Chapter 15 : Noise

I. INTRODUCTION

This chapter assesses the potential for the Proposed Actions to result in significant noise impacts. Noise, in its simplest definition, is unwanted sound. While high noise levels may cause hearing loss, the noise levels associated with projects reviewed under City Environmental Quality Review (CEQR) are generally below this hazardous range. However, noise levels that are not considered hazardous may cause stress-related illnesses, disrupt sleep, and interrupt activities requiring concentration. As described in Section 200 of Chapter 19 of the 2014 *CEQR Technical Manual*, the noise assessment must disclose the impacts of the Proposed Actions, and, where significant adverse noise impacts are anticipated, identify measures to avoid or mitigate potential impacts. Included is an assessment of the potential effects of the Proposed Project on sensitive noise receptors, and an assessment of the potential effects of noise levels on new sensitive uses introduced by the Proposed Project.

As described in Chapter 1, "Project Description," the Applicant is seeking a set of Proposed Actions in the form of discretionary approvals to include zoning map and text amendments, a large-scale general development (LSGD) special permit, a City Map Amendment to re-establish a portion of Beach 52nd Street south of Rockaway Beach Boulevard to reconnect with Rockaway Freeway, and public funding and/or financing from various City and New York State agencies and/or programs related to affordable housing development on the Project Site. The Project Site is situated in Queens Community District 14 (CD 14). The Proposed Actions would facilitate the Proposed Project to consist of an approximately 2,371,000 gross square feet (gsf) development on the Project Site, comprised of 11 buildings ranging in height between approximately 90 to 200 feet. The Proposed Project would introduce approximately 2,200 income-restricted dwelling units (DUs), of which 1,927 DUs would be income-restricted up to 80% of the Area Median Income (AMI), to include approximately 201 DUs set aside for Affordable Independent Residences for Seniors senior housing, with the remaining 273 DUs restricted to income levels not exceeding 130% of AMI. In addition to the residential DUs, the Proposed Project would include approximately 72,000 gsf of retail space, including a fitness center and a supermarket, approximately 77,000 gsf of community facility space, approximately 24,000 square feet (sf) of publicly-accessible open space, and approximately 973 accessory parking spaces.

II. PRINCIPAL CONCLUSIONS

A detailed analysis was conducted and found that significant adverse impacts due to noise would be experienced by nearby sensitive receptors fronting on Beach 53rd Street during the peak AM and Saturday periods due to increased traffic on nearby streets that would result from the Proposed Project. Mitigation measures to address the noise impacts on these sensitive receptors are discussed in Chapter 20, "Mitigation."

In addition, new residential development associated with the Proposed Project would also be subjected to noise levels that exceed the threshold noise level for a significant adverse noise impact. However, no impacts would occur provided that the Proposed Project incorporates window/wall attenuation sufficient to ensure that interior noise levels are 45 dBA or less. Therefore, an (E) Designation, E-537, will be mapped on the Project Site. The (E) Designation will require alternate means of ventilation for all sites with an exterior noise level of 70 dBA or higher. With the (E) Designation mapped on the Project Site, no noise impacts would occur at buildings that would be built as part of the Proposed Project.

III. METHODOLOGY

Scope of Analysis

In accordance with the 2014 *CEQR Technical Manual*, the purpose of the noise analysis is to determine whether: 1) a proposed project would exceed noise impact thresholds of 3 to 5 dBA at nearby sensitive noise receptors, including residential, commercial, and institutional facilities (if applicable), and at open spaces, and 2) new sensitive uses introduced by a proposed project would be exposed to L_{10} noise levels (as defined below) of 70 dBA or more.

Significant sources of noise near the Project Site include traffic on Rockaway Beach Boulevard and Beach Channel Drive and the elevated rail over Rockaway Freeway. Other sources of noise that were evaluated include the playground from the Bay School (P.S. 105) about 350 feet northeast of the Project Site and an electrical substation at the corner of Rockaway Beach Boulevard and Beach 53rd Street. No new schools or playgrounds are proposed for the Project Site. Based on this information, the scope of work included:

- Measurement of traffic noise levels and vehicular mix at intersections subject to project-generated traffic;
- estimation of future noise levels in the future without the Proposed Project (future No-Action noise levels);
- assessment of whether the relative increase in future traffic noise levels would exceed the impact thresholds defined below;
- assessment of whether new sensitive receptors introduced by the Proposed Project would be subject to noise levels that exceed impact thresholds defined below; and
- identification of measures to avoid or mitigate potential impacts

Analysis Year

The assessment of noise impacts was completed for the year 2034, the year at which the Proposed Project is anticipated to be complete (the “analysis year”). No interim years were analyzed since the completion year would constitute a worst-case period for project-generated traffic and noise conditions.

