Chapter 7: Noise

7.1 Introduction

A noise evaluation has been conducted to assess the potential for noise impact associated with the proposed actions. The With-Action scenario would facilitate the construction of a new eight-story parking garage that would contain two parking structures with a total capacity of 2,200 spaces. The existing ambient sound environment includes contributions from local street traffic such as Ditmars Boulevard, the nearby Grand Central Parkway, and air traffic at LaGuardia Airport. Noise impact has been assessed at receptors adjacent to the project site in accordance with the procedures outlined in the *2014 CEQR Technical Manual*. The evaluation includes a sound monitoring program and an impact assessment associated with potential increases in sound due to additional mobile sources (vehicle trips) that would be caused by the proposed project. This chapter includes background on noise descriptors used to assess impact, a description of the assessment methodology, results from the sound monitoring program, impact assessment results, and conclusions.

Noise Background

Noise is defined as unwanted or excessive sound. Sound becomes unwanted when it interferes with normal activities such as sleep, work, communication or recreation. How people perceive sound depends on several measurable physical characteristics including:

- Level - Sound level is based on the amplitude change in pressure and is related to the loudness or intensity.
- Frequency - Sounds are comprised of acoustic energy distributed over a range of frequencies. Acoustic frequencies, commonly referred to as tone or pitch, are typically measured in Hertz. Pure tones exist when there is a concentration of sound in a narrow frequency range.

Sound levels are most often measured on a logarithmic scale of decibels (dB). The decibel scale compresses the audible range of acoustic pressure levels, which can vary from the threshold of hearing (0 dB) to the threshold of pain (120 dB). Because sound levels are measured in dB, the addition of two sound levels is not linear. For example, adding two equal sound levels results in a 3 dB increase in the overall level. Research indicates the general relationships between sound level and human perception are as follows:

- A 3 dB increase is a doubling of acoustic energy and is approximately the smallest difference in sound level that can be perceived in most environments.
- A 10 dB increase is a tenfold increase in acoustic energy and is generally perceived as a doubling in loudness to the average person.

The human ear does not perceive sound levels from each frequency equally loud. To compensate for this phenomenon in perception, a frequency filter known as A-weighting [dBA] is commonly used to evaluate environmental noise levels. Table 7.1 presents a list of common outdoor and indoor sound levels.

Table 7.1: Indoor and Outdoor Sound Levels

Outdoor Sound Levels	Sound Pressure (μPa)	Sound Level dBA	Indoor Sound Levels
	6,324,555	110	Rock Band at 5 m
Jet Over-Flight at 300 m		105	
	2,000,000	100	Inside New York Subway Train
Gas Lawn Mower at 1 m		95	
	632,456	90	Food Blender at 1 m
Diesel Truck at 15 m		85	
Noisy Urban Area—Daytime	200,000	80	Garbage Disposal at 1 m
		75	Shouting at 1 m
Gas Lawn Mower at 30 m	63,246	70	Vacuum Cleaner at 3 m
Suburban Commercial Area		65	Normal Speech at 1 m
	20,000	60	
Quiet Urban Area—Daytime		55	Quiet Conversation at 1 m
	6,325	50	Dishwasher Next Room
Quiet Urban Area—Nighttime		45	
	2,000	40	Empty Theater or Library
Quiet Suburb—Nighttime		35	
	632	30	Quiet Bedroom at Night
Quiet Rural Area—Nighttime		25	Empty Concert Hall
Rustling Leaves	200	20	
		15	Broadcast and Recording Studios
	63	10	
		5	
Reference Pressure Level	20	0	Threshold of Hearing

μPA MicroPascals describe pressure. The pressure level is what sound level monitors measure.
dBA A-weighted decibels describe pressure logarithmically with respect to 20 μPa (the reference pressure level).
Source: Highway Noise Fundamentals, Federal Highway Administration, September 1980.

