# Appendix G-2
# Noise Assessment Report

Analysis & Computing, Inc.

January, 2015

**Noise Assessment Report**

# Huntington Station Gateway Development Project

Huntington Station, Suffolk County, New York

Prepared for

**TOWN OF HUNTINGTON**

Huntington Station, New York, NY

And

**RENAISSANCE DOWNTOWNS AT HUNTINGTON STATION LLC**

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## 1.0 EXECUTIVE SUMMARY

This report summarizes the results of a noise monitoring program and impact assessment of the proposed the Huntington Station Gateway Development Project, which is redevelopment planning initiative to implement both long-standing Town of Huntington (Town) planning actions and community efforts to revitalize the commercial corridor along New York State (NYS) Route 110/New York Avenue in Huntington Station in the Town of Huntington (Town), NY. The Proposed Project is intended to establish the mixed-use redevelopment envisioned by the Town Comprehensive Plan Update on three project parcels. The analysis assessed the ambient noise environment, projected change in noise due to Project-related vehicular traffic, assessed the suitability of the site for residential units and assessed potential Project-related noise impacts on area receptors.

The dominant noise source is the vehicular traffic along the New York Avenue corridor with contribution from the Long Island Rail Road (LIRR) station and rail line immediately south of the intersection. An ambient noise measurement program was conducted near the property line of the nearest residential receptor along New York Avenue to quantify the ambient noise environment. During the weekday peak hour, the maximum hourly noise level ($L_{eq}$) was 69 dBA, consistent with a highly traveled roadway in a suburban area. During the weekend peak hour, the maximum hourly $L_{eq}$ was slightly lower at 66 dBA.

The potential noise level increase from project-related traffic was quantified and is expected to be less than 1 dBA at the intersection of New York Avenue and Railroad Street/Broadway with the greatest approach volume, which is also the intersection with the greatest forecasted increase in traffic. The New York State Department of Environmental Conservation (DEC) Guidelines proscribe that an increase of less than 6 dBA is not considered a significant impact and an increase of less than 3 dBA is not generally perceptible by the human ear.

There are a number of State and Federal guidance documents and standards for publicly funded projects. While none of these strictly apply to the project, they are used as a guide in assessing impact under the State Environmental Quality Review Act (SEQRA). As noted, this assessment was prepared to analyze the potential for significant noise impacts to the community and area

receptors, and to assess the site's suitability for the proposed development. Based upon this assessment, it is concluded that the proposed project will not result in a significant increase in the ambient noise environment and that interior sound levels will be suitable for the types of uses proposed.

In conclusion, the proposed Huntington Station Gateway Development Project will not result in a significant environmental noise impact.

## 2.0 INTRODUCTION

This noise assessment is conducted in support of a Voluntary Draft Environmental Impact Statement (VDEIS); its purpose is to analyze the potential environmental impacts of the "Proposed Project", the Huntington Station Gateway Development Project, which is a redevelopment planning initiative to implement both long-standing Town of Huntington (Town) planning actions and community efforts to revitalize a portion of the commercial corridor along NYS Route 110/New York Avenue in Huntington Station (see Figure 1-1). The Proposed Action is intended to establish the mixed-use redevelopment envisioned by the Town Comprehensive Plan Update on three project parcels. The three parcels of land that comprise the Proposed Project total 7.29 acres in size, and are designated "Block 1", "Block 4", and "Block 7/Gateway Plaza". The potential noise and vibration impacts of the proposed project on neighboring noise-sensitive land uses are provided in this analysis. The potential noise sources of concern consist of onsite stationary exterior noise-generating mechanical equipment and site-generated traffic.

Block 1 is located at the southwestern corner of the intersection of NYS Route 110/New York Avenue and Railroad Street, on the northern side of the Long Island Rail Road (LIRR) right-of-way. It is comprised of two (2) tax lots and part of a third; Block 1 is partially owned by the Town of Huntington and partially owned by New York State. This parcel is currently occupied by a paved surface parking lot for the use of LIRR passengers. The proposed project would redevelop this parcel with a four (4)-story, 140-room hotel (83,296 square feet [SF] total floor space) on the eastern half of the Block, and a 100,880 SF medical office building (100,000 SF of medical office with 880 SF of supporting retail) on the Block's western half. This development will also include 569 parking spaces.

Block 4 is a narrow strip of land along the west side of NYS Route 110/New York Avenue, from Railroad Street northward to Church Street. It is comprised of two (2) tax lots, one (1) of which consists of the remainder of the NYS-owned tax lot of Block 1. This property is used for LIRR passenger parking (353 spaces). The proposed project would redevelop this property with a total of 49 artist residences, and an additional 2,300 SF of affiliated artist production space. Parking at the rear of the building (for residents) and 20 on-street stalls provide for a total of 307 spaces.

Block 7 is comprised of ten (10) tax lots, of which nine (9) are privately owned, and one (1) lot (the northernmost, now-vacant) which is owned by the Town of Huntington. This site will be redeveloped with four (4) distinct uses in one (1) three (3)-story structure: 8,516 SF of retail space, 6,000 SF of combined specialty restaurant, fast/casual restaurant and pub/tavern space, 2,000 SF of office space on the first floor, and 68 apartments (34 studio and 34 one (1)-bedroom units) on the second and third floors. Primary parking for the site, accessed via NYS Route 110/New York Avenue provides 67 ground floor spaces in the structure, 8 surface space and 24 on-street parking spaces for patrons, employees and a portion of resident's use. The upper level of the structured parking at the rear of the site, with direct access from Olive Street, will offer 44 spaces for resident use only. The existing auto parts store on Block 7S would remain, but the existing seven-space parking area is proposed to be reconfigured to provide a total of 24 spaces (17 which are proposed to be shared). An existing barber shop building and the Yankee Peddler/Shops at Suite Pieces building would remain, to be left undisturbed.

This proposed redevelopment has been put forth to implement both long-standing Town planning actions and community efforts to return this corridor to the mixed-use residential and commercial character, during which it was a popular and vibrant community asset. The Town encapsulated this redevelopment vision in the Town Comprehensive Plan Update ("Plan Update"), then undertook a series of actions from 2011-2014 to select a Master Developer and adopted zoning modifications to facilitate redevelopment activities.

The analysis is presented in several sections that address noise criteria, the analytical methods applied, the existing noise levels, site noise monitoring, project impacts and comparison with noise guidelines.

A brief description of the terminologies commonly used in quantifying sound is presented in the following sub section for ease of reference.

## 2.1 SOME BASIC ACOUSTIC TERMINOLOGY

All terminology used in this report are governed by applicable publications of the American National Standards Institute (ANSI) standards cited.

The source of every sound is a vibrating body repeatedly pushing against the air outward and inward, creating repetitions of compression and rarefactions or "pressure waves". Decibel (dB) is commonly used to quantify the sound pressure, and is mathematically defined[1] as

$$dB = 10 \log \left( \frac{p^2}{p_0^2} \right)$$

where p is the sound pressure and $p_0$ is the reference sound pressure of 0.0002 microbar.

Most sounds, such as music, encompass a wide range of frequencies (repetitions or cycles per second, cps). The range of frequencies, from 20 to 20,000 cps or Hertz (Hz), is called the audible range. The human hearing is less efficient at low and high frequencies than it is at medium or speech-range frequencies (500 to 4,000 Hz). The A-weighted decibel, or dBA, is a measure for complex sounds in a manner representative of the human hearing. It is a measure commonly used in quantifying environmental noises. Human hearing range is typically from 20 dBA to 140 dBA.

However, simple dBA measurement only defines the magnitude of the instantaneous noise. It does not take into account of duration and changes in noise levels during the time. Since the 1970s, almost all studies of noise effects on hearing damage and annoyance have been based on the total noise energy or the Equivalent Sound Level, $L_{eq}$, over a time period. The A-weighted $L_{eq}$ originally recommended by the United States Environmental Protection Agency (USEPA)[2] and now adopted both by ANSI[3] and the International Standards Organization (ISO)[4] for measuring sound is by averaging the acoustic energy (corresponding to the A-weighted SPL) over the measurement period. The resulting measure is called the equivalent energy level ($L_{eq}$) and is mathematically defined as:

$$L_{eq} = 10 \log_{10} \left[ \frac{1}{(t_2 - t_1)} \int_{t_1}^{t_2} \left( \frac{p^2}{p_o^2} \right) dt \right]$$

[1] ANSI S1.1. 1976. American National Acoustical Terminology

[2] USEPA. 1974. Information on Levels of Environmental Noise requisite to protect public health and welfare with an adequate margin of safety. 550/9-74-004.

[3] ANSI. 1996. Quantities of Procedures for description and measurement of environmental sound. S12.9 Part 4.

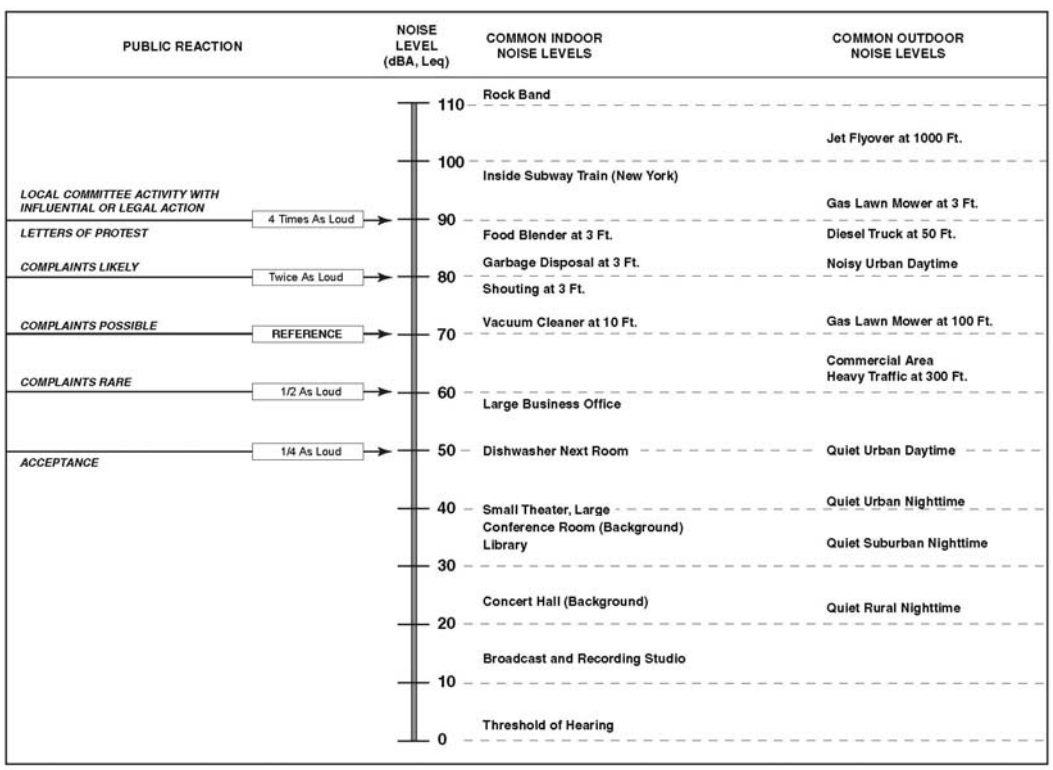
[4] ISO. 1996. Description and measurement of environmental noise. ISO 1196-2:1987 Part 2.

where ($t_2 - t_1$) is the time period over which the sound pressure p was measured and $p_0$ is a reference pressure.