Noise Fundamentals

Noise Descriptors

Noise is measured in sound pressure level (SPL), which is converted to a decibel scale. The decibel is a relative measure of the sound level pressure with respect to a standardized reference quantity. Decibels on the A-weighted scale are termed “dBA.” The A-weighted scale is used for evaluating the effects of noise in the environment because it most closely approximates the response of the human ear. On this scale, the threshold of discomfort is 120 dBA, and the threshold of pain is about 140 dBA. **Table 15-1: Sound Pressure Level and Loudness of Typical Noises in Indoor and Outdoor Environments** shows the range of noise levels for a variety of indoor and outdoor sources. Because the scale is logarithmic, a relative increase of 10 decibels represents a sound pressure level that is 10 times higher. However, humans don’t perceive a 10 dBA increase as 10 times louder, they perceive it as twice as loud. The following are typical human responses to relative changes in noise level:

- 3 dBA change is the threshold of change detectable by the human ear,
- 5 dBA change is readily noticeable, and
- 10 dBA increase is perceived as a doubling of noise level.

The sound pressure level that humans experience typically varies from moment to moment. Therefore, a variety of descriptors are used to evaluate environmental noise levels over time. Some typical descriptors are defined below:

- L_{eq} is the continuous equivalent sound level. The sound energy from the fluctuating sound pressure levels is averaged over time to create a single number to describe the mean energy or intensity level. High noise levels during a monitoring period will have greater effect on the L_{eq} than low noise levels. The L_{eq} has an advantage over other descriptors because L_{eq} values from different noise sources can be added and subtracted to determine cumulative noise levels.
- L_{max} is the highest SPL measured during a given period of time. It is useful in evaluating L_{eq}s for time periods that have an especially wide range of noise levels.
- L_{10} is the SPL exceeded 10%of the time. Similar descriptors are the L_{01}, L_{50}, and L_{90}.
- L_{dn} is the day-night equivalent sound level. It is similar to a 24-hour L_{eq}, but with 10 dBA added to SPL measurements between 10 pm and 7 am to reflect the greater intrusiveness of noise experienced during these hours. L_{dn} is also termed DNL.

Noise Attenuation

Noise levels from a given source reduce with distance. Noise from a “line” source (e.g., roadways) typically attenuates at the rate of 3 dBA per distance doubling, based on a reference distance of 50 feet, for noise traveling through air or over a hard surface. Noise traveling over a soft surface may attenuate at 4.5 dBA. Noise from a stationary source attenuates at a rate of 6 dBA when traveling through air or over a hard surface and up to 7 or 8 dBA when traveling over a soft surface.

Passenger Car Equivalent Values

Vehicular volumes can be converted into Passenger Car Equivalent (PCE) values, where one medium-duty truck (with a gross weight between 9,900 and 26,400 pounds) would generate the noise equivalent of 13 cars, one bus (capable of carrying more than nine passengers) would generate the noise equivalent of 18 cars, and one heavy-duty truck (having a gross weight of more than 26,400 pounds) would to generate the noise equivalent of 47 cars, as summarized below from the 2014 *CEQR Technical Manual*.

- autos and light trucks = 1 passenger car,
- medium trucks = 13 passenger cars,
- heavy trucks = 47 passenger cars, and
- buses = 18 passenger cars.

Table 15-1: Sound Pressure Level and Loudness of Typical Noises in Indoor and Outdoor Environments

