeled 2040 Build condition noise levels for the weekday A.M. peak hour at common noise environments outside and inside Jackson Park, respectively. 2040 Build noise levels are predicted to range between 47 and 67 dBA at the representative receptors outside of Jackson Park, and between 49 and 70 dBA within Jackson Park.

At the representative receptors outside of Jackson Park, the predicted 2040 Build condition noise levels are the same as the modeled Future Existing condition at 27 (68%) of the 40 receptors. At 13 receptors, the 2040 Build noise levels are within one decibel of the modeled Future Existing condition. At one receptor, the 2040 Build noise level is two decibels less than the Future Existing condition due to the proposed improvement which shifts traffic east along Stony Island Avenue.

At the representative receptors within Jackson Park, the predicted 2040 Build condition noise levels are the same as or within one decibel of the modeled Future Existing condition at 62 (97%) of the 64 receptors. At four receptors, the 2040 Build noise levels are two decibels greater, at one receptor three decibels less, and at one receptor three decibels greater than the modeled Future Existing condition.

Again, a change in noise levels of 3 dBA or less is barely perceptible to an average human with normal hearing, therefore it can be concluded that the noise levels predicted to occur after the improvement is in place will not be noticeably greater than noise levels under the modeled Future Existing condition at all of the representative receptors both outside and inside of the park. None of the locations are anticipated to experience an increase in noise levels of 15 dBA or more, therefore there are no impacts based on the *substantial increase* criterion.

Despite future noise levels generally being not noticeably greater than Future Existing condition at all representative receptors, based on the analyses and as shown in **Tables A-3.1** and **A-3.2**, a traffic noise impact is expected to occur at five representative receptor locations outside of Jackson Park. These are CNEs 17, 21, 31, 34, and 37. Within Jackson Park, a traffic noise impact is expected to occur at 15 locations. These are CNEs P3, P4, P5,

P6, P7, P8, P9, P12, P13, P17, P21, P24, P37, P38, and P39. All of these impacts are due to the 2040 Build condition noise level either approaching, meeting, or exceeding the FHWA Noise Abatement Criterion of 67 dBA at these locations.

Therefore, a consideration of noise abatement is required at these 20 receptors to determine if the construction of noise abatement with the proposed improvement would be both feasible and reasonable. The remaining receptors on developed lands listed in **Tables A-3.1** and **A-3.2** are predicted to experience noise levels below the FHWA NAC and IDOT impact criteria, and thus no consideration of abatement is required in these areas.

TNM input files and PDF files of the input and output for the Future Existing condition, 2040 No-Build condition, and 2040 Build condition are provided on the Compact Disc in **Appendix F**.

## **B. Traffic Noise Abatement Analysis**

At representative receptors with predicted traffic noise impacts, FHWA and IDOT require consideration of traffic noise abatement in the form of a noise barrier. **Exhibit A-7** in **Appendix A** illustrates the noise abatement consideration process. A noise barrier must be both feasible and reasonable to be recommended for construction as part of the highway improvement.

### **1. Feasibility**

The two primary considerations regarding barrier feasibility include physical feasibility, and acoustic feasibility. The physical feasibility of the construction of a noise barrier involves engineering considerations such as safety; sight distance; topography; access requirements for driveways, sidewalks, and paths; the presence of local cross streets; drainage; utilities; and maintenance. Regarding acoustic feasibility, the IDOT noise policy requires that a noise reduction (sometimes called “insertion loss”) of 5 dBA be realized by at least two impacted receptors within a given CNE for a noise barrier wall to be considered feasible.

The acoustic effectiveness of a noise barrier is dependent on several factors. It must be high enough to break the “line of sight” between the noise source and the receptor, with the highest noise source generally being the top of a truck or bus exhaust stack, at 12 feet above the pavement. A general rule-of-thumb is that a noise barrier that just breaks the line of sight will result in a 5 dBA reduction in sound level at the receptor, with each additional two feet of barrier height reducing the noise level by an additional 1 dBA. A barrier must also be long enough to prevent too much sound from traveling around the ends of the barrier. Breaks in a wall that are required for driveway openings tend to considerably reduce the acoustic effectiveness and quite often result in a wall that is not acoustically feasible. The barrier must also be constructed of a material that is sufficiently dense to reduce sound transmission through the barrier.

A noise barrier is generally most acoustically effective when placed either close to the receptor, or close to the noise source. The least-effective location is mid-way between them. The placement of a barrier near the edge of the roadway generally requires safety features such as guardrails or barriers, in addition to a consideration of sight distance lines. Noise barriers located near the right-of-way line are generally preferable, especially if the topography is higher than the roadway, thus requiring a shorter barrier wall.

## 2. Reasonableness

A feasible noise barrier is reasonable if it satisfies all of the three reasonableness criteria that follow.

- Noise Reduction Design Goal - To be reasonable based on the noise reduction design goal criterion, an 8-dBA noise reduction must be achieved for at least one benefited receptor. This receptor does not necessarily need to be an impacted receptor, however in most situations it is the same. The noise reduction design goal should be achieved for as many receptors as possible while remaining within the economic reasonableness criterion.
- Cost-Effectiveness - To be cost-effective, the construction cost of a noise barrier must not exceed \$30,000 per benefited receptor. A benefited receptor is one that would receive a 5-dBA or greater reduction in noise level as a result of barrier construction. Based on IDOT noise policy, the current cost of a noise barrier in the cost-reasonableness determinations is \$30 per square foot of face of wall. The base value of \$30,000 per benefited receptor can be adjusted upward based on a) the degree of absolute future noise levels, b) the degree of the increase in noise levels between existing and future build conditions, and c) whether or not the project is on a new alignment or the receptor existed prior to the original construction of the highway. The following tables from IDOT's *Highway Traffic Noise Assessment Manual* (2017 Edition) contain the required adjustments.

In cases where some barriers on a project are found to be cost-reasonable, but others are not, cost averaging of noise abatement among CNEs may be used when conducting the reasonableness evaluation. Noise abatement may achieve the cost-reasonableness criterion if the collective average estimated build cost of noise abatement per benefited receptor is less than the collective average adjusted allowable cost per benefited receptor.

**Table III-1  
Adjustments to Cost-Effectiveness Criterion**

**Absolute Noise Level Consideration**

Predicted Build Noise Level Before Noise Abatement	Dollars Added to Base Value Cost per Benefited Receptor
Less than 70 dB(A)	\$0
70 to 74 dB(A)	\$1,000
75 to 79 dB(A)	\$2,500
80 dB(A) or greater	\$5,000

**Increase in Noise Level Consideration**

Incremental Increase in Noise Level Between the Existing Noise Level and the Predicted Build Noise Level Before Noise Abatement	Dollars Added to Base Value Cost per Benefited Receptor
Less than 5 dB(A)	\$0
5 to 9 dB(A)	\$1,000
10 to 14 dB(A)	\$2,500
15 dB(A) or greater	\$5,000

**New Alignment / Construction Date Consideration**

Project is on new alignment OR the receptor existed prior to the original construction of the highway	Dollars Added to Base Value Cost per Benefited Receptor
No for both	\$0
Yes for either	\$5,000

**Note:** No single optional reasonableness factor shall be used to determine that a noise abatement measure is unreasonable.

- Viewpoints of Benefited Receptors - The viewpoints of the property owners and residents (renters) benefited by a noise barrier determined to be feasible, be cost-effective, and meet the 8-dBA noise reduction design goal, must be solicited to determine their preferences for or against the installation of a noise barrier. This is typically achieved using written letters, or at presentations at public meetings when there are a larger number of benefited property owners/residents. Greater than 50% of the votes received must be in favor of the noise barrier for it to be included in the proposed improvement. "Property Owner" is defined as an individual or group of individuals that holds a title, deed, or other legal documentation of ownership of a property or residence. While there are many various property owners and residents in the CNEs outside of Jackson Park, the Chicago Park District is the owner of Jackson Park.

For each noise barrier determined to be both feasible and reasonable, a statement of likelihood will be included in the technical report and environmental document.

## C. Identification of Noise Abatement Measures Likely to be Installed

This section summarizes the analyses of potential noise barriers at each of the 20 Common Noise Environments predicted to experience a noise impact under the 2040 Build condition. Details on these analyses are provided in **Appendix B**.

Determinations were made at each of the 20 CNEs predicted to experience a noise impact as to whether or not a noise barrier would be recommended for construction based on FHWA and IDOT policies. Common Noise Environments, representative receptors, impacted receptors, and potential noise barriers that were analyzed are shown on **Exhibits A-5a** through **A-5c**. Each impacted CNE was evaluated based on the previously-described feasible and reasonableness criteria and the results are shown in **Table III-2** below.

While a barrier was considered at all 20 impacted CNEs, a total of three noise barriers passed evaluations for physical feasibility. The three physically feasible barriers served a total of five CNEs.

Within Jackson Park, there is one barrier (Barrier #1) that is considered feasible because it is physically constructible and would achieve a 5-dBA noise reduction (insertion loss) for at least two impacted receptors. This barrier is adjacent to and would provide benefits to receptors within CNEs P3, P4, and P17, and is shown on **Exhibits A-5a** and **A-5b**. Barrier #1 would meet the 8-dBA noise reduction design goal. However, the construction of this noise barrier would require substantial pedestrian underpass structure widening, some shifting of the Lakefront Trail, and other restoration costs which render it unreasonable from a cost per benefited receptor standpoint.

A second physically-feasible barrier was considered in Jackson Park to attenuate a predicted noise impact at CNE P24. While this barrier would be physically feasible, it does not pass the acoustic feasibility criterion because there is only one impacted receptor, and to be acoustically feasible, a 5-dBA insertion loss needs to be achieved at two impacted receptors. Therefore this barrier is not feasible.

The third physically-feasible barrier that was evaluated (Barrier #2) would attenuate a noise impact predicted at the South Shore YMCA located along the west side of Stony Island Avenue between 64<sup>th</sup> Street and 63<sup>rd</sup> Street/Hayes Drive (CNE 17). See **Exhibits A-5b** and **A-5c**. Barrier #3 would meet the 8-dBA noise reduction design goal. However, the construction of this noise barrier would require substantial right-of-way costs which together with the estimated cost of the noise barrier itself, would render it unreasonable from a cost per benefited receptor standpoint.

The use of cost-averaging as described in Section III.B.2. is not applicable because there are no noise barriers predicted to meet the cost-reasonableness criteria.

A noise barrier was considered at the remaining 15 CNEs where a noise impact is predicted (CNEs 21, 31, 34, 37, P5, P6, P7, P8, P9, P12, P13, P21, P37, P38, and P39), however at each of these locations, a barrier is not physically feasible.

A barrier is not feasible at CNEs P5, P6, P7, P8, P9, P12, P13, P21, P37, P38, and P39 because these receptors are benches located at the backs of sidewalks, facing the adjacent roadway. The barriers would be constructed directly in the locations of the benches. Barriers at these CNEs are deemed infeasible because they cannot be constructed without removing or relocating the benches. The

installation of noise barriers in these locations would be self-defeating. People choosing to use these benches do so with the understanding that they will be facing a heavily traveled street with its inherent traffic noise characteristics. It is also worthwhile to note that the noise levels under the Future Existing condition already exceed the FHWA NAC at many of these locations, and furthermore none of the noise levels at these locations will perceptibly increase as a result of the proposed roadway improvements.

Barriers are not physically feasible at CNEs 21, 31, 34, and 37 because these receptors are entryway doors of three to four story multi-unit buildings located directly adjacent to the back of the sidewalk and along the right-of-way line. These barriers would need to be placed in the sidewalk. Due to the need to maintain adequate sidewalk width, and due to the presence of traffic signal and lighting equipment, fire hydrants, mailboxes, and signage, the placement of a noise barrier in the sidewalk/within the existing right-of-way is not possible.

Details on the analyses performed to arrive at the above conclusions are provided in **Appendix B**.

Based on the traffic noise analysis and noise abatement evaluation conducted, highway traffic noise abatement measures are not likely to be implemented based on the preliminary design at any location within the study area. The proposed project is anticipated to have traffic noise impacts, but all noise barriers studied and identified in **Table III-2** below do not meet the feasibility and reasonableness criteria.

It is possible that modifications to the proposed roadway improvement plans during the final design phase of this project due to constraints not foreseen in the preliminary design phase could result in changes to the noise analysis conclusions. Therefore, a final determination regarding the construction of noise barriers as part of this improvement shall not be made until the public involvement process and the final design phase of the project is completed.

**Table III-2  
Summary of Abatement Considerations for Receptors  
Anticipated to Experience a Noise Impact**

CNE No.	Noise Barrier Feasible?		Noise Barrier Reasonable?			Recommended for Installation?
	Physically	Acoustically	Noise Reduction Design Goal?	Cost Effective?	Over 50% of Votes in favor?	
P3	Yes	Yes	Yes	No	-	No
P4						
P17						
P5	No	-	-	-	-	No
P6	No	-	-	-	-	No
P7	No	-	-	-	-	No
P8	No	-	-	-	-	No
P9	No	-	-	-	-	No
P12	No	-	-	-	-	No
P13	No	-	-	-	-	No
P21	No	-	-	-	-	No
P24	Yes	No	-	-	-	No
P37	No	-	-	-	-	No
P38						
P39						
17	Yes	Yes	Yes	No	-	No
21	No	-	-	-	-	No
31	No	-	-	-	-	No
34	No	-	-	-	-	No
37	No	-	-	-	-	No

#### IV. NOISE LEVELS ON UNDEVELOPED LANDS

FHWA encourages local governments to practice compatible land use planning and control with respect to traffic noise in the vicinity of highways. FHWA has developed a document called “Entering the Quiet Zone: Noise Compatible Land Use Planning”. Local Agencies are encouraged to review this document to learn more about noise compatible planning concepts. The document, in addition to other compatible planning materials, can be viewed on the FHWA website at: [http://www.fhwa.dot.gov/environment/noise/noise\\_compatible\\_planning/](http://www.fhwa.dot.gov/environment/noise/noise_compatible_planning/).

FHWA and IDOT policies require that noise levels under future build conditions be predicted on undeveloped/non-permitted properties to aid local officials in future land use planning and development.

Undeveloped properties which have received a building permit by the governing agency prior to the date of the NEPA environmental approval are evaluated in the same manner as if the property was already developed. On undeveloped properties which have not received a building permit by the date of NEPA document approval, design-year noise analyses are performed to determine an approximate offset from the roadway at which future noise levels might approach the FHWA NAC.

There are seven properties considered to be Activity Category “G” within the project limits outside of Jackson Park containing undeveloped/non-permitted properties with the potential to develop in the future. They are labeled on the exhibits and tables as G1 through G7. See **Table A-1.3** for a description and location of these areas.

To approximate the offset beyond which impacts might be expected on undeveloped lands in the year 2040 if the proposed improvement is in place, a series of noise level prediction points was identified at varying distances from (and perpendicular to) the proposed roadway in each undeveloped location. The prediction points for all seven of the locations are shown on **Exhibits A-8a** through **A-8c**. Prediction points were placed in 10-foot intervals starting 10 feet from the existing edge of pavement for a total of 50 feet. 2040 Build condition noise levels were estimated at each prediction point using TNM, and the offset beyond which a noise impact might be expected was interpolated. The offset beyond which a 66-dBA noise level might be expected is reported and shown as a “contour” line within each location. At Locations G1, G3, and G7, the 66-dBA noise contour is located within the right of way and thus it is unlikely that noise impacts would be realized within the developable area of the parcels adjacent to the roadway. At Locations G2, G4, G5, and G6, the 66-dBA noise contour line ranges from between 10 and 40 feet from the existing roadway pavement edge and is shown on the exhibits. Should the 2040 Build improvements be constructed, and should a building permit be issued for these properties, areas of frequent outdoor human use located beyond the illustrated contour lines are likely to be compatible with future highway noise based on FHWA and IDOT noise policies.

**Appendix C** contains additional details on the analysis of noise levels on undeveloped lands.

IDOT noise policy requires that noise analysis results be provided to local agency representatives so that the communities can protect future land development from becoming incompatible with highway traffic noise levels. **Appendix D** contains copies of correspondence with local agency officials.

## V. CONSTRUCTION NOISE

Trucks and machinery used for construction produce noise which may affect some land uses and activities during the construction period. Residents along the alignment will at some time experience perceptible construction noise from implementation of the project. Construction noise is considered to be relatively temporary in nature. To minimize or eliminate the effect of construction noise on these receptors, mitigation measures have been incorporated into the Illinois Department of Transportation's (IDOT) Standard Specifications for Road and Bridge Construction as Article 107.35.

In addition, IDOT's Highway Traffic Noise Assessment Manual identifies strategies for minimization and abatement of construction noise which should be considered and implemented if feasible during the Design and Construction phases of this project. They include the following methods that can be applied through construction staging, sequencing of operations, and/or alternative construction methods:

### Construction Staging

- Construct the potential noise barrier on this project during the initial construction phases to reduce construction noise at some receptors.
- Route construction traffic away from sensitive receptors as feasible.
- Operate equipment as far from sensitive receptors as feasible.

### Sequence of Operations

- Conduct louder operations during the day, and not during the night when people are much more sensitive to noise. Note that IDOT's Standard Specifications for Road and Bridge Construction restrict most construction activities that are within 1,000 feet of an occupied residence to the period between 7 A.M. and 10:00 P.M.
- Conduct multiple loud operations at the same time, since the total noise level from multiple activities will not substantially increase the total combined noise level. The purpose of this strategy is to reduce the duration of loud noise levels.

### Alternative Construction Methods

- Since the project area is highly residential and park-related in nature, evaluate alternative pile driving methods, as this is a major noise contributor.
- Evaluate quieter demolition methods.
- Use special muffler systems or enclose equipment through the use of curtains. The IDOT Standard Specifications, at a minimum, require that all engines and engine-driven equipment used for hauling or construction shall be equipped with an adequate muffler in constant operation and properly maintained to prevent excessive or unusual noise.

## VI. INTERNET LINKS TO TRAFFIC NOISE REFERENCE MATERIALS

*Highway Traffic Noise: Analysis and Abatement Guidance* (Federal Highway Administration [FHWA], January 2011):

[http://www.fhwa.dot.gov/environment/noise/regulations\\_and\\_guidance/analysis\\_and\\_abatement\\_guidance/](http://www.fhwa.dot.gov/environment/noise/regulations_and_guidance/analysis_and_abatement_guidance/)

*Procedures for Abatement of Highway Traffic Noise and Construction Noise* (23 CFR 772)

[http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&tpl=/ecfrbrowse/Title23/23cfr772\\_main\\_02.tpl](http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&tpl=/ecfrbrowse/Title23/23cfr772_main_02.tpl)

*Highway Traffic Noise Assessment Manual* (Illinois Department of Transportation [IDOT], 2017)

<http://www.idot.illinois.gov/Assets/uploads/files/Doing-Business/Manuals-Guides-&-Handbooks/Highways/Design-and-Environment/Environment/Highway%20Traffic%20Noise%20Assessment%20Manual%202017.pdf>

*Bureau of Design and Environment Manual*, Chapter 26 (IDOT, 2010 and Revised)

<https://idot.illinois.gov/Assets/uploads/files/Doing-Business/Manuals-Split/Design-And-Environment/BDE-Manual/Chapter%2026%20Special%20Environmental%20Analyses.pdf>

*Entering the Quiet Zone: Noise Compatible Land Use Planning* (FHWA, May 2002)

[http://www.fhwa.dot.gov/environment/noise/noise\\_compatible\\_planning/federal\\_approach/land\\_use/quietzone.pdf](http://www.fhwa.dot.gov/environment/noise/noise_compatible_planning/federal_approach/land_use/quietzone.pdf)

*FHWA Traffic Noise Model Version 2.5* (FHWA, April 2004)

[http://www.fhwa.dot.gov/environment/noise/traffic\\_noise\\_model/tnm\\_v25/](http://www.fhwa.dot.gov/environment/noise/traffic_noise_model/tnm_v25/)

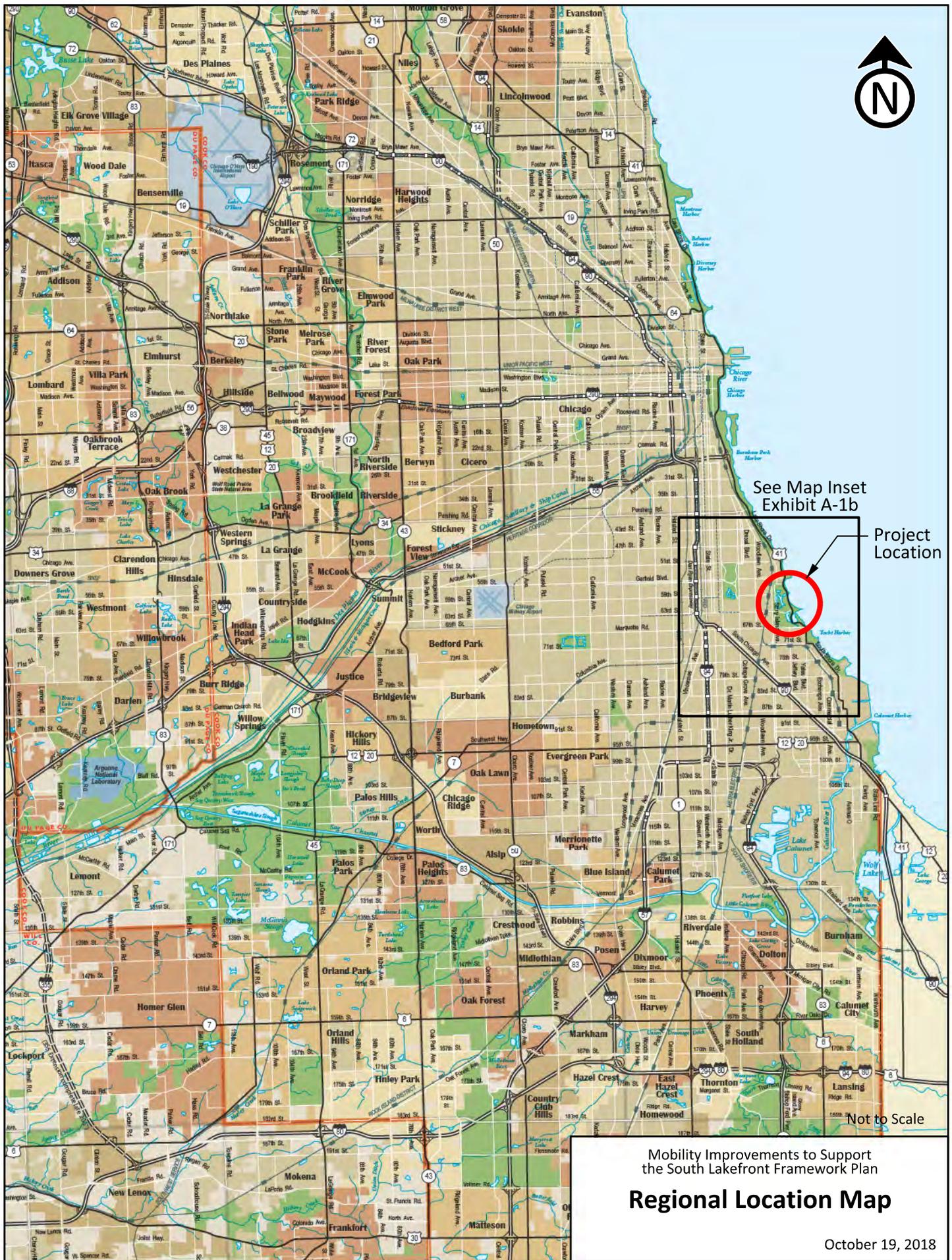
*Standard Specifications for Road and Bridge Construction* (IDOT, April 2016)

<https://idot.illinois.gov/Assets/uploads/files/Doing-Business/Manuals-Guides-&-Handbooks/Highways/Construction/Standard-Specifications/Standard%20Specifications%20for%20Road%20and%20Bridge%20Construction%20016.pdf>

## **APPENDIX A**

### EXHIBITS AND TABLES

## Exhibits



See Map Inset  
Exhibit A-1b

Project Location

Not to Scale

Mobility Improvements to Support  
the South Lakefront Framework Plan  
**Regional Location Map**

October 19, 2018

**Exhibit A-1a**



Project Location

Mobility Improvements to Support the South Lakefront Framework Plan

### Local Location Map

October 19, 2018



Mobility Improvements to Support  
the South Lakefront Framework Plan

**Existing Condition**

October 19, 2018



Lake Michigan

South Shore Cultural Center Park

South Shore Drive

Oglesby Avenue

Crandon Avenue

Paxton Avenue

Merril Avenue

Clyde Avenue

Chappel Avenue

Jeffery Avenue

Euclid Avenue

Bennett Avenue

Constance Avenue

Cregier Avenue

Ridgeland Avenue

East End Avenue

Cornell Avenue

Stony Island Avenue

La Rabida Children's Hospital

Jackson Park Outer Harbor

Jackson Park Inner Harbor

Jackson Park Golf Course

Jackson Park Golf Course

Jackson Park Golf Course

Lake Shore Drive

63rd Street Beach

57th Street Beach

Science Drive

Bowling Green

59th Street Harbor

Dog Park

Driving Range

East Lagoon

Wooded Island

West Lagoon

Obama Presidential Center Underground Parking Garage

Hayes Drive

Cornell Drive

Marquette Drive

Stony Island Avenue

Everett Avenue

Hyde Park Boulevard

Cornell Avenue

Metra-Electric District Line

55th Street

56th Street

57th Drive

57th Street

59th Street

60th Street

61st Street

62nd Street

63rd Street

64th Street

65th Street

65th Place

Marquette Road

66th Place

67th Street

67th Place

68th Street

69th Street

67th Street

68th Street

69th Street

**DRAFT**

0' 400' 800'

- Existing Structures
- Proposed Road Closure
- Existing Traffic Signal
- Park Land
- Obama Presidential Center Structure
- Traffic Noise Study Limits

Mobility Improvements to Support the South Lakefront Framework Plan

### Future Existing and 2040 No-Build Conditions

October 19, 2018



Lake Michigan

Road	Limits	Existing Travel Lane Configuration	Proposed Travel Lane Configuration
Lake Shore Dr	57th Dr to Hayes Dr	3 NB, 2 SB	3 NB, 3 SB
Cornell Dr	57th St to N Midway Plaisance	2 NB, 2 SB	2 NB, 2 SB
N Midway Plaisance	Cornell Dr to Stony Island Ave	2 WB	2 EB, 2 WB
Hayes Dr	Lake Shore Dr to Cornell Dr	1 EB, 1 WB	2 EB, 2 WB
Cornell Dr	Hayes Dr to Stony Island Ave	3 SB	2 NB, 2 SB
Stony Island Ave	60th St to 65th St	1 NB, 1 SB	2 NB, 2 SB
Stony Island Ave	65th St to 67th St	2 NB, 4 SB	3 NB, 4 SB



**DRAFT**

0' 400' 800'

Mobility Improvements to Support the South Lakefront Framework Plan

**2040 Build Alternative Concept**  
 Mobility Improvement  
 Widen Stony East

October 19, 2018

- Existing Structures
- Proposed Road Closure
- Obama Presidential Center Structure
- Park Land
- Proposed Roadway Improvement
- Traffic Noise Study Limits
- Existing Traffic Signal to be Modernized or Retimed
- Proposed Traffic Signal

Common Outdoor  
Sound Levels

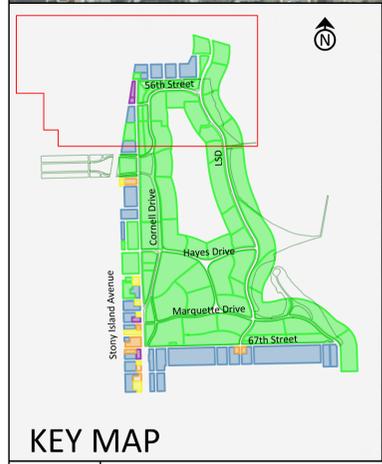
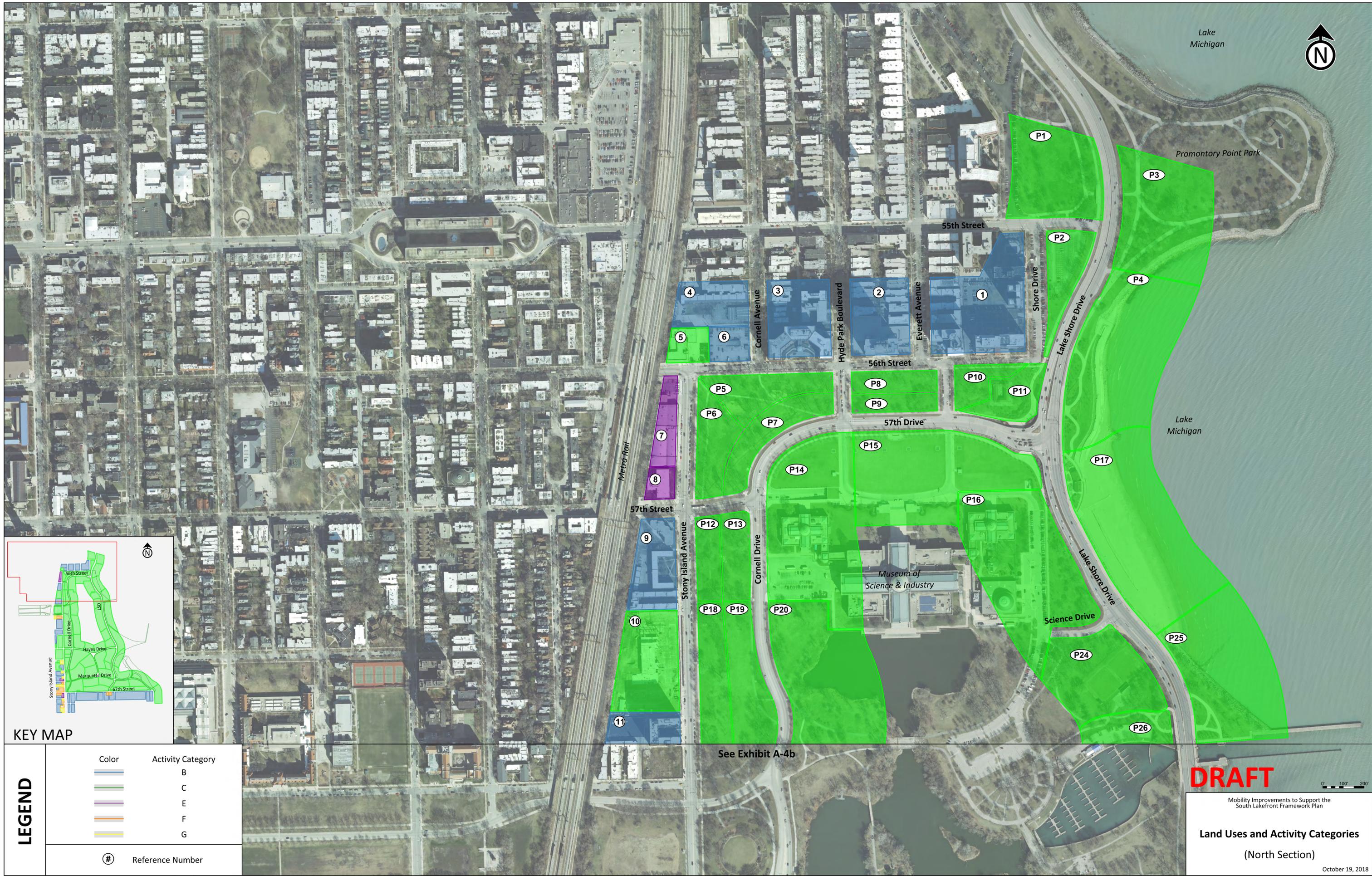
Common Indoor  
Sound Levels

dB(A)