It is simply the equivalent steady sound level that would contain the same sound energy as the time varying signal during the same time period. Some typical noise levels in $L_{eq}$ and potential public responses[5] are presented in Figure 1.1-1.

The $L_{eq}$ over the daytime hours from 7 AM to 10 PM is called $L_{eq}$ (day) or $L_d$, and the $L_{eq}$ over the nighttime hours from 10 PM to 7 AM is called $L_{eq}$ (night) or $L_n$. And the $L_{eq}$ over the 24 hour day is called the Day-Night sound Level, $L_{dn}$, with a 10 dB weighting applied to nighttime noise levels, accounting for the added annoyance or interference effect of nighttime noise.

**Figure 1.1-1 $L_{eq}$ Noise Levels and Potential Public Reaction**




[5] Caltran Transportation Laboratories. 1982. Noise Manual.

## 3.0 APPLICABLE NOISE REGULATIONS AND IMPACT CRITERIA

There is no federal noise regulation applicable to the proposed project other than those applicable to highway transportation equipment manufactured for and engaged in interstate commerce.[6] Applicable New York State and Town of Huntington regulations and impact assessment criteria applicable to the project are presented below.

### 3.1 NYSDEC NOISE IMPACT ASSESSMENT GUIDELINE

The NYSDEC, under the authority of 6NYCRR Part 617 – the State Environmental Quality Review Act (SEQRA) and Article 8 of the State Environmental Conservation Law (ECL), issued a noise policy guidance, "Assessing and Mitigating Noise Impacts" in February 2, 2001.

The guidance document considers increases in $L_{dn}$ of greater than 6 dBA as having a significant impact and complaint potential with 65 dBA being an upper end limit in non-industrial and non-commercial settings. Ambient sound levels in industrial and commercial areas may exceed 65 dBA with a high end of approximately 79 dBA.

The guidance further provides the following thresholds of significant noise increases. Increases in noise levels with the proposed project above those without the project ranging from 0-3 dBA should have no appreciable effect on receptors. Increases from 3-6 dBA may have potential for adverse noise impact only in cases where the most sensitive of receptors are present. Sound pressure increases of more than 6 dBA may require a closer analysis of impact potential depending on existing SPLs and the character of surrounding land use and receptors. An increase of 10 dBA deserves consideration of avoidance and mitigation measures in most cases.

The guidance also provides data presented in Table 2.1-1 for evaluating human reactions to increases in sound pressure levels:

[6] Federal Motor Carrier Safety Administration. 1989. Interstate motor carrier noise emission standards. 54FR50385.

**Table 2.1-1: Human Reactions to Increases in Sound Pressure Levels**

| Increases (dBA) | Human Reaction |
|---|---|
| Under 5 | Unnoticed to tolerable |
| 5 - 10 | Intrusive |
| 10 - 15 | Very noticeable |
| 15 - 20 | Objectionable |
| Over 20 | Very objectionable to intolerable |

## 3.2 TOWN OF HUNTINGTON NOISE ORDINANCE

### 3.2.1 Town of Huntington General Noise Provision

Article I of Chapter 141, Code of the Town of Huntington contains the general provision of the Town's noise ordinance. It states:

> "No person or business entity shall make, continue, allow, permit, cause or maintain any noise disturbance by any means within the Town of Huntington."

This provision does not contain any quantifiable standards to be applied to this Project.

### 3.2.2 Town of Huntington Zoning Noise Performance Standard

The only quantitative noise criteria is the zoning noise performance standards, Article XIII of Chapter 198-89, Code of the Town of Huntington, which specifies the nighttime (10:00 PM to 7:00 AM) acceptable noise level performance standards. Continuous noise, as measured from the receiving residential property, is not to exceed the values in Table 2.2-1.

**Table 2.2-1: Town of Hempstead Noise Criteria (decibels)**

| Frequency Band (cycles per second) | Sound Pressure Level (decibels re 0.0002 dyne/cm$^2$) |
|---|---|
| 20-75 | 69 |
| 75-150 | 54 |
| 150-300 | 47 |
| 300-600 | 41 |
| 600-1,200 | 37 |
| 1,200-2,400 | 34 |
| 2,400-4,800 | 31 |
| 4,800-10,000 | 28 |

However, the octave-bands of frequencies cited have been superseded by a set of new octave-bands of frequency, ANSI S.1.11 (1966).[7] Since this revision occurred decades ago, octave-band analyzers today do not measure in the older standard. The spectral data presented in Table 2 were converted to its equivalent A-weighted sound level, of 45 dBA for steady noise following procedure in American National Standards Institute (ANSI S1.11).

Further, this performance standard is intended for:

1. Commercial raising or keeping of animals or livestock,
2. Storage of fuel oil or other flammables in bulk,
3. Commercial greenhouses,
4. Junkyards,
5. Industrial and manufacturing uses,
6. Public utility substations or generating plants, and
7. Incinerators of any kind except where incidental to a dwelling.

The Project does not propose any of these uses within the Project area; the zoning noise performance standard is not applicable to this Project.

## 3.3 OTHER GUIDELINES

### 3.3.1 FHWA and NYSDOT Noise Abatement Criteria

The FHWA and NYSDOT Noise Abatement Criteria (NAC), through 23 CFR 772 "Procedures for Abatement of Highway Traffic Noise and Construction Noise" and NYSDOT “The Environmental Procedures Manual 4.4.18 Noise Analysis Policy and Procedures” respectively apply to federally funded and State highway projects. While this project is neither a federal or state funded project, the NYSDOT utilizes the same 6-dBA increase above ambient as an impact criterion, which is also consistent with NYSDEC Guidance. In addition, NAC guidelines call for consideration of noise abatement measures when the exterior noise levels “approach or exceeds” a $L_{eq}$ of 67 dBA or a $L_{10}$ of 70 dBA for sensitive land-uses such as residences. The criteria for interior noise levels are a $L_{eq}$ of 52 dBA or a $L_{10}$ of 55 dBA.

It is stated in 23 CFR 772.11 Noise Abatement:

[7] ANSI. 1966. Specification for octave, half-octave, and third-octave band filter sets. S1.11.

a. In determining and abating traffic noise impacts, primary consideration is to be given to exterior areas. Abatement will usually be necessary only where frequent human use occurs and a lowered noise level would be of benefit.

b. In those situations where there are no exterior activities to be affected by the traffic noise, or where the exterior activities are far from or physically shielded from the roadway in a manner that prevents an impact on exterior activities, the interior criterion shall be used as the basis of determining noise impacts.

Exterior noise is attenuated by a building's structure and its windows. FHWA provides attenuation values based on the building structure type and window conditions which are presented in Table 2.3.1-1. As is shown in Table 2.3.1-1, the minimum attenuation that can be anticipated for predicting interior sound levels is 10 dBA with windows open, and with windows closed, 20 dBA. An additional 5 dBA can be achieved with solid masonry construction and storm windows.

**Table 2.3.1-1: Building Noise Reduction Factors**

| Noise Reduction Due to Exterior of the Structure | | |
|---|---|---|
| Building Type | Window Condition | Attenuation |
| All | Open | 10 dB |
| Light Frame | Ordinary Sash (closed) | 20 dB |
| | Storm Windows | 25 dB |
| Masonry | Single Glazed | 25 dB |
| | Double Glazed | 35 dB |

Note: From Table 7 of USDOT/FHWA "Highway Traffic Noise Analysis and Abatement Policy and Guidance", 1995.

### 3.3.2 US HUD Site Acceptability Standard

The US HUD has established Site Acceptability Standard in 24CFR51 Section 51.103(c) for federally assisted housing projects. HUD has established an $L_{dn}$ of 65 dBA as an exterior standard. It can be seen that the DEC Guideline upper limit of $L_{dn}$ of 65 dBA for non-industrial settings is consistent with the HUD standard. This project is not receiving any federal housing assistance, but the Site Acceptability Standard serves as a guideline for ensuring that the site is suitable for residential use or that appropriate building standards are employed to achieve acceptable interior sound levels.

## 4.0 NOISE IMPACT ASSESSMENT METHODOLOGY

Community noise levels include noise contributions from stationary sources (building rooftop mechanical equipment and building operation) and mobile sources (vehicle traffic) related to sound levels from the proposed Huntington Station Gateway Development. As presented in previous sections, the potential site development will conform to all zoning and land use requirements, and onsite plans and installations will comply with applicable building and environmental requirements.

This noise study focuses primarily on mobile sources. Noise emissions from mechanical rooftop HVAC (i.e. Heating, Ventilation and Air Conditioning) equipment are often model specific and their placement on the roof (or other sections of the building) can dramatically affect the noise levels on the ground level. However, mechanical rooftop HVAC equipment must conform to all zoning performance standards and onsite plans and installations must comply with applicable building and environmental requirements; therefore, it would be more is appropriate for the potential noise impacts of these stationary noise sources to be addressed by the site developers and reviewed by the appropriate agencies once detailed plans are available.

The mobile source noise analysis evaluates the noise contributions from the additional project induced traffic generated by the proposed development on roadways in the vicinity of the nearest noise-sensitive receptors. As the Huntington Station Gateway Development project-generated traffic is dispersed further downstream of the project area, the related noise contributions decreases (as logarithmic ratios of the traffic volume), thus the maximum potential increases, if any, can be expected from the roadways in the immediate neighborhood of the project.

The peak traffic periods were identified as weekday AM and PM peaks and the Saturday Midday peak based upon the recent traffic counts conducted by Nelson & Pope as part of the Traffic Impact Study, dated December 2014, and is included herein by reference. A continuous noise monitoring program over a weekday and a Saturday was conducted near the sensitive receptor closest to the intersection with the greatest projected traffic increase to collect existing sound level data.

The Future No Build Condition (2019) assumes no change to the Existing (2014) noise condition and accounts for the increases due to normal growth in traffic for the area. Existing noise conditions, which is composed of all noise sources to include near and distant roadway traffic, existing mechanical and HVAC equipment in the area, and any and all neighborhood noise sources (to include the Huntington Station LIRR station activities), is quantified through a continuous monitoring program.

With the noise levels quantified under the Build, No Build, and Existing Conditions, impact assessments were conducted following the DEC Guidance documents.

## 5.0 EXISTING NOISE CONDITIONS

### 5.1 PROJECT LOCATION AND ADJACENT LAND USES

The proposed change of zone and redevelopment project is to occur along New York Avenue corridor (NYS Route 110), between Olive Street to the north and the LIRR to the south.

### 5.2 NOISE MONITORING LOCATION

Existing community noise levels are field measured at selected representative noise-sensitive land uses adjacent to the site. The project area was surveyed and the location for monitoring was chosen near the nearest noise sensitive receptor, which is the location with the greatest potential for impact (See Figures 4.2-1 and 4.2-2.). The Noise Monitoring Location was sited adjacent to the nearest property line of nearest residence, at the northeast corner of the New York Avenue and Railroad Street/Broadway intersection.