Noise Level (dBA)	Subjective Impression	Typical Sources		Relative Loudness (Human Response)
		Outdoor	Indoor	
120-130	Uncomfortably Loud	Air raid siren at 50 feet (threshold of pain)	Oxygen torch	32 times as loud
110-120	Uncomfortably Loud	Turbo-fan aircraft at take-off power at 200 feet	Riveting machine Rock band	16 times as loud
100-110	Uncomfortably Loud	Jackhammer at 3 feet		8 times as loud
90-100	Very Loud	Gas lawn mower at 3 feet Subway train at 30 feet Train whistle at crossing Wood chipper shredding trees Chain saw cutting trees at 10 feet	Newspaper press	4 times as loud
80-90	Very Loud	Passing freight train at 30 feet Steamroller at 30 feet Leaf blower at 5 feet Power lawn mower at 5 feet	Food blender Milling machine Garbage disposal Crowd noise at sports event	2 times as loud
70-80	Moderately Loud	NJ Turnpike at 50 feet Truck idling at 30 feet Traffic in downtown urban area	Loud stereo Vacuum cleaner Food blender	Reference loudness (70 dBA)
60-70	Moderately Loud	Residential air conditioner at 100 feet Gas lawn mower at 100 feet Waves breaking on beach at 65 feet	Cash register Dishwasher Theater lobby Normal speech at 3 feet	2 as loud
50-60	Quiet	Large transformers at 100 feet Traffic in suburban area	Living room with TV on Classroom Business office Dehumidifier Normal speech at 10 feet	1/4 as loud
40-50	Quiet	Bird calls, Trees rustling, Crickets, Water flowing in brook	Folding clothes Using computer	1/8 as loud
30-40	Very quiet		Walking on carpet Clock ticking in adjacent room	1/16 as loud
20-30	Very quiet		Bedroom at night	1/32 as loud
10-20	Extremely quiet		Broadcast and recording studio	
0-10	Threshold of hearing			

Sources: Noise Assessment Guidelines Technical Background, by Theodore J. Schultz, Bolt Beranek and Newman, Inc., prepared for the US Department of Housing and Urban Development, Office of Research and Technology, Washington, D.C., undated; Sandstone Environmental Associates, Inc.; Highway Noise Fundamentals, prepared by the Federal Highway Administration, US Department of Transportation, September 1980; Handbook of Environmental Acoustics, by James P. Cowan, Van Nostrand Reinhold, 1994.

Thus, PCEs are the numbers of autos that would generate the same noise level as the observed vehicular mix of autos, medium trucks, and heavy trucks. PCEs are useful for comparing the effects of traffic noise on different roadways or for different future scenarios.

Where traffic volumes are projected to change, proportional modeling techniques, as allowed in the 2014 *CEQR Technical Manual*, was used to project incremental changes in traffic noise levels. This technique uses the relative changes in traffic volumes to project changes between No-Action and With-Action noise levels. The change in future noise levels is calculated using the following proportionality equation:

$FNL=ENL + 10 \times \log_{10} (FPCE/EPCE)$

where:

FNL= Future Noise Level

ENL= Existing Noise Level

FPCE= Future PCEs

EPCE= Existing PCEs

Because sound levels use a logarithmic scale, this model proportions logarithmically with traffic change ratios. For example, if the existing traffic volume on a street is 100 PCEs, and if the future traffic volume were increased by 50 PCEs to a total of 150 PCEs, the noise level would increase by 1.8 dBA, while if the future traffic were increased by 100 PCEs, (i.e., doubled to a total of 200 PCEs), the noise level would increase by 3.0 dBA.

Window/Wall Attenuation Ratings

The attenuation of noise for a composite structure is a function of the attenuation provided by each of its component parts and how much of the area is composed of each part. Generally, a building façade is composed of the wall, glazing, and any vents or louvers for Heating, ventilation, and air conditioning (HVAC) systems in various ratios of area. To avoid significant adverse noise impacts, all new facades would need to provide composite Outdoor-Indoor Transmission Class (OITC) ratings greater than or equal to the attenuation requirements described in the Section V, Detailed Assessment. The OITC classification is defined by the American Society of Testing and Materials (ASTM E1332-90) and provides a single-number rating that is used for designing a building façade including walls, doors, glazing, and combinations thereof. The OITC rating is designed to evaluate building elements by their ability to reduce the overall loudness of ground and air transportation. It is designed to evaluate building elements by their ability to reduce the overall loudness of ground and air transportation noise. Higher OITC values reflect greater efficiencies to block airborne sound.

Noise Standards and Guidelines

CEQR Guidelines

In 1983, the New York City Department of Environmental Protection (DEP) adopted the City Environmental Protection Order - CEQR noise standards for exterior noise levels. These standards are used to classify noise exposure into four categories based on the L_{10}: Acceptable, Marginally Acceptable, Marginally Unacceptable, and Clearly Unacceptable, as shown in **Table 15-2: CEQR Noise Exposure Guidelines for Use in City Environmental Impact Review**.

Table 15-2: CEQR Noise Exposure Guidelines for Use in City Environmental Impact Review[1]

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

Source: DEP (adopted policy 1983).