Mobility Improvements to Support  
the South Lakefront Framework Plan  
**Common Outdoor and  
Indoor Sound Levels**

October 19, 2018



LEGEND	Color	Activity Category
		B
	C	
	E	
	F	
	G	
	Reference Number	

See Exhibit A-4b

**DRAFT**

Mobility Improvements to Support the South Lakefront Framework Plan

**Land Uses and Activity Categories**  
(North Section)

October 19, 2018  
**Exhibit A-4a**



See Exhibit A-4a



Lake Michigan

Jackson Park

Jackson Park

59th Street Harbor

Midway Plaisance

Midway Plaisance

WB Midway Plaisance

59th Street

11

60th Street

EB Midway Plaisance

P21

P22

P23

P18

P19

P20

P26

P27

P28

P29

P30

P31

P32

P33

P34

P35

P36

P37

P38

P39

P40

P41

P42

P43

G1

F1

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See Exhibit A-4c



Color	Activity Category
	B
	C
	E
	F
	G

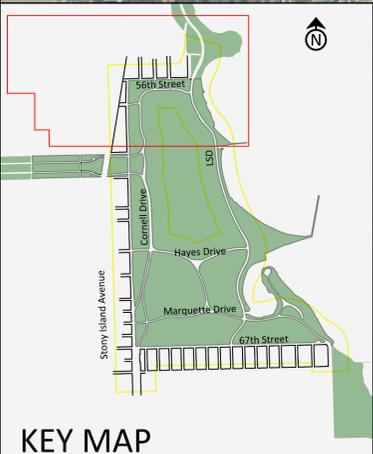
**LEGEND**

#	Reference Number
	Reference Number



**DRAFT**

Mobility Improvements to Support the South Lakefront Framework Plan  
**Land Uses and Activity Categories**  
 (South Section)



**LEGEND**

Common Noise Environment Boundary Color	Activity Category	FHWA NAC
	B	67
	C	67
	E	72

	Parkland
	Common Noise Environment Number
	Noise Measurement Validation Point
	Representative Receptor
	Receptor
	Representative Receptor Impacted by Traffic Noise
	Feasible but not Reasonable Noise Barrier
	Future Existing Roadway Closure
	Proposed Roadway Improvement

**DRAFT**

Mobility Improvements to Support the South Lakefront Framework Plan

**Traffic Noise Analysis**  
(North Section)

October 19, 2018  
**Exhibit A-5a**

See Exhibit A-5b



See Exhibit A-5a



**KEY MAP**

Common Noise Environment Boundary Color	Activity Category	FWHA NAC
	B	67
	C	67
	E	72

**LEGEND**

- Parkland
- Common Noise Environment Number
- Noise Measurement Validation Point
- Representative Receptor
- Receptor
- Representative Receptor Impacted by Traffic Noise
- Feasible but not Reasonable Noise Barrier
- Future Existing Roadway Closure
- Proposed Roadway Improvement

Analyzed Barrier #2

See Exhibit A-5c

**DRAFT**

Mobility Improvements to Support the South Lakefront Framework Plan

**Traffic Noise Analysis**  
(Central Section)

October 19, 2018

Exhibit A-5b



See Exhibit A-5b



Common Noise Environment Boundary		
Color	Activity Category	FHWA NAC
<span style="color: blue;">—</span>	B	67
<span style="color: green;">—</span>	C	67
<span style="color: purple;">—</span>	E	72

**LEGEND**

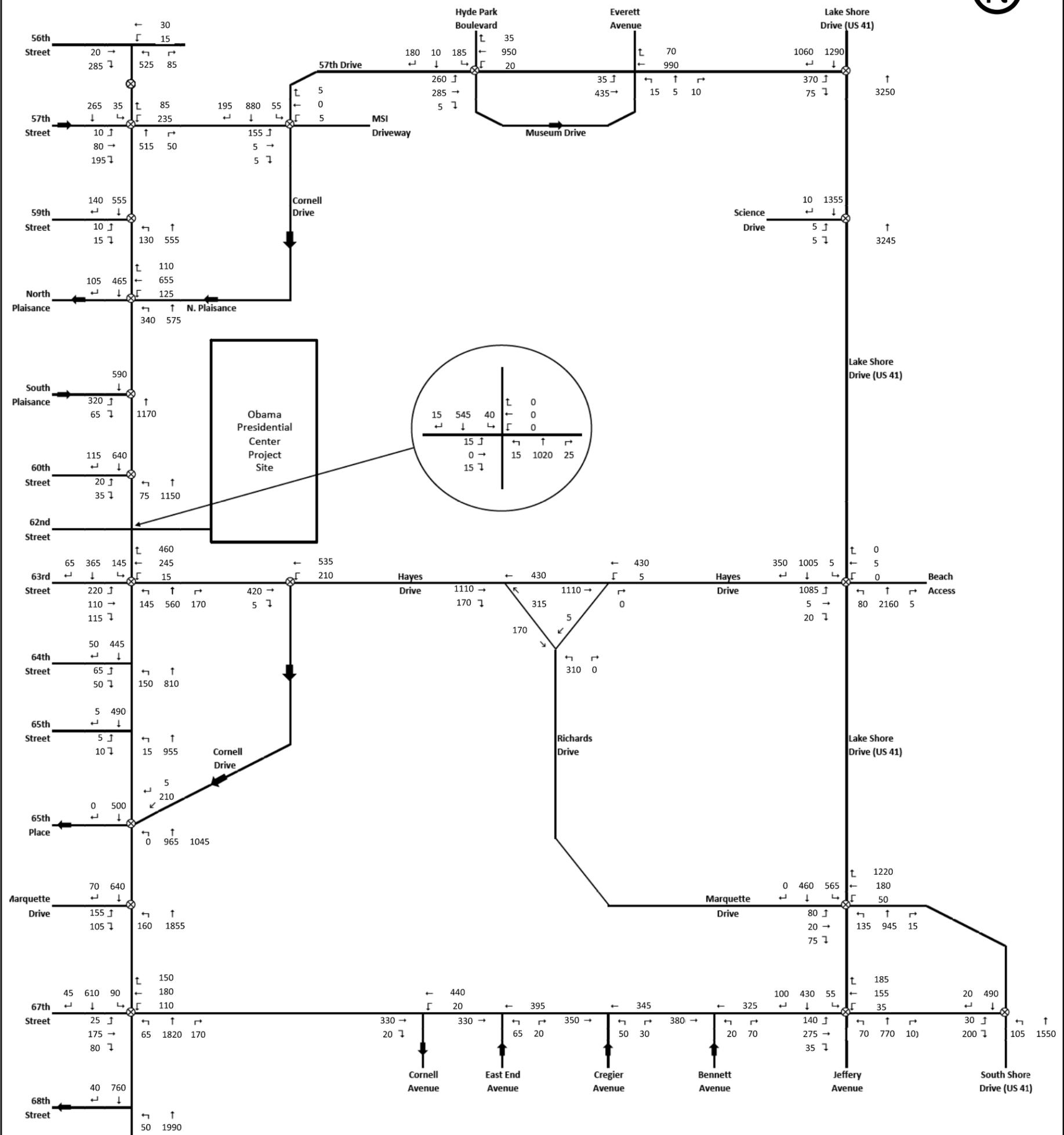
- Parkland
- # Common Noise Environment Number
- V-# Noise Measurement Validation Point
- Representative Receptor
- Receptor
- Representative Receptor Impacted by Traffic Noise
- Feasible but not Reasonable Noise Barrier
- Future Existing Roadway Closure
- Proposed Roadway Improvement



**DRAFT**

Mobility Improvements to Support the South Lakefront Framework Plan

**Traffic Noise Analysis**  
(South Section)



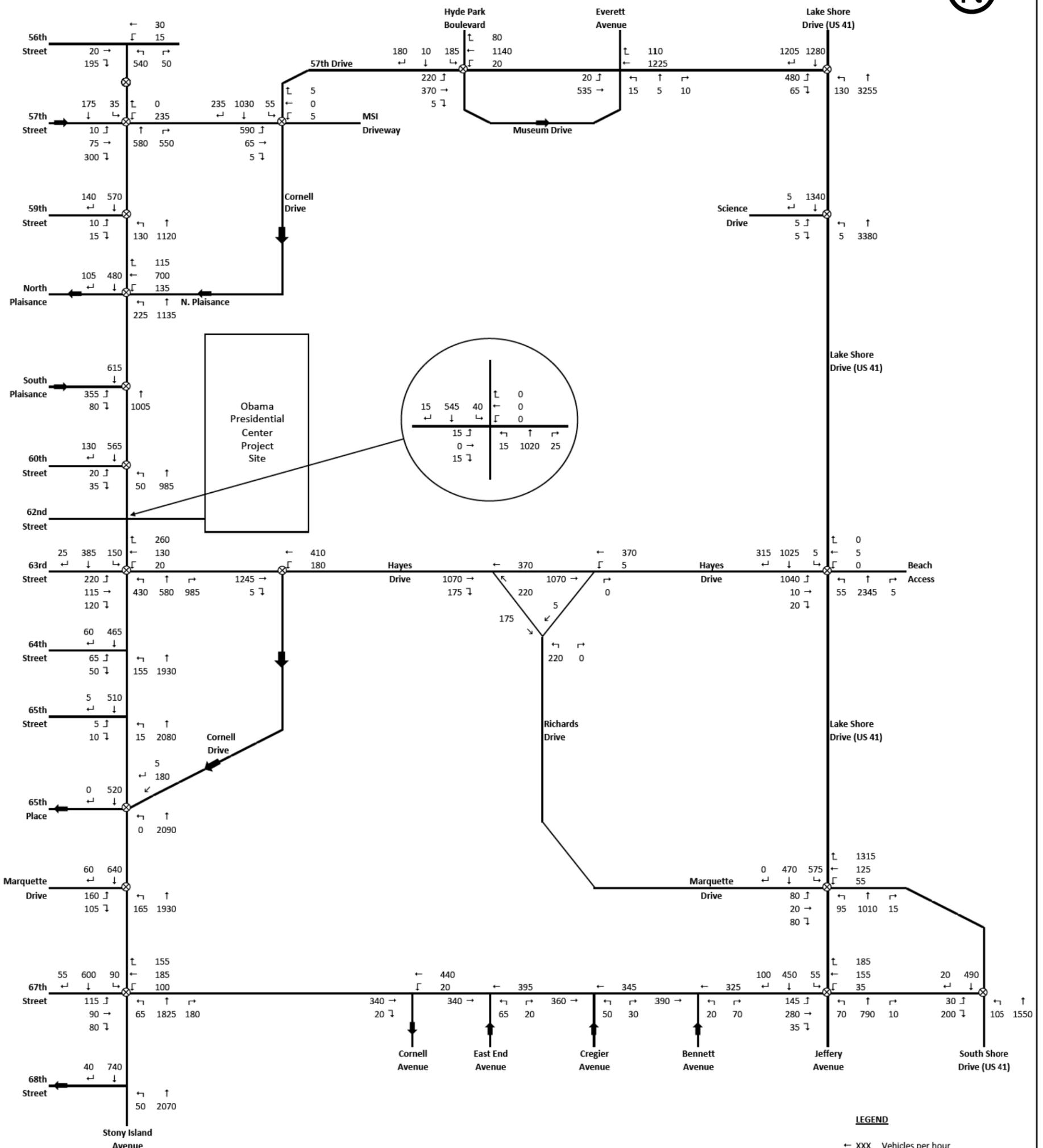
**LEGEND**

- ← XXX Vehicles per hour
- One-way street
- ⊗ Signalized intersection

Mobility Improvements to Support  
the South Lakefront Framework Plan

**Future Existing Condition  
A.M. Peak Hour Traffic**

October 19, 2018

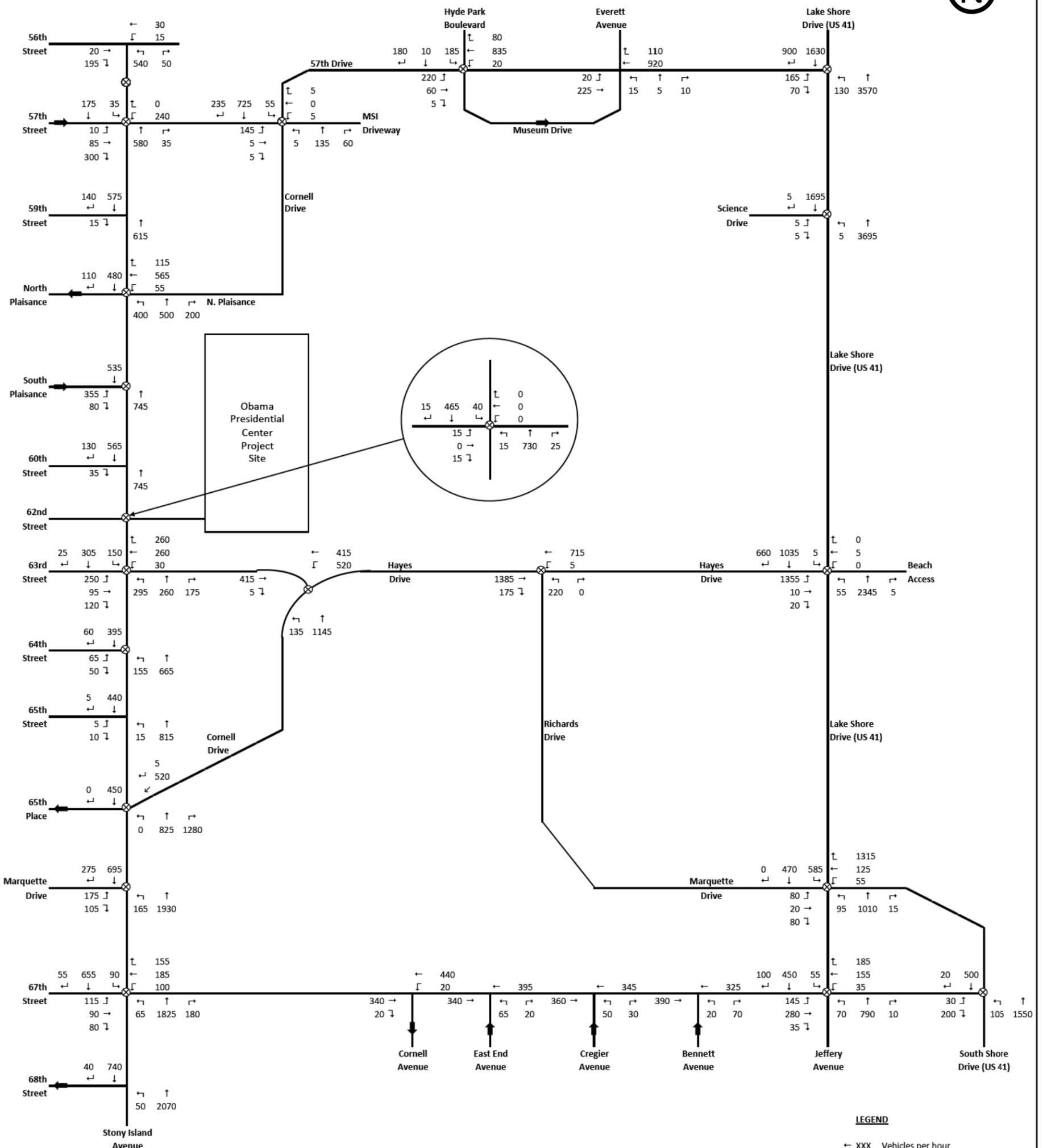


**LEGEND**  
← XXX Vehicles per hour  
➔ One-way street  
⊗ Signalized intersection

Mobility Improvements to Support  
the South Lakefront Framework Plan

**2040 No-Build  
A.M. Peak Hour Traffic**

October 19, 2018



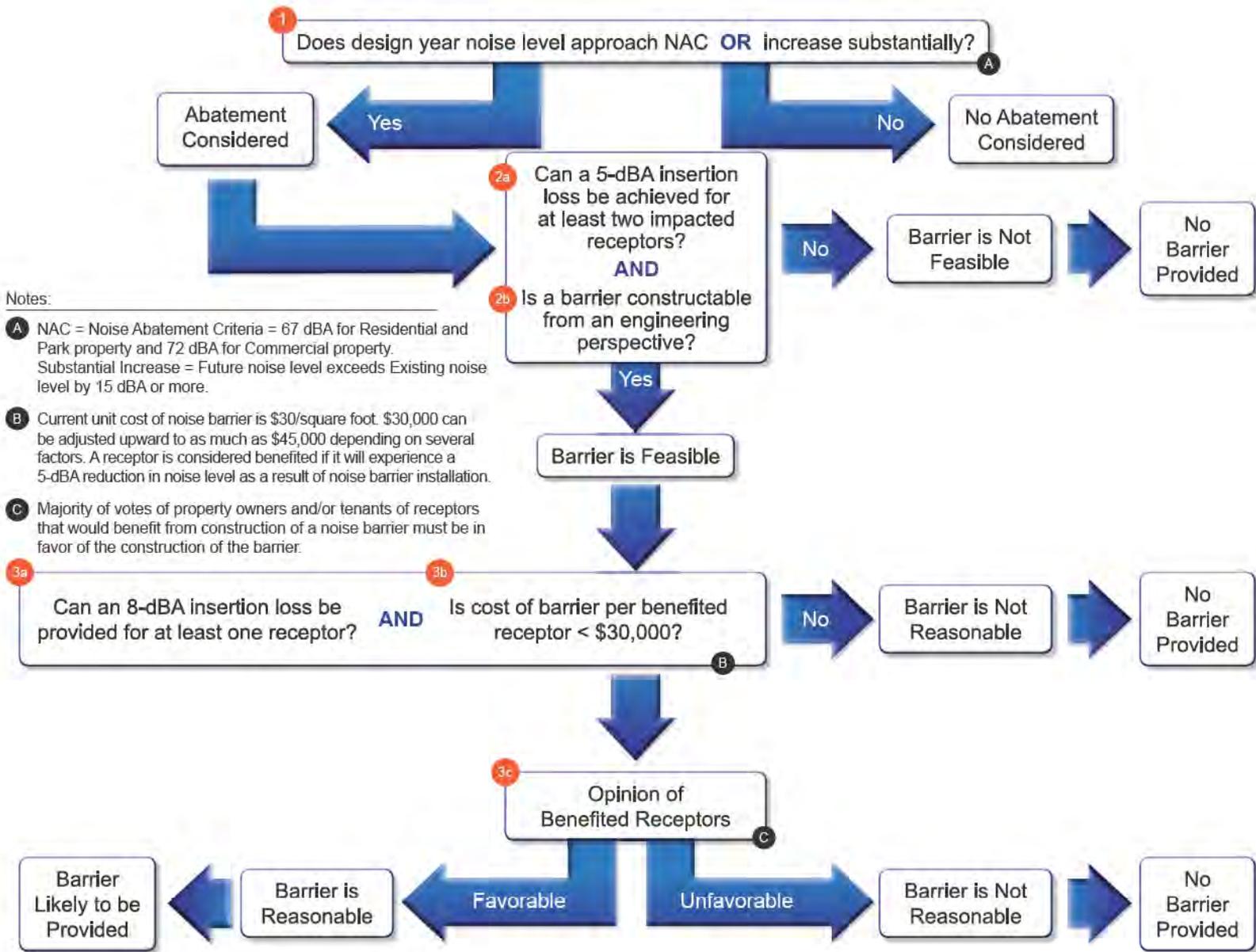
**LEGEND**

- ← XXX Vehicles per hour
- ➡ One-way street
- ⊗ Signalized intersection

Mobility Improvements to Support  
the South Lakefront Framework Plan

**2040 Build  
A.M. Peak Hour Traffic**

October 19, 2018



Notes:

- A** NAC = Noise Abatement Criteria = 67 dBA for Residential and Park property and 72 dBA for Commercial property. Substantial Increase = Future noise level exceeds Existing noise level by 15 dBA or more.
- B** Current unit cost of noise barrier is \$30/square foot. \$30,000 can be adjusted upward to as much as \$45,000 depending on several factors. A receptor is considered benefited if it will experience a 5-dBA reduction in noise level as a result of noise barrier installation.
- C** Majority of votes of property owners and/or tenants of receptors that would benefit from construction of a noise barrier must be in favor of the construction of the barrier.

Mobility Improvements to Support the South Lakefront Framework Plan

## Noise Abatement Consideration Process

October 19, 2018



**LEGEND**

Color	Activity Category
	B
	C
	E
	F
	G

	Reference Number
	Noise Level Prediction Point on Undeveloped Land
	Noise Contour

See Exhibit A-8b

**DRAFT**

Mobility Improvements to Support the South Lakefront Framework Plan

**Undeveloped Lands Traffic Noise Analysis (North Section)**



See Exhibit A-8a



66 dBA Noise Contour

59th Street

WB Midway Plaisance

Midway Plaisance

EB Midway Plaisance

60th Street

G1

Park Shore

61st Street

62nd Street

Hyde Park Academy High School

63rd Street

Harper Avenue

Hayes Drive

Lake Shore Drive

Metra Rail

OBAMA PRESIDENTIAL CENTER

Jackson Park

59th Street Harbor

Lake Shore Drive

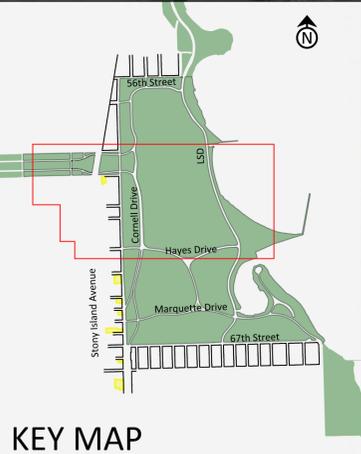
Lake Michigan

Jackson Park

Lake Shore Drive

Hayes Drive

See Exhibit A-8c



KEY MAP

Color	Activity Category
	B
	C
	E
	F
	G

	Reference Number
	Noise Level Prediction Point on Undeveloped Land
	Noise Contour

LEGEND

**DRAFT**

Mobility Improvements to Support the South Lakefront Framework Plan

**Undeveloped Lands Traffic Noise Analysis (Central Section)**

October 19, 2018

See Exhibit A-8b



Color	Activity Category
	B
	C
	E
	F
	G

### LEGEND

- Reference Number
- Noise Level Prediction Point on Undeveloped Land
- Noise Contour



KEY MAP

**DRAFT**

Mobility Improvements to Support the South Lakefront Framework Plan

**Undeveloped Lands Traffic Noise Analysis (South Section)**

October 19, 2018

## Tables

Chicago Department of Transportation

Mobility Improvements to Support the South Lakefront Framework Plan

**LAND USES AND ACTIVITY CATEGORIES**

Noise-Sensitive Receptor Locations Outside of Jackson Park

CNE No.	Status	Zoning	Address(es)	Business, Property, or Owner Name(s)	Activity Category Description	Activity Category	FHWA NAC (Leq, dBA)
1	Developed	RM-6 & 6.5 Multi-Unit Residential, PD 432	5500, 5530-5532, 5550 S. Shore Dr., 5515-5555 S. Everett Ave.	Flamingo Apts., Promontory Apts., Montgomery Place Apts., Jackson Towers Condos, Other Res.	Residential	B	67
2	Developed	RM-6.5 Multi-Unit Residential	5525-5539 S. Hyde Park Blvd., 5524-5540 S. Everett Ave., 1700 E. 56th St.	1700 Building Condos, Other Res.	Residential	B	67
3	Developed	PD 282	5519-5539 S. Cornell Ave., 5518-5540 S. Hyde Park Blvd., 1642 E. 56th St.	Windermere House Apartments	Residential	B	67
4	Developed	PD 282	5528-5532 S. Cornell Ave.	Mac Properties Apartments	Residential	B	67
5	Developed	RM-5 Multi-Unit Residential	1556 E. 56th St.	Bret Hart Elementary School	School	C	67
6	Developed	PD 282	1610 E. 56th St.	5528 S. Cornell Avenue (Under Construction)	Residential	B	67
7	Developed	B1-5 Business	5608 S. Stony Island Ave.	UC Facilities Services	Office	E	72
8	Developed	B1-5 Business	5656 S. Stony Island Ave.	Alpha Kappa Alpha Sorority Corporate Office	Office	E	72
9	Developed	B3-Business, RM-6 Multi-Unit Residential	5700-5704, 5716-5730, 5736-5744 S. Stony Island Ave.	5700 Stony Island Apartments, Wooded Isle Apartments, Other Apartments	Residential	B	67
10	Developed	PD 215	5824 S. Stony Island Ave.	UC Earl Shapiro Hall, UC Child Development Center	Public Institutional, School	C	67
11	Developed	RM-6 Multi-Unit Residential	1516-1522, 1524-1534 59th St., 5830-5844 S. Stony Island Ave.	Apartments, Condominiums	Residential	B	67
12	Developed	PD 43	6015-6043 S. Harper Ave., 6018-6024 S. Stony Island Ave., 1540-1560 E. 61st St.	Jackson Park Terrace Apartments	Residential	B	67
13	Developed	PD 208	1519-1561 E. 61st St., 6100-6124 S. Stony Island Ave., 1515-1562 E. 62nd St.	Blackstone Apartments	Residential	B	67
14	Developed	PD 208	6200-6210, 6250 S. Park Shore East Ct.	Blackstone Apartments, Park Shore East Apartments	Residential	B	67
15	Developed	RM-6 Multi-Unit Residential	6220 S. Stony Island Ave.	Hyde Park Academy High School	School	C	67
16	Developed	PD 208	1500-1528 E. 63rd St.	Various Business/Commercial/Retail/Medical	Medical Facilities, Offices, Retail Facilities	C, E, F	67
17	Developed	PD 444	6318-6630 S. Stony Island Ave.	YMCA	Public Institutional, School	C	67
18	Developed	PD 894	6401 S. Harper Ave., 1539 E. 64th St.	School Facility?	Public Institutional, School	C	68
19	Developed	PD 894	1459 E. 64th St.	Mount Carmel High School	School	C	67

**LAND USES AND ACTIVITY CATEGORIES**

Noise-Sensitive Receptor Locations Outside Jackson Park

**TABLE A-1.1**

Chicago Department of Transportation

Mobility Improvements to Support the South Lakefront Framework Plan

**LAND USES AND ACTIVITY CATEGORIES**  
Noise-Sensitive Receptor Locations Outside of Jackson Park

CNE No.	Status	Zoning	Address(es)	Business, Property, or Owner Name(s)	Activity Category Description	Activity Category	FHWA NAC (Leq, dBA)
20	Developed	B3-5 Business	6430 S. Stony Island Ave., 1554-1558 E. 65th St.	Island Terrace Apartments, First Floor Various Commerical with Apartments Above	Residences, Offices, Retail Facilities	B, C, F	67
21	Developed	RM-5 Multi-Unit Res., B3-5 Business	1525-1547 E. 65th St., 1522-1558 E. 65th Pl.	Various Multi-Unit Residential	Residential	B	67
22	Developed	RM-5 Multi-Unit Res., B3-5 Business	1527-1549 E. 65th Pl., 1516-1538 E. Marquette Rd.	Various Multi-Unit Residential	Residential	B	67
23	Developed	B3-5 Business	6558 S. Stony Island Ave.	McDonald's	Restaurants	E	72
24	Developed	RM-5 Multi-Unit Res.	1517-1545 E. Marquette Ave.	Various Multi-Unit Residential	Residential	B	67
25	Developed	RM-5 Multi-Unit Res.	1525-1531 E. 66th Pl.	Various Multi-Unit Residential	Residential	B	67
26	Developed	B3-5 Business	6714 S. Stony Island Ave.	Subway, Pizza Hut Express, Currency Exchange and other Retail	Restaurants, Retail Facilities	E, F	72
27	Developed	RM-5 Multi-Unit Res.	1514-1542 67th Pl.	Various Multi-Unit Residential	Residential	B	67
28	Developed	RM-5 Multi-Unit Res.	1515-1543 E. 67th Pl., 1512-1536 E. 68th St.	Various Multi-Unit Residential	Residential	B	67
29	Developed	RT-4 Res. Det./Two-Flt/TH	1501-1529 E. 68th St., 6807-6843 S. Harper Ave.	Various Residential	Residential	B	67
30	Developed	RM-5 and RM-6 Multi-Unit Res.	6714-6724 S. Cornell Ave., 6736-3785 S. Chris Cornell Ave., 1620-1622 E. 68th St.	Good Shepherd Manor Sr. Living, Various Multi-Unit Residential	Residential	B	67
31	Developed	RM-5 and RM-6 Multi-Unit Res.	1627-1657 E. 67th St., 6717-6757 S. Cornell Av, 6714-6754 S. East End Av., 1644-1648 E. 68th	Various Multi-Unit Residential	Residential	B	67
32	Developed	RM-5 Multi-Unit Res.	6800-6846 S. Cornell Ave.	Various Multi-Unit Residential	Residential	B	67
33	Developed	RM-5 Multi-Unit Res.	6801-6843 S. Cornell Ave., 1645-1647 E. 68th St., 6800-6844 S. East End Ave.	Various Multi-Unit Residential	Residential	B	67
34	Developed	RM-5 and RM-6 Multi-Unit Res.	1701-1721 E. 67th St., 6700-6730 S. Ridgeland Ave., 6717-6745 S. East End Ave.	Various Multi-Unit Residential	Residential	B	67
35	Developed	RS-1 Single Family Res.	6701-6741 S. Bennett Ave., 6700-6740 S. Euclid Ave.	Various Single Family Residential	Residential	B	67
36	Developed	RM-6 Multi-Unit and RS-1 Single Family Res.	6701-6741 S. Euclid Ave., 6270-6736 S. Jeffery Blvd.	Various Multi-Unit and Single Family Residential	Residential	B	67
37	Developed	RM-5 Multi-Unit Res.	6717-6741 S. Jeffery Blvd., 6700-6744 S. Chappel Ave.	Various Multi-Unit Residential	Residential	B	67
38	Developed	RM-5 Multi-Unit Res.	6701-6739 S. Chappel Ave., 2049-2051 E. 67th St., 6706-6742 S. Clyde Ave.	Various Multi-Unit Residential	Residential	B	67

**LAND USES AND ACTIVITY CATEGORIES**

Noise-Sensitive Receptor Locations Outside Jackson Park

**TABLE A-1.1**

**LAND USES AND ACTIVITY CATEGORIES**

Noise-Sensitive Receptor Locations Outside of Jackson Park

<b>CNE No.</b>	<b>Status</b>	<b>Zoning</b>	<b>Address(es)</b>	<b>Business, Property, or Owner Name(s)</b>	<b>Activity Category Description</b>	<b>Activity Category</b>	<b>FHWA NAC (Leq, dBA)</b>
39	Developed	PD 550, RM-5 Multi-Unit Res.	2345 E. 67th St., 6715-6759 S. Oglesby Ave.	Various Multi-Unit Residential	Residential	B	67
40	Developed	RM-6 Multi-Unit Res., PD 1604	6700-6756 S. South Shore Dr.	Various Multi-Unit Residential	Residential	B	67

Notes:

- CNE = Common Noise Environment.
- FHWA NAC = Federal Highway Administration Noise Abatement Criterion.