A variety of sound level descriptors can be used for environmental noise analyses. These descriptors relate to the way sound varies in level over time. The following is a list of common sound level descriptors:

- L_{10} is a statistical sound level that represents the level which is exceeded 10 percent of the time during a time period. Therefore, the L_{10} is representative of the higher sound levels that exist over a certain period and may be considered an average of the peak noise levels.
- L_{eq} is the continuous equivalent A-weighted sound level that represents the same acoustic that exists over a period of time in a single value as the fluctuating levels. The L_{eq} takes into account how loud noise events are during the period, how long they last, and how many times they occur. L_{eq} is commonly used to describe environmental noise and relates well to human annoyance.
- Ldn or DNL is the day-night equivalent A-weighted sound level, which takes into account how loud noise events are, how long they last, how many times they occur over a 24-hour period, and whether they occur during the day (7:00 AM to 10:00 PM) or night (10:00 PM to 7:00 AM). Noise that occurs during the night is given a 10-decibel penalty to account for the increased sensitivity to noise at night.

7.2 Noise Assessment Methodology

Noise impacts are generally attributed to the introduction of two types of sources: mobile (vehicles) and stationary sources (heating and ventilation systems). The *2014 CEQR Technical Manual* provides two levels of analysis to evaluate noise impacts from proposed developments. The first level consists of a screening analysis which compares the specific parameters of a project to screening thresholds. If the screening thresholds are exceeded, then a more detailed noise analysis will be required.

If a project introduces new sensitive receptors, such as residential units, then existing ambient sound levels must be assessed. If new receptors would be located in an environment with high ambient sound levels, mitigation may be required to reduce noise impact from these existing sources. The proposed actions would not introduce new stationary sources or create new sensitive receptors. Therefore, the primary focus of the noise evaluation is to assess the potential increase in sound from the increase in mobile sources (vehicle trips) due to the proposed project.

The existing environment includes contributions from Ditmars Boulevard, Grand Central Parkway, vehicles on other local roads, and air traffic at LaGuardia Airport. To characterize the existing environment, ambient sound measurements (which include all sources of sound) have been conducted along with simultaneous spot traffic counts on Ditmars Boulevard. As described in the *2014 CEQR Technical Manual,* sound levels from Ditmars Boulevard have been predicted using the Federal Highway Administration Traffic Noise Model (TNM) version 2.5. These values have been subtracted from the overall measured sound levels to understand the contribution of sound from all other sources. Because the proposed actions would only increase traffic volumes on Ditmars Boulevard, ambient sound levels at nearby receptors would only be affected by increases in sound generated from Ditmars Boulevard. The contribution from all other sources would not be affected by the proposed actions.

Depending on the specific project, a significant adverse noise impact may be assessed according to the absolute sound levels at sensitive receptors and/or whether the proposed project would result in a significant incremental increase in sound from the No-Action condition. For projects that would introduce new receptors, significant adverse noise impacts are typically assessed according to absolute noise limits. Because the proposed actions would not introduce any new receptors, the impact has been assessed according to the increase between the No-Action to With-Action conditions. With respect to an incremental increase, a 3 dBA increase in sound level from the No-Action condition is generally considered to be just noticeable to a listener and the threshold for a significant adverse noise impact.

To assess this project, a two-step process has been followed including a mobile screening procedure of the number of passenger car equivalents (PCEs) for the No-Action and With-Action conditions and an analysis of the overall increase in ambient sound levels including the increase in sound from additional vehicles on Ditmars Boulevard.

7.3 Noise Assessment

Existing Conditions

An ambient sound monitoring program was conducted on Tuesday, November 17, 2015 to determine the existing sound levels in the vicinity of the project site. Sound level meters were setup at two locations near sensitive receptors adjacent to the project site. The measurements were conducted on the sidewalks in front of residential properties at 10441 Ditmars Boulevard and 2302 102nd Street, as shown in Figure 7.1. The distance of the microphone at 10441 Ditmars Boulevard to the center of the near lane of travel was approximately 25 feet. Residential buildings in this area on Ditmars Boulevard are generally 50 feet from the near lane of travel. The distance of the microphone at 2302 102nd Street to the center of the near lane of travel was approximately 45 feet and the residential building was approximately 60 feet to the near lane. Observations were made of the major sources of sound in the environment and simultaneous traffic counts were made.