Notes:

(i) In addition, any new activity shall not increase the ambient noise level by 3 dBA 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 an 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 senior homes.

[3] One may use the FAA-approved L_{dn} contours supplied by the Port Authority, or the noise contours may be computed from the federally approved Integrated Noise Model (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 NYC 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).

Table 15-3: Required Attenuation Values to Achieve Acceptable Interior Noise Levels shows the required attenuation for sensitive uses within the last three categories shown in **Table 15-2**. For example, an L_{10} may approach 80 dBA provided that buildings are constructed of materials that reduce exterior to interior noise levels by at least 35 dBA to 45 dBA for residential and community facility uses.

Table 15-3: Required Attenuation Values to Achieve Acceptable Interior Noise Levels

Noise Level with Proposed Project	Marginally Unacceptable				Clearly Unacceptable
	$70<L_{10}\leq73$	$73<L_{10}\leq76$	$76<L_{10}\leq78$	$78<L_{10}\leq80$	$80<L_{10}$
Attenuation[A]	(I) 28 dB(A)	(II) 31 dB(A)	(III) 33 dB(A)	(IV) 35 dB(A)	36 + $(L_{10} - 80)$[B] dB(A)

Note: [A] The above composite window-wall attenuation values are for residential dwellings. Commercial office spaces and meeting rooms would be 5 dB(A) less in each category. All the above categories require a closed-window situation and hence an alternate means of ventilation.

[B] Required attenuation values increase by 1 dB(A) increments for L_{10} values greater than 80 dBA.

Source: NYC DEP *2014 CEQR Technical Manual*, Table 19-3.

Evaluation Criteria

The selection of incremental values and absolute noise levels should be responsive to the nuisance levels of noise and critical time periods when nuisance levels are most acute. During daytime hours (between 7 am and 10 pm), nuisance levels for noise are generally considered to be more than 45 dBA indoors and 70 to 75 dBA outdoors. Indoor activities are subject to task interference above this level, and 70 to 75 dBA is the level at which speech interference occurs outdoors. Nighttime (between 10 pm and 7 am) is a particularly critical time period relative to potential nuisance values for noise level increases. Typical construction techniques used in the past (including typical single-glazed windows) provide a minimum of approximately 25 dBA of noise attenuation from outdoor to indoor areas.

Consequentially, the 2014 *CEQR Technical Manual* identifies the following relative noise level increases to determine impacts from a proposed action:

- An increase of five dBA or more in With-Action $L_{eq(1)}$ noise levels at sensitive receptors (including residences, play areas, parks, schools, libraries, and houses of worship) over those calculated for the No-Action condition if the No-Action levels are less than 60 dBA $L_{eq(1)}$ and the analysis period is not a nighttime period.
- An increase of four dBA or more in With-Action $L_{eq(1)}$ noise levels at sensitive receptors over those calculated for the No-Action condition if the No-Action levels are 61 dBA $L_{eq(1)}$ and the analysis period is not a nighttime period.
- An increase of three dBA or more in With-Action $L_{eq(1)}$ noise levels at sensitive receptors over those calculated for the No-Action condition if the No-Action levels are greater than 62 dBA $L_{eq(1)}$ and the analysis period is not a nighttime period.
- An increase of three dBA or more in With-Action $L_{eq(1)}$ noise levels at sensitive receptors over those calculated for the No-Action condition if the analysis period is a nighttime period.

The 2014 *CEQR Technical Manual* identifies the noise Exposure Guidelines summarized in **Table 15-2**, as the impact thresholds to assess the impact of noise levels on sensitive receptors introduced by a proposed project. If a project is within an area where the project noise levels exceed the marginally acceptable limit shown in the Noise Exposure Guidelines (as measured at the proposed building line or

property line), a significant impact would occur. For this project, a potential impact would be identified if the project would place new residential uses in an area with an L_{10} noise level of 70 dBA or more.

If a significant impact is projected, the project would be subject to mitigation measures to reduce the interior noise levels by 25 dBA or more below the maximum marginally acceptable levels for external exposure shown in **Table 15-2**.

IV. PRELIMINARY ASSESSMENT

As indicated in the 2014 *CEQR Technical Manual,* a detailed assessment of noise impacts would be required if: 1) the increased traffic volumes at intersections in the study area had the potential to cause an impact, or 2) the proposed project would place sensitive receptors in an area with projected noise levels with an L_{10} of 70 dBA or more.