## Mobility Improvements to Support the South Lakefront Framework Plan

**LAND USES AND ACTIVITY CATEGORIES**

Noise-Sensitive Receptor Locations Within Jackson Park

*(All Activity Category "C" w/FHWA NAC of 67 dBA)*

<b>CNE No.</b>	<b>Location</b>				<b>Representative Receptor</b>	<b>Other Features in addition to General Park Space</b>
P1	W. of	Lake Shore Dr.	N. of	55th St.	Drinking Fountain	Trails, Benches
P2	W. of	Lake Shore Dr.	N. of	56th St.	Parking Lot	-
P3	E. of	Lake Shore Dr.	at	56th St.	Bench along LFT	LFT, Other Trails, Benches, Shoreline
P4	E. of	Lake Shore Dr.	N. of	57th Dr.	Bench along LFT	LFT, Other Trails, Shoreline, Beach
P5	S. of	56th St.	E. of	Stony Island Ave.	Bench - SW on Hyde Park Blvd	Trails, Benches, Playgrounds
P6	E. of	Stony Island Ave.	N. of	57th St.	Bench - SW on Stony Island	Trails, Benches
P7	N. of	57th Dr.	W. of	Hyde Park Blvd.	Bench - Trail along 57th	Trails, Benches
P8	S. of	56th St.	E. of	Hyde Park Blvd.	Bench - SW on Hyde Park Blvd	Benches
P9	N. of	57th Dr.	E. of	Hyde Park Blvd.	Bench - SW on 57th	Benches
P10	S. of	56th St.	E. of	Everett Ave.	Bench - SW on Everett Ave.	Benches
P11	W. of	Lake Shore Dr.	N. of	57th Dr.	Bench - Trail on Lake Shore Dr.	Trails, Iowa Building
P12	E. of	Stony Island Ave.	S. of	57th St.	Bench - SW on Stony Island	Benches
P13	W. of	Cornell Dr.	S. of	57th St.	Bench - Trail along Cornell	Benches
P14	E. of	Cornell Dr.	at	57th St.	MSI West Wing Steps	Museum of Science and Industry
P15	S. of	57th Dr.	E. of	Hyde Park Blvd.	Overlook on SW on 57th	Museum of Science and Industry
P16	W. of	Lake Shore Dr.	N. of	Science Dr.	Bench - MSI East Wing	Museum of Science and Industry
P17	E. of	Lake Shore Dr.	S. of	57th Dr.	Bench along LFT	LFT, Benches, 57th St. Beach House, Other Trails, Beach
P18	E. of	Stony Island Ave.	N. of	59th St.	Bench - SW on Stony Island	Benches, Trails

**LAND USES AND ACTIVITY CATEGORIES**

Noise-Sensitive Receptor Locations Within Jackson Park

**TABLE A-1.2**

Chicago Department of Transportation

Mobility Improvements to Support the South Lakefront Framework Plan

**LAND USES AND ACTIVITY CATEGORIES**

Noise-Sensitive Receptor Locations Within Jackson Park

(All Activity Category "C" w/FHWA NAC of 67 dBA)

<b>CNE No.</b>	<b>Location</b>				<b>Representative Receptor</b>	<b>Other Features in addition to General Park Space</b>
P19	W. of	Cornell Dr.	N. of	59th St.	Bench - Trail along Cornell	Benches, Trails
P20	E. of	Cornell Dr.	N. of	59th St.	Bench along Trail	Trails, MSI Lagoon
P21	W. of	Stony Island Ave.	at	Midway Plaisance	Boulevards Info Kiosk	Trails, Benches, Midway Plaisance
P22	E. of	Stony Island Ave.	S. of	WB Midway Pl.	Trail Junction	Lawn, Trails, Garden, Museum, Forum, Library, Other
P23	E. of	OPC	at	Midway Plaisance	Pier	Trails, West Lagoon, Wooded Island
P24	W. of	Lake Shore Dr.	S. of	Science Dr.	Bowling Green	Trails, Bowling Green Clubhouse
P25	E. of	Lake Shore Dr.	S. of	Science Dr.	Trail	LFT, Other Trails, Shoreline
P26	W. of	Lake Shore Dr.	N. of	59th St. Harbor	Drinking Fountain	59th Street Harbor, Boathouse
P27	E. of	Cornell Dr.	S. of	60th St.	Pier	West Lagoon, Wooded Island, Trails, Benches
P28	W. of	Lake Shore Dr.	S. of	59th St. Harbor	Bench - Trail on Lake Shore Dr.	Benches, Trails, Tennis Courts, Driving Range, Jackson Bark
P29	E. of	Lake Shore Dr.	S. of	59th St. Harbor	Rev. Wall Outcropping	LFT, Shoreline
P30	N. of	63rd St.	E. of	Stony Island Ave.	Running Track	Sports Field, Tennis Courts
P31	N. of	Hayes Dr.	E. of	Cornell Dr.	Drinking Fountain	Parking Lot, Trails, Benches, West Lagoon, Wooded Island
P32	N. of	Hayes Dr.	at	Richards Dr.	Bench - Trail on Hayes	Ball Field, Benches, Trails
P33	N. of	Hayes Dr.	E. of	Richards Dr.	Bench - Trail on Hayes	Ball Field, Benches, Trails
P34	W. of	Lake Shore Dr.	N. of	Hayes Dr.	Trail	-
P35	W. of	Lake Shore Dr.	N. of	Hayes Dr.	Bench - Field near Hayes	Parking Lot, Basketball Courts, Trail, Benches
P36	E. of	Lake Shore Dr.	at	Hayes Dr.	63rd Street Bathing Pavil.	LFT, Other Trails, Shoreline, Beach, Parking

**LAND USES AND ACTIVITY CATEGORIES**

Noise-Sensitive Receptor Locations Within Jackson Park

**TABLE A-1.2**

Chicago Department of Transportation

Mobility Improvements to Support the South Lakefront Framework Plan

**LAND USES AND ACTIVITY CATEGORIES**

Noise-Sensitive Receptor Locations Within Jackson Park

(All Activity Category "C" w/FHWA NAC of 67 dBA)

<b>CNE No.</b>	<b>Location</b>				<b>Representative Receptor</b>	<b>Other Features in addition to General Park Space</b>
P37	E. of	Stony Island Ave.	S. of	63rd St.	Bench - SW on Stony Island	Maintenance Building, Trails
P38	E. of	Stony Island Ave.	N. of	64th St.	Playground	Playgrounds, Tennis Courts, Trails
P39	E. of	Stony Island Ave.	at	64th St.	Bench - SW on Stony Island	Jackson Park Fieldhouse, Trails, Benches
P40	E. of	Cornell Dr.	S. of	Hayes Dr.	Bench - Trail near Hayes	Tennis Courts, Ball Fields, Trails, Benches
P41	E. of	Richards Dr.	S. of	Hayes Dr.	Golf Clubhouse	Jackson Park Golf Course, Trails
P42	E. of	Richards Dr.	S. of	Hayes Dr.	Patio at N. End of Building	SS Yct Club, Inner Harbor, Boat Slips, Pkg Lot, Trails, Benches
P43	W. of	Lake Shore Dr.	S. of	Hayes Dr.	Bench - Field near LSD	Boat Launch, Parking Lot, Benches, Trails
P44	E. of	Lake Shore Dr.	S. of	Hayes Dr.	Coast Guard Station	Inner Harbor, LFT, Other Trails, Benches
P45	E. of	Stony Island Ave.	at	Cornell Dr.	Bench - Trail near Cornell	Basketball Court, Trails, Benches
P46	N. of	Marquette Dr.	E. of	Cornell Dr.	Bench - Trail near Marquette	Jackson Park Golf Course, Trails, Benches
P47	N. of	Marquette Dr.	W. of	Richards Dr.	Bench - Trail near Marquette	Jackson Park Golf Course, Trails, Benches
P48	N. of	Marquette Dr.	E. of	Richards Dr.	Bench - Trail near Marquette	Inner Harbor, Benches, Trails
P49	N. of	Marquette Dr.	E. of	Richards Dr.	Bench - Trail near Inner Hbr	Inner Harbor, Benches, Trails
P50	N. of	Marquette Dr.	E. of	Lake Shore Dr.	Star Dock	Inner Harbor, Boat Slips
P51	N. of	Marquette Dr.	E. of	LaRabida Dr.	Drinking Fountain	LFT, Other Trails, Benches, Parking Lot, Shoreline
P52	S. of	Marquette Dr.	E. of	Stony Island Ave.	Bench - Trail near Marquette	Basketball Court, Trails, Benches
P53	E. of	Cornell Dr.	N. of	67th St.	Bench - Trail near Cornell	Jackson Park Golf Course, Trails, Benches
P54	N. of	67th St.	E. of	East End Ave.	Playground	-

**LAND USES AND ACTIVITY CATEGORIES**

Noise-Sensitive Receptor Locations Within Jackson Park

**TABLE A-1.2**

## Mobility Improvements to Support the South Lakefront Framework Plan

**LAND USES AND ACTIVITY CATEGORIES**

Noise-Sensitive Receptor Locations Within Jackson Park

*(All Activity Category "C" w/FHWA NAC of 67 dBA)*

CNE No.	Location				Representative Receptor	Other Features in addition to General Park Space
P55	S. of	Marquette Dr.	W. of	Richards Dr.	JPGC Fairway #___	Jackson Park Golf Course
P56	W. of	Lake Shore Dr.	N. of	67th St.	JPGC Snack Stand	Jackson Park Golf Course
P57	S. of	Marquette Dr.	W. of	Lake Shore Dr.	JPGC Hole #13 Tee	Jackson Park Golf Course, Trails
P58	E. of	Lake Shore Dr.	S. of	Marquette Dr.	JPGC Hole #12 Green	Jackson Park Golf Course, Trails
P59	E. of	Lake Shore Dr.	N. of	67th St.	JPGC Hole #7 Tee Box	Jackson Park Golf Course
P60	E. of	Lake Shore Dr.	N. of	67th St.	Playground	-
P61	S. of	Marquette Dr.	W. of	South Shore Dr.	JPGC Shelter	Jackson Park Golf Course
P62	S. of	Marquette Dr.	W. of	South Shore Dr.	JPGC Hole #10 Tee Box	Jackson Park Golf Course
P63	S. of	Marquette Dr.	W. of	South Shore Dr.	JPGC Hole #10 Tee Box	Jackson Park Golf Course
P64	At	Richards Dr.	And	Hayes Dr.	Golden Lady Monument	-

## Notes:

- CNE = Common Noise Environment.
- FHWA NAC = Federal Highway Administration Noise Abatement Criterion.
- LFT = Lakefront Trail Main Stem
- SW = Sidewalk

**LAND USES AND ACTIVITY CATEGORIES**

Noise-Sensitive Receptor Locations Within Jackson Park

**TABLE A-1.2**

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Chicago Department of Transportation

Mobility Improvements to Support the South Lakefront Framework Plan

**LAND USES AND ACTIVITY CATEGORIES**

Non-Noise Sensitive Locations Outside of Jackson Park

Ref. No.	Status	Zoning	Address(es)	Business, Property, or Owner Name(s)	Activity Category Description	Activity Category	FHWA NAC (Leq, dBA)
<b>Activity Category "F" Locations</b>							
F1	Developed	PD 43	E. 60th St.	UC Parking Lot	Other Developed Lands	F	-
F2	Developed	B3-5 Business	6600 S. Stony Island Ave.	BP Gas Station	Retail Facilities	F	-
F3	Developed	B3-2 Business	1541-1543 E. 67th Pl., 6650 S. Stony Island Ave.	Chase Bank	Retail Facilities	F	-
F4	Developed	B3-3 Business	1513-1535 E. 67th. St.	Walgreen's	Retail Facilities	F	-
F5	Developed	B3-3 Business	6740-6760 S. Stony Island Ave.	Stony Island State Savings Bank	Retail Facilities	F	-
F6	Developed	B3-3 Business	6800-6820 S. Stony Island Ave.	Cosmo Mart, JJ Fish Market, Adam's Food Mart, Stony Laundry	Retail Facilities	F	-
F7	Developed	B3-5 and B3-1 Business	1949 E. 67th St.	Mobil Gas Station	Retail Facilities	F	-
F8	Developed	B3-1 Business	6701 E. 67th St.	BP Gas Station	Retail Facilities	F	-
<b>Activity Category "G" Locations</b>							
G1	Undeveloped	PD 43	E. 60th St.	UC Open Space	Undeveloped Land	G	-
G2	Undeveloped	B3-5 Business	6400 S. Stony Island Ave.	Vacant	Undeveloped Land	G	-
G3	Undeveloped	B3-5 Business	E. 65th St.	Vacant	Undeveloped Land	G	-
G4	Undeveloped	B3-5 Business	E. 65th Pl.	Vacant	Undeveloped Land	G	-
G5	Undeveloped	B3-5 Business	1550-1556 E. 66th Pl.	Vacant	Undeveloped Land	G	-
G6	Undeveloped	B3-3 Business	6734 S. Stony Island Ave.	Vacant	Undeveloped Land	G	-
G7	Undeveloped	B3-3 Business	6822-6828, 6832, 3840 S. Stony Island Ave.	Vacant	Undeveloped Land	G	-

Notes:

- FHWA NAC = Federal Highway Administration Noise Abatement Criterion.

**LAND USES AND ACTIVITY CATEGORIES**

Non-Noise Sensitive Locations Outside Jackson Park

**TABLE A-1.3**

**TRAFFIC NOISE MODEL VALIDATION**

Validation No.	Location	Measured Existing Conditions (dBA)	Modeled Existing Conditions (dBA)	Difference Between Measured and Modeled (dBA)	Model Validated	Note
1	CNE P3	69	61	-8	No	Lake Michigan Shoreline/Waves
2	CNE P15	66	65	-1	Yes	
3	CNE P24	67	65	-2	Yes	
4	CNE P28	66	64	-2	Yes	
5	CNE P36	64	63	-1	Yes	
6	CNE P50	63	63	0	Yes	
7	CNE P63	63	65	2	Yes	
8	CNE P60	60	62	2	Yes	
9	CNE 34	65	64	-1	Yes	
10	F3	66	66	0	Yes	
11	CNE P42	58	56	-2	Yes	
12	CNE P45	57	59	2	Yes	
13	G2	64	63	-1	Yes	
14	CNE P30	58	61	3	Yes	
15	CNE P22	59	58	-1	Yes	
16	CNE 12	67	64	-3	Yes	

**TRAFFIC NOISE MODEL VALIDATION****TABLE A-2**

**TRAFFIC NOISE MODEL VALIDATION**

Validation No.	Location	Measured Existing Conditions (dBA)	Modeled Existing Conditions (dBA)	Difference Between Measured and Modeled (dBA)	Model Validated	Note
17	CNE P51	60	63	3	Yes	
18	CNE 38	64	59	-5	No	Construction/ Drilling in Building
19	G7	65	66	1	Yes	
20	CNE P48	58	57	-1	Yes	
21	CNE P46	55	54	-1	Yes	
22	CNE P40	59	61	2	Yes	
23	CNE 15	68	65	-3	Yes	
24	CNE P40	55	58	3	Yes	
25	CNE P33	56	54	-2	Yes	
26	CNE P22	65	65	0	Yes	
27	CNE P21	65	67	2	Yes	
31	CNE P15	63	65	2	Yes	
32	CNE P13	71	68	-3	Yes	
33	CNE P20	60	61	1	Yes	
34	CNE 7	67	69	2	Yes	
35	CNE P58	59	59	0	Yes	

Notes:

**TRAFFIC NOISE MODEL VALIDATION****TABLE A-2**

**TRAFFIC NOISE MODEL VALIDATION**

<b>Validation No.</b>	<b>Location</b>	<b>Measured Existing Conditions (dBA)</b>	<b>Modeled Existing Conditions (dBA)</b>	<b>Difference Between Measured and Modeled (dBA)</b>	<b>Model Validated</b>	<b>Note</b>
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- The decibel values in this chart were generated by the FHWA TNM 2.5 computer program except for the measured existing conditions levels. Measured levels were obtained in the field using a Class I Sound Level Meter. All values represent Leq(h) values of exterior traffic noise, rounded to the nearest decibel (dBA).

- The traffic noise levels predicted by TNM 2.5 use AM peak-hour traffic.

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS**

## Noise-Sensitive Receptor Locations Outside of Jackson Park

CNE No.	Address(es)	Business, Property, or Owner Name(s)	Activity Category Description	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2040 Predicted No-Build Condition (dBA)	2040 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
1	5500, 5530-5532, 5550 S. Shore Dr., 5515-5555 S. Everett Ave.	Flamingo Apts., Promontory Apts., Montgomery Place Apts., Jackson Towers Condos, Other Res.	Residential	B	67	58	58	58	0	No
2	5525-5539 S. Hyde Park Blvd., 5524-5540 S. Everett Ave., 1700 E. 56th St.	1700 Building Condos, Other Res.	Residential	B	67	61	61	61	0	No
3	5519-5539 S. Cornell Ave., 5518-5540 S. Hyde Park Blvd., 1642 E. 56th St.	Windermere House Apartments	Residential	B	67	58	58	59	1	No
4	5528-5532 S. Cornell Ave.	Mac Properties Apartments	Residential	B	67	49	49	50	1	No
5	1556 E. 56th St.	Bret Hart Elementary School	School	C	67	59	59	59	0	No
6	1610 E. 56th St.	5528 S. Cornell Avenue (Under Construction)	Residential	B	67	60	60	60	0	No
7	5608 S. Stony Island Ave.	UC Facilities Services	Office	E	72	67	67	67	0	No
8	5656 S. Stony Island Ave.	Alpha Kappa Alpha Sorority Corporate Office	Office	E	72	61	61	61	0	No
9	5700-5704, 5716-5730, 5736-5744 S. Stony Island Ave.	5700 Stony Island Apartments, Wooded Isle Apartments, Other Apartments	Residential	B	67	64	64	64	0	No
10	5824 S. Stony Island Ave.	UC Earl Shapiro Hall, UC Child Development Center	Public Institutional, School	C	67	60	60	60	0	No

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS**

## Noise-Sensitive Receptor Locations Outside of Jackson Park

CNE No.	Address(es)	Business, Property, or Owner Name(s)	Activity Category Description	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2040 Predicted No-Build Condition (dBA)	2040 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
11	1516-1522, 1524-1534 59th St., 5830-5844 S. Stony Island Ave.	Apartments, Condominiums	Residential	B	67	52	53	53	1	No
12	6015-6043 S. Harper Ave., 6018-6024 S. Stony Island Ave., 1540-1560 E. 61st St.	Jackson Park Terrace Apartments	Residential	B	67	63	63	62	-1	No
13	1519-1561 E. 61st St., 6100-6124 S. Stony Island Ave., 1515-1562 E. 62nd St.	Blackstone Apartments	Residential	B	67	62	62	62	0	No
14	6200-6210, 6250 S. Park Shore East Ct.	Blackstone Apartments, Park Shore East Apartments	Residential	B	67	47	47	47	0	No
15	6220 S. Stony Island Ave.	Hyde Park Academy High School	School	C	67	61	61	62	1	No
16	1500-1528 E. 63rd St.	Various Business/Commercial/Retail/Medical	Medical Facilities, Offices, Retail Facilities	C, E, F	67	60	60	60	0	No
17	6318-6630 S. Stony Island Ave.	YMCA	Public Institutional, School	C	67	66	66	<u>66</u>	0	Yes
18	6401 S. Harper Ave., 1539 E. 64th St.	School Facility?	Public Institutional, School	C	67	60	60	60	0	No
19	1459 E. 64th St.	Mount Carmel High School	School	C	67	53	52	52	-1	No
20	6430 S. Stony Island Ave., 1554-1558 E. 65th St.	Island Terrace Apartments, First Floor Various Commerical with Apartments Above	Residences, Offices, Retail Facilities	B, C, F	67	63	62	61	-2	No

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS**

## Noise-Sensitive Receptor Locations Outside of Jackson Park

CNE No.	Address(es)	Business, Property, or Owner Name(s)	Activity Category Description	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2040 Predicted No-Build Condition (dBA)	2040 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
21	1525-1547 E. 65th St., 1522-1558 E. 65th Pl.	Various Multi-Unit Residential	Residential	B	67	67	66	<u>66</u>	-1	Yes
22	1527-1549 E. 65th Pl., 1516-1538 E. Marquette Rd.	Various Multi-Unit Residential	Residential	B	67	59	58	59	0	No
23	6558 S. Stony Island Ave.	McDonald's	Restaurants	E	72	66	66	65	-1	No
24	1517-1545 E. Marquette Ave.	Various Multi-Unit Residential	Residential	B	67	63	63	62	-1	No
25	1525-1531 E. 66th Pl.	Various Multi-Unit Residential	Residential	B	67	55	55	55	0	No
26	6714 S. Stony Island Ave.	Subway, Pizza Hut Express, Currency Exchange and other Retail	Restaurants, Retail Facilities	E, F	72	63	62	62	-1	No
27	1514-1542 67th Pl.	Various Multi-Unit Residential	Residential	B	67	54	54	54	0	No
28	1515-1543 E. 67th Pl., 1512-1536 E. 68th St.	Various Multi-Unit Residential	Residential	B	67	56	55	55	-1	No
29	1501-1529 E. 68th St., 6807-6843 S. Harper Ave.	Various Residential	Residential	B	67	56	56	56	0	No
30	6714-6724 S. Cornell Ave., 6736-3785 S. Chris Cornell Ave., 1620-1622 E. 68th St.	Good Shepherd Manor Sr. Living, Various Multi-Unit Residential	Residential	B	67	65	65	65	0	No

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS**

Noise-Sensitive Receptor Locations Outside of Jackson Park

CNE No.	Address(es)	Business, Property, or Owner Name(s)	Activity Category Description	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2040 Predicted No-Build Condition (dBA)	2040 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
31	1627-1657 E. 67th St., 6717-6757 S. Cornell Av, 6714-6754 S. East End Av., 1644-1648 E. 68th	Various Multi-Unit Residential	Residential	B	67	67	67	<u>67</u>	0	Yes
32	6800-6846 S. Cornell Ave.	Various Multi-Unit Residential	Residential	B	67	54	56	55	1	No
33	6801-6843 S. Cornell Ave., 1645-1647 E. 68th St., 6800-6844 S. East End Ave.	Various Multi-Unit Residential	Residential	B	67	49	49	49	0	No
34	1701-1721 E. 67th St., 6700-6730 S. Ridgeland Ave., 6717-6745 S. East End Ave.	Various Multi-Unit Residential	Residential	B	67	66	66	<u>66</u>	0	Yes
35	6701-6741 S. Bennett Ave., 6700-6740 S. Euclid Ave.	Various Single Family Residential	Residential	B	67	63	63	63	0	No
36	6701-6741 S. Euclid Ave., 6270-6736 S. Jeffery Blvd.	Various Multi-Unit and Single Family Residential	Residential	B	67	59	59	59	0	No
37	6717-6741 S. Jeffery Blvd., 6700-6744 S. Chappel Ave.	Various Multi-Unit Residential	Residential	B	67	66	66	<u>66</u>	0	Yes
38	6701-6739 S. Chappel Ave., 2049-2051 E. 67th St., 6706-6742 S. Clyde Ave.	Various Multi-Unit Residential	Residential	B	67	64	64	64	0	No
39	2345 E. 67th St., 6715-6759 S. Oglesby Ave.	Various Multi-Unit Residential	Residential	B	67	62	62	62	0	No
40	6700-6756 S. South Shore Dr.	Various Multi-Unit Residential	Residential	B	67	65	65	65	0	No

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS**

Noise-Sensitive Receptor Locations Outside of Jackson Park

CNE No.	Address(es)	Business, Property, or Owner Name(s)	Activity Category Description	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2040 Predicted No-Build Condition (dBA)	2040 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
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- Notes:
- CNE = Common Noise Environment.
  - FHWA NAC = Federal Highway Administration Noise Abatement Criterion.
  - The decibel values in this chart were generated by the FHWA TNM 2.5 computer program. All values represent Leq(h) values of exterior traffic noise, rounded to the nearest decibel (dBA).
  - The traffic noise levels predicted by TNM 2.5 use AM peak-hour traffic.
  - 2040 Proposed Action noise levels that are **bold and underlined** indicate that the receptor approaches (within 1 dBA) or exceeds the FHWA Noise Abatement Criteria. Increases from Existing to 2040 Proposed Action which are considered substantial are also shown as bold and underlined.
  - Noise abatement should be considered if the predicted future traffic noise levels either approach or exceed the FHWA noise abatement criteria or substantially exceed the existing noise levels (15 dBA or greater increase). Noise barriers would be constructed only if they would be feasible and reasonable under IDOT's noise policies.