A parking lot can be found at the northwest corner of the intersection with more residences further to the west. A LIRR station is located at the southeast corner of the intersection. A parking facility for a commercial building is located in the southwest corner of the intersection. A hotel and commercial building is proposed at this site. Immediately to the south is the LIRR Port Jefferson rail line. The dominant noise source at this location is traffic on New York Avenue with contributing roadway noise from Railroad Street and Broadway and activity at The LIRR Huntington Station, to include the LIRR diesel-electric trains and station parking lot activities.

**Figure 4.2-1 Project area and Noise Monitoring Location**

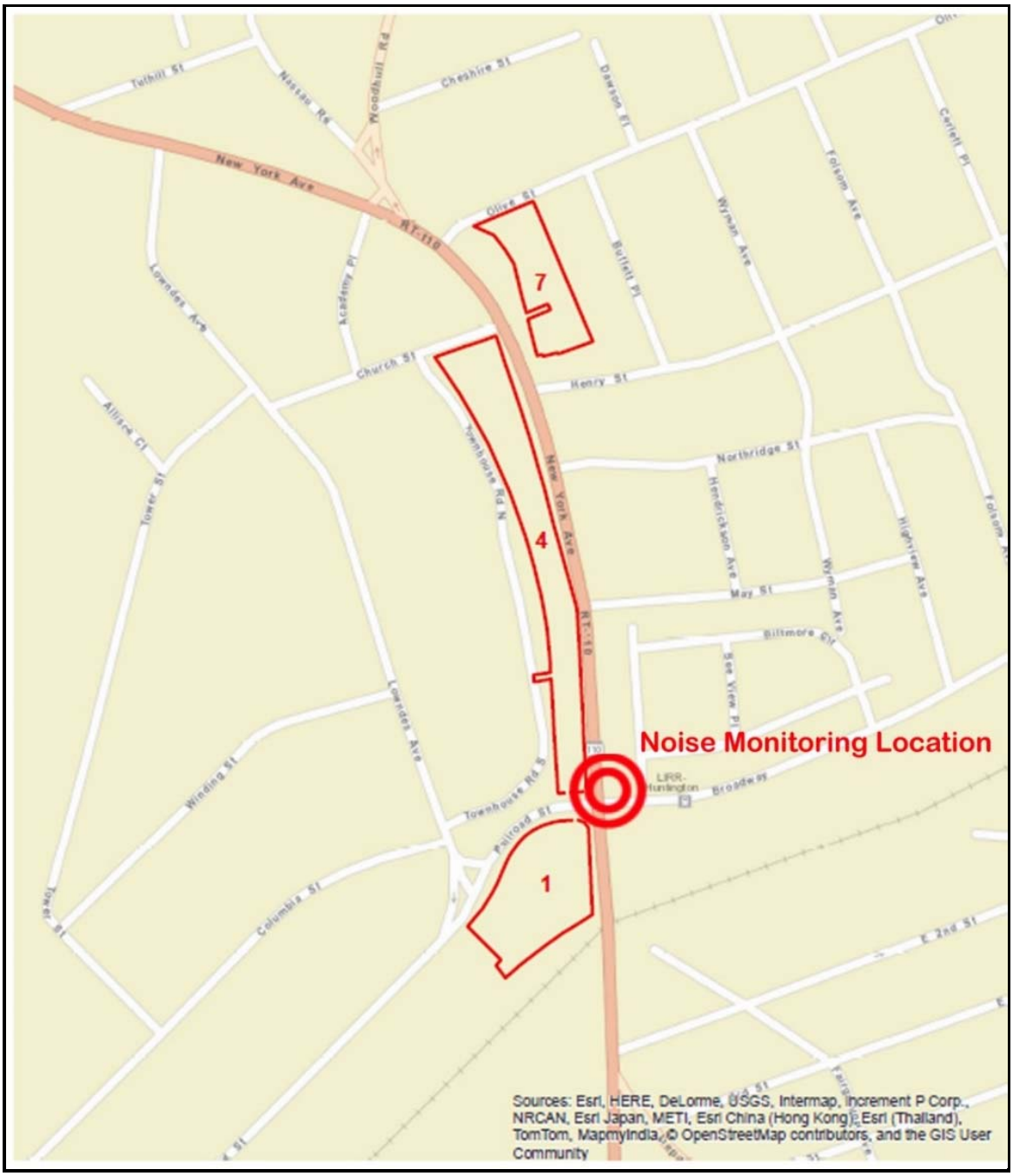


**Figure 4.2-2 Noise Monitoring Location**

## 5.3 SITE NOISE MONITORING PROGRAM

The noise sampling program was set to record sound at a rate of 16 samples per second. The weekend monitoring period encompassed Saturday morning, November 22 to Sunday morning, November 23, 2014 and the weekday monitoring period encompassed Monday night, November 24 to Tuesday night, November 25, 2014. Noise monitoring was supplemented with periodic on-site observations.

### 5.3.1 Instrumentation

The following instrumentation was used:

Metrosonics db-3100 Metrologger with 1/8" Microphone and Wind Screen
Metrosonics CL304 Calibrator

The Metrologger was programmed to store the noise data in 10-minute measurements. Hourly $L_{eq}$ values were computed from six (6) 10-minute $L_{eq}$s values using the following formula:

$$L_{eq}\,(Hr) = 10 \times \log_{10}\left[\frac{1}{6}\sum_{i=1}^{6} 10^{L^{i}_{eq}(10\,min)/10}\right]$$

The instruments were calibrated before and after each measurement period and operated according to manufacturer's instructions.

### 5.3.2 Weather Conditions

Weather information during the monitoring period was acquired from the local weather service and checked with a Skymate Plus anemometer (for ground level wind speed and relative humidity) for Saturday morning, November 22 to Sunday morning, November 23, 2014 and again from Monday night, November 24 to Tuesday night, November 25, 2014.

During the weekend monitoring period, the temperature ranged between 28°F to 45°F with aloft winds varying between 7 mph to 17 mph from between the west and southwest. Ground level winds were slower, variable and no more than a light breeze. Skies were clear Saturday morning, becoming cloudy by midday into Sunday. The relative humidity varied between 37% and 58%. Barometric pressure was steady, varying from 30.17 inches to 30.49 inches.

During the weekday monitoring period, the temperature ranged between 48°F to 63°F with aloft winds varying between 5 mph to 12 mph from between the south and west. Ground level winds were slower, ranging from calm at times to a light breeze. The relative humidity varied between 37% during the daytime hours and 100% during the overnight hours. Skies were clear Monday night, becoming overcast after midnight with no precipitation during the monitoring period. Barometric pressure was 29.71 inches at the start of the monitoring period, and then rose to 30.04 inches by the end of the monitoring period.

These conditions satisfy the meteorological requirements for the measurement of ambient noise per ANSI S1.2.

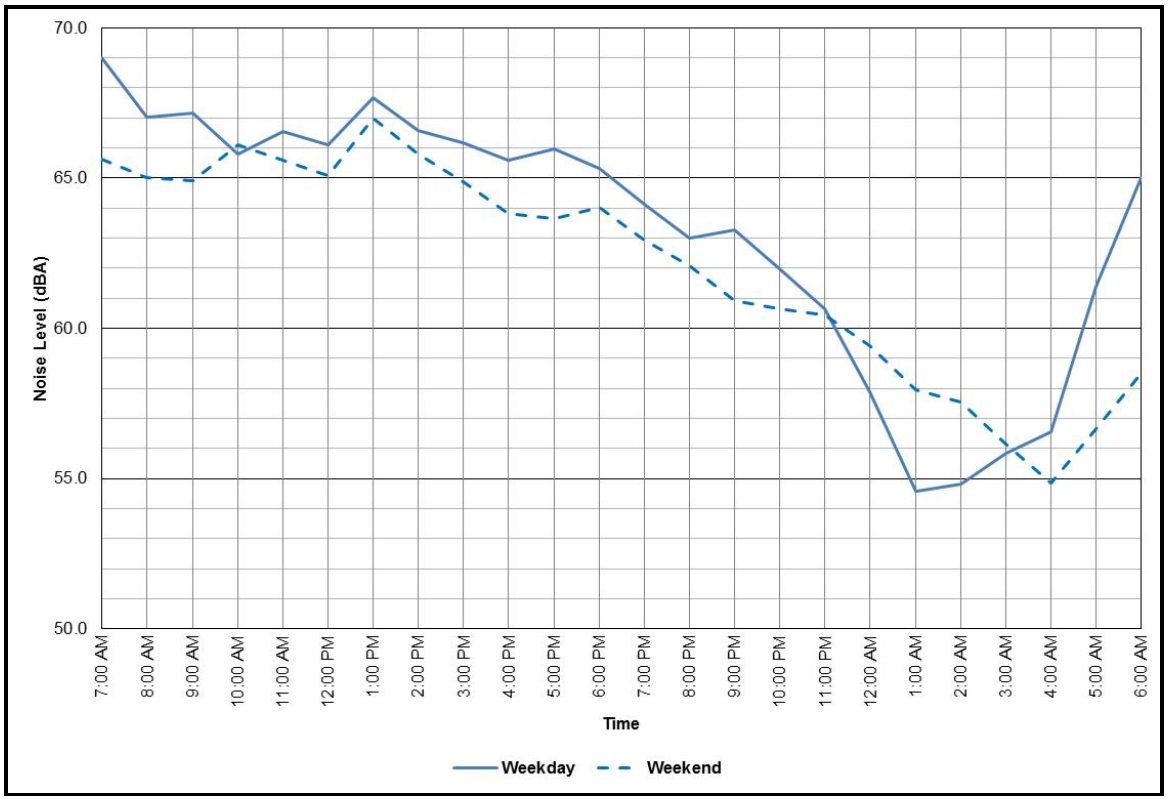
## 5.4 EXISTING NOISE LEVELS

Table 4.4-1 summarizes the hourly $L_{eq}$ and $L_{dn}$ noise levels monitored. Figure 4.4-1 presents a 24-hour chart of the hourly noise level. Field monitoring data is presented separately in the Appendix A.

**Table 4.4-1: Measured Existing Noise Levels in dBA**

| Location | Weekday | | | Weekend | | |
|---|---|---|---|---|---|---|
| | Max $L_{eq\text{-}hr}$ (Time) | Max $L_{10\text{-}hr}$ | $L_{dn}$ | Max $L_{eq\text{-}hr}$ (Time) | Max $L_{10\text{-}hr}$ | $L_{dn}$ |
| **N1** | 69 (7 AM) | 72 | 67 | 67 (1 PM) | 69 | 66 |

**Figure 4.4-1 Hourly $L_{eq}$ Noise Levels (dBA)**




During the weekday, the hourly noise level occurred during the AM traffic peak period with a measured level of 69 dBA. During the weekend, the highest hourly noise level was measured at 1 PM as expected with a noise level of 66 dBA, typical for this environment considering the close proximity of the heavily traveled roadway and railroad. The weekday day-night noise level ($L_{dn}$) was 67 dBA and the weekend $L_{dn}$ was 66 dBA.

During the monitoring period, vehicular traffic was observed to be the principal noise source and noise levels are generally dependent on the proximity to the roadways and the volume of traffic.

After traffic on adjacent roadways, activities in the LIRR train station were observed to be the largest noise contributor. Station activity included LIRR train movements and idling at the station. However, the largest observed station activity occurs in the station parking lot. The parking lot activities include vehicle movement, but also vehicles idling while waiting to drop off and pick up train passengers. Occasionally, the vehicles would back up into Railroad Street and car horns were occasionally used.