Noise Monitoring

Noise monitoring was carried out in 2016 and 2018 at the following seven representative locations and shown in **Figure 15-1: 2016 and 2018 Noise Monitoring Locations**:

1. Beach Channel Drive between Beach 50th and Beach 53rd Streets (20 minutes);
2. Beach 53rd Street between Beach Channel Drive and Rockaway Beach Boulevard (1 hour);
3. Rockaway Boulevard between Beach 50th and Beach 53rd Streets (1 hour);
4. Beach 52nd Street at southern terminus (1 hour);
5. Beach 50th Street at the corner of Rockaway Beach Boulevard adjacent to the development and also adjacent to the Metropolitan Transit Authority Far Rockaway and JFK Bus Depots (1 hour).
6. Elevated rail platform at Beach 59th Street and Rockaway Freeway (1 hour). This rail station is the one closest to the Project Site.
7. Rockaway Beach Boulevard and Beach 53rd Street adjacent to electric substation (1 hour).

Sites 1 through 4 were monitored for the weekday peak AM, Midday, and PM periods as well as the Saturday Midday period. Sites 5 and 7, which target the bus depots and electrical substation, were monitored only during weekday peaks. Site 6 represents noise levels at upper floors for buildings that would face the elevated rail along Rockaway Freeway. Readings at Site 7, which is located near an existing electric substation, were done during an off-peak period when background traffic would be low. At this site, field personnel paused the noise monitors during events that would significantly exceed the noise level from the substation.

Noise levels at locations with direct lines of sight to the elevated tracks were monitored for one-hour periods as per City's guidance. Otherwise, noise monitoring periods were 20 minutes long due to traffic. Rail operation, aircraft flyovers, and traffic classification counts were carried out concurrently with the noise monitoring.



Source: GoogleEarth Pro 2017

EDGEMERE, QUEENS

Project Site

Noise Monitoring Locations

2016 AND 2018 NOISE MONITORING LOCATIONS

Figure 15-1

Table 15-4: Observed Noise Levels (dBA) summarizes the results of the noise monitoring program. The maximum L_{10} noise level, which occurred during the peak AM period, was 74.0 dBA at Beach 51st Street and Rockaway Freeway. The L_{eq} noise levels for the rail site were consistently higher than the L_{10} noise levels due to the effects of horns as the cars approach the platform. The logarithmic computations used to calculate the L_{eq} place a greater weight on high noise levels than low noise levels.

Because the L_{10} noise level exceeded 70 dBA at one or more sites adjacent to the proposed buildings, a more detailed analysis of future noise levels was carried out as presented in Section V, Detailed Assessment.

Table 15-4: Observed Noise Levels (dBA)

ID	Location	Period	L_{eq}	L_{10}	L_{min}	L_{max}	L_{01}	L_{50}	L_{90}
1	Beach Channel Drive: between Beach 53rd and Beach 51st Sts.	AM	68.5	72.6	52.9	81.9	77.7	63.7	55.9
		MD	69.1	72.2	52.2	85.5	79.6	65.2	57.1
		PM	68.7	72.3	51.6	81.3	77.7	65.7	54.6
		SAT	64.5	68.2	50.9	79.0	75.1	58.9	52.4
2	Beach 53rd Street between Beach Channel Drive and Rockaway Beach Blvd.	AM	61.0	63.7	52.6	82.8	70.6	57.3	53.9
		MD	59.6	60.7	52.5	83.3	69.2	56.4	53.6
		PM	59.2	60.6	51.9	81.4	70.2	56.6	54.8
		SAT	58.8	60.8	52.0	80.6	69.8	54.6	53.3
3	Rockaway Beach Blvd. between Beach 52nd and Beach 51st Sts.	AM	69.0	72.2	52.2	90.3	79.1	63.3	55.6
		MD	65.4	68.9	49.6	86.1	76.4	58.1	52.1
		PM	72.3	69.6	48.2	99.4	79.9	60.5	52.4
		SAT	66.0	69.8	50.7	85.1	76.1	60.6	53.3
4	Beach 51st St. at Rockaway Freeway	AM	71.0	74.0	52.9	87.9	80.1	67.9	62.2
		MD	68.9	71.9	51.4	87.6	79.1	64.8	58.1
		PM	70.1	73.7	51.3	86.3	79.9	66.3	56.1
		SAT	69.0	73.1	53.8	83.3	78.9	64.3	56.8
5	Beach 50th St. at Rockaway Beach Blvd.	AM	67.1	70.6	48.7	80.9	75.8	64.8	54.4
		MD	53.5	56.7	31.6	68.4	63.5	50.7	39.2
		PM	67.6	71.0	44.7	84.4	76.9	64.2	53.6
6	Rail Noise: 60th St. WB Platform	AM	71.4	66.3	54.7	90.3	86.3	60.5	57.6
		MD	72.2	67.6	53.3	93.4	86.8	59.0	55.9
		PM	74.1	71.7	53.8	93.8	88.2	61.5	57.3
		Off Peak PM	57.9	60.0	52.7	68.5	67.0	56.1	54.5
7	Electrical Substation: Rockaway Beach Blvd. at Beach 53rd St.	Off Peak AM	55.5	57.0	52.5	60.4	59.2	55.1	53.6