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS**

Noise-Sensitive Receptor Locations Within Jackson Park

CNE No.	Location				Representative Receptor	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2040 Predicted No-Build Condition (dBA)	2040 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
P1	W. of	Lake Shore Dr.	N. of	55th St.	Drinking Fountain	C	67	60	60	60	0	No
P2	W. of	Lake Shore Dr.	N. of	56th St.	Parking Lot	C	67	59	60	60	1	No
P3	E. of	Lake Shore Dr.	at	56th St.	Bench along LFT	C	67	68	68	<u>68</u>	0	Yes
P4	E. of	Lake Shore Dr.	N. of	57th Dr.	Bench along LFT	C	67	69	70	<u>69</u>	0	Yes
P5	S. of	56th St.	E. of	Stony Island Ave.	Bench - SW on Hyde Park Blvd	C	67	66	66	<u>67</u>	1	Yes
P6	E. of	Stony Island Ave.	N. of	57th St.	Bench - SW on Stony Island	C	67	67	67	<u>67</u>	0	Yes
P7	N. of	57th Dr.	W. of	Hyde Park Blvd.	Bench - Trail along 57th	C	67	67	67	<u>68</u>	1	Yes
P8	S. of	56th St.	E. of	Hyde Park Blvd.	Bench - SW on Hyde Park Blvd	C	67	65	65	<u>66</u>	1	Yes
P9	N. of	57th Dr.	E. of	Hyde Park Blvd.	Bench - SW on 57th	C	67	68	68	<u>69</u>	1	Yes
P10	S. of	56th St.	E. of	Everett Ave.	Bench - SW on Everett Ave.	C	67	63	64	64	1	No

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS**

Receptors within Jackson Park

**TABLE A-3.2**

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## Mobility Improvements to Support the South Lakefront Framework Plan

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS**

## Noise-Sensitive Receptor Locations Within Jackson Park

CNE No.	Location				Representative Receptor	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2040 Predicted No-Build Condition (dBA)	2040 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
P11	W. of	Lake Shore Dr.	N. of	57th Dr.	Bench - Trail on Lake Shore Dr.	C	67	65	66	65	0	No
P12	E. of	Stony Island Ave.	S. of	57th St.	Bench - SW on Stony Island	C	67	67	67	<u>67</u>	0	Yes
P13	W. of	Cornell Dr.	S. of	57th St.	Bench - Trail along Cornell	C	67	69	69	<u>69</u>	0	Yes
P14	E. of	Cornell Dr.	at	57th St.	MSI West Wing Steps	C	67	59	59	59	0	No
P15	S. of	57th Dr.	E. of	Hyde Park Blvd.	Overlook on SW on 57th	C	67	63	64	64	1	No
P16	W. of	Lake Shore Dr.	N. of	Science Dr.	Bench - MSI East Wing	C	67	55	55	56	1	No
P17	E. of	Lake Shore Dr.	S. of	57th Dr.	Bench along LFT	C	67	66	66	<u>66</u>	0	Yes
P18	E. of	Stony Island Ave.	N. of	59th St.	Bench - SW on Stony Island	C	67	64	65	65	1	No
P19	W. of	Cornell Dr.	N. of	59th St.	Bench - Trail along Cornell	C	67	63	63	63	0	No
P20	E. of	Cornell Dr.	N. of	59th St.	Bench along Trail	C	67	61	61	61	0	No

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS**

Receptors within Jackson Park

**TABLE A-3.2**

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**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS**

## Noise-Sensitive Receptor Locations Within Jackson Park

CNE No.	Location				Representative Receptor	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2040 Predicted No-Build Condition (dBA)	2040 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
P21	W. of	Stony Island Ave.	at	Midway Plaisance	Boulevards Info Kiosk	C	67	66	66	<u>67</u>	1	Yes
P22	E. of	Stony Island Ave.	S. of	WB Midway Pl.	Trail Junction	C	67	63	63	63	0	No
P23	E. of	OPC	at	Midway Plaisance	Pier	C	67	52	52	52	0	No
P24	W. of	Lake Shore Dr.	S. of	Science Dr.	Bowling Green	C	67	65	65	<u>67</u>	2	Yes
P25	E. of	Lake Shore Dr.	S. of	Science Dr.	Trail	C	67	57	57	57	0	No
P26	W. of	Lake Shore Dr.	N. of	59th St. Harbor	Drinking Fountain	C	67	63	63	64	1	No
P27	E. of	Cornell Dr.	S. of	60th St.	Pier	C	67	50	50	50	0	No
P28	W. of	Lake Shore Dr.	S. of	59th St. Harbor	Bench - Trail on Lake Shore Dr.	C	67	59	59	61	2	No
P29	E. of	Lake Shore Dr.	S. of	59th St. Harbor	Rev. Wall Outcropping	C	67	57	57	57	0	No
P13	W. of	Cornell Dr.	S. of	57th St.	Bench - Trail along Cornell	C	67	69	69	<u>69</u>	0	Yes

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS**

Receptors within Jackson Park

**TABLE A-3.2**

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Mobility Improvements to Support the South Lakefront Framework Plan

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS**

Noise-Sensitive Receptor Locations Within Jackson Park

CNE No.	Location				Representative Receptor	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2040 Predicted No-Build Condition (dBA)	2040 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
P31	N. of	Hayes Dr.	E. of	Cornell Dr.	Drinking Fountain	C	67	63	63	60	-3	No
P32	N. of	Hayes Dr.	at	Richards Dr.	Bench - Trail on Hayes	C	67	65	65	65	0	No
P33	N. of	Hayes Dr.	E. of	Richards Dr.	Bench - Trail on Hayes	C	67	63	63	65	2	No
P34	W. of	Lake Shore Dr.	N. of	Hayes Dr.	Trail	C	67	60	60	62	2	No
P35	W. of	Lake Shore Dr.	N. of	Hayes Dr.	Bench - Field near Hayes	C	67	65	63	65	0	No
P36	E. of	Lake Shore Dr.	at	Hayes Dr.	63rd Street Bathing Pavil.	C	67	60	60	60	0	No
P37	E. of	Stony Island Ave.	S. of	63rd St.	Bench - SW on Stony Island	C	67	67	67	<u>67</u>	0	Yes
P38	E. of	Stony Island Ave.	N. of	64th St.	Playground	C	67	67	66	<u>67</u>	0	Yes
P39	E. of	Stony Island Ave.	at	64th St.	Bench - SW on Stony Island	C	67	70	70	<u>70</u>	0	Yes
P40	E. of	Cornell Dr.	S. of	Hayes Dr.	Bench - Trail near Hayes	C	67	61	61	64	3	No

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS**

Receptors within Jackson Park

**TABLE A-3.2**

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## Mobility Improvements to Support the South Lakefront Framework Plan

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS**

## Noise-Sensitive Receptor Locations Within Jackson Park

CNE No.	Location				Representative Receptor	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2040 Predicted No-Build Condition (dBA)	2040 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
P41	E. of	Richards Dr.	S. of	Hayes Dr.	Golf Clubhouse	C	67	54	54	53	-1	No
P42	E. of	Richards Dr.	S. of	Hayes Dr.	Patio at N. End of Building	C	67	55	55	56	1	No
P43	W. of	Lake Shore Dr.	S. of	Hayes Dr.	Bench - Field near LSD	C	67	60	59	60	0	No
P44	E. of	Lake Shore Dr.	S. of	Hayes Dr.	Coast Guard Station	C	67	61	60	61	0	No
P45	E. of	Stony Island Ave.	at	Cornell Dr.	Bench - Trail near Cornell	C	67	65	65	65	0	No
P46	N. of	Marquette Dr.	E. of	Cornell Dr.	Bench - Trail near Marquette	C	67	49	48	48	-1	No
P47	N. of	Marquette Dr.	W. of	Richards Dr.	Bench - Trail near Marquette	C	67	53	53	53	0	No
P48	N. of	Marquette Dr.	E. of	Richards Dr.	Bench - Trail near Marquette	C	67	60	60	60	0	No
P49	N. of	Marquette Dr.	E. of	Richards Dr.	Bench - Trail near Inner Hbr	C	67	57	57	58	1	No
P50	N. of	Marquette Dr.	E. of	Lake Shore Dr.	Star Dock	C	67	51	51	51	0	No

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS**

Receptors within Jackson Park

**TABLE A-3.2**

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## Mobility Improvements to Support the South Lakefront Framework Plan

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS**

## Noise-Sensitive Receptor Locations Within Jackson Park

CNE No.	Location				Representative Receptor	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2040 Predicted No-Build Condition (dBA)	2040 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
P51	N. of	Marquette Dr.	E. of	LaRabida Dr.	Drinking Fountain	C	67	62	62	62	0	No
P52	S. of	Marquette Dr.	E. of	Stony Island Ave.	Bench - Trail near Marquette	C	67	63	63	64	1	No
P53	E. of	Cornell Dr.	N. of	67th St.	Bench - Trail near Cornell	C	67	61	61	61	0	No
P54	N. of	67th St.	E. of	East End Ave.	Playground	C	67	64	64	64	0	No
P55	S. of	Marquette Dr.	W. of	Richards Dr.	JPGC Fairway #___	C	67	51	51	51	0	No
P56	W. of	Lake Shore Dr.	N. of	67th St.	JPGC Snack Stand	C	67	60	60	61	1	No
P57	S. of	Marquette Dr.	W. of	Lake Shore Dr.	JPGC Hole #13 Tee	C	67	64	64	63	-1	No
P58	E. of	Lake Shore Dr.	S. of	Marquette Dr.	JPGC Hole #12 Green	C	67	60	60	60	0	No
P59	E. of	Lake Shore Dr.	N. of	67th St.	JPGC Hole #7 Tee Box	C	67	60	60	60	0	No
P60	E. of	Lake Shore Dr.	N. of	67th St.	Playground	C	67	64	64	64	0	No

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS**

Receptors within Jackson Park

**TABLE A-3.2**

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**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS**

Noise-Sensitive Receptor Locations Within Jackson Park

CNE No.	Location				Representative Receptor	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2040 Predicted No-Build Condition (dBA)	2040 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
P61	S. of	Marquette Dr.	W. of	South Shore Dr.	JPGC Shelter	C	67	62	62	62	0	No
P62	S. of	Marquette Dr.	W. of	South Shore Dr.	JPGC Hole #10 Tee Box	C	67	61	61	61	0	No
P63	S. of	Marquette Dr.	W. of	South Shore Dr.	JPGC Hole #10 Tee Box	C	67	61	61	61	0	No
P64	At	Richards Dr.	And	Hayes Dr.	Golden Lady Monument	C	67	64	64	64	0	No

Notes:

- CNE = Common Noise Environment.
- FHWA NAC = Federal Highway Administration Noise Abatement Criterion.
- The decibel values in this chart were generated by the FHWA TNM 2.5 computer program. All values represent Leq(h) values of exterior traffic noise,
- The traffic noise levels predicted by TNM 2.5 use PM peak-hour traffic.
- 2040 Proposed Action noise levels that are **bold and underlined** indicate that the receptor approaches (within 1 dBA) or exceeds the FHWA Noise
- Noise abatement should be considered if the predicted future traffic noise levels either approach or exceed the FHWA noise abatement criteria (66 dBA threshold for park uses) or substantially exceed the existing noise levels (15 dBA or greater increase). Noise barriers would be constructed only if they would be feasible and reasonable under IDOT's noise policies.
- Developed properties include those for which a building permit is anticipated to be issued prior to the date of environmental report approval.

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS**

Receptors within Jackson Park

**TABLE A-3.2**

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## **APPENDIX B**

### **DEVELOPED PROPERTIES - DETAILED ANALYSES**

## APPENDIX B – DEVELOPED PROPERTIES DETAILED ANALYSES

Following is a detailed summary of the analyses of the 19 Common Noise Environments (CNEs) which are predicted to experience a traffic noise impact under the 2040 Build condition. Of the 19, 15 are within Jackson Park and four are outside of Jackson Park. All of the locations within Jackson Park are considered to be part of Activity Category “B”. Three of the four locations outside the park are residential (Activity Category “B”), and one is the South Shore YMCA (Activity Category “C”). Activity Categories B and C have a Federal Highway Administration Noise Abatement Criterion (FHWA NAC) of 67 dBA. Provided below is a discussion of the feasibility and reasonableness of potential noise barriers that were analyzed, as well as a recommendation for or against their installation as part of the proposed improvements.

On **Exhibits A-5a** through **A-5c**, within each CNE, each receptor is marked with a dot. A yellow dot signifies the representative receptor, while the empty dots signify all other identified receptors within the CNE. A yellow dot with a red semi-circle indicates that the representative receptor is predicted to experience a noise impact. Please see **Section III** in the main report for more information.

### CNEs P3, P4 and P17

CNEs P3, P4, and P17 are located along the east side of Lake Shore Drive roughly between Science Drive and Promontory Point Park. See **Exhibit A-5a** in **Appendix A**. These CNEs contain the Lakefront Trail, other trails, benches, 57<sup>th</sup> Street Beach and the 57<sup>th</sup> Street Beach House. The Lake Michigan shoreline in this area is comprised primarily of stone rip rap, concrete revetment wall and sand beach. There are 20 receptors identified in CNE P3. They are all benches within Promontory Point Park. In CNE P4, there are four receptors: three benches and one drinking fountain. In CNE P17, there are nine receptors: one for the beach, one for the beach house, and seven benches. There are a total of 33 receptors across the three CNEs. The representative receptor in each CNE is a bench that is closest to Lake Shore Drive.

As shown in **Table A-3.2** in **Appendix A**, the modeled noise level at the representative receptors for CNEs P3, P4, and P17 are 68 dBA, 69 dBA, and 66 dBA, respectively, under the 2040 Build condition, thus each of these receptors is considered impacted because the future traffic noise level is equal to or greater than 66 dBA.

*Feasibility* - A noise barrier (Barrier #1) was analyzed at this location. As summarized in **Tables B-1.2** and **B-2**, and shown in **Exhibit A-5a** and in the TNM 2.5 screen captures in **Appendix F**, analyses show that a six-foot tall, approximately 1,800-foot long noise barrier wall located along the east side of Lake Shore Drive would result in a noise reduction (insertion loss) of 5-dBA or more at 12 of the receptors expected to experience a noise impact. With some shifting of the Lakefront Trail, widening of the Lake Shore Drive at 57<sup>th</sup> Drive pedestrian underpass, and widening of the Lake Shore

Drive at Promontory Point pedestrian underpass, this barrier is likely constructible from an engineering standpoint. Therefore, this barrier is considered physically and acoustically feasible. *Reasonableness (Noise Reduction Design Goal)* - The design goal of an 8-dBA noise reduction would be achieved at 4 receptors. Therefore, the wall would be reasonable from a noise reduction design goal standpoint as shown in **Table B-1.2**.

*Reasonableness (Cost Effectiveness)* - The cost effectiveness of this noise barrier was then analyzed. Adjustments (increases) to the base \$30,000 per benefited receptor criterion are allowable based on IDOT guidelines, however as shown in **Table B-2.1**, no adjustments were found to be applicable and thus the allowable cost per benefited receptor remains at \$30,000. As shown in the screen captures from TNM 2.5 in **Appendix F**, it is predicted that 20 of the total 33 receptors in CNEs P3, P4, and P17 would benefit from the installation of a noise barrier with the previously-stated dimensions because they would experience a noise reduction of 5 dBA or more.

As shown in **Table B-2**, the total cost of this barrier would be \$1,575,000. This is the sum of the cost of the barrier at \$30 per square foot of face, plus right-of-way costs. At this time, the cost of the land is assumed to be \$0, as it is owned by the Chicago Park District. The right-of-way cost as shown is largely due to the cost to widen the two pedestrian structures. The cost per benefited receptor would be \$51,950. Since this cost exceeds the allowable cost per benefited receptor, this noise barrier is considered to be not reasonable from a cost-effectiveness standpoint.

For these reasons, while a barrier in this location is considered feasible, it is not considered reasonable, and no further noise analyses will be performed for this location. Based on the preliminary engineering plans and the above considerations, **a noise barrier is not recommended for installation at this location** as part of the proposed roadway improvements.

## CNE P5

CNE P5 is located along the south side of 56<sup>th</sup> Street between Stony Island Avenue and Hyde Park Boulevard. See **Exhibit A-5a** in **Appendix A**. The CNE contains paths, benches, playgrounds, and general park space. There are 14 receptors identified in this CNE. Two are playgrounds, three are benches along the interior paths, and the remainder are benches at the backs of the sidewalks adjacent to the bordering streets. All of the benches along the sidewalks face the bordering streets. The representative (worst-case) receptor is a bench facing Hyde Park Boulevard. As shown in **Table A-3.2** in **Appendix A**, the modeled noise level at the representative receptor under the 2040 Build condition is 67 dBA, thus the receptor is considered impacted under the 2040 Build condition because the future traffic noise level is equal to or greater than 66 dBA.

*Feasibility* – The feasibility of a noise barrier was considered along 59<sup>th</sup> Street and Hyde Park Boulevard at this location. If a noise barrier were to be constructed here, it would be located at the back of the sidewalk along the south side of 56<sup>th</sup> Street and the west side of Hyde Park Boulevard, directly in the locations of nine receptors (benches) along the backs of the sidewalks that face these streets.

This noise barrier is deemed infeasible because it cannot be constructed without removing or relocating the benches. The installation of a noise barrier in these locations would be self-defeating. People choosing to use these benches do so with the understanding that they will be facing a heavily

traveled street with its inherent traffic noise characteristics. It is also worthwhile to note that the noise level under the Future Existing condition is 66 dBA, which already approaches the FHWA NAC. Also, the 2040 No-Build and the 2040 Build scenarios are 66 dBA and 67 dBA, respectively, and thus future noise levels will only increase by a barely-perceptible 1 dBA as a result of the proposed roadway project.

For these reasons, a barrier in this location is considered to be infeasible (and in some ways, unreasonable) and no further noise analyses will be performed for this location as part of the preliminary engineering study. Based on the preliminary engineering plans and the above considerations, **a noise barrier is not recommended for installation at this location** as part of the proposed roadway improvements.

### **CNE P6**

CNE P6 is located along the east side of Stony Island Avenue between 56<sup>th</sup> Street and 57<sup>th</sup> Street. See **Exhibit A-5a** in **Appendix A**. The CNE contains paths, benches, and general park space. There are three receptors identified in this CNE, all of which are benches at the backs of the sidewalks adjacent to and facing Stony Island Avenue. The representative (worst-case) receptor is the southern-most bench. As shown in **Table A-3.2** in **Appendix A**, the modeled noise level at the representative receptor under the 2040 Build condition is 67 dBA, thus the receptor is considered impacted under the 2040 Build condition because the future traffic noise level is equal to or greater than 66 dBA.

*Feasibility* – The feasibility of a noise barrier was considered along Stony Island Avenue at this location. If a noise barrier were to be constructed here, it would be located at the back of the sidewalk along the east side of Stony Island Avenue, directly in the location of the three receptors (benches) along the back of the sidewalk.

This noise barrier is deemed infeasible because it cannot be constructed without removing or relocating the benches. The installation of a noise barrier in this location would be self-defeating. People choosing to use these benches do so with the understanding that they will be facing a heavily traveled street with its inherent traffic noise characteristics. It is also worthwhile to note that the noise level under the Future Existing condition is 66 dBA, which already approaches the FHWA NAC. Also, the 2040 No-Build and the 2040 Build scenarios are both 66 dBA, and thus future noise level is not predicted to increase as a result of the proposed roadway project.

For these reasons, a barrier in this location is considered to be infeasible (and in some ways, unreasonable) and no further noise analyses will be performed for this location as part of the preliminary engineering study. Based on the preliminary engineering plans and the above considerations, **a noise barrier is not recommended for installation at this location** as part of the proposed roadway improvements.

### **CNE P7**

CNE P7 is located along the northwest side of the 57<sup>th</sup> Drive/Cornell Drive curve between 57<sup>th</sup> Street and Hyde Park Boulevard. See **Exhibit A-5a** in **Appendix A**. The CNE contains paths, a bench, and

general park space. There is one receptor identified in this CNE, which is a bench at the backs of the sidewalk adjacent to and facing 57<sup>th</sup> Drive/Cornell Drive. This is the representative (worst-case) receptor. As shown in **Table A-3.2 in Appendix A**, the modeled noise level at the representative receptor under the 2040 Build condition is 68 dBA, thus the receptor is considered impacted under the 2040 Build condition because the future traffic noise level is equal to or greater than 66 dBA.

*Feasibility* – The feasibility of a noise barrier was considered along 57<sup>th</sup> Drive/Cornell Drive at this location. If a noise barrier were to be constructed here, it would be located at the back of the sidewalk along the northeast side of the curve, directly in the location of the single receptor (bench) along the back of the sidewalk.

This noise barrier is deemed infeasible because it cannot be constructed without removing or relocating the bench. The installation of a noise barrier in this location would be self-defeating. People choosing to use this bench do so with the understanding that they will be facing a heavily traveled street with its inherent traffic noise characteristics. It is also worthwhile to note that the noise level under the Future Existing condition is 67 dBA, which already equals the FHWA NAC. Also, the 2040 No-Build and the 2040 Build scenarios are 67 dBA and 68 dBA, respectively, and thus future noise levels will only increase by a barely-perceptible 1 dBA as a result of the proposed roadway project.

For these reasons, a barrier in this location is considered to be infeasible (and in some ways, unreasonable) and no further noise analyses will be performed for this location as part of the preliminary engineering study. Based on the preliminary engineering plans and the above considerations, **a noise barrier is not recommended for installation at this location** as part of the proposed roadway improvements.

## CNE P8

CNE P8 is located along the south side of 56<sup>th</sup> Street between Hyde Park Boulevard and Everett Avenue. See **Exhibit A-5a in Appendix A**. The CNE contains benches and general park space. There are nine receptors identified in this CNE, all of which are benches at the backs of the sidewalks adjacent to and facing the bordering streets. The representative (worst-case) receptor is the southern-most bench in the CNE on Hyde Park Boulevard. As shown in **Table A-3.2 in Appendix A**, the modeled noise level at the representative receptor under the 2040 Build condition is 66 dBA, thus the receptor is considered impacted under the 2040 Build condition because the future traffic noise level is equal to or greater than 66 dBA.

*Feasibility* – The feasibility of a noise barrier was considered along the three adjacent streets. If a noise barrier were to be constructed here, it would be located at the back of the sidewalks along the south side of 56<sup>th</sup> Street, the east side of Hyde Park Boulevard, and the west side of Everett Avenue, directly in the locations of the nine receptors (benches) along the backs of the sidewalks that face these streets.

This noise barrier is deemed infeasible because it cannot be constructed without removing or relocating the benches. The installation of a noise barrier in these locations would be self-defeating. People choosing to use these benches do so with the understanding that they will be facing heavily traveled streets with their inherent traffic noise characteristics. It is also worthwhile to note that

the noise level under the Future Existing condition and the 2040 No-Build condition is 65 dBA, and the noise level under 2040 Build conditions is 66 dBA, and thus future noise levels will only increase by a barely-perceptible 1 dBA as a result of the proposed roadway project.

For these reasons, a barrier in this location is considered to be infeasible (and in some ways, unreasonable) and no further noise analyses will be performed for this location as part of the preliminary engineering study. Based on the preliminary engineering plans and the above considerations, **a noise barrier is not recommended for installation at this location** as part of the proposed roadway improvements.

### CNE P9

CNE P9 is located along the north side of 57<sup>th</sup> Drive between Hyde Park Boulevard and Everett Avenue. See **Exhibit A-5a** in **Appendix A**. The CNE contains benches and general park space. There are six receptors identified in this CNE, all of which are benches at the backs of the sidewalks adjacent to and facing the bordering streets. The representative (worst-case) receptor is the western-most bench in the CNE on 57<sup>th</sup> Drive. As shown in **Table A-3.2** in **Appendix A**, the modeled noise level at the representative receptor under the 2040 Build condition is 69 dBA, thus the receptor is considered impacted under the 2040 Build condition because the future traffic noise level is equal to or greater than 66 dBA.

*Feasibility* – The feasibility of a noise barrier was considered along the three adjacent streets. If a noise barrier were to be constructed here, it would be located at the back of the sidewalks along the north side of 57<sup>th</sup> Drive, the east side of Hyde Park Boulevard, and the west side of Everett Avenue, directly in the locations of the six receptors (benches) along the backs of the sidewalks that face these streets.

This noise barrier is deemed infeasible because it cannot be constructed without removing or relocating the benches. The installation of a noise barrier in these locations would be self-defeating. People choosing to use these benches do so with the understanding that they will be facing heavily traveled streets with their inherent traffic noise characteristics. It is also worthwhile to note that the noise level under the Future Existing condition is 69 dBA, which already exceeds the FHWA NAC. Also, the 2040 No-Build and the 2040 Build scenarios are 68 dBA each, and thus future noise levels will only increase by a barely-perceptible 1 dBA as a result of the proposed roadway project.

For these reasons, a barrier in this location is considered to be infeasible (and in some ways, unreasonable) and no further noise analyses will be performed for this location as part of the preliminary engineering study. Based on the preliminary engineering plans and the above considerations, **a noise barrier is not recommended for installation at this location** as part of the proposed roadway improvements.

### CNE P12

CNE P12 is located along the east side of Stony Islane Avenue south of 57<sup>th</sup> Street. See **Exhibit A-5a** in **Appendix A**. The CNE contains paths, benches, and general park space. There are three receptors identified in this CNE, all of which are benches at the backs of the sidewalks adjacent to and facing

Stony Island Avenue. The representative (worst-case) receptor is the northern-most bench. As shown in **Table A-3.2 in Appendix A**, the modeled noise level at the representative receptor under the 2040 Build condition is 67 dBA, thus the receptor is considered impacted under the 2040 Build condition because the future traffic noise level is equal to or greater than 66 dBA.

*Feasibility* – The feasibility of a noise barrier was considered along Stony Island Avenue at this location. If a noise barrier were to be constructed here, it would be located at the back of the sidewalk along the east side of Stony Island Avenue, directly in the location of the three receptors (benches) along the back of the sidewalk.

This noise barrier is deemed infeasible because it cannot be constructed without removing or relocating the benches. The installation of a noise barrier in this location would be self-defeating. People choosing to use these benches do so with the understanding that they will be facing a heavily traveled street with its inherent traffic noise characteristics. It is also worthwhile to note that the noise level under the Future Existing condition is 67 dBA, which already equals the FHWA NAC. The 2040 No-Build and the 2040 Build scenarios are also both 67 dBA, and thus future noise level is not predicted to increase as a result of the proposed roadway project.

For these reasons, a barrier in this location is considered to be infeasible (and in some ways, unreasonable) and no further noise analyses will be performed for this location as part of the preliminary engineering study. Based on the preliminary engineering plans and the above considerations, **a noise barrier is not recommended for installation at this location** as part of the proposed roadway improvements.

### CNE P13

CNE P13 is located along the west side of Cornell Drive south of 57<sup>th</sup> Drive. See **Exhibit A-5a in Appendix A**. The CNE contains benches and general park space. There are three receptors identified in this CNE, all of which are benches at the backs of the sidewalks adjacent to and facing Cornell Drive. The representative (worst-case) receptor is the northern-most bench. As shown in **Table A-3.2 in Appendix A**, the modeled noise level at the representative receptor under the 2040 Build condition is 69 dBA, thus the receptor is considered impacted under the 2040 Build condition because the future traffic noise level is equal to or greater than 66 dBA.

*Feasibility* – The feasibility of a noise barrier was considered along Cornell Drive at this location. If a noise barrier were to be constructed here, it would be located at the back of the sidewalk along the west side of Cornell Drive, directly in the locations of the three receptors (benches) along the back of the sidewalk.

This noise barrier is deemed infeasible because it cannot be constructed without removing or relocating the benches. The installation of a noise barrier in this location would be self-defeating. People choosing to use these benches do so with the understanding that they will be facing a heavily traveled street with its inherent traffic noise characteristics. It is also worthwhile to note that the noise level under the Future Existing condition is 69 dBA, which already exceeds the FHWA NAC. The 2040 No-Build and the 2040 Build scenarios are also both 69 dBA, and thus future noise level is not predicted to increase as a result of the proposed roadway project.

For these reasons, a barrier in this location is considered to be infeasible (and in some ways, unreasonable) and no further noise analyses will be performed for this location as part of the preliminary engineering study. Based on the preliminary engineering plans and the above considerations, **a noise barrier is not recommended for installation at this location** as part of the proposed roadway improvements.

#### **CNE P21**

CNE P21 is located at an information board displaying information about the Midway Plaisance. It is located along the west side of Stony Island Avenue between the northerly and southerly streets in the Midway Plaisance. See **Exhibit A-5b** in **Appendix A**. The CNE contains trails, benches and general park space. There are 11 receptors identified in this CNE, ten of which are benches, and one of which is the information board. As shown in **Table A-3.2** in **Appendix A**, the modeled noise level at Representative Receptor P21 under the 2040 Build condition is 67 dBA, thus the receptor is considered impacted because the future traffic noise level is equal to or greater than 66 dBA.

*Feasibility* – The feasibility of a noise barrier was analyzed along Stony Island Avenue at this location. If a noise barrier were to be constructed, it would be located at the back of the sidewalk along the west side of Stony Island Avenue, directly in the location of the information board. This noise barrier is deemed infeasible because the barrier cannot be constructed without removing the board and/or blocking the view of the board and the Midway Plaisance from passersby on Stony Island Avenue. The installation of a noise barrier in this location would be self-defeating.

It is also worthwhile to note that the noise level under the Future Existing condition is 66 dBA, which already equals the FHWA NAC. The 2040 No-Build and the 2040 Build scenarios are 66 dBA and 67 dBA, and thus future noise levels will only increase by a barely-perceptible 1 dBA as a result of the proposed roadway project.

For these reasons, a barrier in this location is considered to be infeasible (and in some ways, unreasonable) and no further noise analyses will be performed for this location. Based on the preliminary engineering plans and the above considerations, **a noise barrier is not recommended for installation at this location** as part of the proposed roadway improvements.

#### **CNE P24**

CNE P24 is located along the west side of Lake Shore Drive just south of Science Drive. See **Exhibit A-5a** in **Appendix A**. The CNE contains the Bowling Green, trails, benches, and general park space. There are 12 receptors identified in this CNE. Nine are locations on or adjacent to the Bowling Green and three are benches or locations along the trails. The eastern border of the Bowling Green is the representative receptor. As shown in **Table A-3.2** in **Appendix A**, the modeled noise level at the representative receptor for CNE P24 under 2040 Build conditions is 67 dBA, thus the receptor is considered impacted under 2040 Build conditions because the future traffic noise level is equal to or greater than 66 dBA.

*Feasibility* - A noise barrier was considered at this location. While a noise barrier is likely feasible from an engineering/physical standpoint, it is not possible to meet acoustic feasibility criteria. This

is due to there being only one impacted receptor within this CNE, while acoustic feasibility requires that a noise barrier benefits at least two impacted receptors. The second row of receptors within this CNE is predicted to experience a 61 dBA to 62 dBA noise level in the 2040 Build condition, and subsequent rows will be even less. **Appendix G** contains screen captures from TNM that illustrate this finding. Therefore, this barrier is considered not feasible as summarized in **Table B-2**.

For these reasons, a barrier in this location is considered to be infeasible and no further noise analyses will be performed for this location. Based on the preliminary engineering plans and the above considerations, **a noise barrier is not recommended for installation at this location** as part of the proposed roadway improvements.

### **CNEs P37, P38 and P39**

CNEs P37, P38, and P39 are located along the east side of Stony Island Avenue roughly between 65<sup>th</sup> Street and 63<sup>rd</sup> Street/Hayes Drive. See **Exhibits A-5b** and **A-5c** in **Appendix A**. These CNEs contain paths, benches, a Chicago Park District maintenance facility, a playground, three tennis courts, and the Jackson Park Field House.

There is one receptor identified in CNE P37: a bench at the back of the sidewalk adjacent to Stony Island Avenue. Based on Federal regulations and State policies, the maintenance facility is not considered to be a sensitive receptor. The bench is considered the representative receptor for this CNE.

In CNE P38, there are six receptors: three are associated with the playground and there are three receptors assumed on each of the three tennis courts. The representative receptor for this CNE is a swing set located just east of the sidewalk adjacent to Stony Island Avenue.

CNE #39 contains four identified receptors. Two are benches facing Stony Island Avenue located at the back of the sidewalk adjacent to Stony Island Avenue. One is a bench along a trail, and the final is located at the Jackson Park Fieldhouse. The representative receptor is a bench along the Stony Island Avenue sidewalk.

As shown in **Table A-3.2** in **Appendix A**, the modeled noise level at the representative receptors for CNEs P37, P38, and P39 are 67 dBA, 67 dBA, and 70 dBA, respectively, under the 2040 Build condition, thus each of these receptors is considered impacted because the future traffic noise level is equal to or greater than 66 dBA.