## 5.5 ASSESSMENT OF EXISTING NOISE ENVIRONMENT

### 5.5.1 New York State DEC Guidelines

The existing noise environment on and immediately adjacent to the site are representative of that of a commercial area with a weekday $L_{dn}$ was 67 dBA and weekend $L_{dn}$ of 66 dBA is marginally above the DEC noise goal of 65 dBA, as indicated in the DEC policy guidance, "Assessing and Mitigating Noise Impacts", February 2, 2001.

### 5.5.2 Town of Huntington

The general provisions of the Town of Huntington code, Article I of Chapter 141, do not contain quantifiable standards or criteria that can be applied to the Existing ambient noise environment.

The Town's nighttime zoning noise performance standard is not applicable for this assessment. The performance standard of 45 dBA for continuous noise sources at residential land uses are only applicable for the listed uses, none of which are proposed in the Project. It should be noted that the existing ambient noise level, minimum hourly $L_{eq}$ noise levels 55 dBA for both the weekday and the weekend, already exceeds the Town's noise performance standard. However, the dominant noise source during this period is traffic and the standard is not applicable to roadway traffic.

### 5.5.3 NYSDOT Criteria

A maximum hourly $L_{eq}$ is 69 dBA and $L_{10}$ of 72 dBA was recorded during the weekday with a maximum hourly $L_{eq}$ of 67 dBA and $L_{10}$ of 69 dBA during the weekends. The immediate area could be considered impacted according to FHWA/NYDOT NAC exterior standards. However, there does not appear to be an area where "frequent human use occurs and a lowered noise level would be of benefit" (e.g. outdoor patio, passive park, contemplative garden, cemetery, etc.) in

the immediate area of the intersection. Conservatively assuming a light frame construction with a simple closed sash window (see Table 2.3.1-1), the nearest residences to the intersection (at the northeast corner) can expect an interior $L_{eq}$ of 47 dBA (67 dBA-20 dBA) and a $L_{10}$ of 52 dBA, well below the NAC interior thresholds of 52 dBA and 55 dBA respectively.

### 5.5.4 US HUD Site Suitability Criteria

US HUD would classify the immediate area where noise monitoring occurred to be Normally Unacceptable according to its Site Acceptability Standards. However, it should be noted that this location has the greatest activity and potential to generate noise within the project area. Other areas within the Project, particularly those further away from this intersection or from New York Avenue in general, would likely have a $L_{dn}$ of 65 dBA or below and be considered Acceptable according to HUD Site Acceptability Standards.

## 6.0 FUTURE CONDITIONS

### 6.1 INTRODUCTION

The principal category of major potential noise sources associated with the proposed development is the additional traffic on adjacent roadways associated with the development, or induced-traffic noise; the second category is on-site noise-generating activities, or site operation noise.

### 6.2 INDUCED TRAFFIC NOISE

The changes or decreases in traffic in support of the operation of the proposed facility is detailed in the Traffic Study. Traffic volumes for the year 2019 are based on NYSDOT-recommended annual traffic volume growth rate of 1% for this area. Under the Future Build condition, there will be induced traffic from the rezoning, particularly at the intersection of New York Avenue and Railroad Street/Broadway due to the proposed hotel and commercial building at the southwest corner. The intersection peak hour approach volume, traffic volume approaching the intersection from all directions, is expected to increase from 3,277 vehicles per hour to 3,767 vehicles per hour, a 15% increase.

The propose project does not significantly change the roadway geometry, traffic mix and speed. Assuming that traffic conditions (e.g. speeds, mix, geometry, and operating conditions) remain the same and traffic is the dominant noise source at this location, the future change in noise level is computed as:

$$\text{Change in Noise Level} = 10 * \log\left(\frac{\text{Build Traffic Volume}}{\text{No Build Traffic Volume}}\right)$$

Applying the method to the traffic with the proposed project to that without the project (Build to No Build), the expected increase in traffic noise levels due to the traffic induced by the proposed facility is:

$$\text{Change in Noise Level} = 10 \log (3767/3277) = 0.6 \text{ dBA}$$

The Build noise environment is conservatively expected to increase by no more than 0.6 dBA.

## 7.0 NOISE IMPACT ASSESSMENT

### 7.1 POTENTIAL NOISE IMPACTS

The SEQRA requires that agencies take a "hard look" at actions to identify and analyze the potential for significant environmental impacts, and if appropriate, consider mitigation that minimize impacts to the maximum extent practicable. For the analysis of the future noise environment, the analysis includes both the impacts on existing receptors, and an evaluation of the site suitability for the proposed use. The ambient noise environment is characterized by its location on New York Avenue and its proximity to the LIRR tracks and Huntington Train Station. The noise levels monitored during the fieldwork correspond to a suburban commercial corridor. The Existing $L_{dn}$ of 67 dBA exceeds what the DEC guidelines would consider appropriate for a non-industrial or non-commercial setting, 65 dBA. Accordingly, a significant noise impact results when the Future Build noise level increases by more than 6 dBA, and a noise level increase between 0 to 3 dBA is not expected to have an appreciable effect on the public and is not considered a significant noise impact.

In summary, as per DEC Guidance, a significant noise impact may result if the level were to increase more than 6 dBA, however, noise related to the proposed project is expected to result in an increase that is less than 1 dBA, well below the 3-dBA threshold and an increase that is not considered to result in a perceptible change by the human ear. Therefore, the proposed action is not anticipated to result in a significant adverse impact related to noise per DEC guidance.

### 7.2 COMPLIANCE WITH TOWN OF HUNTINGTON NOISE CODE

The general provisions of the Town of Huntington code, Article I of Chapter 141, do not contain quantifiable standards or criteria that can be applied to this project.

The Town's zoning performance standard, Section 87, Article XIII, Chapter 198, nighttime noise limit of 45 dBA, but it applies to uses that are not proposed by the Project. Further, this standard does not apply to traffic, which dominates the Existing noise environment and is expected to continue dominating the Future noise environment.

All development within the project area must conform to all zoning and land use requirements, and onsite plans and installations will comply with applicable building and environmental requirements. Therefore, commercial development will not have any significant noise impact with regard to Town ordinances.

### 7.3 COMPLIANCE WITH FHWA AND NYSDOT NOISE GUIDANCE

Expected increase in noise level is less than 1 dBA. The NAC threshold for a significant relative increase in noise levels, due to a project, is 6 dBA. This project does not approach 6 dBA and is not considered a significant noise impact per the relative standard.

It has been shown that the NAC exterior criteria is not applicable due to the absence of noise sensitive areas where "frequent human use occurs and a lowered noise level would be of benefit" in the immediate vicinity of the intersection of New York Avenue and Railroad Street/Broadway. A 1-dBA increase due to induce traffic will not cause the estimated Existing interior noise level, $L_{eq}$ of 47 dBA and a $L_{10}$ of 52 dBA, to exceed the NAC interior thresholds of 52 dBA and 55 dBA for $L_{eq}$ and $L_{10}$ respectively.

### 7.4 COMPLIANCE WITH US HUD SITE SUITABILITY NOISE GUIDELINES

The measured outdoor $L_{dn}$ on the site is 67 dBA. The site falls within the "Normally Unacceptable" category according to the HUD Standard for federally assisted projects. To satisfy HUD noise goals, a 5-dBA additional noise attenuation would be required for buildings in the project area to realize an interior noise goal of 45 dBA. However, this additional attenuation assumes a wood-frame construction with a typical noise attenuation of 20 dBA. Modern building constructions, particularly for multi-story hotels and commercial buildings with double-glazed windows, easily exceeds the 25-dBA exterior structure and window attenuation needed to satisfy US HUD's interior noise goal of 45 dBA without additional noise attenuation.

Other areas in the Project corridor that are away from the intersection or further away from traffic on New York Avenue are likely to have a noise level of 65 dBA or lower and fall within the HUD's "Acceptable" category for federally assisted projects.

## 8.0 CONSTRUCTION NOISE IMPACT

Construction is generally limited to daylight hours with much the construction associated with landscaping, and a crane to erect large multistory buildings. The heaviest noise generating equipment would likely be a bulldozer with a typical noise level of 87 dBA under continuous use at 50 feet (see Table 7-1); a noise level below 75 dBA can be expected at 200 feet. Given the temporary and intermittent nature of construction and equipment usage and the land use characteristics at the site and its adjacent area, no significant noise impact is expected.

**Table 7-1: Typical Construction Equipment Noise Emission Levels**

| Equipment Item | Noise Level @50' (dBA) |
|---|---|
| Air Compressor | 81 |
| Asphalt Spreader (paver) | 89 |
| Asphalt Truck | 88 |
| Backhoe | 85 |
| Compactor | 80 |
| Concrete Spreader | 89 |
| Concrete Mixer | 85 |
| Concrete Vibrator | 76 |
| Crane (derrick) | 88 |
| Dozer | 87 |
| Dump Truck | 88 |
| Front End Loader | 84 |
| Gas-Driven Vibro-compactor | 76 |
| Generator | 76 |
| Hoist | 76 |
| Impact Wrench (steel bunting) | 88 |
| Jackhammer (Paving Breaker) | 88 |
| Motor Crane | 83 |
| Pick-up Truck (light) | 72 |
| Pneumatic tools | 85 |
| Pump | 76 |
| Roller | 80 |
| Rock Drill | 98 |
| Scraper | 88 |
| Shovel | 82 |
| Truck (Medium and Heavy) | 88 |

## 9.0 SUMMARY OF IMPACTS

The proposed project complies with the noise regulations, guidelines and requirements of NYSDEC, applicable provisions of the Code of the Town of Huntington, the FHWA and NYSDOT NAC, and US HUD Site Suitability Guidelines. In conclusion, the proposed Huntington Station Gateway Development Project does not pose a significant environmental noise impact to the ambient noise environment and, with modern construction, the site is a suitable location for residential units.