Traffic Noise

A screening analysis was completed to determine whether the Proposed Project would generate sufficient vehicle trips to cause a significant noise impact at nearby sensitive land uses. The screening threshold varies between a three and five dBA increase depending on existing noise levels and time of day. To achieve a three dBA increase in traffic noise, With-Action traffic volumes or PCEs would have to double relative to No-Action traffic volumes.

Table 15-5: 2034 Traffic Volumes shows the future volumes projected for the five traffic noise sites. The Proposed Project would generate maximum increases in traffic volume on Beach 53rd and Beach 50th Streets that would exceed 100%. Consequentially, a more detailed analysis that includes calculation of PCEs was carried out and is presented in Section V, Detailed Assessment.

Table 15-5: 2034 Traffic Volumes

ID	Intersection	Time Period	No-Action	With-Action	Increase	% Increase
1	Beach Channel Drive: between Beach 53rd and Beach 51st Sts.	AM	848	977	130	15.3%
		MD	911	1,011	100	11.0%
		PM	1,108	1,246	138	12.4%
		SAT	794	918	124	15.6%
2	Beach 53rd Street between Beach Channel Drive and Rockaway Beach Blvd.	AM	130	367	237	**181.8%**
		MD	131	238	107	81.5%
		PM	151	282	132	87.2%
		SAT	144	312	168	**116.6%**
3	Rockaway Beach Blvd. between Beach 52nd and Beach 51st Sts.	AM	555	685	130	23.4%
		MD	413	485	72	17.4%
		PM	728	814	85	11.7%
		SAT	516	602	86	16.6%
4	Beach 51st St. at Rockaway Freeway	AM	595	668	72	12.2%
		MD	296	363	67	22.5%
		PM	554	616	63	11.3%
		SAT	402	463	61	15.2%
5	Bus Depot: Beach 50th St. at Rockaway Beach Blvd.	AM	48	160	112	**196%**
		MD	45	167	122	**259%**
		PM	39	159	120	**308%**

Note: Numbers in bold type exceed 100%.

V. DETAILED ASSESSMENT

Existing Conditions

The area near the Project Site contains a mix of land uses in low- to mid-rise buildings. The New York City Housing Authority (NYCHA)'s Ocean Front Apartments (Bayside) are to the north and west of the Project Site and range between seven and nine stories in height. Several commercial properties are also located west of the Project Site. Further north of the Project Site is the Rockaway Community Park. The John F. Kennedy (JFK) Airport is located within two miles north of the Project Site. Across the street and south of the Project Site are three industrial properties, two of which are listed as factory uses by the New York City Department of Finance and one of which is listed as a warehouse use. Further south of the Project Site is the Rockaway Beach and Boardwalk and the Rockaway Freeway. Rockaway Freeway is elevated and carries both motor vehicles and rail lines. To the east of the Project Site are vacant, commercial, and institutional properties. P.S. 105 is approximately 220 feet east of the Project Site.

The observed noise levels and traffic volumes were adjusted to conform to observed traffic volumes and vehicular classifications for Existing conditions that were provided by the traffic study. The adjustments were made using the proportionality equation described in Section III, Methodology. **Table 15-6: Peak Hour Traffic Volumes and Noise Levels, Existing Conditions** shows the one-hour traffic volumes and noise PCEs for Existing conditions.