Sound level measurements were conducted for 20-minute durations during the morning peak period (8:00 AM – 9:00 AM), mid-day (12:00 PM – 1:00 PM), and evening peak period (5:00 PM – 6:00 PM). Measurements were conducted using a Larson Davis LxT sound level meter meeting the appropriate Type I ANSI standards. Type I sound level meter at ground level and followed the procedures outlined in the *2014 CEQR Technical Manual*. As shown in Table 7.2, overall L_{eq} sound levels range from 69 to 71 dBA and L10 sound levels range from 72 to 73 dBA at the 10441 Ditmars Boulevard measurement location. At the 102nd Street measurement location, overall L_{eq} sound levels range from 66 to 69 dBA and L10 sound levels range from 68 to 71 dBA.

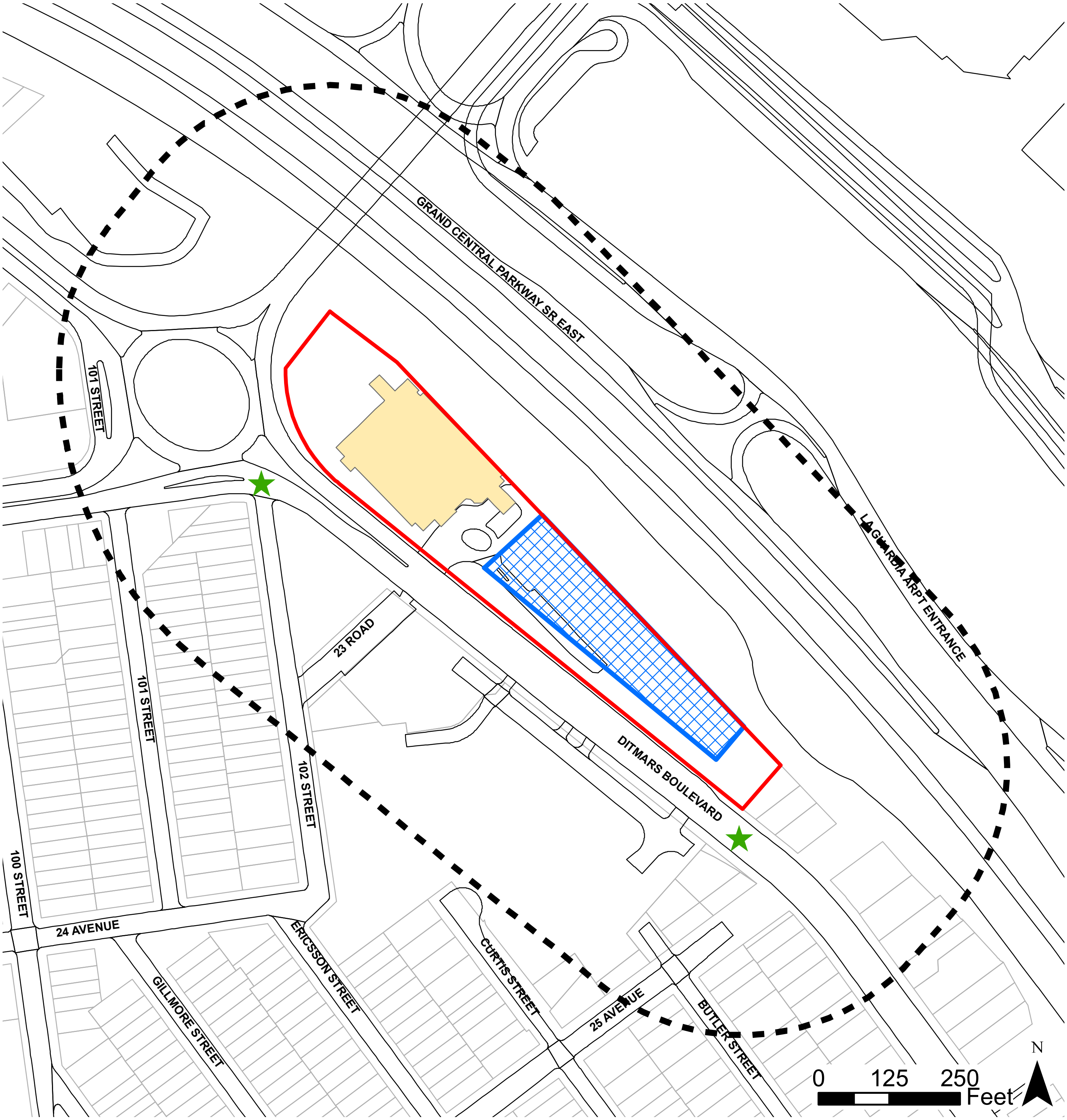
Table 7.2: Ambient Sound Levels Measurements, dBA