# Appendix A

# Field Data

METROSONICS db-3100 SN 2547 V1.4 2/90
REPORT PRINTED 11/24/14 @ 10:39:35
DOUBLING RATE: 5dB FILTER: A WGHT
DOSE CRITERION: 90dB RESPONSE: SLOW
PRE-CALIBRATION TIME: 11/22/14 @ 17:06:34
PRE-CALIBRATION RANGE: 39.0dB TO 139.0dB
POST-CALIBRATION TIME: 11/24/14 @ 10:38:40
POST-CALIBRATION RANGE: 39.0dB TO 139.0dB

SR110 AND B'WAY/RR ST - WEEKEND, NE CORNER

TEST BEGAN 11/22/14 @ 7:10:03
TEST LENGTH: 1DAYS 2:00:00
TEST ENDED 11/23/14 @ 9:10:03
TEST INTERRUPTIONS: 1
Lav = 62.7dB Lav ( 80)= 44.8dB
SEL = N/A Lav ( 90)= 39.0dB
TWA = 71.2dB
TWA ( 80) = 53.3dB TWA ( 90) = 45.7dB
Lmax = 99.5dB ON 11/22/14 @ 13:33:22
Lpk =133.5dB ON 11/23/14 @ 9:06:29
TIME OVER 115dB 0D 0:00:00.00
8 HR DOSE ( 80dB CUTOFF)= 0.61%
8 HR DOSE ( 90dB CUTOFF)= 0.21%

"TIME HISTORY REPORT

# OF PERIODS: 156 MODE: CONTINUOUS
PERIOD LENGTH: 0:10:00
TIME HISTORY CUTOFF: NONE
Ln(1): 10.0% Ln(2): 90.0%

DATE: 11/22/14

| INT | "TIME" | "Lav" | "Lmx" | "Lpk" | "L1" | "L2" |
|---|---|---|---|---|---|---|
| 1 | " 7:10:03" | 64.9 | 84.7 | 118.1 | 68 | 57 |
| 2 | " 7:20:03" | 64.5 | 76.1 | "UNR" | 69 | 55 |
| 3 | " 7:30:03" | 65.9 | 87.2 | "UNR" | 70 | 55 |
| 4 | " 7:40:03" | 66.0 | 84.1 | "UNR" | 70 | 56 |
| 5 | " 7:50:03" | 66.0 | 79.7 | "UNR" | 70 | 58 |
| 6 | " 8:00:03" | 64.4 | 79.6 | "UNR" | 68 | 56 |
| 7 | " 8:10:03" | 64.6 | 78.2 | "UNR" | 68 | 58 |
| 8 | " 8:20:03" | 65.3 | 75.8 | "UNR" | 69 | 59 |
| 9 | " 8:30:03" | 64.0 | 75.6 | "UNR" | 68 | 57 |
| 10 | " 8:40:03" | 66.3 | 91.8 | "UNR" | 69 | 58 |
| 11 | " 8:50:03" | 65.1 | 81.4 | "UNR" | 68 | 57 |
| 12 | " 9:00:03" | 64.4 | 78.4 | "UNR" | 69 | 57 |
| 13 | " 9:10:03" | 65.8 | 86.3 | "UNR" | 69 | 56 |
| 14 | " 9:20:03" | 62.9 | 73.4 | "UNR" | 67 | 56 |
| 15 | " 9:30:03" | 63.9 | 74.6 | "UNR" | 68 | 58 |
| 16 | " 9:40:03" | 64.3 | 74.6 | "UNR" | 68 | 57 |
| 17 | " 9:50:03" | 66.9 | 89.0 | "UNR" | 70 | 58 |
| 18 | "10:00:03" | 65.4 | 85.4 | "UNR" | 68 | 56 |
| 19 | "10:10:03" | 64.7 | 82.5 | "UNR" | 68 | 57 |
| 20 | "10:20:03" | 64.2 | 77.7 | "UNR" | 68 | 57 |
| 21 | "10:30:03" | 67.6 | 97.3 | 113.0 | 69 | 57 |
| 22 | "10:40:03" | 67.5 | 92.3 | "UNR" | 70 | 58 |
| 23 | "10:50:03" | 66.1 | 82.5 | "UNR" | 70 | 59 |
| 24 | "11:00:03" | 64.6 | 82.8 | "UNR" | 68 | 57 |
| 25 | "11:10:03" | 64.7 | 74.4 | "UNR" | 69 | 57 |
| 26 | "11:20:03" | 68.1 | 94.9 | "UNR" | 69 | 58 |
| 27 | "11:30:03" | 64.7 | 77.3 | "UNR" | 69 | 57 |
| 28 | "11:40:03" | 65.4 | 91.7 | 128.0 | 68 | 58 |
| 29 | "11:50:03" | 64.8 | 81.7 | "UNR" | 69 | 58 |
| 30 | "12:00:03" | 67.2 | 86.6 | 112.3 | 70 | 59 |
| 31 | "12:10:03" | 65.3 | 81.0 | "UNR" | 69 | 58 |
| 32 | "12:20:03" | 63.8 | 77.2 | "UNR" | 67 | 56 |
| 33 | "12:30:03" | 64.0 | 73.8 | "UNR" | 67 | 58 |
| 34 | "12:40:03" | 64.5 | 77.1 | "UNR" | 69 | 57 |
| 35 | "12:50:03" | 64.7 | 77.2 | "UNR" | 69 | 57 |
| 36 | "13:00:03" | 63.8 | 73.4 | "UNR" | 68 | 57 |
| 37 | "13:10:03" | 64.9 | 89.0 | "UNR" | 68 | 56 |
| 38 | "13:20:03" | 64.7 | 79.8 | "UNR" | 68 | 58 |
| 39 | "13:30:03" | 71.1 | 99.5 | "UNR" | 70 | 57 |
| 40 | "13:40:03" | 67.6 | 93.2 | "UNR" | 69 | 57 |
| 41 | "13:50:03" | 64.7 | 76.4 | "UNR" | 68 | 59 |
| 42 | "14:00:03" | 64.5 | 78.5 | "UNR" | 68 | 57 |
| 43 | "14:10:03" | 69.5 | 96.4 | "UNR" | 69 | 57 |
| 44 | "14:20:03" | 64.0 | 76.2 | "UNR" | 68 | 57 |
| 45 | "14:30:03" | 64.8 | 76.5 | "UNR" | 69 | 57 |
| 46 | "14:40:03" | 64.0 | 76.0 | "UNR" | 67 | 57 |
| 47 | "14:50:03" | 64.9 | 74.8 | "UNR" | 69 | 58 |
| 48 | "15:00:03" | 64.9 | 82.6 | "UNR" | 68 | 57 |
| 49 | "15:10:03" | 65.0 | 82.9 | "UNR" | 69 | 58 |
| 50 | "15:20:03" | 64.6 | 77.2 | "UNR" | 68 | 57 |
| 51 | "15:30:03" | 65.3 | 84.6 | "UNR" | 69 | 58 |
| 52 | "15:40:03" | 64.7 | 76.4 | "UNR" | 69 | 57 |
| 53 | "15:50:03" | 64.8 | 77.5 | "UNR" | 69 | 57 |
| 54 | "16:00:03" | 64.6 | 85.7 | "UNR" | 67 | 57 |
| 55 | "16:10:03" | 64.4 | 84.2 | "UNR" | 67 | 56 |
| 56 | "16:20:03" | 62.9 | 71.3 | "UNR" | 66 | 57 |
| 57 | "16:30:03" | 63.0 | 75.7 | "UNR" | 66 | 56 |
| 58 | "16:40:03" | 63.3 | 77.5 | "UNR" | 67 | 57 |
| 59 | "16:50:03" | 64.4 | 79.0 | "UNR" | 67 | 56 |
| 60 | "17:00:03" | 64.6 | 79.8 | "UNR" | 68 | 59 |
| 61 | "17:10:03" | 62.8 | 71.1 | "UNR" | 66 | 57 |
| 62 | "17:20:03" | 63.3 | 75.3 | "UNR" | 67 | 56 |
| 63 | "17:30:03" | 64.4 | 79.4 | "UNR" | 68 | 58 |
| 64 | "17:40:03" | 63.6 | 81.7 | "UNR" | 67 | 56 |
| 65 | "17:50:03" | 62.8 | 77.1 | "UNR" | 67 | 55 |
| 66 | "18:00:03" | 63.5 | 87.1 | "UNR" | 66 | 56 |
| 67 | "18:10:03" | 66.4 | 90.1 | "UNR" | 67 | 56 |
| 68 | "18:20:03" | 62.0 | 74.4 | "UNR" | 66 | 55 |
| 69 | "18:30:03" | 63.1 | 80.0 | "UNR" | 66 | 57 |
| 70 | "18:40:03" | 63.1 | 81.6 | "UNR" | 66 | 57 |
| 71 | "18:50:03" | 64.6 | 91.4 | "UNR" | 67 | 56 |
| 72 | "19:00:03" | 66.3 | 94.2 | "UNR" | 67 | 56 |
| 73 | "19:10:03" | 61.6 | 71.5 | "UNR" | 65 | 55 |
| 74 | "19:20:03" | 63.1 | 74.8 | "UNR" | 67 | 57 |
| 75 | "19:30:03" | 62.1 | 73.6 | "UNR" | 66 | 55 |
| 76 | "19:40:03" | 61.2 | 76.0 | "UNR" | 65 | 53 |
| 77 | "19:50:03" | 60.3 | 70.8 | "UNR" | 64 | 52 |
| 78 | "20:00:03" | 64.5 | 87.3 | "UNR" | 67 | 52 |
| 79 | "20:10:03" | 60.9 | 74.9 | "UNR" | 66 | 53 |
| 80 | "20:20:03" | 63.8 | 85.8 | "UNR" | 68 | 54 |
| 81 | "20:30:03" | 60.7 | 75.5 | "UNR" | 65 | 53 |
| 82 | "20:40:03" | 60.6 | 70.4 | "UNR" | 64 | 54 |
| 83 | "20:50:03" | 59.8 | 70.6 | "UNR" | 63 | 53 |
| 84 | "21:00:03" | 61.3 | 72.1 | "UNR" | 66 | 53 |
| 85 | "21:10:03" | 60.4 | 70.6 | "UNR" | 65 | 51 |
| 86 | "21:20:03" | 60.4 | 76.1 | "UNR" | 65 | 52 |
| 87 | "21:30:03" | 62.3 | 75.9 | "UNR" | 67 | 54 |
| 88 | "21:40:03" | 59.5 | 72.3 | "UNR" | 64 | 50 |
| 89 | "21:50:03" | 61.1 | 78.6 | "UNR" | 65 | 53 |
| 90 | "22:00:03" | 60.6 | 70.3 | "UNR" | 65 | 52 |
| 91 | "22:10:03" | 59.8 | 74.1 | "UNR" | 65 | 49 |
| 92 | "22:20:03" | 61.1 | 72.5 | "UNR" | 65 | 52 |
| 93 | "22:30:03" | 60.8 | 78.9 | "UNR" | 65 | 52 |
| 94 | "22:40:03" | 60.3 | 69.3 | "UNR" | 65 | 51 |
| 95 | "22:50:03" | 61.1 | 82.5 | "UNR" | 64 | 51 |
| 96 | "23:00:03" | 60.9 | 69.8 | "UNR" | 65 | 52 |
| 97 | "23:10:03" | 60.6 | 69.3 | "UNR" | 65 | 52 |
| 98 | "23:20:03" | 61.0 | 73.7 | "UNR" | 65 | 51 |
| 99 | "23:30:03" | 60.6 | 75.9 | "UNR" | 65 | 51 |
| 100 | "23:40:03" | 60.3 | 74.6 | "UNR" | 65 | 48 |
| 101 | "23:50:03" | 59.0 | 72.0 | "UNR" | 64 | 49 |
| 102 | " 0:00:03" | 60.0 | 73.8 | "UNR" | 65 | 50 |
| 103 | " 0:10:03" | 59.8 | 77.6 | "UNR" | 65 | 50 |
| 104 | " 0:20:03" | 58.3 | 74.1 | "UNR" | 63 | 45 |
| 105 | " 0:30:03" | 60.8 | 73.6 | "UNR" | 64 | 57 |
| 106 | " 0:40:03" | 58.2 | 69.5 | "UNR" | 62 | 49 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 107 | " 0:50:03" | 58.7 | 73.5 | "UNR" | 63 | 50 |
| 108 | " 1:00:03" | 57.5 | 72.9 | "UNR" | 62 | 48 |
| 109 | " 1:10:03" | 58.9 | 81.0 | "UNR" | 63 | 47 |
| 110 | " 1:20:03" | 59.0 | 74.9 | "UNR" | 64 | 47 |
| 111 | " 1:30:03" | 57.8 | 75.6 | "UNR" | 63 | 45 |
| 112 | " 1:40:03" | 56.8 | 70.8 | "UNR" | 62 | 45 |
| 113 | " 1:50:03" | 57.2 | 71.9 | "UNR" | 63 | 45 |
| 114 | " 2:00:03" | 56.9 | 72.5 | "UNR" | 62 | 47 |
| 115 | " 2:10:03" | 56.5 | 70.2 | "UNR" | 62 | 42 |
| 116 | " 2:20:03" | 56.9 | 69.4 | "UNR" | 62 | 45 |
| 117 | " 2:30:03" | 59.9 | 96.0 | "UNR" | 61 | 44 |
| 118 | " 2:40:03" | 57.9 | 83.8 | "UNR" | 62 | 44 |
| 119 | " 2:50:03" | 55.9 | 72.1 | "UNR" | 61 | 45 |
| 120 | " 3:00:03" | 55.8 | 69.8 | "UNR" | 62 | 44 |
| 121 | " 3:10:03" | 58.1 | 85.2 | "UNR" | 61 | 45 |
| 122 | " 3:20:03" | 53.8 | 73.9 | "UNR" | 59 | 44 |
| 123 | " 3:30:03" | 55.2 | 69.0 | "UNR" | 61 | 44 |
| 124 | " 3:40:03" | 54.0 | 72.5 | "UNR" | 60 | 43 |
| 125 | " 3:50:03" | 58.0 | 78.8 | "UNR" | 63 | 43 |
| 126 | " 4:00:03" | 52.7 | 67.1 | "UNR" | 59 | 41 |
| 127 | " 4:10:03" | 55.3 | 71.6 | "UNR" | 61 | 42 |
| 128 | " 4:20:03" | 54.3 | 72.5 | "UNR" | 60 | 45 |
| 129 | " 4:30:03" | 53.1 | 75.2 | "UNR" | 60 | 40 |
| 130 | " 4:40:03" | 56.1 | 81.2 | "UNR" | 61 | 42 |
| 131 | " 4:50:03" | 56.3 | 73.4 | "UNR" | 62 | 42 |
| 132 | " 5:00:03" | 58.7 | 88.9 | "UNR" | 61 | 42 |
| 133 | " 5:10:03" | 52.0 | 66.4 | "UNR" | 58 | 42 |
| 134 | " 5:20:03" | 56.1 | 70.2 | "UNR" | 61 | 46 |
| 135 | " 5:30:03" | 58.4 | 72.7 | "UNR" | 63 | 50 |
| 136 | " 5:40:03" | 55.6 | 76.7 | "UNR" | 61 | 44 |
| 137 | " 5:50:03" | 56.1 | 67.2 | "UNR" | 61 | 46 |
| 138 | " 6:00:03" | 55.9 | 68.9 | "UNR" | 61 | 44 |
| 139 | " 6:10:03" | 53.9 | 71.9 | "UNR" | 60 | 44 |
| 140 | " 6:20:03" | 56.4 | 69.4 | "UNR" | 61 | 46 |
| 141 | " 6:30:03" | 61.7 | 84.3 | "UNR" | 66 | 49 |
| 142 | " 6:40:03" | 59.6 | 81.2 | "UNR" | 64 | 48 |
| 143 | " 6:50:03" | 58.9 | 71.3 | "UNR" | 64 | 50 |
| 144 | " 7:00:03" | 61.2 | 83.1 | "UNR" | 65 | 51 |
| 145 | " 7:10:03" | 58.8 | 76.2 | "UNR" | 63 | 47 |
| 146 | " 7:20:03" | 59.2 | 72.5 | "UNR" | 64 | 48 |
| 147 | " 7:30:03" | 61.1 | 79.6 | "UNR" | 65 | 51 |
| 148 | " 7:40:03" | 61.7 | 75.7 | "UNR" | 67 | 51 |
| 149 | " 7:50:03" | 63.1 | 77.7 | "UNR" | 67 | 54 |
| 150 | " 8:00:03" | 59.5 | 72.7 | "UNR" | 65 | 48 |
| 151 | " 8:10:03" | 60.7 | 71.9 | "UNR" | 65 | 52 |
| 152 | " 8:20:03" | 61.9 | 76.9 | "UNR" | 66 | 51 |
| 153 | " 8:30:03" | 60.6 | 71.9 | "UNR" | 65 | 51 |
| 154 | " 8:40:03" | 63.6 | 81.8 | "UNR" | 68 | 54 |
| 155 | " 8:50:03" | 62.5 | 74.3 | "UNR" | 67 | 54 |
| 156 | " 9:00:03" | 67.2 | 94.8 | 133.5 | 69 | 39 |