*Feasibility* – The feasibility of a noise barrier was analyzed along Stony Island Avenue to attenuate noise for these three CNEs. If a noise barrier were to be constructed, it would be located at the back of the sidewalk along the east side of Stony Island Avenue, directly in the location of the representative receptors (benches) for CNEs P37 and P39. This noise barrier is deemed infeasible because the barrier cannot be constructed without removing or relocating the benches, two of which are representative receptors. The installation of a noise barrier in this location would be self-defeating.

People choosing to use these benches do so with the understanding that they will be facing a heavily traveled street with its inherent traffic noise characteristics. It is also worthwhile to note that the

noise levels under the Future Existing condition already exceed the FHWA NAC, and none of the noise levels will perceptibly increase as a result of the proposed roadway improvements.

For these reasons, a barrier in this location is considered to be infeasible (and in some ways, unreasonable) and no further noise analyses will be performed for this location. Based on the preliminary engineering plans and the above considerations, **a noise barrier is not recommended for installation at this location** as part of the proposed roadway improvements.

## CNE 17

CNE 17 is the South Shore YMCA. It is located along the west side of Stony Island Avenue between 64<sup>th</sup> Street and 63<sup>rd</sup> Street/Hayes Drive. See **Exhibits A-5a** and **A-5b** in **Appendix A**. There are 10 exterior receptors identified on the YMCA property. They are benches, tables, sitting areas, and a playground. The representative (worst-case) receptor is the bench closest to the intersection of Stony Island Avenue and 63<sup>rd</sup> Street/Hayes Drive. As shown in **Table A-3.1** in **Appendix A**, the modeled noise level at the representative receptor is 66 dBA under the 2040 Build condition, thus the receptor is considered impacted because the future traffic noise level is equal to 66 dBA.

*Feasibility* - A noise barrier (Barrier #2) was analyzed at this location. As summarized in **Tables B-1.1** and **B-2**, and as shown in **Exhibits A-5a** and **A-5b** in the TNM 2.5 screen captures in **Appendix F**, analyses show that a six- to 8-foot tall, approximately 795-foot long noise barrier wall located along the west side of Stony Island Avenue, and wrapping around to the south side of 63<sup>rd</sup> Street and the north side of 64<sup>th</sup> Street would result in a noise reduction (insertion loss) of 5-dBA or more at all 10 of the receptors expected to experience a noise impact. There are two openings for walkways which likely diminish the effectiveness. Due to the need to maintain adequate sidewalk width, and due to the presence of bus shelters, benches, traffic signal and lighting equipment, fire hydrants, signage, bicycle racks, and trees, placement of a noise barrier within the existing right-of-way is not feasible. Therefore, the installation of a noise barrier would require right of way acquisition, temporary easements, and private property restoration on the YMCA property. With these conditions, a barrier is likely constructible from an engineering standpoint. Therefore, this barrier is considered physically and acoustically feasible.

*Reasonableness (Noise Reduction Design Goal)* - The design goal of an 8-dBA noise reduction would be achieved at one receptor, therefore, the wall would be reasonable from a noise reduction design goal standpoint as shown in **Table B-1.2**.

*Reasonableness (Cost Effectiveness)* - The cost effectiveness of this noise barrier was then analyzed. Adjustments (increases) to the base \$30,000 per benefited receptor criterion are allowable based on IDOT guidelines, however as shown in **Table B-2.1**, no adjustments were found to be applicable and thus the allowable cost per benefited receptor remains at \$30,000. As shown in the screen captures from TNM 2.5 in **Appendix F**, it is predicted that all ten of the receptors would benefit from the installation of a noise barrier with the previously-stated dimensions because they would experience a noise reduction of 5 dBA or more.

As shown in **Table B-2**, the total cost of this barrier would be \$362,155. This is the sum of the cost of the barrier at \$30 per square foot of face, plus right-of-way costs. The cost of the land is estimated to be \$104,070. The portion of the right-of-way cost to restore the outdoor area to its

previous condition is estimated to be \$90,385. The cost per benefited receptor would therefore be \$36,216. Since this cost exceeds the allowable cost per benefited receptor, this noise barrier is considered to be not reasonable from a cost-effectiveness standpoint.

For these reasons, while a barrier in this location is considered feasible, it is not considered reasonable, and no further noise analyses will be performed for this location. Based on the preliminary engineering plans and the above considerations, **a noise barrier is not recommended for installation at this location** as part of the proposed roadway improvements.

### CNE 21

CNE 21 is located on the west side of Stony Island Avenue between 65<sup>th</sup> Place and 65<sup>th</sup> Street. See **Exhibit A-5b** in **Appendix A**. The CNE contains various three to four story multi-family buildings. Along Stony Island Avenue, the east faces of the buildings are located directly on the roadway right-of-way line. The representative receptor is a doorway along the east face of the building on Stony Island Avenue. As shown in **Table A-3.1** in **Appendix A**, the modeled noise level at Representative Receptor 21 under the 2040 Build condition is 66 dBA, thus the receptor is considered impacted because the future traffic noise level is equal to or greater than 66 dBA. It is noted that the Future Existing and 2040 No-Build noise levels are 67 dBA and 66 dBA, respectively, and thus noise levels are not predicted to change over 2040 No-Build conditions with the construction of the roadway project.

*Feasibility* – The feasibility of a noise barrier was considered along Stony Island Avenue at this location. Due to the presence of the buildings directly adjacent to the back of the sidewalk and along the right-of-way line, the barrier would need to be placed in the sidewalk. Due to the need to maintain adequate sidewalk width, and due to the presence of traffic signal and lighting equipment, fire hydrants, and signage, the placement of a noise barrier in the sidewalk/within the existing right-of-way is not possible. Therefore, a barrier is not constructible from an engineering standpoint.

For these reasons, a barrier in this location is considered to be infeasible and no further noise analyses will be performed for this location. Based on the preliminary engineering plans and the above considerations, **a noise barrier is not recommended for installation at this location** as part of the proposed roadway improvements.

### CNE 31

CNE 31 is located on the south side of 67<sup>th</sup> Street between Cornell Avenue and East End Avenue. See **Exhibit A-5c** in **Appendix A**. The CNE contains various three to four story multi-family buildings. Along 67<sup>th</sup> Street, the north faces of the buildings are located directly on the roadway right-of-way line. The representative receptor is a doorway along the north face of the building on 67<sup>th</sup> Street. As shown in **Table A-3.1** in **Appendix A**, the modeled noise level at Representative Receptor 31 under the 2040 Build condition is 67 dBA, thus the receptor is considered impacted because the future traffic noise level is equal to or greater than 66 dBA. It is noted that the Future Existing and 2040 No-Build noise levels are also 67 dBA, and thus noise levels are not predicted to change with the construction of the roadway project.

*Feasibility* – The feasibility of a noise barrier was considered along 67<sup>th</sup> Street at this location. Due to the presence of the buildings directly adjacent to the back of the sidewalk and along the right-of-way line, the barrier would need to be placed in the sidewalk. Due to the need to maintain adequate sidewalk width, and due to the presence of lighting equipment, signage, and a mailbox, the placement of a noise barrier in the sidewalk/within the existing right-of-way is not possible. Therefore, a barrier is not constructible from an engineering standpoint.

For these reasons, a barrier in this location is considered to be infeasible and no further noise analyses will be performed for this location. Based on the preliminary engineering plans and the above considerations, **a noise barrier is not recommended for installation at this location** as part of the proposed roadway improvements.

#### **CNE 34**

CNE 34 is located on the south side of 67<sup>th</sup> Street between East End Avenue and Ridgeland Avenue. See **Exhibit A-5c in Appendix A**. The CNE contains various three to four story multi-family buildings, and some single family houses. Along 67<sup>th</sup> Street, the north faces of the buildings are located directly on the roadway right-of-way line. The representative receptor is a doorway along the north face of the building on 67<sup>th</sup> Street. As shown in **Table A-3.1 in Appendix A**, the modeled noise level at Representative Receptor 34 under the 2040 Build condition is 66 dBA, thus the receptor is considered impacted because the future traffic noise level is equal to or greater than 66 dBA. It is noted that the Future Existing and 2040 No-Build noise levels are also 66 dBA, and thus noise levels are not predicted to change with the construction of the roadway project.

*Feasibility* – The feasibility of a noise barrier was considered along 67<sup>th</sup> Street at this location. Due to the presence of the buildings directly adjacent to the back of the sidewalk and along the right-of-way line, the barrier would need to be placed in the sidewalk. Due to the need to maintain adequate sidewalk width, and due to the presence of lighting equipment, signage, and parkway trees, the placement of a noise barrier in the sidewalk/within the existing right-of-way is not possible. Therefore, a barrier is not constructible from an engineering standpoint.

For these reasons, a barrier in this location is considered to be infeasible and no further noise analyses will be performed for this location. Based on the preliminary engineering plans and the above considerations, **a noise barrier is not recommended for installation at this location** as part of the proposed roadway improvements.

#### **CNE 37**

CNE 37 is located on the south side of 67<sup>th</sup> Street west of Chappel Avenue. See **Exhibit A-5c in Appendix A**. The CNE contains various three to four story multi-family buildings. Along 67<sup>th</sup> Street, the north faces of the buildings are located directly on the roadway right-of-way line. The representative receptor is a doorway along the north face of the building on 67<sup>th</sup> Street. As shown in **Table A-3.1 in Appendix A**, the modeled noise level at Representative Receptor 37 under the 2040 Build condition is 66 dBA, thus the receptor is considered impacted because the future traffic noise level is equal to or greater than 66 dBA. It is noted that the Future Existing and 2040 No-Build noise levels are also 66 dBA, and thus noise levels are not predicted to change with the construction of the roadway project.

*Feasibility* – The feasibility of a noise barrier was considered along 67<sup>th</sup> Street at this location. Due to the presence of the buildings directly adjacent to the back of the sidewalk and along the right-of-way line, the barrier would need to be placed in the sidewalk. Due to the need to maintain adequate sidewalk width, and due to the presence of lighting equipment, signage, and a tree, the placement of a noise barrier in the sidewalk/within the existing right-of-way is not possible. Therefore, a barrier is not constructible from an engineering standpoint.

For these reasons, a barrier in this location is considered to be infeasible and no further noise analyses will be performed for this location. Based on the preliminary engineering plans and the above considerations, **a noise barrier is not recommended for installation at this location** as part of the proposed roadway improvements.

**NOISE-REDUCTION EFFECTIVENESS OF POTENTIAL NOISE BARRIERS**

Common Noise Environments with Noise Impacts Outside of Jackson Park

CNE No.	Address(es)	Business, Property, or Owner Name(s)	2040 Build w/o Barrier (dBA)	Barrier Physically Feasible? (Yes/No)	2040 Build w/Barrier (dBA)	Noise Reduction at Rep. Receptor (dBA)	Noise Reduction at Other Receptors (dBA)	Barrier Acoustically Feasible? (Yes/No)	Barrier Meets Noise Reduction Design Goal? (Yes/No)
17	6318-6630 S. Stony Island Ave.	YMCA	66	Yes	61	-5	-5 to -9	Yes	Yes
21	1525-1547 E. 65th St., 1522-1558 E. 65th Pl.	Various Multi-Unit Residential	66	No	n/a	n/a	n/a	n/a	n/a
31	1627-1657 E. 67th St., 6717-6757 S. Cornell Av, 6714-6754 S. East End Av.,	Various Multi-Unit Residential	67	No	n/a	n/a	n/a	n/a	n/a
34	1701-1721 E. 67th St., 6700-6730 S. Ridgeland Ave., 6717-6745 S. East End	Various Multi-Unit Residential	66	No	n/a	n/a	n/a	n/a	n/a
37	6717-6741 S. Jeffery Blvd., 6700-6744 S. Chappel Ave.	Various Multi-Unit Residential	66	No	n/a	n/a	n/a	n/a	n/a

- Notes:
- CNE = Common Noise Environment.
  - The decibel values in this chart were generated by the FHWA TNM 2.5 computer program. All values represent Leq(h) values of exterior traffic noise, rounded to the nearest decibel (dBA).
  - The traffic noise levels predicted by TNM 2.5 use AM peak-hour traffic.

**NOISE-REDUCTION EFFECTIVENESS OF POTENTIAL NOISE BARRIERS**

CNEs w/Noise Impacts Outside Jackson Park

**TABLE B-1.1**

**NOISE-REDUCTION EFFECTIVENESS OF POTENTIAL NOISE BARRIERS**

Common Noise Environments with Noise Impacts Within Jackson Park

CNE No.	Location				Representative Receptor	2040 Build w/o Barrier (dBA)	Barrier Physically Feasible? (Yes/No)	2040 Build w/Barrier (dBA)	Noise Reduction at Rep. Receptor (dBA)	Noise Reduction at Other Receptors (dBA)	Barrier Acoustically Feasible? (Yes/No)	Barrier Meets Noise Reduction Design Goal? (Yes/No)
P3	E. of	Lake Shore Dr.	at	56th St.	Bench along LFT	68	Yes	60	-8	-2 to -8	Yes	Yes
P4	E. of	Lake Shore Dr.	N. of	57th Dr.	Bench along LFT	69		61	-8	-6 to -8		
P17	E. of	Lake Shore Dr.	S. of	57th Dr.	Bench along LFT	66		62	-4	-1 to -8		
P5	S. of	56th St.	E. of	Stony Island Ave.	Bench - SW on Hyde Park Blvd	67	No	n/a	n/a	n/a	n/a	n/a
P6	E. of	Stony Island Ave.	N. of	57th St.	Bench - SW on Stony Island	67	No	n/a	n/a	n/a	n/a	n/a
P7	N. of	57th Dr.	W. of	Hyde Park Blvd.	Bench - Trail along 57th	68	No	n/a	n/a	n/a	n/a	Yes
P8	S. of	56th St.	E. of	Hyde Park Blvd.	Bench - SW on Hyde Park Blvd	66	No	n/a	n/a	n/a	n/a	n/a
P9	N. of	57th Dr.	E. of	Hyde Park Blvd.	Bench - SW on 57th	69	No	n/a	n/a	n/a	n/a	n/a
P12	E. of	Stony Island Ave.	S. of	57th St.	Bench - SW on Stony Island	67	No	n/a	n/a	n/a	n/a	n/a
P13	W. of	Cornell Dr.	S. of	57th St.	Bench - Trail along Cornell	69	No	n/a	n/a	n/a	n/a	n/a
P21	W. of	Stony Island Ave.	at	Midway Plaisance	Boulevards Info Kiosk	67	No	n/a	n/a	n/a	n/a	n/a

**NOISE-REDUCTION EFFECTIVENESS OF POTENTIAL NOISE BARRIERS**

CNEs w/Noise Impacts Within Jackson Park

**TABLE B-1.2**

**NOISE-REDUCTION EFFECTIVENESS OF POTENTIAL NOISE BARRIERS**

Common Noise Environments with Noise Impacts Within Jackson Park

CNE No.	Location				Representative Receptor	2040 Build w/o Barrier (dBA)	Barrier Physically Feasible? (Yes/No)	2040 Build w/Barrier (dBA)	Noise Reduction at Rep. Receptor (dBA)	Noise Reduction at Other Receptors (dBA)	Barrier Acoustically Feasible? (Yes/No)	Barrier Meets Noise Reduction Design Goal? (Yes/No)
P24	W. of	Lake Shore Dr.	S. of	Science Dr.	Bowling Green	67	Yes	n/a	n/a	-1 to -9	No	n/a
P37	E. of	Stony Island Ave.	S. of	63rd St.	Bench - SW on Stony Island	67	No	n/a	n/a	n/a	n/a	n/a
P38	E. of	Stony Island Ave.	N. of	64th St.	Playground	67		n/a	n/a	n/a		
P39	E. of	Stony Island Ave.	at	64th St.	Bench - SW on Stony Island	70		n/a	n/a	n/a		

- Notes:
- CNE = Common Noise Environment.
  - The decibel values in this chart were generated by the FHWA TNM 2.5 computer program. All values represent Leq(h) values of exterior traffic noise, rounded to the nearest decibel (dBA).
  - The traffic noise levels predicted by TNM 2.5 use AM peak-hour traffic.

**NOISE-REDUCTION EFFECTIVENESS OF POTENTIAL NOISE BARRIERS**

CNEs w/Noise Impacts Within Jackson Park

**TABLE B-1.2**

**BARRIER COST-REASONABLENESS SUMMARY**

*Barriers that are Feasible and meet the Noise Reduction Design Goal Reasonableness Criterion*

Barrier No.	CNE No(s).	Number of Benefited Receptors	Barrier Length	Avg. Barrier Height	Barrier Cost	ROW Cost		Total Barrier Cost	Barrier Cost Per Benefited Receptor	Base Allowable Cost Per Benefited Receptor	Is Barrier Cost-Reasonable?
						Land	Mitigation/Restoration				
1	P3, P4, P17	20	1800'	6'	\$324,000	\$0	\$715,000	\$1,039,000	\$51,950	\$30,000	No
2	17	10	795'	6' to 8'	\$167,700	\$104,070	\$90,385	\$362,155	\$36,216	\$30,000	No

Notes:

- CNE = Common Noise Environment.
- A receptor is benefited if it receives a 5 dBA or more reduction in noise levels.
- Barrier length is approximate and subject to minor modification during the design engineering phase.

## Mobility Improvements to Support the South Lakefront Framework Plan

**COST-EFFECTIVENESS ADJUSTMENT FACTORS**

Barrier #1

Receptor No.	Future Existing Conditions (dBA)	2040 Predicted Build Condition (dBA)	Build Increase over Future Existing (dBA)	New Alignment?	Receptors Pre-Date Original Construction?	Adjustment For Noise Level Factor	Adjustment For Increase In Noise Factor	Adjustment For Build Before Roadway Factor	Total Adjustment Factor Amount	Receptor Benefitted?	Adjusted Allowable Cost Per Benefitted Receptor
P3.1	68	68	0	No	No	\$0	\$0	\$0	\$0	No	-
P3.2	60	61	1	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P3.3	68	68	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P3.4	63	64	1	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P3.5	60	61	1	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P3.6	58	59	1	No	No	\$0	\$0	\$0	\$0	No	-
P3.7	58	60	2	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P3.8	55	57	2	No	No	\$0	\$0	\$0	\$0	No	-
P3.9	56	58	2	No	No	\$0	\$0	\$0	\$0	No	-
P3.10	54	55	1	No	No	\$0	\$0	\$0	\$0	No	-
P3.11	55	56	1	No	No	\$0	\$0	\$0	\$0	No	-
P3.12	53	54	1	No	No	\$0	\$0	\$0	\$0	No	-
P3.13	52	52	0	No	No	\$0	\$0	\$0	\$0	No	-
P3.14	53	54	1	No	No	\$0	\$0	\$0	\$0	No	-
P3.15	56	57	1	No	No	\$0	\$0	\$0	\$0	No	-
P3.16	57	59	2	No	No	\$0	\$0	\$0	\$0	No	-
P3.17	57	58	1	No	No	\$0	\$0	\$0	\$0	No	-
P3.18	61	63	2	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P3.19	61	64	3	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P3.20	58	60	2	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P4.1	69	69	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000

**COST-EFFECTIVENESS ADJUSTMENT FACTORS**

Barrier #1

**TABLE B-2.1**

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**COST-EFFECTIVENESS ADJUSTMENT FACTORS**

Barrier #1

Receptor No.	Future Existing Conditions (dBA)	2040 Predicted Build Condition (dBA)	Build Increase over Future Existing (dBA)	New Alignment?	Receptors Pre-Date Original Construction?	Adjustment For Noise Level Factor	Adjustment For Increase In Noise Factor	Adjustment For Build Before Roadway Factor	Total Adjustment Factor Amount	Receptor Benefitted?	Adjusted Allowable Cost Per Benefitted Receptor
P4.2	68	69	1	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P4.3	62	64	2	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P4.4	62	64	2	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P17.1	67	68	1	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P17.2	66	66	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P17.3	67	67	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P17.4	66	67	1	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P17.5	64	66	2	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P17.6	65	66	1	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P17.7	66	67	1	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P17.8	67	68	1	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P17.9	60	63	3	No	No	\$0	\$0	\$0	\$0	No	-
Average Allowable Cost per Benefitted Receptor											\$30,000

**COST-EFFECTIVENESS ADJUSTMENT FACTORS**

Barrier #1

**TABLE B-2.1**

Mobility Improvements to Support the South Lakefront Framework Plan

**COST-EFFECTIVENESS ADJUSTMENT FACTORS**

Barrier #2

Receptor No.	Future Existing Conditions (dBA)	2040 Predicted Build Condition (dBA)	Build Increase over Future Existing (dBA)	New Alignment?	Receptors Pre-Date Original Construction?	Adjustment For Noise Level Factor	Adjustment For Increase In Noise Factor	Adjustment For Build Before Roadway Factor	Total Adjustment Factor Amount	Receptor Benefitted?	Adjusted Allowable Cost Per Benefitted Receptor
17.1	67	67	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
17.2	67	67	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
17.3	65	65	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
17.4	62	62	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
17.5	62	62	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
17.6	67	66	-1	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
17.7	64	64	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
17.8	61	60	-1	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
17.9	67	67	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
17.10	65	65	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
17.11	69	69	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
Average Allowable Cost per Benefitted Receptor											\$30,000

**COST-EFFECTIVENESS ADJUSTMENT FACTORS**

Barrier #2

**TABLE B-2.2**

## **APPENDIX C**

### **UNDEVELOPED PROPERTIES – DETAILED ANALYSES**

## APPENDIX C – UNDEVELOPED PROPERTIES DETAILED ANALYSES

Following is a detailed summary of the analyses of the undeveloped properties which are not anticipated to receive a building permit by the anticipated date of NEPA document approval (the date of public knowledge). Design-year noise analyses were performed to determine an approximate offset from the roadway at which future noise levels might approach the FHWA NAC. There are seven properties within the project limits outside of Jackson Park containing undeveloped/non-permitted properties with the potential to develop in the future. Please see **Section IV** in the main report for more information. This information will be shared with local agency officials, and copies of this correspondence will be provided in **Appendix D**.

Each of the following seven properties are currently zoned for business, and are shown on **Exhibits A-8b** and **A-8c**.

**Location G1** – This is a vacant property located south of 60<sup>th</sup> Street west of Stony Island Avenue.

**Location G2** – This is a vacant property located on the southwest corner of the intersection of Stony Island Avenue and 64<sup>th</sup> Street.

**Location G3** – This is a vacant property located on the southwest corner of the intersection of Stony Island Avenue and 65<sup>th</sup> Street.

**Location G4** – This is a vacant property located on the southwest corner of the intersection of Stony Island Avenue and 65<sup>th</sup> Place.

**Location G5** – This is a vacant property located on the northwest corner of the intersection of Stony Island Avenue and 66<sup>th</sup> Place.

**Location G6** – This is a vacant property located on the southwest corner of the intersection of Stony Island Avenue and 67<sup>th</sup> Place.

**Location G7** – This is a vacant property located on the west side of Stony Island Avenue between 68<sup>th</sup> Street and 69<sup>th</sup> Street.

At Locations G1, G3, and G7, as shown on **Table C-1**, under 2040 Build condition, the 66-dBA noise contour is located within the right of way and thus it is unlikely that noise impacts would be realized within the developable area of the parcels adjacent to the roadway. At Locations G2, G4, G5, and G6, the 66-dBA noise contour line ranges from between 10 and 40 feet from the existing roadway pavement edge and is shown on the exhibits. Should the 2040 Build improvements be constructed, and should a building permit be issued for these properties, areas of frequent outdoor human use located beyond the illustrated contour lines are likely to be compatible with future highway noise based on FHWA and IDOT noise policies.

**MODELED NOISE LEVELS AND IDENTIFICATION OF NOISE IMPACT OFFSETS**

## Undeveloped/Non-Permitted Properties

Ref. No.	Undeveloped Property Description/ Location	Zoning	Noise Level Prediction Point Number	Distance from Roadway Existing Edge of Pavement (feet)	2040 Predicted Build Condition (dBA)
G1	E. 60th St.	PD 43	G1.1	30	61
			G1.2	40	60
			G1.3	50	60
			G1.4	60	59
			G1.5	70	58
G2	6400 S. Stony Island Ave.	B3-5 Business	G2.1	10	66
			G2.2	20	65
			G2.3	30	65
			G2.4	40	64
			G2.5	50	64
G3	E. 65th St.	B3-5 Business	G3.1	10	65
			G3.2	20	64
			G3.3	30	63
			G3.4	40	62
			G3.5	50	61
G4	E. 65th Pl.	B3-5 Business	G4.1	10	69
			G4.2	20	68
			G4.3	30	67
			G4.4	40	66
			G4.5	50	66
G5	1550-1556 E. 66th Pl.	B3-3 Business	G5.1	10	67
			G5.2	20	66
			G5.3	30	65
			G5.4	40	64
			G5.5	50	63
G6	6734 S. Stony Island Ave.	B3-3 Business	G6.1	10	66
			G6.2	20	65
			G6.3	30	64
			G6.4	40	63
			G6.5	50	62

**MODELED NOISE LEVELS AND IDENTIFICATION OF NOISE IMPACT OFFSETS**

Undeveloped/Non-Permitted Properties

**TABLE C-1**

Page 1 of 2

**MODELED NOISE LEVELS AND IDENTIFICATION OF NOISE IMPACT OFFSETS**

Undeveloped/Non-Permitted Properties

Ref. No.	Undeveloped Property Description/ Location	Zoning	Noise Level Prediction Point Number	Distance from Roadway Existing Edge of Pavement (feet)	2040 Predicted Build Condition (dBA)
G7	6822-6828, 6832, 3840 S. Stony Island Ave.	B3-3 Business	G7.1	10	65
			G7.2	20	64
			G7.3	30	63
			G7.4	40	62
			G7.5	50	61

Notes

- The decibel values in this chart were generated by the FHWA TNM 2.5 computer program. All values represent Leq(h) values of exterior traffic noise, rounded to the nearest decibel (dBA).
- The traffic noise levels predicted by TNM 2.5 use A.M. peak-hour traffic.
- Distances are from receptor to the edge of pavement of Stony Island Avenue.

**MODELED NOISE LEVELS AND IDENTIFICATION OF NOISE IMPACT OFFSETS**

Undeveloped/Non-Permitted Properties

**TABLE C-1**

**APPENDIX D**

LOCAL AGENCY CORRESPONDENCE



CHICAGO DEPARTMENT OF TRANSPORTATION  
CITY OF CHICAGO

February 27, 2019

Ms. Heather Gleason  
Director, Planning and Development  
Chicago Park District  
541 N. Fairbanks, 3rd Floor  
Chicago, Illinois 60611

**Re: Roadway Improvements to Support the South Lakefront Framework Plan  
Section No.: 17-B7203-00-ES  
CDOT Project No. B-7-203**

**Subject: Final Noise Analysis**

Dear Ms. Gleason:

As part of the Federal and State Review for the above referenced project, the Chicago Department of Transportation (CDOT), was required to complete a Highway Noise Analysis based on federal standards. Based on the proposed improvements, noise impacts are predicted in a total of 20 locations both inside and outside of Jackson Park. Noise barriers were analyzed at the 20 location to determine if a noise barrier must be feasible and reasonable. Based on the analysis, one of the 20 noise barriers was found to be feasible, but it was not found to be reasonable. Therefore, no noise barriers are recommended for installation as part of this project. The attached noise report provides the detailed analysis and recommendations for your information and also provides information on protecting undeveloped lands from future noise impacts. This report will be included with the Environmental Assessment to document the completion of this required analysis. This report is simply for your file, no response is required. Any questions regarding this project may be directed to Nathan Roseberry, Coordinating Engineer I, at [Nathan.roseberry@cityofchicago.org](mailto:Nathan.roseberry@cityofchicago.org) or 312-744-5936.

Sincerely,

Dan Burke, PE, SE  
Managing Deputy Commissioner  
Division of Engineering



CHICAGO DEPARTMENT OF TRANSPORTATION  
CITY OF CHICAGO

July 3, 2019

Ms. Heather Gleason  
Director, Planning and Development  
Chicago Park District  
541 N. Fairbanks, 3rd Floor  
Chicago, Illinois 60611

**Re: Roadway Improvements to Support the South Lakefront Framework Plan  
Section No.: 17-87203-00-ES  
CDOT Project No. B-7-203**

**Subject: Final Highway Traffic Noise Analysis**

Dear Ms. Gleason:

In a letter dated February 27, 2019, CDOT transmitted to you a Highway Traffic Noise Analysis report for the referenced project, dated November 20, 2018. That analysis was based on a 2040 design year. Subsequently, FHWA requested an analysis based on traffic volume conditions in the 2050 design year. In response, the traffic noise impact and attenuation analyses under 2050 traffic conditions have been evaluated and are summarized in a June 28, 2019 addendum to the November 20, 2018 report. In short, the original conclusion that noise abatement measures are not likely to be implemented is still valid after a consideration of 2050 design year traffic volumes. The attached 2040 noise report with 2050 addendum provides detailed analysis and recommendations for your information.

In addition, analyses relating to protecting undeveloped lands from future noise impacts has also been updated. These analyses are explained in Section IV of the traffic noise report, and the updated analyses are provided as a separate attachment to this letter. Please see Table C-1 and Exhibits A-8a to A-8c as attached herein. Note that all the undeveloped lands are properties that are outside the boundaries of Jackson Park.

This report and addendum will be included with the Environmental Assessment to document the completion of this required analysis. This transmittal is simply for your file. No response is required. Any questions regarding this project may be directed to Nathan Roseberry, Acting Assistant Chief Highway Engineer, at [nathan.roseberry@cityofchicago.org](mailto:nathan.roseberry@cityofchicago.org) or 312-744-5936.