Monitoring Location	Time Period	Duration	L_{eq}	L_{min}	L_{max}	L_1	L_{10}	L_{50}	L_{90}
10441 Ditmars Blvd	Morning	20 min	69.7	62.0	81.5	76.6	73.0	67.9	64.9
10441 Ditmars Blvd	Midday	20 min	69.2	62.2	81.2	76.0	72.3	68.0	65.2
10441 Ditmars Blvd	Evening	20 min	70.7	60.4	82.7	77.3	73.4	69.8	65.1
2302 102nd St	Morning	20 min	68.2	61.3	81.5	75.5	70.7	66.8	64.0
2302 102nd St	Midday	20 min	68.7	60.9	84.2	79.9	70.4	65.7	63.3
2302 102nd St	Evening	20 min	65.5	57.0	77.9	72.8	68.3	64.0	60.6

Source: Measurements conducted by VHB at ground-level on November 17, 2015.

In addition to sound from vehicles in the area, there is substantial air traffic in the study area. The most recent yearly average DNL noise contours (based on 2012/2013 flight operations) prepared for the Port Authority of New York and New Jersey's *Central Terminal Building Redevelopment Environmental Assessment* [1] show that sound levels from air traffic at receptors in the adjacent neighborhood are approximately 60 DNL which is considered to be marginally acceptable according to CEQR Noise Exposure Guidelines.

[1] "*LaGuardia Airport Central Terminal Building Redevelopment Environmental Assessment*," December 11, 2014, prepared by the Port Authority of New York and New Jersey (PANYNJ) for the Federal Aviation Administration (FAA).



102-05 Ditmars Blvd. Garage
Queens, New York

Noise Monitor Location Map

Figure 7.1

- Project Site
- 400-Foot Radius
- Existing Hotel Building Footprint
- Location of Proposed Parking Garage (Approximate)
- Noise Monitoring Location

Sources:
1. New York (City). Dept. of City Planning 2014. Queens MapPLUTO (Edition 14v2). New York City: NYC Department of City Planning.
2. New York (City). Dept. of City Planning 2013. LION (Edition 13C). New York City: NYC Department of City Planning.
3. New York (City). Dept. of City Planning 2013. New York City Borough Boundary (Edition 13C). New York City: NYC Department of City Planning.
4. New York (City). Dept. of City Planning 2013. New York City Community Districts (Edition 13C). New York City: NYC Department of City Planning.
5. New York (City). Department of Information Technology & Telecommunications (DoITT). Building Footprints Data. New York City: NYC DoITT.
6. New York (City). Department of Information Technology & Telecommunications (DoITT). Roadbed Data. New York City: NYC DoITT.

Future No-Action Condition

Under the Future No-Action Condition, the site would continue to operate with its current uses as a hotel and a 410-space accessory parking structure (parking deck and surface parking). There are no new known projects planned for the study area, and therefore no new sensitive receptors, stationary sources of noise, or mobile sources of noise anticipated to be developed by the proposed project's build year (2018) in the No-Action Condition.

Future With-Action Condition

Mobile Source Screening

A traffic analysis was conducted for the proposed actions to quantify the number of new vehicle trips that would be generated by the project. These new trips, which are predominantly passenger vehicles, are the basis of the mobile source screening analysis. The mobile source screening analysis compares PCEs for two conditions: 1) No-Action and 2) With-Action. If PCEs associated with the proposed actions more than double (a 100 percent increase), then there is a potential for a significant adverse impact and further detailed quantitative analysis must be conducted.