** AMPLITUDE DISTRIBUTION REPORT **
TOTAL SAMPLES = 1497600

| dB | SAMPLES | % OF TOTAL |
|---|---|---|
| 39 | 2541 + | .17 |
| 40 | 2605 + | .17 |
| 41 | 5681 + | .38 |
| 42 | 8389 * | .56 |
| 43 | 12729 * | .85 |
| 44 | 19743 * | 1.32 |
| 45 | 19379 * | 1.29 |
| 46 | 19294 * | 1.29 |
| 47 | 20760 * | 1.39 |
| 48 | 21061 * | 1.41 |
| 49 | 24179 ** | 1.61 |
| 50 | 29065 ** | 1.94 |
| 51 | 31554 ** | 2.11 |
| 52 | 36682 ** | 2.45 |
| 53 | 40045 *** | 2.67 |
| 54 | 45576 *** | 3.04 |
| 55 | 52564 **** | 3.51 |
| 56 | 60341 **** | 4.03 |
| 57 | 72304 ***** | 4.83 |
| 58 | 82522 ****** | 5.51 |
| 59 | 94264 ****** | 6.29 |
| 60 | 105303 ******* | 7.03 |
| 61 | 110928 ******* | 7.41 |
| 62 | 107265 ******* | 7.16 |
| 63 | 98540 ******* | 6.58 |
| 64 | 81805 ***** | 5.46 |
| 65 | 72259 ***** | 4.82 |
| 66 | 60467 **** | 4.04 |
| 67 | 47658 *** | 3.18 |
| 68 | 36242 ** | 2.42 |
| 69 | 24788 ** | 1.66 |
| 70 | 15870 * | 1.06 |
| 71 | 9695 * | .65 |
| 72 | 6078 + | .41 |
| 73 | 4601 + | .31 |
| 74 | 3295 + | .22 |
| 75 | 2289 + | .15 |
| 76 | 1647 + | .11 |
| 77 | 1256 . | .08 |
| 78 | 935 . | .06 |
| 79 | 741 . | .05 |
| 80 | 663 . | .04 |
| 81 | 592 . | .04 |
| 82 | 510 . | .03 |
| 83 | 447 . | .03 |
| 84 | 404 . | .03 |
| 85 | 441 . | .03 |
| 86 | 292 . | .02 |
| 87 | 245 . | .02 |
| 88 | 231 . | .02 |
| 89 | 199 . | .01 |
| 90 | 120 . | .01 |
| 91 | 147 . | .01 |
| 92 | 120 . | .01 |
| 93 | 80 . | .01 |
| 94 | 62 | .00 |
| 95 | 42 | .00 |
| 96 | 34 | .00 |
| 97 | 12 | .00 |
| 98 | 11 | .00 |
| 99 | 8 | .00 |

Ln( 5.0) = 69dB
Ln(10.0) = 67dB
Ln(50.0) = 60dB
Ln(90.0) = 49dB

METROSONICS db-3100 SN 2547 V1.4 2/90
REPORT PRINTED 11/26/14 @ 10:50:15

DOUBLING RATE: 5dB FILTER: A WGHT
DOSE CRITERION: 90dB RESPONSE: SLOW
PRE-CALIBRATION TIME: 11/24/14 @ 12:03:05
PRE-CALIBRATION RANGE: 38.9dB TO 138.9dB
NO POST-CALIBRATION

SR110 AND B'WAY/RR ST - WEEKDAY, NE CORNER

TEST BEGAN 11/24/14 @ 19:00:03
TEST LENGTH: 1DAYS 6:00:00
TEST ENDED 11/26/14 @ 1:00:03
TEST INTERRUPTIONS: 1
Lav = 64.0dB Lav ( 90)= 38.9dB
SEL = N/A Lav (110)= 38.9dB
TWA = 73.5dB
TWA ( 90) = 39.6dB TWA (110) = 38.9dB
Lmax = 96.0dB ON 11/25/14 @ 20:54:41
Lpk =118.4dB ON 11/24/14 @ 19:00:03
TIME OVER 120dB 0D 0:00:00.00
18 HR DOSE ( 90dB CUTOFF)= 0.04%
18 HR DOSE (110dB CUTOFF)= 0.00%
"TIME HISTORY REPORT
# OF PERIODS: 180 MODE: CONTINUOUS
PERIOD LENGTH: 0:10:00
TIME HISTORY CUTOFF: NONE
Ln(1): 10.0% Ln(2): 90.0%