Sincerely,

Daniel Burke, P.E., S.E.  
Managing Deputy Commissioner  
Division of Engineering

**MODELED NOISE LEVELS AND IDENTIFICATION OF NOISE IMPACT OFFSETS**

## Undeveloped/Non-Permitted Properties

Ref. No.	Undeveloped Property Description/ Location	Zoning	Noise Level Prediction Point Number	Distance from Roadway Existing Edge of Pavement (feet)	2050 Predicted Build Condition (dBA)
G1	E. 60th St.	PD 43	G1.1	30	61
			G1.2	40	60
			G1.3	50	60
			G1.4	60	59
			G1.5	70	58
G2	6400 S. Stony Island Ave.	B3-5 Business	G2.1	10	67
			G2.2	20	66
			G2.3	30	66
			G2.4	40	65
			G2.5	50	65
G3	E. 65th St.	B3-5 Business	G3.1	10	66
			G3.2	20	65
			G3.3	30	64
			G3.4	40	63
			G3.5	50	62
G4	E. 65th Pl.	B3-5 Business	G4.1	10	69
			G4.2	20	68
			G4.3	30	67
			G4.4	40	67
			G4.5	50	66
G5	1550-1556 E. 66th Pl.	B3-3 Business	G5.1	10	68
			G5.2	20	67
			G5.3	30	65
			G5.4	40	64
			G5.5	50	63
G6	6734 S. Stony Island Ave.	B3-3 Business	G6.1	10	66
			G6.2	20	65
			G6.3	30	64
			G6.4	40	63
			G6.5	50	62

**MODELED NOISE LEVELS AND IDENTIFICATION OF NOISE IMPACT OFFSETS**

Undeveloped/Non-Permitted Properties

**TABLE C-1**

Page 1 of 2

**MODELED NOISE LEVELS AND IDENTIFICATION OF NOISE IMPACT OFFSETS**

## Undeveloped/Non-Permitted Properties

Ref. No.	Undeveloped Property Description/ Location	Zoning	Noise Level Prediction Point Number	Distance from Roadway Existing Edge of Pavement (feet)	2050 Predicted Build Condition (dBA)
G7	6822-6828, 6832, 3840 S. Stony Island Ave.	B3-3 Business	G7.1	10	64
			G7.2	20	63
			G7.3	30	62
			G7.4	40	61
			G7.5	50	60

Notes

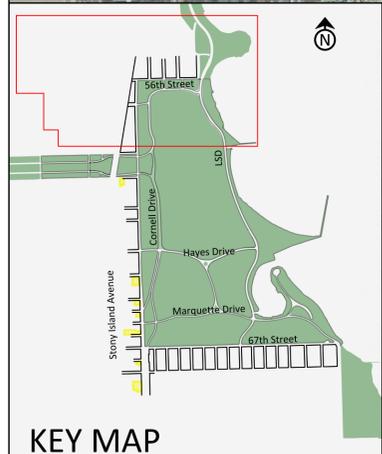
- The decibel values in this chart were generated by the FHWA TNM 2.5 computer program. All values represent Leq(h) values of exterior traffic noise, rounded to the nearest decibel
  - The traffic noise levels predicted by TNM 2.5 use A.M. peak-hour traffic.
  - Distances are from receptor to the edge of pavement of Stony Island Avenue.
- Indicates change from original 2040 Design Year analyses.

**MODELED NOISE LEVELS AND IDENTIFICATION OF NOISE IMPACT OFFSETS**

Undeveloped/Non-Permitted Properties

**TABLE C-1**

Page 2 of 2



**LEGEND**

Color	Activity Category
	B
	C
	E
	F
	G

	Reference Number
	Noise Level Prediction Point on Undeveloped Land
	Noise Contour

See Exhibit A-8b

**DRAFT**

Mobility Improvements to Support the South Lakefront Framework Plan

**Undeveloped Lands Traffic Noise Analysis (North Section)**

July 02, 2019

**Exhibit A-8a**



See Exhibit A-8a



66 dBA Noise Contour

59th Street  
WB Midway Plaisance

60th Street  
EB Midway Plaisance

61st Street

62nd Street

63rd Street

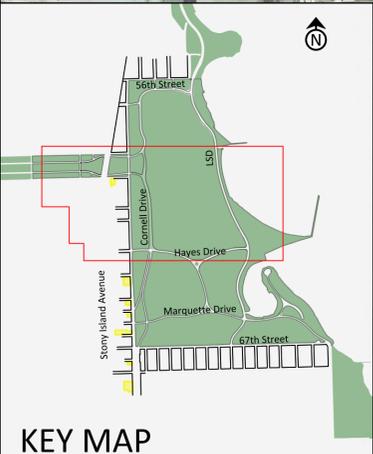
OBAMA PRESIDENTIAL CENTER

Hyde Park Academy High School

Jackson Park

Jackson Park

See Exhibit A-8c



KEY MAP

LEGEND	
Color	Activity Category
	B
	C
	E
	F
	G
	Reference Number
	Noise Level Prediction Point on Undeveloped Land
	Noise Contour

**DRAFT**

Mobility Improvements to Support the South Lakefront Framework Plan

**Undeveloped Lands Traffic Noise Analysis**  
(Central Section)

July 02, 2019

See Exhibit A-8b

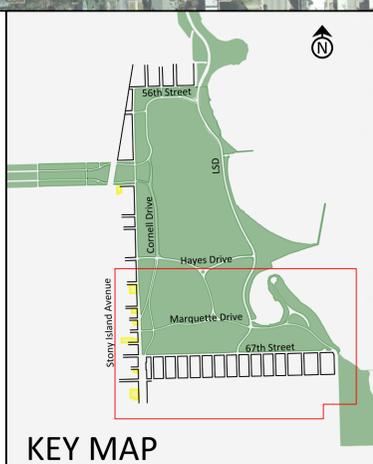


**LEGEND**

#	Reference Number
⊙	Noise Level Prediction Point on Undeveloped Land
---	Noise Contour

Color	Activity Category
Blue	B
Green	C
Purple	E
Orange	F
Yellow	G



**DRAFT**

Mobility Improvements to Support the South Lakefront Framework Plan

**Undeveloped Lands Traffic Noise Analysis (South Section)**

July 02, 2019



CHICAGO DEPARTMENT OF TRANSPORTATION  
CITY OF CHICAGO

July 3, 2019

Ms. Eleanor Gorski  
Acting Commissioner  
Chicago Department of Planning and Development  
121 N LaSalle Drive, Suite 1000  
Chicago, Illinois 60602

**Re: Roadway Improvements to Support the South Lakefront Framework Plan  
Section No.: 17-87203-00-ES  
CDOT Project No. B-7-203**

**Subject: Final Highway Traffic Noise Analysis**

Dear Ms. Gorski,

As part of the Federal and State Review for the above referenced project, the Chicago Department of Transportation (COOT), was required to complete a Highway Traffic Noise Analysis based on federal standards and state policies using a 2040 design year. To comply with the October 2018 adoption of the Chicago Metropolitan Agency for Planning (CMAP) regional plan, *ON TO 2050*, an addendum was prepared to evaluate noise using a 2050 design year. The attached 2040 noise report with 2050 addendum provides the detailed analysis and recommendations for your information. Based on the proposed improvements, noise impacts are predicted both inside and outside of Jackson Park. Noise barriers were analyzed to determine if a noise barrier is both feasible and reasonable. Based on the analysis, three noise barriers were found to be feasible, but they were not found to be reasonable. Therefore, no noise barriers are recommended for installation as part of this project under either the 2040 or 2050 design year.

Section IV of the report also provides information on protecting undeveloped lands from future noise impacts. Please note that subsequent to the preparation of the November 20, 2018 report, which evaluated a 2040 design year, FHWA required the analyses to also be evaluated using a 2050 design year. The updated analyses for undeveloped lands are also attached to this letter. Please see Table C-1 and Exhibits A-8a through A-8c.

This report will be included with the Environmental Assessment to document the completion of this required analysis. This report is simply for your file. No response is required. Any questions regarding this project may be directed to Nathan Roseberry, Acting Assistant Chief Highway Engineer, at [nathan.roseberry@cityofchicago.org](mailto:nathan.roseberry@cityofchicago.org) or 312-744-5936.

Sincerely,

Daniel Burke, P.E., S.E.  
Managing Deputy Commissioner  
Division of Engineering

**MODELED NOISE LEVELS AND IDENTIFICATION OF NOISE IMPACT OFFSETS**

## Undeveloped/Non-Permitted Properties

Ref. No.	Undeveloped Property Description/ Location	Zoning	Noise Level Prediction Point Number	Distance from Roadway Existing Edge of Pavement (feet)	2050 Predicted Build Condition (dBA)
G1	E. 60th St.	PD 43	G1.1	30	61
			G1.2	40	60
			G1.3	50	60
			G1.4	60	59
			G1.5	70	58
G2	6400 S. Stony Island Ave.	B3-5 Business	G2.1	10	67
			G2.2	20	66
			G2.3	30	66
			G2.4	40	65
			G2.5	50	65
G3	E. 65th St.	B3-5 Business	G3.1	10	66
			G3.2	20	65
			G3.3	30	64
			G3.4	40	63
			G3.5	50	62
G4	E. 65th Pl.	B3-5 Business	G4.1	10	69
			G4.2	20	68
			G4.3	30	67
			G4.4	40	67
			G4.5	50	66
G5	1550-1556 E. 66th Pl.	B3-3 Business	G5.1	10	68
			G5.2	20	67
			G5.3	30	65
			G5.4	40	64
			G5.5	50	63
G6	6734 S. Stony Island Ave.	B3-3 Business	G6.1	10	66
			G6.2	20	65
			G6.3	30	64
			G6.4	40	63
			G6.5	50	62

**MODELED NOISE LEVELS AND IDENTIFICATION OF NOISE IMPACT OFFSETS**

Undeveloped/Non-Permitted Properties

**TABLE C-1**

Page 1 of 2

**MODELED NOISE LEVELS AND IDENTIFICATION OF NOISE IMPACT OFFSETS**

Undeveloped/Non-Permitted Properties

Ref. No.	Undeveloped Property Description/ Location	Zoning	Noise Level Prediction Point Number	Distance from Roadway Existing Edge of Pavement (feet)	2050 Predicted Build Condition (dBA)
G7	6822-6828, 6832, 3840 S. Stony Island Ave.	B3-3 Business	G7.1	10	64
			G7.2	20	63
			G7.3	30	62
			G7.4	40	61
			G7.5	50	60

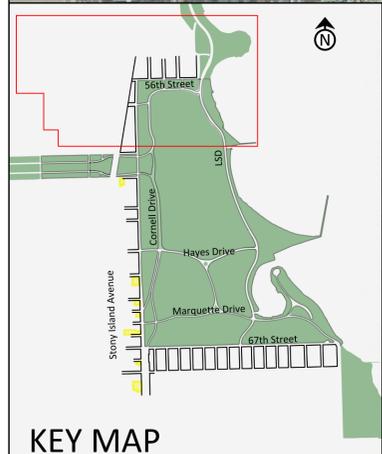
Notes

- The decibel values in this chart were generated by the FHWA TNM 2.5 computer program. All values represent Leq(h) values of exterior traffic noise, rounded to the nearest decibel
  - The traffic noise levels predicted by TNM 2.5 use A.M. peak-hour traffic.
  - Distances are from receptor to the edge of pavement of Stony Island Avenue.
- Indicates change from original 2040 Design Year analyses.

**MODELED NOISE LEVELS AND IDENTIFICATION OF NOISE IMPACT OFFSETS**

Undeveloped/Non-Permitted Properties

**TABLE C-1**



**LEGEND**

Color	Activity Category
	B
	C
	E
	F
	G

	Reference Number
	Noise Level Prediction Point on Undeveloped Land
	Noise Contour

See Exhibit A-8b

**DRAFT**

Mobility Improvements to Support the South Lakefront Framework Plan

**Undeveloped Lands Traffic Noise Analysis (North Section)**



See Exhibit A-8a



66 dBA Noise Contour

59th Street

WB Midway Plaisance

Midway Plaisance

EB Midway Plaisance

60th Street

G1

Park Shore

61st Street

62nd Street

Hyde Park Academy High School

Harper Avenue

63rd Street

Jackson Park

59th Street Harbor

Lake Shore Drive

Lake Michigan

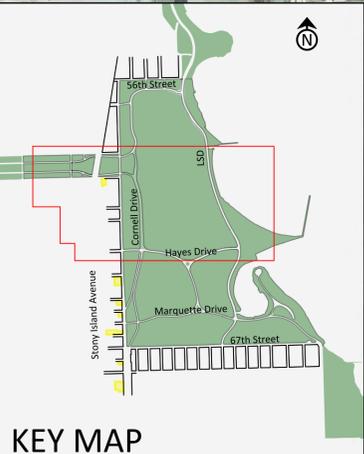
Jackson Park

Lake Shore Drive

Hayes Drive

Hayes Drive

See Exhibit A-8c



KEY MAP

Color		Activity Category
		B
		C
		E
		F
		G

	Reference Number
	Noise Level Prediction Point on Undeveloped Land
	Noise Contour

LEGEND

**DRAFT**

Mobility Improvements to Support the South Lakefront Framework Plan

**Undeveloped Lands Traffic Noise Analysis**  
(Central Section)

July 02, 2019

See Exhibit A-8b

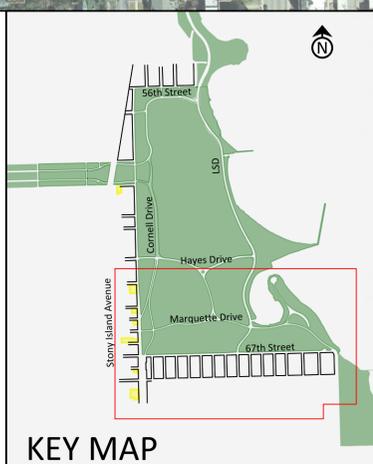


**LEGEND**

#	Reference Number
⊙	Noise Level Prediction Point on Undeveloped Land
---	Noise Contour

Color	Activity Category
Blue	B
Green	C
Purple	E
Orange	F
Yellow	G



**DRAFT**

Mobility Improvements to Support the South Lakefront Framework Plan

**Undeveloped Lands Traffic Noise Analysis (South Section)**

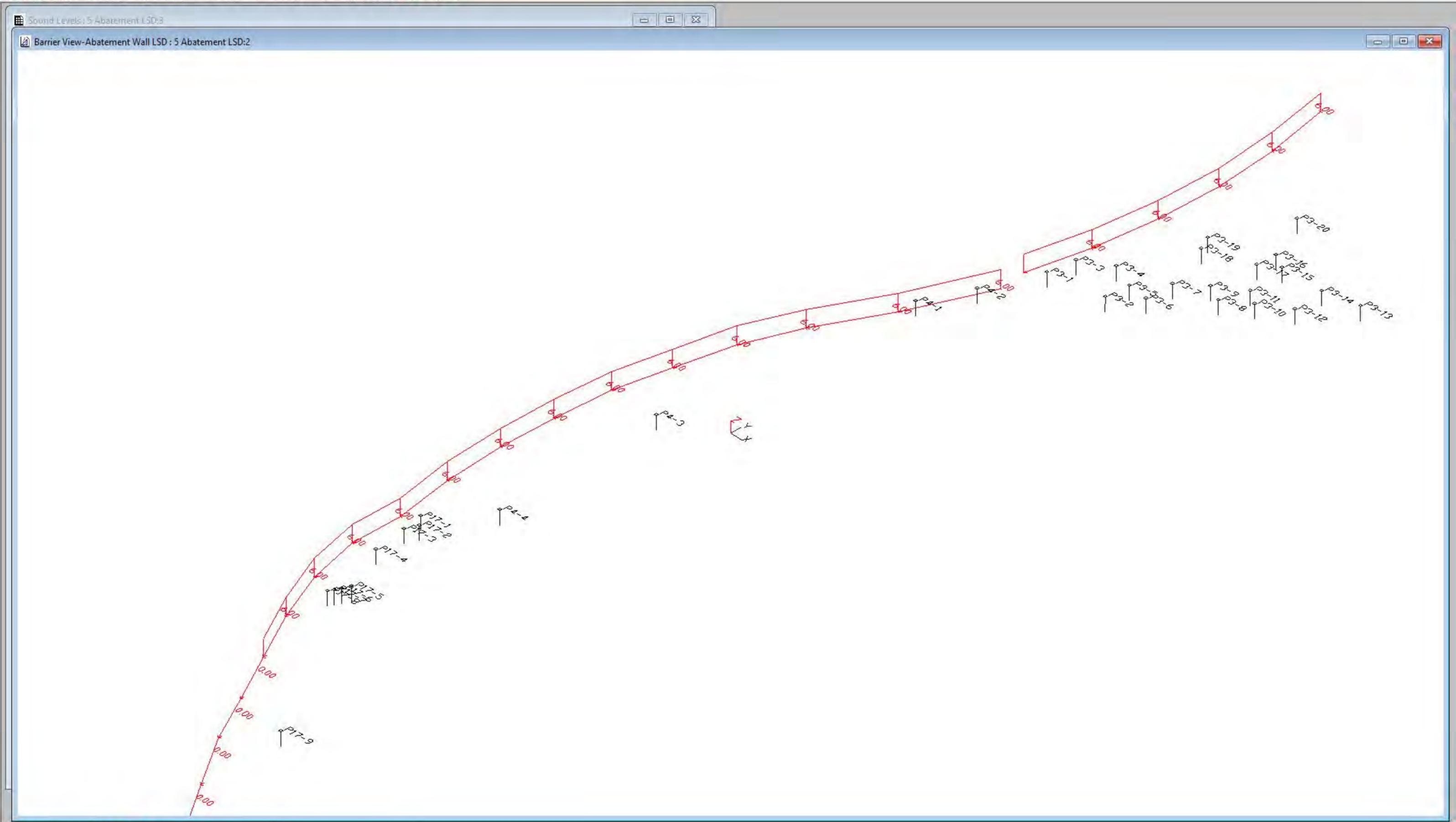
July 02, 2019

## **APPENDIX E**

TNM INPUT AND OUTPUT FILES (Compact Disc)

**APPENDIX F**

TRAFFIC NOISE MODEL  
BARRIER ANALYSIS SCREEN CAPTURES





Sound Levels: 5 Abatement LSD:3

Civiltech Engineering, Inc.  
JRW/SRG

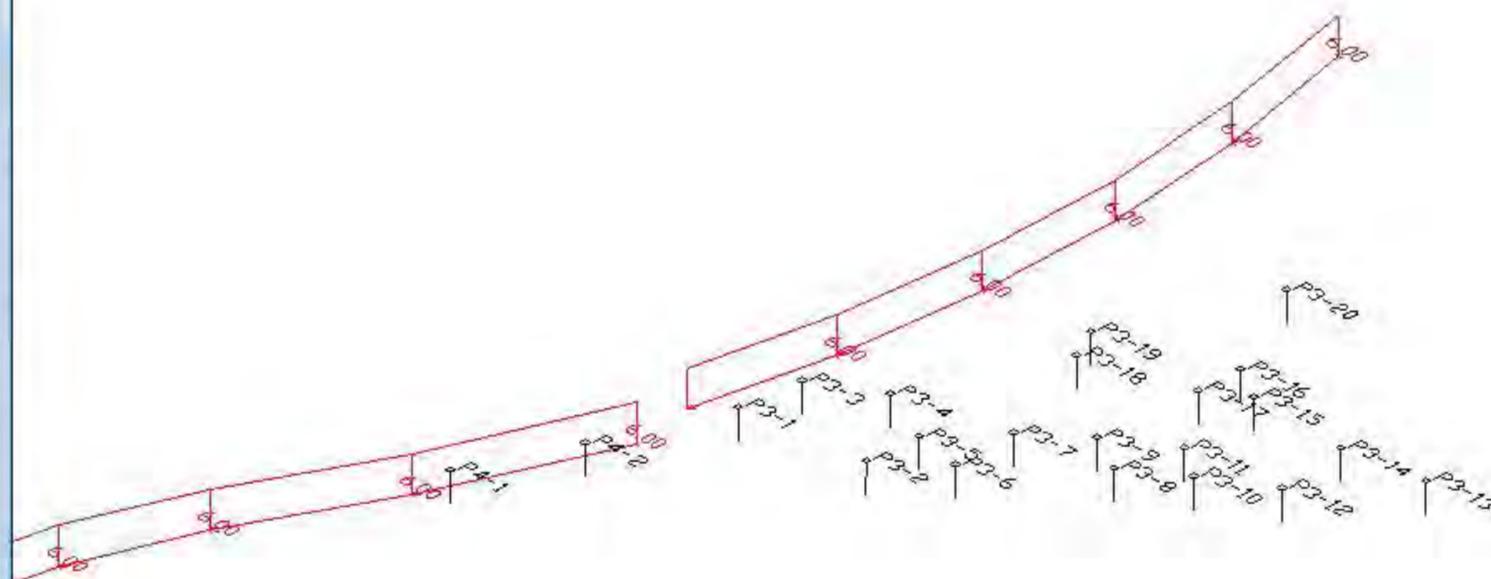
19 October 2018  
TNM 2.5  
Calculated with TNM 2.5

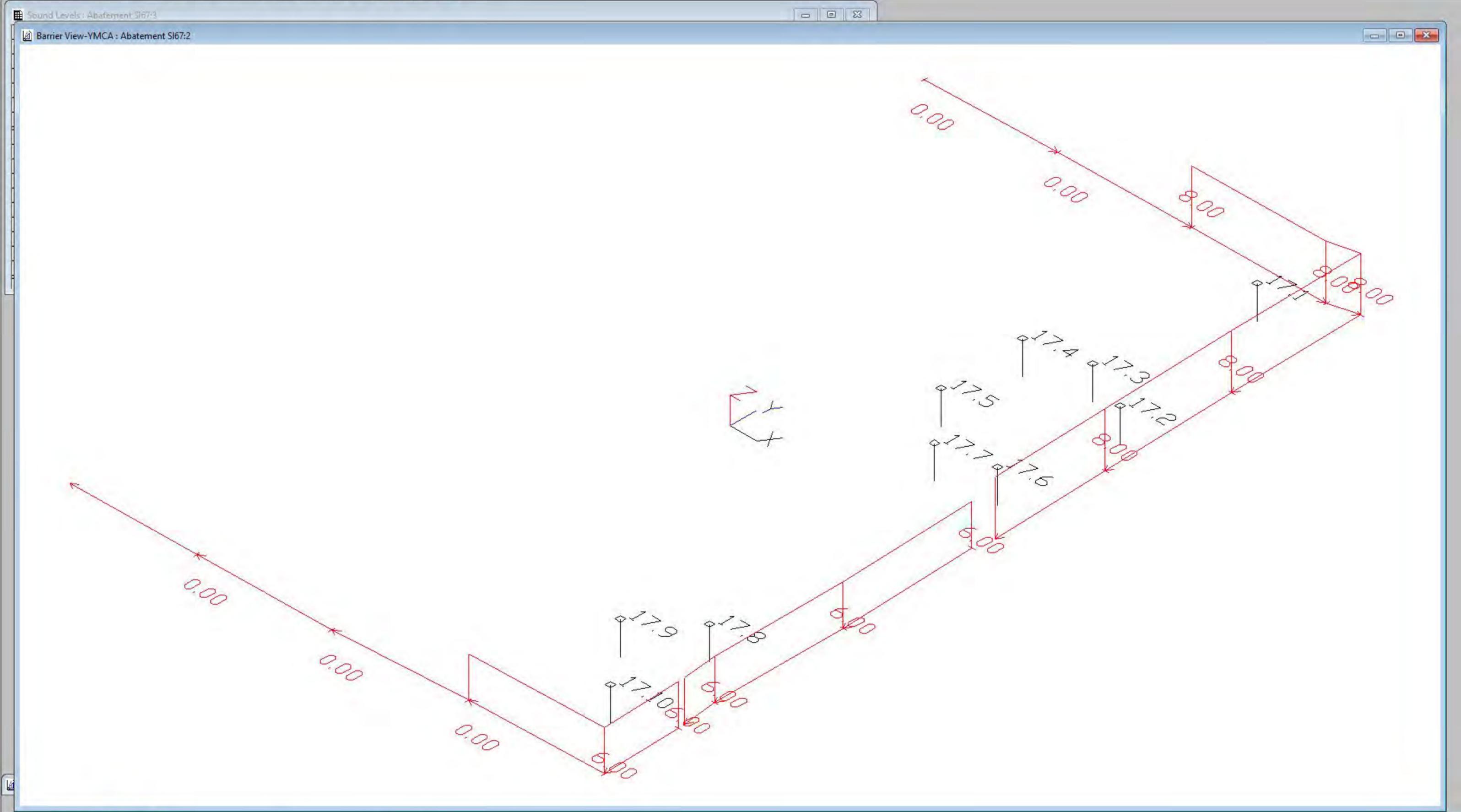
RESULTS: SOUND LEVELS  
PROJECT/CONTRACT: Jackson Park Roadway Improvements  
RUN: Existing Conditions  
BARRIER DESIGN: Abatement Wall LSD  
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type sh  
a State highway agency su  
of a different type with app

Receiver

Name	No.	#DUs	Existing LAeq1h dBA	No Barrier			Increase over existing		Type Impact	With Barrier	
				LAeq1h	Crit'n	dB	dB	Type		Calculated	Nois
				Calculated	Crit'n					LAeq1h	Calc
P17-9	538	1	0.0	63.0	66	63.0	10	—	62.5		
P17-8	537	1	0.0	67.6	66	67.6	10	Snd Lvl	60.3		
P17-7	536	1	0.0	67.0	66	67.0	10	Snd Lvl	59.8		
P17-6	535	1	0.0	66.3	66	66.3	10	Snd Lvl	59.4		
P17-5	534	1	0.0	65.6	66	65.6	10	—	59.0		
P17-4	533	1	0.0	66.8	66	66.8	10	Snd Lvl	60.2		
P17-3	532	1	0.0	67.0	66	67.0	10	Snd Lvl	60.9		
P17-2	531	1	0.0	66.4	66	66.4	10	Snd Lvl	60.6		
P17-1	530	1	0.0	67.7	66	67.7	10	Snd Lvl	61.7		
P4-4	529	1	0.0	63.9	66	63.9	10	—	58.0		
P4-2	527	1	0.0	68.6	66	68.6	10	Snd Lvl	61.3		
P4-1	526	1	0.0	69.3	66	69.3	10	Snd Lvl	61.5		
P4-3	528	1	0.0	64.3	66	64.3	10	—	57.6		
P3-1	506	1	0.0	68.1	66	68.1	10	Snd Lvl	64.0		
P3-3	508	1	0.0	68.4	66	68.4	10	Snd Lvl	62.1		
P3-4	509	1	0.0	64.4	66	64.4	10	—	58.9		
P3-2	507	1	0.0	61.2	66	61.2	10	—	56.7		
P3-5	510	1	0.0	61.4	66	61.4	10	—	56.6		
P3-6	511	1	0.0	59.3	66	59.3	10	—	55.1		
P3-7	512	1	0.0	59.6	66	59.6	10	—	55.1		
P3-9	514	1	0.0	57.8	66	57.8	10	—	54.1		
P3-8	513	1	0.0	56.5	66	56.5	10	—	53.4		
P3-10	515	1	0.0	55.2	66	55.2	10	—	52.8		
P3-11	516	1	0.0	56.1	66	56.1	10	—	53.4		
P3-12	517	1	0.0	54.0	66	54.0	10	—	52.1		
P3-13	518	1	0.0	52.3	66	52.3	10	—	50.8		
P3-14	519	1	0.0	54.0	66	54.0	10	—	52.1		
P3-15	520	1	0.0	57.1	66	57.1	10	—	54.0		
P3-17	522	1	0.0	58.4	66	58.4	10	—	54.6		
P3-18	523	1	0.0	63.2	66	63.2	10	—	56.8		
P3-19	524	1	0.0	64.4	66	64.4	10	—	56.9		
P3-16	521	1	0.0	58.7	66	58.7	10	—	54.7		
P3-20	525	1	0.0	60.2	66	60.2	10	—	55.1		



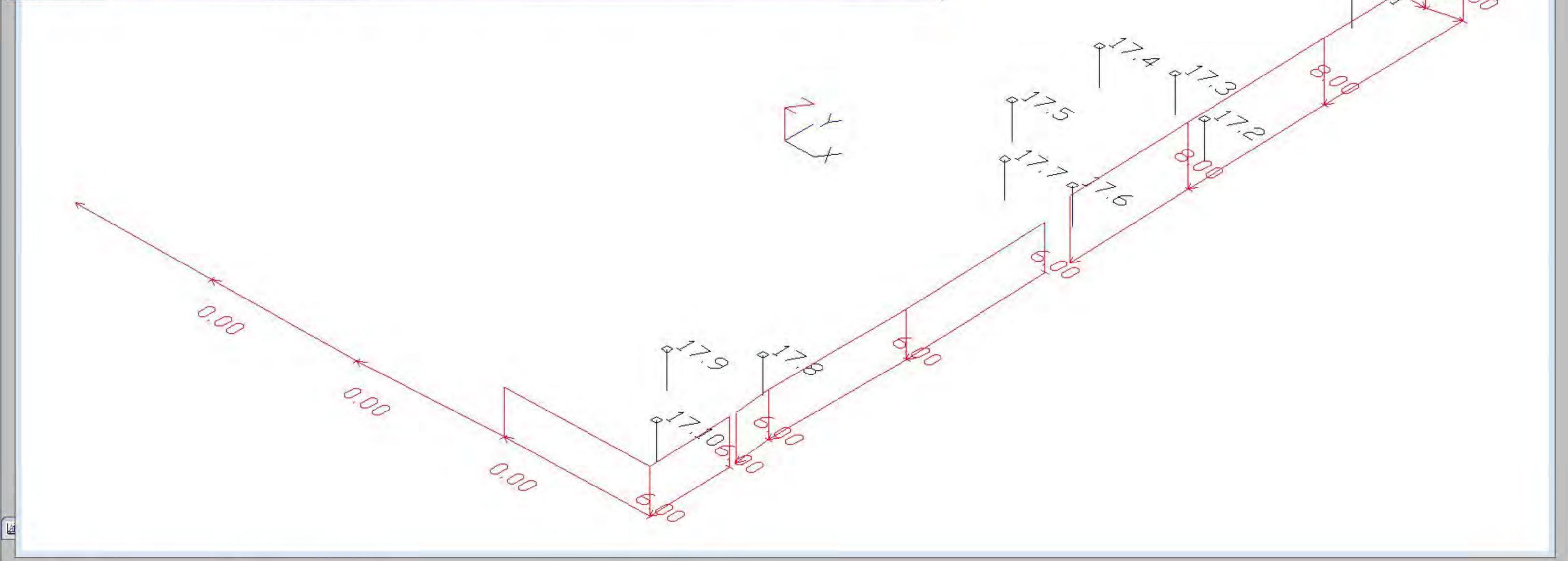




Sound Levels: Abatement SI67:3

Receiver Name	No.	#DUs	Existing LAeq1h dBA	No Barrier				With Barrier				
				LAeq1h		Increase over existing		Type Impact	Calculated LAeq1h dBA	Noise Reduction		Calculated minus Goal dB
				Calculated dBA	Crit'n dBA	Calculated dB	Crit'n dB			Calculated dB	Goal dB	
17.10	527	1	0.0	68.6	66	68.6	10	Snd Lvl	63.0	5.6	8	-2.4
17.9	526	1	0.0	65.1	66	65.1	10	—	60.0	5.1	8	-2.9
17.8	525	1	0.0	67.3	66	67.3	10	Snd Lvl	61.3	6.0	8	-2.0
17.7	523	1	0.0	63.6	66	63.6	10	—	58.9	4.7	8	-3.3
17.6	522	1	0.0	66.3	66	66.3	10	Snd Lvl	61.2	5.1	8	-2.9
17.5	521	1	0.0	61.9	66	61.9	10	—	57.0	4.9	8	-3.1
17.4	520	1	0.0	62.2	66	62.2	10	—	57.3	4.9	8	-3.1
17.3	519	1	0.0	64.8	66	64.8	10	—	59.1	5.7	8	-2.3
17.2	518	1	0.0	67.1	66	67.1	10	Snd Lvl	58.4	8.7	8	0.7
17.1	517	1	0.0	66.8	66	66.8	10	Snd Lvl	59.8	7.0	8	-1.0