The *2014 CEQR Technical Manual* describes the process to determine PCEs. Vehicle classes are defined to have the following PCEs based on typical vehicles speeds:

- Each automobile or light truck: 1 noise PCE
- Each medium truck: 13 noise PCEs
- Each bus: 18 noise PCEs
- Each heavy truck: 47 noise PCEs

The analysis was conducted for traffic conditions on Ditmars Boulevard in front of the project site. The analysis evaluated PCEs for both morning and evening peak hour traffic conditions. The analysis indicates the proposed actions would result in an approximately 10 percent increase in PCEs on Ditmars Boulevard for the morning peak hour, approximately 11 percent increase in PCEs during midday peak hour and approximately 11 percent increase during the evening peak hour. Table 7.3 summarizes the PCE analysis. These increases are far below the screening criteria of a 100 percent increase, which indicates that the increase in vehicular traffic would result in less than a 3 dBA increase in sound levels at the neighborhood around the project site. As discussed above, a change in sound levels of 3 dBA or less cannot typically be perceived by humans. Therefore, no discernible difference in sound levels would be recognized by the public and noise impact would not be expected. Although the PCE screening indicates there would not be a significant increase in sound level, a more detailed analysis has been conducted to further quantify the increase in overall sound levels due to the project.

Table 7.3: Mobile Source Passenger Car Equivalent

AM	Existing			No Build			Build		
Vehicle Type	Volume	PCE Equivalent	PCEs	Volume	PCE Equivalent	PCEs	Volume	PCE Equivalent	PCEs
Auto and Light Truck	773	1	773	789	1	789	847	1	847
Medium Truck	14	13	180	14	13	184	16	13	204
Bus	44	18	798	45	18	814	50	18	899
Heavy Truck	14	47	651	14	47	664	16	47	736
		Total	**2,402**			**2,450**			**2,686**
								Increase:	**10%**
MD	**Existing**			**No Build**			**Build**		
Vehicle Type	**Volume**	**PCE Equivalent**	**PCEs**	**Volume**	**PCE Equivalent**	**PCEs**	**Volume**	**PCE Equivalent**	**PCEs**
Auto and Light Truck	568	1	568	579	1	579	658	1	658
Medium Truck	12	13	155	12	13	159	13	13	174
Bus	38	18	677	38	18	690	43	18	766
Heavy Truck	12	47	562	12	47	573	13	47	631
		Total	**1,963**			**2,001**			**2,229**
								Increase:	**11%**
PM	**Existing**			**No Build**			**Build**		
Vehicle Type	**Volume**	**PCE Equivalent**	**PCEs**	**Volume**	**PCE Equivalent**	**PCEs**	**Volume**	**PCE Equivalent**	**PCEs**
Auto and Light Truck	1,163	1	1,163	1,186	1	1,186	1,280	1	1,280
Medium Truck	5	13	70	6	13	72	7	13	86
Bus	42	18	750	43	18	765	48	18	856
Heavy Truck	5	47	254	6	47	259	7	47	311
		Total	**2,238**			**2,283**			**2,533**
								Increase:	**11%**

To further characterize the ambient sound level conditions in the study area and determine the contribution from Ditmars Boulevard and from all other sources, an analysis has been completed as described in the *2014 CEQR Technical Manual*. Sound levels have been predicted for Ditmars Boulevard using TNM and the contribution from other sources has been calculated using decibel subtraction. Table 7.4 presents the overall measured L_{eq} sound levels, the number of vehicles per hour on Ditmars Boulevard during the measurements, the results of the TNM modeling of the contribution of sound from Ditmars Boulevard, and the contribution of sound from all other sources besides Ditmars Boulevard. This table shows that the contribution of noise from Ditmars Boulevard ranges from 65 to 66 dBA L_{eq} at 10441 Ditmars Boulevard and is 63 dBA L_{eq} at 2302 102nd Street. The sound levels from all other sources including Grand Central Parkway and air traffic at LaGuardia Airport range from 68 to 69 dBA L_{eq} at 10441 Ditmars Boulevard and 62 to 67 dBA L_{eq} at 2302 102nd Street. These results demonstrate that sound levels from other sources such as Grand Central Parkway and air traffic at LaGuardia Airport are significant contributors to the overall sound level environment.