DATE: 11/24/14

| INT | "TIME" | "Lav" | "Lmx" | "Lpk" | "L1" | "L2" |
|---|---|---|---|---|---|---|
| 1 | "19:00:03" | 63.8 | 74.4 | 118.4 | 68 | 57 |
| 2 | "19:10:03" | 64.1 | 75.3 | "UNR" | 68 | 57 |
| 3 | "19:20:03" | 63.5 | 72.6 | "UNR" | 67 | 56 |
| 4 | "19:30:03" | 64.5 | 85.1 | "UNR" | 69 | 56 |
| 5 | "19:40:03" | 64.4 | 81.8 | "UNR" | 68 | 57 |
| 6 | "19:50:03" | 64.0 | 73.0 | "UNR" | 67 | 59 |
| 7 | "20:00:03" | 62.9 | 74.7 | "UNR" | 67 | 56 |
| 8 | "20:10:03" | 63.9 | 82.5 | "UNR" | 67 | 56 |
| 9 | "20:20:03" | 62.7 | 72.4 | "UNR" | 67 | 55 |
| 10 | "20:30:03" | 63.4 | 72.9 | "UNR" | 67 | 57 |
| 11 | "20:40:03" | 62.5 | 79.5 | "UNR" | 67 | 54 |
| 12 | "20:50:03" | 62.4 | 79.0 | "UNR" | 66 | 54 |
| 13 | "21:00:03" | 64.1 | 74.8 | "UNR" | 68 | 58 |
| 14 | "21:10:03" | 63.8 | 78.6 | "UNR" | 68 | 56 |
| 15 | "21:20:03" | 62.3 | 73.8 | "UNR" | 66 | 55 |
| 16 | "21:30:03" | 62.3 | 72.5 | "UNR" | 67 | 55 |
| 17 | "21:40:03" | 62.0 | 76.8 | "UNR" | 67 | 52 |
| 18 | "21:50:03" | 64.5 | 88.5 | "UNR" | 66 | 56 |
| 19 | "22:00:03" | 61.4 | 72.2 | "UNR" | 66 | 54 |
| 20 | "22:10:03" | 62.8 | 74.1 | "UNR" | 68 | 55 |
| 21 | "22:20:03" | 61.8 | 71.9 | "UNR" | 66 | 54 |
| 22 | "22:30:03" | 62.1 | 75.0 | "UNR" | 66 | 55 |
| 23 | "22:40:03" | 60.5 | 70.8 | "UNR" | 64 | 53 |
| 24 | "22:50:03" | 62.9 | 78.2 | "UNR" | 67 | 57 |
| 25 | "23:00:03" | 61.7 | 71.2 | "UNR" | 66 | 55 |
| 26 | "23:10:03" | 62.3 | 77.2 | "UNR" | 67 | 54 |
| 27 | "23:20:03" | 59.6 | 72.0 | "UNR" | 64 | 52 |
| 28 | "23:30:03" | 59.6 | 77.3 | "UNR" | 63 | 52 |
| 29 | "23:40:03" | 59.2 | 72.0 | "UNR" | 63 | 52 |
| 30 | "23:50:03" | 60.5 | 73.0 | "UNR" | 64 | 53 |
| 31 | " 0:00:03" | 58.1 | 76.1 | "UNR" | 63 | 50 |
| 32 | " 0:10:03" | 58.1 | 69.9 | "UNR" | 62 | 51 |
| 33 | " 0:20:03" | 60.1 | 74.7 | "UNR" | 63 | 54 |
| 34 | " 0:30:03" | 58.0 | 71.1 | "UNR" | 63 | 51 |
| 35 | " 0:40:03" | 56.3 | 70.4 | "UNR" | 60 | 49 |
| 36 | " 0:50:03" | 54.9 | 67.4 | "UNR" | 59 | 47 |
| 37 | " 1:00:03" | 57.1 | 68.5 | "UNR" | 62 | 50 |
| 38 | " 1:10:03" | 54.3 | 66.3 | "UNR" | 58 | 49 |
| 39 | " 1:20:03" | 56.2 | 72.3 | "UNR" | 61 | 49 |
| 40 | " 1:30:03" | 54.1 | 67.3 | "UNR" | 59 | 48 |
| 41 | " 1:40:03" | 51.0 | 69.8 | "UNR" | 57 | 41 |
| 42 | " 1:50:03" | 51.4 | 69.8 | "UNR" | 57 | 42 |
| 43 | " 2:00:03" | 55.1 | 69.0 | "UNR" | 61 | 44 |
| 44 | " 2:10:03" | 56.7 | 69.0 | "UNR" | 61 | 49 |
| 45 | " 2:20:03" | 54.4 | 69.5 | "UNR" | 59 | 47 |
| 46 | " 2:30:03" | 54.3 | 69.3 | "UNR" | 59 | 47 |
| 47 | " 2:40:03" | 53.4 | 66.6 | "UNR" | 58 | 47 |
| 48 | " 2:50:03" | 54.2 | 68.7 | "UNR" | 59 | 46 |
| 49 | " 3:00:03" | 56.2 | 68.0 | "UNR" | 61 | 49 |
| 50 | " 3:10:03" | 58.0 | 75.0 | "UNR" | 63 | 49 |
| 51 | " 3:20:03" | 57.8 | 71.7 | "UNR" | 63 | 49 |
| 52 | " 3:30:03" | 54.7 | 69.0 | "UNR" | 59 | 48 |
| 53 | " 3:40:03" | 52.2 | 68.7 | "UNR" | 58 | 41 |
| 54 | " 3:50:03" | 52.8 | 83.0 | "UNR" | 56 | 41 |
| 55 | " 4:00:03" | 49.4 | 69.8 | "UNR" | 54 | 41 |
| 56 | " 4:10:03" | 55.7 | 73.1 | "UNR" | 61 | 45 |
| 57 | " 4:20:03" | 55.7 | 68.3 | "UNR" | 61 | 49 |
| 58 | " 4:30:03" | 58.0 | 82.5 | "UNR" | 63 | 48 |
| 59 | " 4:40:03" | 57.4 | 69.2 | "UNR" | 62 | 50 |
| 60 | " 4:50:03" | 58.5 | 69.3 | "UNR" | 63 | 51 |
| 61 | " 5:00:03" | 60.7 | 72.5 | "UNR" | 65 | 52 |
| 62 | " 5:10:03" | 59.6 | 73.4 | "UNR" | 64 | 52 |
| 63 | " 5:20:03" | 59.1 | 69.2 | "UNR" | 63 | 52 |
| 64 | " 5:30:03" | 61.8 | 72.1 | "UNR" | 66 | 54 |
| 65 | " 5:40:03" | 63.2 | 74.3 | "UNR" | 67 | 56 |
| 66 | " 5:50:03" | 62.5 | 75.9 | "UNR" | 67 | 53 |
| 67 | " 6:00:03" | 63.6 | 80.4 | "UNR" | 68 | 55 |
| 68 | " 6:10:03" | 62.4 | 75.0 | "UNR" | 67 | 53 |
| 69 | " 6:20:03" | 63.9 | 75.0 | "UNR" | 68 | 55 |
| 70 | " 6:30:03" | 64.8 | 79.2 | "UNR" | 68 | 57 |
| 71 | " 6:40:03" | 66.8 | 82.2 | "UNR" | 70 | 60 |
| 72 | " 6:50:03" | 66.7 | 77.2 | "UNR" | 70 | 60 |
| 73 | " 7:00:03" | 67.7 | 78.5 | "UNR" | 71 | 62 |
| 74 | " 7:10:03" | 68.0 | 82.0 | "UNR" | 71 | 62 |
| 75 | " 7:20:03" | 66.9 | 77.1 | "UNR" | 69 | 61 |
| 76 | " 7:30:03" | 69.3 | 86.0 | "UNR" | 72 | 62 |
| 77 | " 7:40:03" | 70.5 | 82.5 | "UNR" | 74 | 63 |
| 78 | " 7:50:03" | 70.4 | 84.1 | "UNR" | 73 | 65 |
| 79 | " 8:00:03" | 68.1 | 79.7 | "UNR" | 71 | 63 |
| 80 | " 8:10:03" | 65.3 | 74.5 | "UNR" | 68 | 60 |
| 81 | " 8:20:03" | 67.3 | 77.8 | "UNR" | 71 | 62 |
| 82 | " 8:30:03" | 66.8 | 78.6 | "UNR" | 71 | 60 |
| 83 | " 8:40:03" | 66.5 | 79.1 | "UNR" | 70 | 61 |
| 84 | " 8:50:03" | 67.6 | 76.1 | "UNR" | 71 | 62 |
| 85 | " 9:00:03" | 67.7 | 79.8 | "UNR" | 71 | 62 |
| 86 | " 9:10:03" | 67.2 | 80.6 | "UNR" | 70 | 62 |
| 87 | " 9:20:03" | 67.1 | 80.3 | "UNR" | 70 | 62 |
| 88 | " 9:30:03" | 66.6 | 82.9 | "UNR" | 69 | 61 |
| 89 | " 9:40:03" | 67.6 | 86.1 | "UNR" | 71 | 60 |
| 90 | " 9:50:03" | 66.7 | 82.3 | "UNR" | 70 | 60 |
| 91 | "10:00:03" | 66.0 | 79.7 | "UNR" | 69 | 60 |
| 92 | "10:10:03" | 66.7 | 87.2 | "UNR" | 70 | 59 |
| 93 | "10:20:03" | 65.3 | 78.1 | "UNR" | 69 | 58 |
| 94 | "10:30:03" | 64.3 | 76.8 | "UNR" | 67 | 58 |
| 95 | "10:40:03" | 65.9 | 82.4 | "UNR" | 69 | 58 |
| 96 | "10:50:03" | 66.2 | 87.0 | 112.2 | 68 | 60 |
| 97 | "11:00:03" | 65.8 | 77.5 | "UNR" | 69 | 60 |
| 98 | "11:10:03" | 65.8 | 80.9 | "UNR" | 70 | 58 |
| 99 | "11:20:03" | 68.7 | 92.1 | 111.8 | 71 | 60 |
| 100 | "11:30:03" | 65.9 | 77.2 | "UNR" | 69 | 60 |
| 101 | "11:40:03" | 66.7 | 82.1 | "UNR" | 69 | 61 |
| 102 | "11:50:03" | 65.4 | 76.4 | "UNR" | 68 | 59 |
| 103 | "12:00:03" | 66.8 | 80.4 | "UNR" | 71 | 60 |
| 104 | "12:10:03" | 65.5 | 79.5 | "UNR" | 70 | 57 |
| 105 | "12:20:03" | 65.4 | 79.8 | "UNR" | 69 | 59 |
| 106 | "12:30:03" | 65.3 | 81.0 | "UNR" | 69 | 59 |
| 107 | "12:40:03" | 66.9 | 86.2 | "UNR" | 69 | 60 |
| 108 | "12:50:03" | 66.4 | 80.2 | "UNR" | 70 | 59 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 109 | "13:00:03" | 68.7 | 88.1 | "UNR" | 70 | 59 |
| 110 | "13:10:03" | 66.7 | 80.2 | "UNR" | 70 | 61 |
| 111 | "13:20:03" | 67.0 | 80.3 | "UNR" | 70 | 60 |
| 112 | "13:30:03" | 66.6 | 80.7 | "UNR" | 70 | 58 |
| 113 | "13:40:03" | 67.5 | 86.3 | "UNR" | 72 | 60 |
| 114 | "13:50:03" | 69.0 | 81.9 | "UNR" | 72 | 62 |
| 115 | "14:00:03" | 66.1 | 79.1 | "UNR" | 70 | 60 |
| 116 | "14:10:03" | 67.1 | 75.6 | "UNR" | 71 | 60 |
| 117 | "14:20:03" | 66.7 | 80.9 | "UNR" | 70 | 61 |
| 118 | "14:30:03" | 65.7 | 83.9 | "UNR" | 68 | 59 |
| 119 | "14:40:03" | 66.2 | 80.6 | "UNR" | 70 | 60 |
| 120 | "14:50:03" | 67.5 | 84.5 | "UNR" | 71 | 59 |
| 121 | "15:00:03" | 65.9 | 83.0 | "UNR" | 70 | 59 |
| 122 | "15:10:03" | 67.2 | 88.0 | "UNR" | 70 | 60 |
| 123 | "15:20:03" | 66.1 | 77.4 | "UNR" | 69 | 60 |
| 124 | "15:30:03" | 67.0 | 79.3 | "UNR" | 70 | 61 |
| 125 | "15:40:03" | 66.0 | 77.8 | "UNR" | 69 | 60 |
| 126 | "15:50:03" | 64.2 | 76.6 | "UNR" | 68 | 58 |
| 127 | "16:00:03" | 66.4 | 84.8 | "UNR" | 71 | 58 |
| 128 | "16:10:03" | 64.2 | 77.5 | "UNR" | 67 | 60 |
| 129 | "16:20:03" | 66.4 | 80.2 | "UNR" | 70 | 60 |
| 130 | "16:30:03" | 65.8 | 78.5 | "UNR" | 69 | 58 |
| 131 | "16:40:03" | 65.5 | 78.1 | "UNR" | 68 | 60 |
| 132 | "16:50:03" | 64.8 | 80.5 | "UNR" | 67 | 60 |
| 133 | "17:00:03" | 66.4 | 77.5 | "UNR" | 70 | 61 |
| 134 | "17:10:03" | 69.0 | 90.4 | "UNR" | 71 | 59 |
| 135 | "17:20:03" | 65.4 | 78.3 | "UNR" | 69 | 58 |
| 136 | "17:30:03" | 63.3 | 73.1 | "UNR" | 66 | 58 |
| 137 | "17:40:03" | 64.8 | 81.2 | "UNR" | 68 | 58 |
| 138 | "17:50:03" | 64.5 | 74.6 | "UNR" | 68 | 59 |
| 139 | "18:00:03" | 64.2 | 74.5 | "UNR" | 67 | 60 |
| 140 | "18:10:03" | 64.4 | 80.3 | "UNR" | 68 | 59 |
| 141 | "18:20:03" | 63.8 | 74.5 | "UNR" | 67 | 59 |
| 142 | "18:30:03" | 65.3 | 85.4 | "UNR" | 68 | 58 |
| 143 | "18:40:03" | 67.6 | 95.0 | "UNR" | 68 | 57 |
| 144 | "18:50:03" | 65.5 | 86.6 | "UNR" | 68 | 58 |
| 145 | "19:00:03" | 63.6 | 76.0 | "UNR" | 67 | 58 |
| 146 | "19:10:03" | 65.3 | 77.8 | "UNR" | 68 | 61 |
| 147 | "19:20:03" | 65.8 | 77.8 | "UNR" | 69 | 61 |
| 148 | "19:30:03" | 65.1 | 82.9 | "UNR" | 67 | 60 |
| 149 | "19:40:03" | 64.8 | 74.0 | "UNR" | 69 | 58 |
| 150 | "19:50:03" | 65.0 | 80.3 | "UNR" | 69 | 59 |
| 151 | "20:00:03" | 63.0 | 74.0 | "UNR" | 67 | 55 |
| 152 | "20:10:03" | 63.8 | 78.2 | "UNR" | 67 | 57 |
| 153 | "20:20:03" | 62.7 | 72.0 | "UNR" | 67 | 54 |
| 154 | "20:30:03" | 66.3 | 90.9 | "UNR" | 69 | 56 |
| 155 | "20:40:03" | 63.2 | 89.2 | "UNR" | 66 | 54 |
| 156 | "20:50:03" | 70.0 | 96.0 | "UNR" | 70 | 55 |
| 157 | "21:00:03" | 63.4 | 77.9 | "UNR" | 67 | 56 |
| 158 | "21:10:03" | 62.6 | 70.7 | "UNR" | 67 | 55 |
| 159 | "21:20:03" | 62.6 | 75.1 | "UNR" | 67 | 54 |
| 160 | "21:30:03" | 63.7 | 76.3 | "UNR" | 68 | 55 |
| 161 | "21:40:03" | 61.1 | 76.4 | "UNR" | 65 | 54 |
| 162 | "21:50:03" | 63.4 | 83.2 | "UNR" | 66 | 56 |
| 163 | "22:00:03" | 60.7 | 71.2 | "UNR" | 65 | 51 |
| 164 | "22:10:03" | 61.0 | 76.1 | "UNR" | 66 | 48 |
| 165 | "22:20:03" | 62.0 | 74.9 | "UNR" | 67 | 51 |
| 166 | "22:30:03" | 62.5 | 74.5 | "UNR" | 67 | 55 |
| 167 | "22:40:03" | 63.0 | 83.8 | "UNR" | 66 | 53 |
| 168 | "22:50:03" | 63.1 | 80.9 | "UNR" | 66 | 56 |
| 169 | "23:00:03" | 62.8 | 84.4 | "UNR" | 66 | 52 |
| 170 | "23:10:03" | 60.4 | 71.4 | "UNR" | 65 | 51 |
| 171 | "23:20:03" | 60.4 | 72.5 | "UNR" | 65 | 50 |
| 172 | "23:30:03" | 60.3 | 71.5 | "UNR" | 65 | 51 |
| 173 | "23:40:03" | 59.9 | 75.6 | "UNR" | 65 | 48 |
| 174 | "23:50:03" | 57.9 | 77.7 | "UNR" | 63 | 46 |
| 175 | " 0:00:03" | 62.5 | 92.9 | 113.2 | 66 | 48 |
| 176 | " 0:10:03" | 58.4 | 71.3 | "UNR" | 63 | 47 |
| 177 | " 0:20:03" | 58.5 | 69.7 | "UNR" | 63 | 50 |
| 178 | " 0:30:03" | 57.9 | 72.9 | "UNR" | 63 | 47 |
| 179 | " 0:40:03" | 56.9 | 69.9 | "UNR" | 62 | 45 |
| 180 | " 0:50:03" | 57.6 | 73.7 | "UNR" | 63 | 46 |