Table 15-6: Peak Hour Traffic Volumes and Noise Levels, Existing Conditions

ID	Intersection	Peak Period	L_{eq}	L_{10}	Autos	Medium Trucks	Heavy Trucks	Buses	Total	PCEs
1	Beach Channel Drive between Beach 53rd and Beach 51st Sts.	AM	70.0	74.1	561	66	18	44	689	3,063
		MD	69.7	72.8	591	52	14	32	689	2,492
		PM	68.7	72.3	696	23	6	35	759	1,881
		SAT	66.3	70.0	574	11	2	25	612	1,278
2	Beach 53rd Street between Beach Channel Drive and Rockaway Beach Blvd.	AM	63.4	66.1	15	2	1	0	17	64
		MD	61.4	62.5	22	2	0	1	25	82
		PM	62.3	63.7	23	1	0	1	25	63
		SAT	53.2	55.2	13	0	0	0	13	14
3	Rockaway Beach Blvd. between Beach 52nd and Beach 51st Sts.	AM	71.2	74.4	286	13	3	40	342	1,327
		MD	65.3	68.8	217	5	1	15	239	615
		PM	73.6	70.9	349	10	3	30	392	1,150
		SAT	66.9	70.7	310	4	1	14	329	650
4	Beach 51st St. at Rockaway Freeway	AM	71.5	74.5	504	6	1	8	519	776
		MD	67.8	70.8	270	4	1	2	277	404
		PM	69.8	73.4	451	7	1	9	468	762
		SAT	69.2	73.3	367	4	1	1	373	469
5	Beach 50th St. at Rockaway Beach Blvd.	AM	65.8	69.3	317	18	5	23	362	1,179
		MD	50.3	53.5	237	9	2	8	255	585
		PM	67.8	71.2	370	4	1	23	397	859
6	Rail Noise: 60th St. WB Platform	AM	71.4	66.3						
		MD	72.2	67.6						
		PM	74.1	71.7						
		Off Peak PM	57.9	60.0						
7	Electrical Substation- Rockaway Beach Blvd and Beach 53rd Street.	Off Peak AM	55.5	57.0						

Note: The noise levels for Sites 6 and 7 are not associated with traffic volumes and were not projected into the future because they would remain the same for future years.

Future Noise Levels Without the Proposed Actions (No-Action Condition)

In the future absent the Proposed Actions (the "No-Action" condition), an as-of-right residential development and supporting retail space would be developed on the Project Site that would be comprised of 12 buildings, including approximately 482,523 gsf of residential space (providing 568 DUs); 21,659 gsf of retail space; 800 gsf of community facility (medical) space; and 557 accessory parking spaces comprised of 483 residential spaces, 72 retail spaces, and two spaces for community facility medical office use. Of the 557 parking spaces, 457 would be provided on surface parking lots and 100 would be in an underground parking garage in the center of the northern portion of the Project Site. The No-Action condition would result in approximately 544,982 gsf of development on the Project Site.

Table 15-7: Peak Hour Noise Levels, Future without Proposed Action shows the future traffic volumes and noise levels for the 2034 analysis year. Ambient noise levels for the No-Action condition were based on changes in traffic volumes and vehicle types obtained from the traffic study. The results of the analysis indicated that noise level increases would range between -0.1 dBA and 10.2 dBA in the No-Action Condition compared to existing noise levels. The highest increments ranged between 6.3 dBA and 10.2 dBA and were due to new development in the Study Area, including the as-of-right development on the Project Site, all of which added substantial volumes of traffic to Beach 53rd Street.