Table 7.4: Noise Modeling Results

Monitoring Location	Time Period	Overall Measured Sound Level (L_{eq}, dBA)	Number of Vehicles per Hour on Ditmars					Sound Level from Ditmars Blvd (Modeled) (L_{eq}, dBA)	Sound Level from Sources Other than Ditmars Blvd (L_{eq}, dBA)
			Autos	Med. Trucks	Bus	Heavy Trucks	PCEs		
10441 Ditmars Blvd	Morning	69.7	660	0	78	0	2,064	64.5	68.1
10441 Ditmars Blvd	Evening	70.7	1,470	18	30	0	2,244	65.5	69.1
2302 102nd St	Morning	68.2	924	18	78	0	2,562	62.5	66.8
2302 102nd St	Evening	65.5	1362	6	66	0	2,628	62.9	62.0

To further assess the potential for significant adverse noise impacts in the study area due to the increase in traffic on Ditmars Boulevard, sound levels were predicted for the No-Action and With-Action traffic conditions, as shown in Table 7.5, using TNM. Overall sound levels including all sources were computed based on the TNM results for Ditmars Boulevard and the results for all other sources based on the measurements. The results of this analysis, shown in Table 7.5, indicate that With-Action sound levels from Ditmars Boulevard are 0.4 to 0.7 dBA higher than the No-Action sound levels. Because other sources of sound contribute significantly to the overall environment, the overall increase in sound level range from 0.1 to 0.2 dBA would be indiscernible. These results further demonstrate that the proposed actions would not increase sound level by 3 dBA or more and that there would be no significant adverse impact to nearby sensitive receptors.

Table 7.5: Noise Impact Assessment Results

Monitoring Location	Time Period	Sound Level from Sources Other than Ditmars Blvd (L_{eq}, dBA)	No-Action Sound Level from Ditmars Blvd (L_{eq}, dBA)	With-Action Sound Level from Ditmars Blvd (L_{eq}, dBA)	Increase in Sound Level from Ditmars Blvd (L_{eq}, dBA)	No-Action Sound Level from All Sources (L_{eq}, dBA)	With-Action Sound Level from All Sources (L_{eq}, dBA)	Overall Sound Level Increase (L_{eq}, dBA)
10441 Ditmars Blvd	Morning	68.1	65.0	65.7	0.7	69.8	70.1	0.2
10441 Ditmars Blvd	Evening	69.1	65.3	65.7	0.4	70.6	70.7	0.1
2302 102nd St	Morning	66.8	62.0	62.7	0.7	68.0	68.2	0.2
2302 102nd St	Evening	62.0	62.3	62.7	0.4	65.2	65.4	0.2

The *2014 CEQR Technical Manual* provides noise exposure guidelines for assessing ambient noise conditions, as shown in Table 7-6. Although these noise exposure guidelines are typically used to evaluate the ambient sound environment at new receptors that would be introduced by a project, they have also been used to evaluate the ambient sound environment at the closest existing residential receptors.

Table 7.6: Noise Exposure Guidelines for Use in City Environmental Impact Review[1]