** AMPLITUDE DISTRIBUTION REPORT **

TOTAL SAMPLES = 1728000

| dB | SAMPLES | % OF TOTAL |
|---|---|---|
| 40 | 193 . | .01 |
| 41 | 8010 + | .46 |
| 42 | 9631 * | .56 |
| 43 | 6056 + | .35 |
| 44 | 5703 + | .33 |
| 45 | 6036 + | .35 |
| 46 | 10256 * | .59 |
| 47 | 10476 * | .61 |
| 48 | 17192 * | .99 |
| 49 | 26239 ** | 1.52 |
| 50 | 38663 ** | 2.24 |
| 51 | 35508 ** | 2.05 |
| 52 | 36267 ** | 2.10 |
| 53 | 37481 ** | 2.17 |
| 54 | 44287 *** | 2.56 |
| 55 | 50608 *** | 2.93 |
| 56 | 57030 *** | 3.30 |
| 57 | 63671 **** | 3.68 |
| 58 | 73607 **** | 4.26 |
| 59 | 88829 ***** | 5.14 |
| 60 | 107781 ****** | 6.24 |
| 61 | 118606 ******* | 6.86 |
| 62 | 128171 ******* | 7.42 |
| 63 | 127692 ******* | 7.39 |
| 64 | 115907 ******* | 6.71 |
| 65 | 105342 ****** | 6.10 |
| 66 | 94679 ***** | 5.48 |
| 67 | 80986 ***** | 4.69 |
| 68 | 66354 **** | 3.84 |
| 69 | 51934 *** | 3.01 |
| 70 | 34456 ** | 1.99 |
| 71 | 22408 * | 1.30 |
| 72 | 14058 * | .81 |
| 73 | 9415 * | .54 |
| 74 | 6652 + | .38 |
| 75 | 4601 + | .27 |
| 76 | 3381 + | .20 |
| 77 | 2450 + | .14 |
| 78 | 1671 + | .10 |
| 79 | 1321 . | .08 |
| 80 | 1042 . | .06 |
| 81 | 745 . | .04 |
| 82 | 651 . | .04 |
| 83 | 427 . | .02 |
| 84 | 313 . | .02 |
| 85 | 277 . | .02 |
| 86 | 224 . | .01 |
| 87 | 145 . | .01 |
| 88 | 133 . | .01 |
| 89 | 124 . | .01 |
| 90 | 108 . | .01 |
| 91 | 63 | .00 |
| 92 | 57 | .00 |
| 93 | 23 | .00 |
| 94 | 42 | .00 |
| 95 | 17 | .00 |
| 96 | 1 | .00 |

Ln( 1.0) = 75dB
Ln(10.0) = 68dB
Ln(50.0) = 62dB
Ln(90.0) = 51dB

# Appendix B

# Qualifications

## ***RELEVANT PRIOR FIRM EXPERIENCE***

**NYS Rte 112 Reconstruction Project from Granny Road to NYS Rte 25, Suffolk County, NY. NYSDOT PIN 0016.25.** A conducted an air quality and noise impact assessment of proposed reconstruction of NYS Rte 112 to include addition of Two-Way, Left-Turn Lanes as per NYSDOT guidelines. 2013-2014.

**Noise and Air Quality Impact Assessment for a Rail C&D Transfer Station in Queens, NYC.** Conducted impact assessment using TNM, NonROads, MOVES2010b, and AERMOD for induced truck traffic and on-site operations of a C&D rail transfer station in Maspeth, Queens per NYCDEP Guideline. 2013-2014.

**Highway Design Safety Improvements on Bronx River Parkway at Gun Hill Road, Phases I-IV, Bronx County, NY. NYSDOT D030608-04, PIN X110.25.** A conducted an air quality and noise impact assessment of proposed Exit Ramp modifications as per NYSDOT guidelines. 2013-2014.

**Southampton Country Day Camp Noise Study, Suffolk County, NY.** Environmental noise assessment of the proposed outdoor pool for a proposed children's day camp. The study examined noise from outdoor pool activities. 2011.

**Tappan Zee Bridge I-87/I-287 Corridor Study, Rockland and Westchester Counties, NY. NYSDOT Contract No. D213123.** Performed FEIS Noise and Vibration Study. 2005 - 2011.

**LIE (I-495) Service Roads Operational Improvements at Walt Whitman Road, Suffolk County, NY. NYSDOT PIN 0229.38.** Performed Air Quality and Ground Water Screenings in accordance with 40CFR51 and 40 CFR93 and NYSDOT/NYSDEC requirements. 2010.

**The Lighthouse Proposed Development under Mitchel Field Mixed-Use (MFM) Lower Density Alternative, Nassau County, NY. Town of Hempstead.** Conducted a technical noise assessments in support of FEIS for an alternative rezoning and development proposal for the Nassau Coliseum and surround areas on behalf of the Town of Hempstead. 2010.

**Air Quality and Noise Screening for East 11th Street Project, LES Peoples Mutual Housing Assoc. Inc. / NYCHPD, Manhattan, NY.** Conducted Air Quality and Noise Screening as per NYC's C.E.Q.R. Technical Manual. Screened for potential stationary and mobile Air Quality and Noise impacts for a low-income housing project with facilities for homeless recovering from mental illness. 2010.

**Bridge Widening and Intersection Improvement Project at Hospital Road and NYS Route 27, Suffolk County, NY. Town of Brookhaven Job ID OT2384.** Performed Air Quality, Noise and Ground Water Screenings in accordance with 40CFR51 and 40 CFR93 and NYSDOT/NYSDEC requirements. 2009 - 2010.

**CR 39 Road Widening, North Sea Road to Montauk Highway, Suffolk County, NY. NYSDOT PIN 075657 / SCPW CP 5528.** Documented existing ambient noise environment and performed Noise Impact Assessment and Analysis for the proposed road widening in accordance with 40CFR51 and 40 CFR93 and NYSDOT/NYSDEC requirements. 2009.

**Korean War Veterans Highway Terminus Ramp, Phases I-IV, Richmond County, NY. NYSDOT PIN X349.13.** Performed Noise Impact Assessment and Air Quality SIP Conformity Analysis for 6 Project Alternatives and micro scale air quality impact assessment for the project in accordance with 40CFR51 and 40 CFR93 and NYSDOT/NYSDEC requirements. 2002-09.

**Pelham Parkway & Hutchinson Parkway Interchange Improvement Project, Bronx County, NY. NYCDOT PIN X349.13.** Performed Noise Impact Assessment and Air Quality Analysis for Project Alternatives and microscale air quality impact assessment for the project in accordance with 40CFR51 and 40 CFR93 and NYSDOT/NYSDEC requirements. 2006-08.

**Air Quality and Noise Impact Assessment of, Long Island Jewish Hospital, Hillside, NYC.** Conducted air quality and noise impact assessment of proposed facility modernization program in Hillside, Queens per NYCEQR, NYSEQR and DASNY requirements. 2001-08.