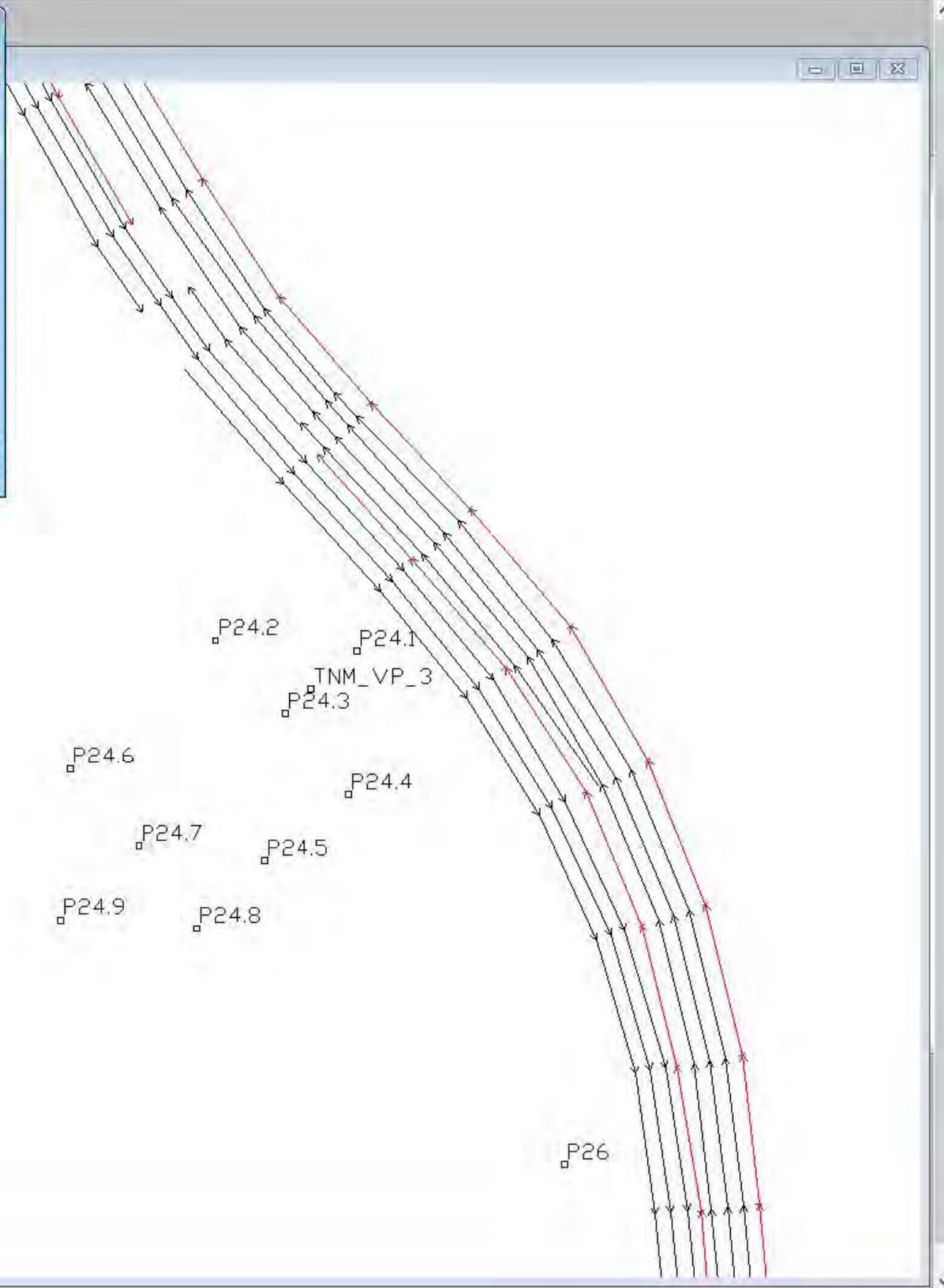
Dwellin Units      # DUs      Noise Reduction





Sound Levels: 6 2040 Build chk 24:2

29.2	497	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
29.3	498	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
29.4	499	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
29.5	500	1	0.0	0.0	66	0.0	10	inactive	0.0	0.0	8	0.0
P24.4	511	1	0.0	61.9	66	61.9	10	—	61.9	0.0	8	-8.0
P24.5	512	1	0.0	58.3	66	58.3	10	—	58.3	0.0	8	-8.0
P24.8	513	1	0.0	56.5	66	56.5	10	—	56.5	0.0	8	-8.0
P24.9	514	1	0.0	54.7	66	54.7	10	—	54.7	0.0	8	-8.0
P24.7	515	1	0.0	56.1	66	56.1	10	—	56.1	0.0	8	-8.0
P24.3	516	1	0.0	61.5	66	61.5	10	—	61.5	0.0	8	-8.0
P24.2	517	1	0.0	61.2	66	61.2	10	—	61.2	0.0	8	-8.0
P24.6	518	1	0.0	55.9	66	55.9	10	—	55.9	0.0	8	-8.0
P24.12	519	1	0.0	52.2	66	52.2	10	—	52.2	0.0	8	-8.0
P24.11	520	1	0.0	53.4	66	53.4	10	—	53.4	0.0	8	-8.0
P24.10	521	1	0.0	54.1	66	54.1	10	—	54.1	0.0	8	-8.0
Dwelling Units		# DUs	Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected		161	0.0	0.0	0.0							



**APPENDIX G**

JUNE 28, 2019 ADDENDUM

# Technical Memorandum

**Date:** June 28, 2019

**To:** Nathan Roseberry, P.E.  
Acting Assistant Chief Highway Engineer  
Chicago Department of Transportation  
30 N. LaSalle Street, Room 400  
Chicago, IL 60602

**From:** CNECT

**Re:** **Mobility Improvements to Support the South Lakefront Framework Plan  
Jackson Park, Chicago, Illinois  
Section No. 17-B7203-00-ES  
Highway Traffic Noise Analysis Addendum**

---

## I. INTRODUCTION

A highway traffic noise analysis was completed for the referenced project and was summarized in a report dated November 20, 2018. That report was reviewed and obtained concurrence from CDOT. IDOT concurred with the results and conclusions on December 21, 2018.

Following the review and approval of the November 2018 report, FHWA requested an analysis under 2050 traffic volume conditions in accordance with the Chicago Metropolitan Agency for Planning (CMAP) *ON TO 2050* Regional Plan, adopted in October 2018. The 2050 projected traffic volumes result in increased design year traffic volumes in several locations throughout the project area, and decreases in other areas. As a result, it was expected that some of the traffic noise results might change. To verify, traffic noise models have been re-run using the 2050 traffic projections, and the impact and attenuation analyses have been updated. The purpose of this technical memorandum is to serve as an addendum to the November 2018 report by providing a summary of the updated analyses. Only exhibits and tables that have changed will be presented herein. *In short, the original conclusion that noise abatement measures are not likely to be implemented is still valid after a consideration of 2050 design year traffic volumes.*

## II. 2050 DESIGN YEAR TRAFFIC VOLUMES

**Exhibit A-6b** in **Appendix A** of this memorandum depicts 2050 No-Build traffic volumes for the A.M. Peak Hour, which was the critical hour selected for analysis. **Exhibit A-6c** shows 2050 A.M. Peak Hour traffic for the Build condition. Note that Exhibit and Table numbering is kept consistent with that in the November 2018 report for ease of comparison.

### III. UPDATED ANALYSES AND IDENTIFICATION OF IMPACTS

Traffic Noise Model 2.5 (TNM) was used to rerun the No-Build model using 2050 traffic volumes in place of 2040 traffic volumes. TNM was also used to rerun the Build condition model using 2050 traffic versus 2040. It is noted (based on traffic analyses presented in a separate technical memorandum) that the geometric plan proposed as part of the 2040 analysis is predicted to continue to provide acceptable traffic performance to accommodate 2050 projected traffic volumes, and thus there is no difference between the plan developed using 2040 projections and the plan developed using 2050 projections.

**Table A-3.1 in Appendix A** is a “2050 update” to the same table in the November 2018 report. It presents the modeled noise levels and identification of traffic noise impacts for noise-sensitive locations *outside* of Jackson Park. Note that in each of the tables in this addendum, a yellow shading indicates that the particular 2050 design year value is different from the 2040 design year value in the November 2018 report. The 2050 Predicted No-Build Condition noise levels are either unchanged, or are within one decibel of the 2040 No-Build noise levels. A change of 3 decibels is barely perceptible to a human with average hearing, therefore the difference between the 2040 and 2050 No-Build conditions is negligible.

Year 2050 Predicted Build Condition noise levels are also presented. Again, they are either unchanged, or within one decibel of the 2040 Build Condition noise levels, meaning that there will likely not be a perceptible difference between 2050 and 2040 build noise levels. Furthermore, none of the 2050 noise levels caused a noise impact at a receptor that was not already identified as impacted in the 2040 build condition, and no receptors that were identified as impacted are now not impacted under 2050 conditions. This means that no additional consideration of noise abatement is required at any of the locations outside of the Jackson Park boundary.

Similarly, **Table A-3.2 in Appendix A** is a “2050 update” to the same table in the November 2018 report. It presents the modeled noise levels and identification of traffic noise impacts for noise-sensitive locations *within* Jackson Park. Again, the 2050 Predicted No-Build Condition noise levels are either unchanged, or are within one decibel of the 2040 No-Build noise levels, and therefore the difference between the 2040 and 2050 is also negligible.

Year 2050 Predicted Build Condition noise levels are also presented. Once again, they are either unchanged, or within one decibel of the 2040 Build Condition noise levels, meaning that there will likely not be a perceptible difference between 2050 and 2040 build noise levels. However, there is one receptor (CNE P11) that was found to be impacted under 2050 conditions that was not impacted under 2040 conditions. The feasibility and reasonableness of a noise barrier at this location was therefore evaluated in the same manner as presented in Section III.C. and in Appendix B in the November 2018 report. The analysis at this location is detailed in Section IV below.

#### IV. ADDITIONAL/UPDATED TRAFFIC NOISE ABATEMENT ANALYSIS

CNE P11 is located on the northwest quadrant of the intersection of Lake Shore Drive and 57<sup>th</sup> Drive. See Exhibit A-5a in Appendix A of the original report. This CNEs contains trails, benches, and the Iowa Building. There are 2 receptors identified in CNE P11. One is a bench along a trail, and the other is the Iowa Building. The representative receptor is the bench along the trail. As shown in **Table A-3.2** in **Appendix A** of this memo. The modeled noise level at the representative receptor for CNE P11 was increased from 65 dBA in 2040 to 66 dBA under the 2050 Build condition, thus the receptor is considered impacted because the future traffic noise level is equal to or greater than 66 dBA.

*Feasibility* - A noise barrier (Barrier #3) was analyzed at this location. As summarized in **Tables B-1.2** and **B-2**, analyses show that a twelve- to fourteen-foot tall, approximately 710-foot long noise barrier wall along the northwest quadrant of the intersection would result in a noise reduction (insertion loss) of 5-dBA or more at two receptors expected to experience a noise impact (the two receptors shown on Exhibit A-5a in the November 2018 report). This quadrant is elevated above the ground below and the intersection is supported by retaining walls. The barrier would likely need to be attached to the retaining walls, and structural analyses would need to be performed to determine what it would take to accommodate the noise barrier. Additional cost to construct this noise barrier above its base cost of \$267,600 is estimated at \$225,000. This barrier is likely constructible from an engineering standpoint. Therefore, this barrier is considered physically and acoustically feasible.

*Reasonableness (Noise Reduction Design Goal)* - The design goal of an 8-dBA noise reduction would be achieved at a minimum of one benefited receptor. Therefore, the wall would be reasonable from a noise reduction design goal standpoint as shown in **Table B-1.2**.

*Reasonableness (Cost Effectiveness)* - The cost effectiveness of this noise barrier was then analyzed. Adjustments (increases) to the base \$30,000 per benefited receptor criterion are allowable based on IDOT guidelines, however as shown in **Table B-2.3**, no adjustments were found to be applicable and thus the allowable cost per benefited receptor remains at \$30,000. It is predicted that the two receptors in CNE P11 would benefit from the installation of a noise barrier with the previously-stated dimensions because they would experience a noise reduction of 5 dBA or more.

As shown in **Table B-2**, the total cost of this barrier would be \$492,600. This is the sum of the cost of the barrier at \$30 per square foot of face, plus estimated additional structural costs. The cost per benefited receptor would be \$246,300. Since this cost exceeds the allowable cost per benefited receptor, *this noise barrier is considered to be not reasonable from a cost-effectiveness standpoint.*

For these reasons, while a barrier in this location is considered feasible, it is not considered reasonable, and no further noise analyses will be performed for this location. Based on the preliminary engineering plans and the above considerations, a noise barrier is not recommended for installation at this location as part of the proposed roadway improvements.

Aside from CNE #P11, no additional consideration of noise abatement is required at any of the other locations within the Jackson Park boundary.

Additional revisions that are inconsequential to the abatement consideration conclusions, based on 2050 traffic updates, are as follows:

- As shown in **Table B-1.1**, the 2050 Build w/o Barrier noise levels is updated for CNE 37.
- As shown in **Table B-1.2**, the 2050 Build w/o Barrier noise levels are updated for CNE P3, P4, P17, P 38 and P39. In addition, the 2050 Build with Barrier noise levels and the noise reductions with barriers are updated for P3, P4 and P17.
- Table B-2.2 from the original November 2018 report lists 11 receptors in CNE 17. Receptor number 17.8 should be omitted, and for comparison, Receptors 17.9, 17.10, and 17.11 should be used for comparison in **Table B-2.2** of this memo. Table B-2 is unaffected by this change.
- For the analysis of Barrier #3, an additional two receptors were found to benefit from the insertion of a noise barrier, resulting in 22 total benefitted receptors considered in the cost analysis shown in **Table B-2**. As shown in **Tables B-2** and **B-2.1**, the Base Allowable Cost per Benefitted Receptor for Barrier #1 has changed slightly.
- As shown in **Tables B-2** and **B-2**, a slight change in the barrier design resulted in a minor change to the Barrier Cost and Cost per Benefitted Receptor for Barrier #2.

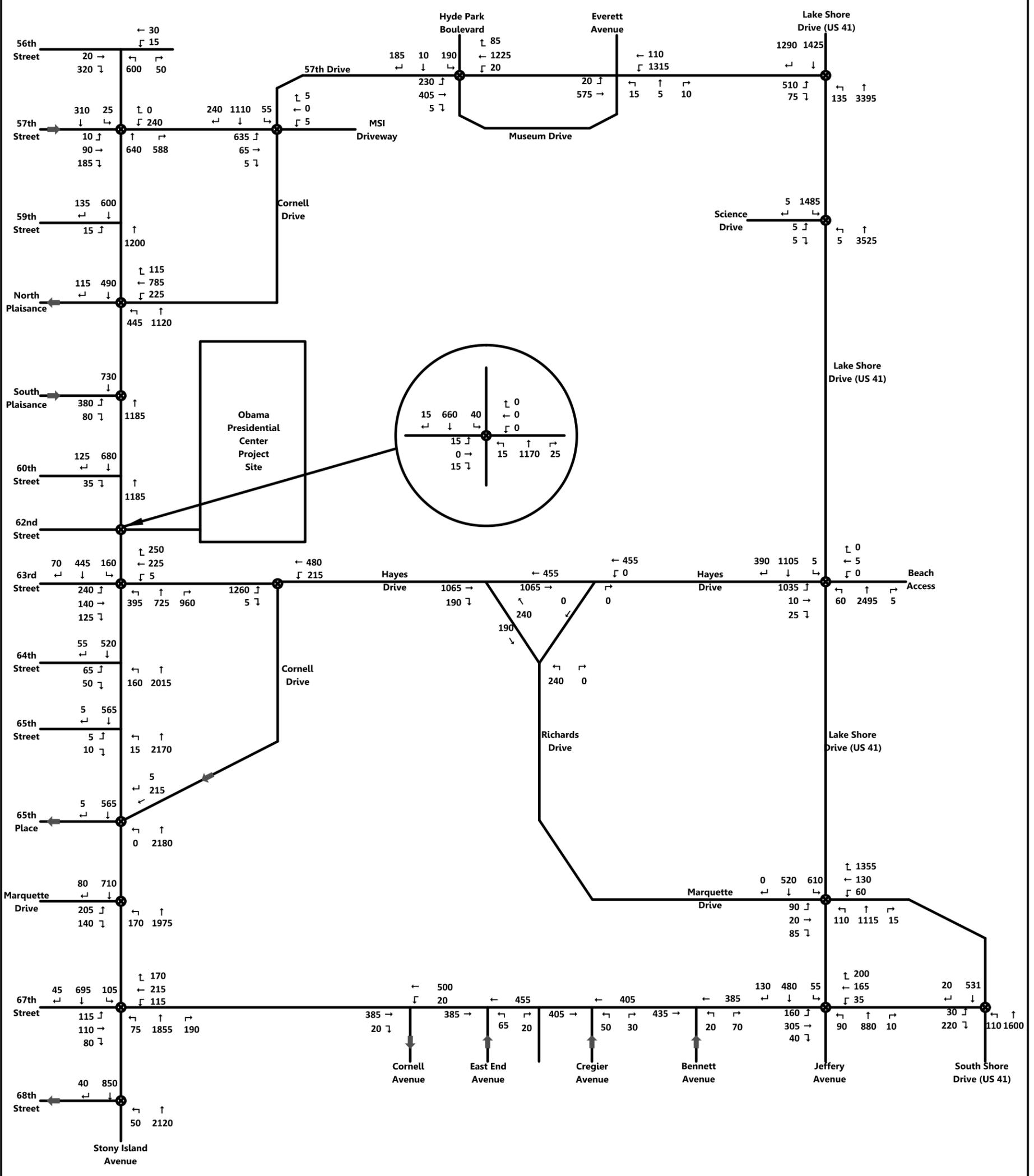
## V. CONCLUSION

The November 2018 Highway Traffic Noise Analysis report concluded that highway traffic noise abatement measures are not likely to be implemented at any location within the study area based on 2040 design year traffic projections. The preliminary design remains unchanged after a consideration of 2050 design year traffic volumes.

**APPENDIX A**

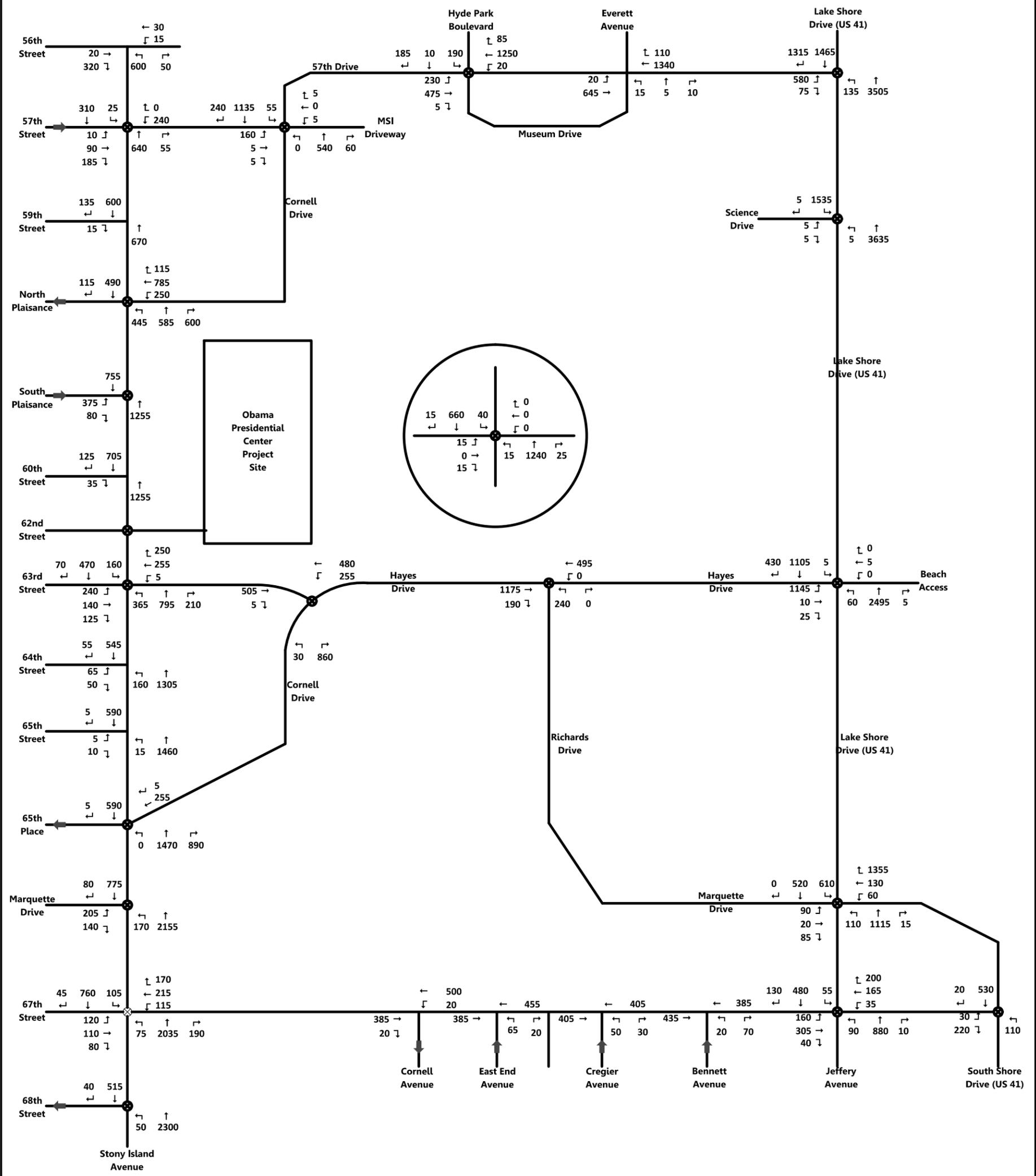
EXHIBITS AND TABLES

## Exhibits



Mobility Improvements to Support  
the South Lakefront Framework Plan

**2050 No-Action A.M.  
Peak Hour Traffic**



Mobility Improvements to Support  
the South Lakefront Framework Plan

**2050 Build  
A.M. Peak Hour Traffic**

## Tables

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS (2050 Design Year)**

## Noise-Sensitive Receptor Locations Outside of Jackson Park

CNE No.	Address(es)	Business, Property, or Owner Name(s)	Activity Category Description	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2050 Predicted No-Build Condition (dBA)	2050 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
1	5500, 5530-5532, 5550 S. Shore Dr., 5515-5555 S. Everett Ave.	Flamingo Apts., Promontory Apts., Montgomery Place Apts., Jackson Towers Condos, Other Res.	Residential	B	67	58	58	59	1	No
2	5525-5539 S. Hyde Park Blvd., 5524-5540 S. Everett Ave., 1700 E. 56th St.	1700 Building Condos, Other Res.	Residential	B	67	61	61	61	0	No
3	5519-5539 S. Cornell Ave., 5518-5540 S. Hyde Park Blvd., 1642 E. 56th St.	Windermere House Apartments	Residential	B	67	58	58	58	0	No
4	5528-5532 S. Cornell Ave.	Mac Properties Apartments	Residential	B	67	49	49	49	0	No
5	1556 E. 56th St.	Bret Hart Elementary School	School	C	67	59	59	59	0	No
6	1610 E. 56th St.	5528 S. Cornell Avenue (Under Construction)	Residential	B	67	60	60	60	0	No
7	5608 S. Stony Island Ave.	UC Facilities Services	Office	E	72	67	67	67	0	No
8	5656 S. Stony Island Ave.	Alpha Kappa Alpha Sorority Corporate Office	Office	E	72	61	61	61	0	No
9	5700-5704, 5716-5730, 5736-5744 S. Stony Island Ave.	5700 Stony Island Apartments, Wooded Isle Apartments, Other Apartments	Residential	B	67	64	64	64	0	No

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS (2050)**

Noise-Sensitive Receptor Locations Outside of Jackson Park

**TABLE A-3.1**

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS (2050 Design Year)**

## Noise-Sensitive Receptor Locations Outside of Jackson Park

CNE No.	Address(es)	Business, Property, or Owner Name(s)	Activity Category Description	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2050 Predicted No-Build Condition (dBA)	2050 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
10	5824 S. Stony Island Ave.	UC Earl Shapiro Hall, UC Child Development Center	Public Institutional, School	C	67	60	60	60	0	No
11	1516-1522, 1524-1534 59th St., 5830-5844 S. Stony Island Ave.	Apartments, Condominiums	Residential	B	67	52	53	53	1	No
12	6015-6043 S. Harper Ave., 6018-6024 S. Stony Island Ave., 1540-1560 E. 61st St.	Jackson Park Terrace Apartments	Residential	B	67	63	63	63	0	No
13	1519-1561 E. 61st St., 6100-6124 S. Stony Island Ave., 1515-1562 E. 62nd St.	Blackstone Apartments	Residential	B	67	62	63	63	1	No
14	6200-6210, 6250 S. Park Shore East Ct.	Blackstone Apartments, Park Shore East Apartments	Residential	B	67	47	47	47	0	No
15	6220 S. Stony Island Ave.	Hyde Park Academy High School	School	C	67	61	62	62	1	No
16	1500-1528 E. 63rd St.	Various Business/Commercial/Retail/Medical	Medical Facilities, Offices, Retail Facilities	C, E, F	67	60	61	61	1	No
17	6318-6630 S. Stony Island Ave.	YMCA	Public Institutional, School	C	67	66	67	67	1	Yes
18	6401 S. Harper Ave., 1539 E. 64th St.	School Facility?	Public Institutional, School	C	67	60	60	60	0	No

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS (2050)**

Noise-Sensitive Receptor Locations Outside of Jackson Park

**TABLE A-3.1**

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS (2050 Design Year)**

## Noise-Sensitive Receptor Locations Outside of Jackson Park

CNE No.	Address(es)	Business, Property, or Owner Name(s)	Activity Category Description	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2050 Predicted No-Build Condition (dBA)	2050 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
19	1459 E. 64th St.	Mount Carmel High School	School	C	67	53	53	53	0	No
20	6430 S. Stony Island Ave., 1554-1558 E. 65th St.	Island Terrace Apartments, First Floor Various Commerical with Apartments Above	Residences, Offices, Retail Facilities	B, C, F	67	63	62	62	-1	No
21	1525-1547 E. 65th St., 1522-1558 E. 65th Pl.	Various Multi-Unit Residential	Residential	B	67	67	66	<u>67</u>	0	Yes
22	1527-1549 E. 65th Pl., 1516-1538 E. Marquette Rd.	Various Multi-Unit Residential	Residential	B	67	59	59	59	0	No
23	6558 S. Stony Island Ave.	McDonald's	Restaurants	E	72	66	66	66	0	No
24	1517-1545 E. Marquette Ave.	Various Multi-Unit Residential	Residential	B	67	63	64	63	0	No
25	1525-1531 E. 66th Pl.	Various Multi-Unit Residential	Residential	B	67	55	55	55	0	No
26	6714 S. Stony Island Ave.	Subway, Pizza Hut Express, Currency Exchange and other Retail	Restaurants, Retail Facilities	E, F	72	63	62	63	0	No
27	1514-1542 67th Pl.	Various Multi-Unit Residential	Residential	B	67	54	54	54	0	No

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS (2050)**

Noise-Sensitive Receptor Locations Outside of Jackson Park

**TABLE A-3.1**

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS (2050 Design Year)**

## Noise-Sensitive Receptor Locations Outside of Jackson Park

CNE No.	Address(es)	Business, Property, or Owner Name(s)	Activity Category Description	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2050 Predicted No-Build Condition (dBA)	2050 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
28	1515-1543 E. 67th Pl., 1512-1536 E. 68th St.	Various Multi-Unit Residential	Residential	B	67	56	55	56	0	No
29	1501-1529 E. 68th St., 6807-6843 S. Harper Ave.	Various Residential	Residential	B	67	56	55	56	0	No
30	6714-6724 S. Cornell Ave., 6736-3785 S. Chris Cornell Ave., 1620-1622 E. 68th St.	Good Shepherd Manor Sr. Living, Various Multi-Unit Residential	Residential	B	67	65	66	65	0	No
31	1627-1657 E. 67th St., 6717-6757 S. Cornell Av, 6714-6754 S. East End Av., 1644-1648 E. 68th	Various Multi-Unit Residential	Residential	B	67	67	67	<u>67</u>	0	Yes
32	6800-6846 S. Cornell Ave.	Various Multi-Unit Residential	Residential	B	67	54	55	55	1	No
33	6801-6843 S. Cornell Ave., 1645-1647 E. 68th St., 6800-6844 S. East End Ave.	Various Multi-Unit Residential	Residential	B	67	49	49	49	0	No
34	1701-1721 E. 67th St., 6700-6730 S. Ridgeland Ave., 6717-6745 S. East End Ave.	Various Multi-Unit Residential	Residential	B	67	66	66	<u>66</u>	0	Yes
35	6701-6741 S. Bennett Ave., 6700-6740 S. Euclid Ave.	Various Single Family Residential	Residential	B	67	63	63	63	0	No
36	6701-6741 S. Euclid Ave., 6270-6736 S. Jeffery Blvd.	Various Multi-Unit and Single Family Residential	Residential	B	67	59	59	59	0	No

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS (2050)**

Noise-Sensitive Receptor Locations Outside of Jackson Park

**TABLE A-3.1**

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS (2050 Design Year)**

Noise-Sensitive Receptor Locations Outside of Jackson Park

CNE No.	Address(es)	Business, Property, or Owner Name(s)	Activity Category Description	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2050 Predicted No-Build Condition (dBA)	2050 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
37	6717-6741 S. Jeffery Blvd., 6700-6744 S. Chappel Ave.	Various Multi-Unit Residential	Residential	B	67	66	66	<b><u>67</u></b>	1	Yes
38	6701-6739 S. Chappel Ave., 2049-2051 E. 67th St., 6706-6742 S. Clyde Ave.	Various Multi-Unit Residential	Residential	B	67	64	65	65	1	No
39	2345 E. 67th St., 6715-6759 S. Oglesby Ave.	Various Multi-Unit Residential	Residential	B	67	62	62	61	-1	No
40	6700-6756 S. South Shore Dr.	Various Multi-Unit Residential	Residential	B	67	65	65	64	-1	No

- Notes:
- CNE = Common Noise Environment.
  - FHWA NAC = Federal Highway Administration Noise Abatement Criterion.
  - The decibel values in this chart were generated by the FHWA TNM 2.5 computer program. All values represent Leq(h) values of exterior traffic noise, rounded to the nearest decibel (dBA).
  - The traffic noise levels predicted by TNM 2.5 use AM peak-hour traffic.
  - 2050 Proposed Action noise levels that are **bold and underlined** indicate that the receptor approaches (within 1 dBA) or exceeds the FHWA Noise Abatement Criteria. Increases from Existing to 2050 Proposed Action which are considered substantial are also shown as bold and underlined.
  - Noise abatement should be considered if the predicted future traffic noise levels either approach or exceed the FHWA noise abatement criteria or substantially exceed the existing noise levels (15 dBA or greater increase). Noise barriers would be constructed only if they would be feasible and reasonable under IDOT's noise policies.
- Indicates change from original 2040 Design Year analyses.