<table>
<tr><th>Receptor Type</th><th>Time Period</th><th>Acceptable General External Exposure</th><th>Airport[3] Exposure</th><th>Marginally Acceptable General External Exposure</th><th>Airport[3] Exposure[3]</th><th>Marginally Unacceptable External Exposure</th><th>Airport[3] Exposure[3]</th><th>Clearly Unacceptable External Exposure</th><th>Airport[3] Exposure[3]</th></tr>
<tr><td>Outdoor area requiring serenity and quiet[2]</td><td></td><td>$L_{10} \le 55$ dBA</td><td rowspan="7">$L_{dn} \le 60$ dBA</td><td></td><td rowspan="7">$60 < L_{dn} \le 65$ dBA</td><td></td><td rowspan="7">(I) $65 < L_{dn} \le 70$ dBA (II) $L_{dn} \ge 70$ dBA</td><td></td><td rowspan="7">$L_{dn} \le 75$ dBA</td></tr>
<tr><td>Hospital, Nursing Home</td><td></td><td>$L_{10} \le 55$ dBA</td><td>$55 < L_{10} \le 70$ dBA</td><td>$65 < L_{10} \le 80$ dBA</td><td>$L_{10} > 80$ dBA</td></tr>
<tr><td rowspan="2">Residence, residential hotel, or motel</td><td>7 AM to 10 PM[1]</td><td>$L_{10} \le 65$ dBA</td><td>$65 < L_{10} \le 70$ dBA</td><td>$70 < L_{10} \le 80$ dBA</td><td>$L_{10} > 80$ dBA</td></tr>
<tr><td>10 PM to 7 AM[1]</td><td>$L_{10} \le 55$ dBA</td><td>$55 < L_{10} \le 70$ dBA</td><td>$70 < L_{10} \le 80$ dBA</td><td>$L_{10} > 80$ dBA</td></tr>
<tr><td>School, museum, library, court, house of worship, transient hotel or motel, public meeting room, auditorium, out-patient public health facility</td><td></td><td>Same as Residential Day</td><td>Same as Residential Day</td><td>Same as Residential Day</td><td>Same as Residential Day</td></tr>
<tr><td>Commercial or office</td><td></td><td>Same as Residential Day</td><td>Same as Residential Day</td><td>Same as Residential Day</td><td>Same as Residential Day</td></tr>
<tr><td>Industrial, public areas only[4]</td><td>Note 4</td><td>Note 4</td><td>Note 4</td><td>Note 4</td><td>Note 4</td></tr>
</table>

Notes:

(i) In addition, any new activity shall not increase the ambient noise level by 3 dB(A) or more.

1 Measurements and projections of noise exposures are to be made at appropriate heights above site boundaries as given by American National Standards Institute (ANSI) Standards; all values are for the worst hour in the time period.

2 Tracts of land where serenity and quiet are extraordinarily important and serve as important public need, and where the preservation of these qualities is essential for the area to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks, or open spaces dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet. Examples are grounds for ambulatory hospital patients and patients and residents of sanitariums and nursing homes.

3 One may use the FAA-approved Ldn contours supplied by the Port Authority, or the noise contours may be computed from the federally approved INM Computer Model using flight data supplied by the Port Authority of New York and New Jersey.

4 External Noise Exposure standards for industrial areas of sounds produced by industrial operations other than operating motor vehicles or other transportation facilities are spelled out in the New York City Zoning Resolution, Sections 42-20 and 42-21. The referenced standards apply to M1, M2, and M3 manufacturing districts and to adjoining residence districts (performance standards are octave band standards).

Sources: New York City Department of Environmental Protection (adopted policy 1983).

Table 7.7 presents the overall No-Action and With-Action L_{10} sound levels at the closest existing receptors assuming that the overall sound level increases in L_{eq} would result in similar increases in L_{10} sound levels. No-Action and With-Action L_{10} sound levels are considered to be marginally unacceptable at 10441 Ditmars Boulevard during the morning and evening peak periods and at 2302 102nd Street during the morning peak period according to the noise exposure guidelines. No-Action and With-Action L_{10} sound levels are considered marginally acceptable at 2302 102nd Street during the evening peak period. Because the proposed actions would not change whether these closest existing receptors would be in an ambient sound environment considered to be marginally acceptable or marginally unacceptable, this further demonstrates that the proposed actions would have minimal effect on existing receptors and there would be no impact.