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS (2050)**

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS (2050 Design Year)**

## Noise-Sensitive Receptor Locations Within Jackson Park

CNE No.	Location				Representative Receptor	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2050 Predicted No-Build Condition (dBA)	2050 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
P1	W. of	Lake Shore Dr.	N. of	55th St.	Drinking Fountain	C	67	60	61	61	1	No
P2	W. of	Lake Shore Dr.	N. of	56th St.	Parking Lot	C	67	59	60	60	1	No
P3	E. of	Lake Shore Dr.	at	56th St.	Bench along LFT	C	67	68	69	<u>69</u>	1	Yes
P4	E. of	Lake Shore Dr.	N. of	57th Dr.	Bench along LFT	C	67	69	70	<u>70</u>	1	Yes
P5	S. of	56th St.	E. of	Stony Island Ave.	Bench - SW on Hyde Park Blvd	C	67	66	66	<u>67</u>	1	Yes
P6	E. of	Stony Island Ave.	N. of	57th St.	Bench - SW on Stony Island	C	67	67	67	<u>67</u>	0	Yes
P7	N. of	57th Dr.	W. of	Hyde Park Blvd.	Bench - Trail along 57th	C	67	67	68	<u>68</u>	1	Yes
P8	S. of	56th St.	E. of	Hyde Park Blvd.	Bench - SW on Hyde Park Blvd	C	67	65	65	<u>66</u>	1	Yes
P9	N. of	57th Dr.	E. of	Hyde Park Blvd.	Bench - SW on 57th	C	67	68	68	<u>69</u>	1	Yes
P10	S. of	56th St.	E. of	Everett Ave.	Bench - SW on Everett Ave.	C	67	63	64	65	2	No

**MODELED NOISE LEVELS & IDENTIFICATION OF TRAF NOISE IMPACTS (2050)**

Receptors within Jackson Park

**TABLE A-3.2**

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Chicago Department of Transportation

Mobility Improvements to Support the South Lakefront Framework Plan

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS (2050 Design Year)**

Noise-Sensitive Receptor Locations Within Jackson Park

CNE No.	Location				Representative Receptor	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2050 Predicted No-Build Condition (dBA)	2050 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
P11	W. of	Lake Shore Dr.	N. of	57th Dr.	Bench - Trail on Lake Shore Dr.	C	67	65	66	<u>66</u>	1	Yes
P12	E. of	Stony Island Ave.	S. of	57th St.	Bench - SW on Stony Island	C	67	67	67	<u>67</u>	0	Yes
P13	W. of	Cornell Dr.	S. of	57th St.	Bench - Trail along Cornell	C	67	69	69	<u>69</u>	0	Yes
P14	E. of	Cornell Dr.	at	57th St.	MSI West Wing Steps	C	67	59	58	58	-1	No
P15	S. of	57th Dr.	E. of	Hyde Park Blvd.	Overlook on SW on 57th	C	67	63	64	64	1	No
P16	W. of	Lake Shore Dr.	N. of	Science Dr.	Bench - MSI East Wing	C	67	55	56	56	1	No
P17	E. of	Lake Shore Dr.	S. of	57th Dr.	Bench along LFT	C	67	66	67	<u>67</u>	1	Yes
P18	E. of	Stony Island Ave.	N. of	59th St.	Bench - SW on Stony Island	C	67	64	65	65	1	No
P19	W. of	Cornell Dr.	N. of	59th St.	Bench - Trail along Cornell	C	67	63	63	63	0	No
P20	E. of	Cornell Dr.	N. of	59th St.	Bench along Trail	C	67	61	61	61	0	No

**MODELED NOISE LEVELS & IDENTIFICATION OF TRAF NOISE IMPACTS (2050)**

Receptors within Jackson Park

**TABLE A-3.2**

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**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS (2050 Design Year)**

Noise-Sensitive Receptor Locations Within Jackson Park

CNE No.	Location				Representative Receptor	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2050 Predicted No-Build Condition (dBA)	2050 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
P21	W. of	Stony Island Ave.	at	Midway Plaisance	Boulevards Info Kiosk	C	67	66	66	<u>67</u>	1	Yes
P22	E. of	Stony Island Ave.	S. of	WB Midway Pl.	Trail Junction	C	67	63	63	64	1	No
P23	E. of	OPC	at	Midway Plaisance	Pier	C	67	52	53	53	1	No
P24	W. of	Lake Shore Dr.	S. of	Science Dr.	Bowling Green	C	67	65	65	<u>67</u>	2	Yes
P25	E. of	Lake Shore Dr.	S. of	Science Dr.	Trail	C	67	57	57	57	0	No
P26	W. of	Lake Shore Dr.	N. of	59th St. Harbor	Drinking Fountain	C	67	63	63	64	1	No
P27	E. of	Cornell Dr.	S. of	60th St.	Pier	C	67	50	50	51	1	No
P28	W. of	Lake Shore Dr.	S. of	59th St. Harbor	Bench - Trail on Lake Shore Dr.	C	67	59	60	62	3	No
P29	E. of	Lake Shore Dr.	S. of	59th St. Harbor	Rev. Wall Outcropping	C	67	57	57	57	0	No
P30	N. of	63rd St.	E. of	Stony Island Ave.	Running Track	C	67	59	60	60	1	No

**MODELED NOISE LEVELS & IDENTIFICATION OF TRAF NOISE IMPACTS (2050)**

Receptors within Jackson Park

**TABLE A-3.2**

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Chicago Department of Transportation

Mobility Improvements to Support the South Lakefront Framework Plan

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS (2050 Design Year)**

Noise-Sensitive Receptor Locations Within Jackson Park

CNE No.	Location				Representative Receptor	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2050 Predicted No-Build Condition (dBA)	2050 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
P31	N. of	Hayes Dr.	E. of	Cornell Dr.	Drinking Fountain	C	67	63	63	59	-4	No
P32	N. of	Hayes Dr.	at	Richards Dr.	Bench - Trail on Hayes	C	67	65	65	64	-1	No
P33	N. of	Hayes Dr.	E. of	Richards Dr.	Bench - Trail on Hayes	C	67	63	63	65	2	No
P34	W. of	Lake Shore Dr.	N. of	Hayes Dr.	Trail	C	67	60	60	62	2	No
P35	W. of	Lake Shore Dr.	N. of	Hayes Dr.	Bench - Field near Hayes	C	67	65	64	65	0	No
P36	E. of	Lake Shore Dr.	at	Hayes Dr.	63rd Street Bathing Pavil.	C	67	60	60	60	0	No
P37	E. of	Stony Island Ave.	S. of	63rd St.	Bench - SW on Stony Island	C	67	67	68	<u>67</u>	0	Yes
P38	E. of	Stony Island Ave.	N. of	64th St.	Playground	C	67	67	67	<u>68</u>	1	Yes
P39	E. of	Stony Island Ave.	at	64th St.	Bench - SW on Stony Island	C	67	70	70	<u>71</u>	1	Yes
P40	E. of	Cornell Dr.	S. of	Hayes Dr.	Bench - Trail near Hayes	C	67	61	61	63	2	No

**MODELED NOISE LEVELS & IDENTIFICATION OF TRAF NOISE IMPACTS (2050)**

Receptors within Jackson Park

**TABLE A-3.2**

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**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS (2050 Design Year)**

## Noise-Sensitive Receptor Locations Within Jackson Park

CNE No.	Location				Representative Receptor	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2050 Predicted No-Build Condition (dBA)	2050 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
P41	E. of	Richards Dr.	S. of	Hayes Dr.	Golf Clubhouse	C	67	54	54	53	-1	No
P42	E. of	Richards Dr.	S. of	Hayes Dr.	Patio at N. End of Building	C	67	55	55	56	1	No
P43	W. of	Lake Shore Dr.	S. of	Hayes Dr.	Bench - Field near LSD	C	67	60	59	60	0	No
P44	E. of	Lake Shore Dr.	S. of	Hayes Dr.	Coast Guard Station	C	67	61	61	62	1	No
P45	E. of	Stony Island Ave.	at	Cornell Dr.	Bench - Trail near Cornell	C	67	65	66	65	0	No
P46	N. of	Marquette Dr.	E. of	Cornell Dr.	Bench - Trail near Marquette	C	67	49	49	49	0	No
P47	N. of	Marquette Dr.	W. of	Richards Dr.	Bench - Trail near Marquette	C	67	53	53	53	0	No
P48	N. of	Marquette Dr.	E. of	Richards Dr.	Bench - Trail near Marquette	C	67	60	60	60	0	No
P49	N. of	Marquette Dr.	E. of	Richards Dr.	Bench - Trail near Inner Hbr	C	67	57	58	58	1	No
P50	N. of	Marquette Dr.	E. of	Lake Shore Dr.	Star Dock	C	67	51	51	51	0	No

**MODELED NOISE LEVELS & IDENTIFICATION OF TRAF NOISE IMPACTS (2050)**

Receptors within Jackson Park

**TABLE A-3.2**

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## Mobility Improvements to Support the South Lakefront Framework Plan

**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS (2050 Design Year)**

## Noise-Sensitive Receptor Locations Within Jackson Park

CNE No.	Location				Representative Receptor	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2050 Predicted No-Build Condition (dBA)	2050 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
P51	N. of	Marquette Dr.	E. of	LaRabida Dr.	Drinking Fountain	C	67	62	62	62	0	No
P52	S. of	Marquette Dr.	E. of	Stony Island Ave.	Bench - Trail near Marquette	C	67	63	63	65	2	No
P53	E. of	Cornell Dr.	N. of	67th St.	Bench - Trail near Cornell	C	67	61	61	62	1	No
P54	N. of	67th St.	E. of	East End Ave.	Playground	C	67	64	64	64	0	No
P55	S. of	Marquette Dr.	W. of	Richards Dr.	JPGC Fairway #___	C	67	51	51	52	1	No
P56	W. of	Lake Shore Dr.	N. of	67th St.	JPGC Snack Stand	C	67	60	61	61	1	No
P57	S. of	Marquette Dr.	W. of	Lake Shore Dr.	JPGC Hole #13 Tee	C	67	64	64	64	0	No
P58	E. of	Lake Shore Dr.	S. of	Marquette Dr.	JPGC Hole #12 Green	C	67	60	60	60	0	No
P59	E. of	Lake Shore Dr.	N. of	67th St.	JPGC Hole #7 Tee Box	C	67	60	60	60	0	No
P60	E. of	Lake Shore Dr.	N. of	67th St.	Playground	C	67	64	64	64	0	No

**MODELED NOISE LEVELS & IDENTIFICATION OF TRAF NOISE IMPACTS (2050)**

Receptors within Jackson Park

**TABLE A-3.2**

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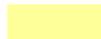
**MODELED NOISE LEVELS AND IDENTIFICATION OF TRAFFIC NOISE IMPACTS (2050 Design Year)**

Noise-Sensitive Receptor Locations Within Jackson Park

CNE No.	Location				Representative Receptor	Activity Category	FHWA NAC (Leq, dBA)	Modeled Future Existing Condition (dBA)	2050 Predicted No-Build Condition (dBA)	2050 Predicted Build Condition (dBA)	Build Condition Increase over Future Existing (dBA)	Consideration of Abatement Warranted
P61	S. of	Marquette Dr.	W. of	South Shore Dr.	JPGC Shelter	C	67	62	62	62	0	No
P62	S. of	Marquette Dr.	W. of	South Shore Dr.	JPGC Hole #10 Tee Box	C	67	61	61	61	0	No
P63	S. of	Marquette Dr.	W. of	South Shore Dr.	JPGC Hole #10 Tee Box	C	67	61	61	60	-1	No
P64	At	Richards Dr.	And	Hayes Dr.	Golden Lady Monument	C	67	64	64	64	0	No

Notes:

- CNE = Common Noise Environment.
- FHWA NAC = Federal Highway Administration Noise Abatement Criterion.
- The decibel values in this chart were generated by the FHWA TNM 2.5 computer program. All values represent Leq(h) values of exterior traffic noise,
- The traffic noise levels predicted by TNM 2.5 use PM peak-hour traffic.
- 2050 Proposed Action noise levels that are **bold and underlined** indicate that the receptor approaches (within 1 dBA) or exceeds the FHWA Noise
- Noise abatement should be considered if the predicted future traffic noise levels either approach or exceed the FHWA noise abatement criteria (66 dBA threshold for park uses) or substantially exceed the existing noise levels (15 dBA or greater increase). Noise barriers would be constructed only if they would be feasible and reasonable under IDOT's noise policies.
- Developed properties include those for which a building permit is anticipated to be issued prior to the date of environmental report approval.

 Indicates change from original 2040 Design Year analyses.

**MODELED NOISE LEVELS & IDENTIFICATION OF TRAF NOISE IMPACTS (2050)**

Receptors within Jackson Park

**TABLE A-3.2**

Page 7 of 7

## **APPENDIX B**

### **DEVELOPED PROPERTIES - DETAILED ANALYSES**

**NOISE-REDUCTION EFFECTIVENESS OF POTENTIAL NOISE BARRIERS (2050 Design Year)**

Common Noise Environments with Noise Impacts Outside of Jackson Park

CNE No.	Address(es)	Business, Property, or Owner Name(s)	2050 Build w/o Barrier (dBA)	Barrier Physically Feasible? (Yes/No)	2050 Build w/Barrier (dBA)	Noise Reduction at Rep. Receptor (dBA)	Noise Reduction at Other Receptors (dBA)	Barrier Acoustically Feasible? (Yes/No)	Barrier Meets Noise Reduction Design Goal? (Yes/No)
17	6318-6630 S. Stony Island Ave.	YMCA	67	Yes	61	-6	-5 to -9	Yes	Yes
21	1525-1547 E. 65th St., 1522-1558 E. 65th Pl.	Various Multi-Unit Residential	67	No	n/a	n/a	n/a	n/a	n/a
31	1627-1657 E. 67th St., 6717-6757 S. Cornell Av, 6714-6754 S. East End Av.,	Various Multi-Unit Residential	67	No	n/a	n/a	n/a	n/a	n/a
34	1701-1721 E. 67th St., 6700-6730 S. Ridgeland Ave., 6717-6745 S. East End	Various Multi-Unit Residential	66	No	n/a	n/a	n/a	n/a	n/a
37	6717-6741 S. Jeffery Blvd., 6700-6744 S. Chappel Ave.	Various Multi-Unit Residential	67	No	n/a	n/a	n/a	n/a	n/a

## Notes:

- CNE = Common Noise Environment.

- The decibel values in this chart were generated by the FHWA TNM 2.5 computer program. All values represent Leq(h) values of exterior traffic noise, rounded to the nearest decibel (dBA).

- The traffic noise levels predicted by TNM 2.5 use AM peak-hour traffic.

Indicates change from original 2040 Design Year analyses.

**NOISE-REDUCT. EFFECTIVENESS OF POTENTIAL BARRIERS (2050)**

CNEs w/Noise Impacts Outside Jackson Park

**TABLE B-1.1**

Page 1 of 1

## Mobility Improvements to Support the South Lakefront Framework Plan

**NOISE-REDUCTION EFFECTIVENESS OF POTENTIAL NOISE BARRIERS (2050 Design Year)**

## Common Noise Environments with Noise Impacts Within Jackson Park

CNE No.	Location				Representative Receptor	2050 Build w/o Barrier (dBA)	Barrier Physically Feasible? (Yes/No)	2050 Build w/Barrier (dBA)	Noise Reduction at Rep. Receptor (dBA)	Noise Reduction at Other Receptors (dBA)	Barrier Acoustically Feasible? (Yes/No)	Barrier Meets Noise Reduction Design Goal? (Yes/No)
P3	E. of	Lake Shore Dr.	at	56th St.	Bench along LFT	69	Yes	64	-5	-2 to -8	Yes	Yes
P4	E. of	Lake Shore Dr.	N. of	57th Dr.	Bench along LFT	70		62	-8	-6 to -8		
P17	E. of	Lake Shore Dr.	S. of	57th Dr.	Bench along LFT	67		62	-5	0 to -8		
P11	W. of	Lake Shore Dr.	N. of	57th Dr.	Bench - Trail on Lake Shore Dr.	66	Yes	58	-8	-6 to -8	Yes	Yes
P5	S. of	56th St.	E. of	Stony Island Ave.	Bench - SW on Hyde Park Blvd	67	No	n/a	n/a	n/a	n/a	n/a
P6	E. of	Stony Island Ave.	N. of	57th St.	Bench - SW on Stony Island	67	No	n/a	n/a	n/a	n/a	n/a
P7	N. of	57th Dr.	W. of	Hyde Park Blvd.	Bench - Trail along 57th	68	No	n/a	n/a	n/a	n/a	Yes
P8	S. of	56th St.	E. of	Hyde Park Blvd.	Bench - SW on Hyde Park Blvd	66	No	n/a	n/a	n/a	n/a	n/a
P9	N. of	57th Dr.	E. of	Hyde Park Blvd.	Bench - SW on 57th	69	No	n/a	n/a	n/a	n/a	n/a
P12	E. of	Stony Island Ave.	S. of	57th St.	Bench - SW on Stony Island	67	No	n/a	n/a	n/a	n/a	n/a
P13	W. of	Cornell Dr.	S. of	57th St.	Bench - Trail along Cornell	69	No	n/a	n/a	n/a	n/a	n/a

**NOISE-REDUCTION EFFECTIVENESS OF POTENTIAL BARRIERS (2050)**

CNEs w/Noise Impacts Within Jackson Park

**TABLE B-1.2**

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**NOISE-REDUCTION EFFECTIVENESS OF POTENTIAL NOISE BARRIERS (2050 Design Year)**

Common Noise Environments with Noise Impacts Within Jackson Park

CNE No.	Location				Representative Receptor	2050 Build w/o Barrier (dBA)	Barrier Physically Feasible? (Yes/No)	2050 Build w/Barrier (dBA)	Noise Reduction at Rep. Receptor (dBA)	Noise Reduction at Other Receptors (dBA)	Barrier Acoustically Feasible? (Yes/No)	Barrier Meets Noise Reduction Design Goal? (Yes/No)
P21	W. of	Stony Island Ave.	at	Midway Plaisance	Boulevards Info Kiosk	67	No	n/a	n/a	n/a	n/a	n/a
P24	W. of	Lake Shore Dr.	S. of	Science Dr.	Bowling Green	67	Yes	n/a	n/a	-3 to -11	No	n/a
P37	E. of	Stony Island Ave.	S. of	63rd St.	Bench - SW on Stony Island	67	No	n/a	n/a	n/a	n/a	n/a
P38	E. of	Stony Island Ave.	N. of	64th St.	Playground	68		n/a	n/a	n/a		
P39	E. of	Stony Island Ave.	at	64th St.	Bench - SW on Stony Island	71		n/a	n/a	n/a		

Notes:

- CNE = Common Noise Environment.
- The decibel values in this chart were generated by the FHWA TNM 2.5 computer program. All values represent Leq(h) values of exterior traffic noise, rounded to the nearest decibel (dBA).
- The traffic noise levels predicted by TNM 2.5 use AM peak-hour traffic.

  Indicates change from original 2040 Design Year analyses.

**NOISE-REDUCTION EFFECTIVENESS OF POTENTIAL BARRIERS (2050)**

CNEs w/Noise Impacts Within Jackson Park

**TABLE B-1.2**

## Mobility Improvements to Support the South Lakefront Framework Plan

**NOISE-REDUCTION EFFECTIVENESS OF POTENTIAL NOISE BARRIERS (2050 Design Year)**

Common Noise Environments with Noise Impacts Within Jackson Park

CNE No.	Location				Representative Receptor	2050 Build w/o Barrier (dBA)	Barrier Physically Feasible? (Yes/No)	2050 Build w/Barrier (dBA)	Noise Reduction at Rep. Receptor (dBA)	Noise Reduction at Other Receptors (dBA)	Barrier Acoustically Feasible? (Yes/No)	Barrier Meets Noise Reduction Design Goal? (Yes/No)
P3	E. of	Lake Shore Dr.	at	56th St.	Bench along LFT	69	Yes	64	-5	-2 to -8	Yes	Yes
P4	E. of	Lake Shore Dr.	N. of	57th Dr.	Bench along LFT	70		62	-8	-6 to -8		
P11	W. of	Lake Shore Dr.	N. of	57th Dr.	Bench - Trail on Lake Shore Dr.	66		58	-8	-6 to -8		
P17	E. of	Lake Shore Dr.	S. of	57th Dr.	Bench along LFT	67		62	-5	0 to -8		
P5	S. of	56th St.	E. of	Stony Island Ave.	Bench - SW on Hyde Park Blvd	67	No	n/a	n/a	n/a	n/a	n/a
P6	E. of	Stony Island Ave.	N. of	57th St.	Bench - SW on Stony Island	67	No	n/a	n/a	n/a	n/a	n/a
P7	N. of	57th Dr.	W. of	Hyde Park Blvd.	Bench - Trail along 57th	68	No	n/a	n/a	n/a	n/a	Yes
P8	S. of	56th St.	E. of	Hyde Park Blvd.	Bench - SW on Hyde Park Blvd	66	No	n/a	n/a	n/a	n/a	n/a
P9	N. of	57th Dr.	E. of	Hyde Park Blvd.	Bench - SW on 57th	69	No	n/a	n/a	n/a	n/a	n/a
P12	E. of	Stony Island Ave.	S. of	57th St.	Bench - SW on Stony Island	67	No	n/a	n/a	n/a	n/a	n/a
P13	W. of	Cornell Dr.	S. of	57th St.	Bench - Trail along Cornell	69	No	n/a	n/a	n/a	n/a	n/a

**NOISE-REDUCTION EFFECTIVENESS OF POTENTIAL BARRIERS (2050)**

CNEs w/Noise Impacts Within Jackson Park

**TABLE B-1.2**

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Chicago Department of Transportation

Mobility Improvements to Support the South Lakefront Framework Plan

**COST-EFFECTIVENESS ADJUSTMENT FACTORS (2050 Design Year)**

Barrier #1

Receptor No.	Future Existing Conditions (dBA)	2050 Predicted Build Condition (dBA)	Build Increase over Future Existing (dBA)	New Alignment?	Receptors Pre-Date Original Construction?	Adjustment For Noise Level Factor	Adjustment For Increase In Noise Factor	Adjustment For Build Before Roadway Factor	Total Adjustment Factor Amount	Receptor Benefitted?	Adjusted Allowable Cost Per Benefitted Receptor
P3.1	68	69	1	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P3.2	60	62	2	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P3.3	68	69	1	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P3.4	63	65	2	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P3.5	60	62	2	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P3.6	58	60	2	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P3.7	58	60	2	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P3.8	55	57	2	No	No	\$0	\$0	\$0	\$0	No	-
P3.9	56	58	2	No	No	\$0	\$0	\$0	\$0	No	-
P3.10	54	56	2	No	No	\$0	\$0	\$0	\$0	No	-
P3.11	55	57	2	No	No	\$0	\$0	\$0	\$0	No	-
P3.12	53	54	1	No	No	\$0	\$0	\$0	\$0	No	-
P3.13	52	53	1	No	No	\$0	\$0	\$0	\$0	No	-
P3.14	53	54	1	No	No	\$0	\$0	\$0	\$0	No	-
P3.15	56	58	2	No	No	\$0	\$0	\$0	\$0	No	-
P3.16	57	59	2	No	No	\$0	\$0	\$0	\$0	No	-
P3.17	57	59	2	No	No	\$0	\$0	\$0	\$0	No	-
P3.18	61	64	3	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P3.19	61	65	4	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P3.20	58	61	3	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P4.1	69	70	1	No	No	\$1,000	\$0	\$0	\$1,000	Yes	\$31,000

**COST-EFFECTIVENESS ADJUSTMENT FACTORS (2050)**

Barrier #1

**TABLE B-2.1**

**COST-EFFECTIVENESS ADJUSTMENT FACTORS (2050 Design Year)**

Barrier #1

Receptor No.	Future Existing Conditions (dBA)	2050 Predicted Build Condition (dBA)	Build Increase over Future Existing (dBA)	New Alignment?	Receptors Pre-Date Original Construction?	Adjustment For Noise Level Factor	Adjustment For Increase In Noise Factor	Adjustment For Build Before Roadway Factor	Total Adjustment Factor Amount	Receptor Benefitted?	Adjusted Allowable Cost Per Benefitted Receptor
P4.2	68	69	1	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P4.3	62	65	3	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P4.4	62	64	2	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P17.1	67	68	1	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P17.2	66	66	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P17.3	67	67	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P17.4	66	66	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P17.5	64	65	1	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P17.6	65	65	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P17.7	66	66	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P17.8	67	67	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
P17.9	60	62	2	No	No	\$0	\$0	\$0	\$0	No	-
Average Allowable Cost per Benefitted Receptor											\$30,045

Indicates change from original 2040 Design Year analyses.

**COST-EFFECTIVENESS ADJUSTMENT FACTORS (2050)**

Barrier #1

**TABLE B-2.1**

**COST-EFFECTIVENESS ADJUSTMENT FACTORS (2050 Design Year)**

Barrier #2

Receptor No.	Future Existing Conditions (dBA)	2050 Predicted Build Condition (dBA)	Build Increase over Future Existing (dBA)	New Alignment?	Receptors Pre-Date Original Construction?	Adjustment For Noise Level Factor	Adjustment For Increase In Noise Factor	Adjustment For Build Before Roadway Factor	Total Adjustment Factor Amount	Receptor Benefitted?	Adjusted Allowable Cost Per Benefitted Receptor
17.1	67	67	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
17.2	67	67	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
17.3	65	65	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
17.4	62	62	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
17.5	62	62	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
17.6	67	66	-1	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
17.7	64	64	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
17.8	67	68	1	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
17.9	65	66	1	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
17.10	69	69	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
Average Allowable Cost per Benefitted Receptor											\$30,000

Indicates change from original 2040 Design Year analyses.

**COST-EFFECTIVENESS ADJUSTMENT FACTORS (2050)**

Barrier #2

**TABLE B-2.2**

**COST-EFFECTIVENESS ADJUSTMENT FACTORS (2050 Design Year)**

Barrier #3

Receptor No.	Future Existing Conditions (dBA)	2050 Predicted Build Condition (dBA)	Build Increase over Future Existing (dBA)	New Alignment?	Receptors Pre-Date Original Construction?	Adjustment For Noise Level Factor	Adjustment For Increase In Noise Factor	Adjustment For Build Before Roadway Factor	Total Adjustment Factor Amount	Receptor Benefitted?	Adjusted Allowable Cost Per Benefitted Receptor
11.1	66	66	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
11.2	63	63	0	No	No	\$0	\$0	\$0	\$0	Yes	\$30,000
Average Allowable Cost per Benefitted Receptor											\$30,000

Indicates change from original 2040 Design Year analyses.

**COST-EFFECTIVENESS ADJUSTMENT FACTORS (2050)**

Barrier #3

**TABLE B-2.3**

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