Table 7.7: No-Action and With-Action L_{10} Noise Conditions

Monitoring Location	Time Period	No-Action Sound Level from All Sources (L_{10}, dBA)	Noise Exposure Guideline	With-Action Sound Level from All Sources (L_{10}, dBA)	Noise Exposure Guideline
10441 Ditmars Blvd	Morning	73.0	Marginally Unacceptable	73.2	Marginally Unacceptable
10441 Ditmars Blvd	Evening	73.4	Marginally Unacceptable	73.5	Marginally Unacceptable
2302 102nd St	Morning	70.7	Marginally Unacceptable	70.9	Marginally Unacceptable
2302 102nd St	Evening	68.3	Marginally Acceptable	68.5	Marginally Acceptable

For informational purposes, the existing construction of the closest residential buildings at 10441 Ditmars Boulevard and 2302 102nd Street have been evaluated to determine whether they currently provide sufficient sound attenuation to maintain interior levels at or below 45 dBA and whether they would continue to provide sufficient sound attenuation with the proposed actions. Residential buildings in marginally unacceptable ambient sound environments should attenuate sound as shown in Table 7-8. The composite outdoor-to-indoor transmission classification (OITC) value of the composite window-wall structure is used to determine the overall sound attenuation. Based on With-Action L_{10} sound levels at the closest existing residential receptors, a composite window/wall sound attenuation of 31 dBA would maintain interior conditions at or below 45 dBA.

The composite window/wall attenuation depends on the OITC rating of the individual window and wall components as well as the relative areas of window and wall for the building. The closest existing residential buildings at 10441 Ditmars Boulevard and 2302 102nd Street are constructed with brick walls and double-pane windows. Based on the relative areas of window and wall at these existing buildings (50%/50%), the typical OITC ratings of brick walls (45 dBA OITC) and double-pane windows (30 dBA OITC), the composite window/wall attenuation of these buildings are estimated to be 33 dBA OITC which exceeds the minimum needed to maintain interior sound levels at or below 45 dBA. Therefore, these closest existing residential buildings currently, and with the proposed actions, provide sufficient sound attenuation to maintain interior sound conditions at or below 45 dBA.

Table 7-8: Required Attenuation Values to Achieve Acceptable Interior Noise Levels

	Marginally Unacceptable				Clearly Unacceptable
Noise Level with Proposed Project	$70 < L_{10} \leq 73$	$73 < L_{10} \leq 76$	$76 < L_{10} \leq 78$	$78 < L_{10} \leq 80$	$80 < L_{10}$
Attenuation [A]	(I)28 dBA	(II)31 dBA	(III)33 dBA	(IV)35 dBA	$36 + (L_{10}-80)^B$ dBA

Note: A The above composite window-wall attenuation values are for residential dwellings and community facility development. Commercial office spaces and meeting rooms would be 5 dBA less in each category. All of the above categories require a closed window situation and hence an alternate means of ventilation.
B Required attenuation values increase by 1 dBA increments for L10 values greater than 80 dBA.

Source: New York City Department of Environmental Protection

7.4 Conclusion

The potential for significant adverse noise impacts has been assessed at receptors nearby the proposed project site. Ambient sound level monitoring was conducted to characterize the existing conditions. The measurement results showed that overall L_{eq} sound levels range from 66 to 71 dBA and L10 sound levels range from 68 to 73 dBA at nearby receptors. A screening of the PCEs indicate that there would be up to a 17 percent increase in traffic on Ditmars Boulevard with the proposed actions. An analysis of the contribution of sound from Ditmars Boulevard and from other sources such as the Grand Central Parkway and air traffic at LaGuardia Airport show that sound from other sources contributes significantly to the overall environment. Traffic noise predictions using TNM show that sound levels from Ditmars Boulevard would increase from 0.4 to 0.7 dBA due to the proposed project and that overall sound levels would increase from 0.1 to 0.2 dBA. Therefore, the proposed actions would increase sound levels less than 3 dBA. This would result in an unperceivable change in sound level and there would be no significant adverse noise impact on the neighborhood.

The existing construction of the closest residential buildings at 10441 Ditmars Boulevard and 2302 102nd Street have been evaluated to determine whether they currently provide sufficient sound attenuation to maintain interior levels at or below 45 dBA and whether they would continue to provide sufficient sound attenuation with the proposed action. Based on the relative areas of window and wall at these existing buildings and the typical OITC ratings of brick walls and double-pane windows, the composite window/wall attenuation of these buildings exceeds the minimum needed to maintain interior sound levels at or below 45 dBA.