Table 15-7: Peak Hour Noise Levels, Future without Proposed Action

ID	Intersection	Time Period	Existing			No-Action				Category
			L_{eq}	L_{10}	PCEs	PCEs	Noise Increase	L_{eq}	L_{10}	
1	Beach Channel Drive between Beach 53rd and Beach 51st Sts.	AM	70.0	74.1	3,063	4,090	1.3	71.2	75.3	MUII
		MD	69.7	72.8	2,492	3,326	1.3	71.0	74.1	MUII
		PM	68.7	72.3	1,881	2,660	1.5	70.2	73.8	MUII
		SAT	66.3	70.0	1,278	1,496	0.7	66.9	70.6	MUI
2	Beach 53rd Street between Beach Channel Drive and Rockaway Beach Blvd.	AM	63.4	66.1	64	286	6.5	69.9	72.6	MA
		MD	61.4	62.5	82	354	6.3	67.8	68.9	Acceptable
		PM	62.3	63.7	63	332	7.2	69.5	70.9	MUI
		SAT	53.2	55.2	14	144	10.2	63.4	65.4	Acceptable
3	Rockaway Beach Blvd. between Beach 52nd and Beach 51st Sts.	AM	71.2	74.4	1,327	2,122	2.0	73.3	76.5	MUII
		MD	65.3	68.8	615	1,136	2.7	68.0	71.5	MUI
		PM	73.6	70.9	1,150	2,005	2.4	76.1	73.4	MUII
		SAT	66.9	70.7	650	964	1.7	68.6	72.4	MUI
4	Beach 51st St. at Rockaway Freeway	AM	71.5	74.5	776	820	0.2	71.7	74.7	MUII
		MD	67.8	70.8	404	397	-0.1	67.8	70.8	MUI
		PM	69.8	73.4	762	838	0.4	70.2	73.8	MUII
		SAT	69.2	73.3	469	460	-0.1	69.2	73.3	MUII
5	Beach 50th St. at Rockaway Beach Blvd.	AM	65.8	69.3	1,179	2,279	2.9	68.6	72.1	MUI
		MD	50.3	53.5	585	959	**2.1**	52.5	55.7	Acceptable
		PM	67.8	71.2	859	1,492	2.4	70.2	73.6	MUII
6	Rail Noise: 60th WB Platform	AM	71.4	66.3				71.4	66.3	MUI
		MD	72.2	67.6				72.2	67.6	MUI
		PM	74.1	71.7				74.1	71.7	MUII
		Off Peak PM	57.9	60.0				57.9	60.0	Acceptable
7	Electrical Substation- Rockaway Beach Blvd and Beach 53rd Street.	Off Peak AM	55.5	57.0				55.5	57.0	Acceptable

Notes: MA = Marginally Acceptable; MU I = Marginally Unacceptable I; MU II = Marginally Unacceptable II.

Future with the Proposed Actions (With-Action Condition)

In the future with the Proposed Actions (the "With-Action" condition), the Applicant plans to construct approximately 2,371,000 gsf of development, comprised of 11 buildings throughout six sub-sections of the Project Site (A, B, C, D, E, and F), with sub-sections A through E on the North Parcels of the Project Site and sub-section F on the South Parcel of the Project Site. The Proposed Project would include approximately 1,858,000 gsf of residential space, to generate approximately 2,200 residential DUs; 72,000 gsf of retail space, approximately 77,000 gsf of community facility (medical) space, approximately 364,000 sf of parking space, and approximately 24,000 sf of publicly-accessible open space. Retail and residential uses would be distributed across sub-sections A through D of the Project Site, while residential and community facility spaces programmed for medical uses are anticipated to be located on sub-section E, and sub-section F would be utilized entirely for residential use. Parking would be distributed across all six sub-sections of the Project Site. Building heights for the Proposed Project would range from approximately 90 to 200 feet. **Figure 15-2: Axonometric View of Proposed Project**, shows the Proposed Project.

Approximately 973 accessory parking spaces would be provided as part of the Proposed Project, comprised of 744 accessory parking spaces for residential use, 154 accessory parking spaces for retail use, and 75 accessory parking spaces for community facility medical office use. Parking would include surface and covered parking facilities on sub-section A; surface, covered and uncovered parking facilities on sub-section B; and covered parking facilities throughout the remaining sub-sections C through F.

Any stationary noise sources associated with the proposed project (i.e., mechanical equipment) would be designed to meet all applicable noise regulations and would not generate any significant increase in ambient noise levels.

Noise Generated at P.S. 105 Playground

A school playground for P.S. 105 is approximately 350 feet from the nearest new building that would be constructed as part of the Proposed Project on the Project Site. Based on formulas in the 2014 *CEQR Technical Manual*, L_{eq} noise levels generated by activity on the playground at the nearest new building would be approximately 52 dBA, which is more than 10 dBA below monitored noise levels on Beach Channel Drive. Therefore, the playground is not considered to be a significant contributor to noise levels on the Project Site. P.S. 105 was included as a sensitive receptor in the assessment of noise impacts from the Proposed Project.

Noise Generated by Electric Substation Near the Intersection of Rockaway Beach Boulevard and Beach 53rd Street adjacent to electric substation

The noise from the electrical substation near the intersection of Rockaway Beach Boulevard and Beach 53rd Street is substantially lower than noise levels generated by traffic on Rockaway Beach Boulevard, , and is not a significant contributor to noise levels.

Noise Generated by Operation of JFK Airport

The Project Site is located 1.8 miles south of the nearest runway at JFK Airport. Review of the most recently available noise contours indicates that the Project Site is very close to the 65 DNL contour projected for 2020. Additional studies at JFK Airport are underway, and information on revised noise contours will be incorporated into the analysis when available.

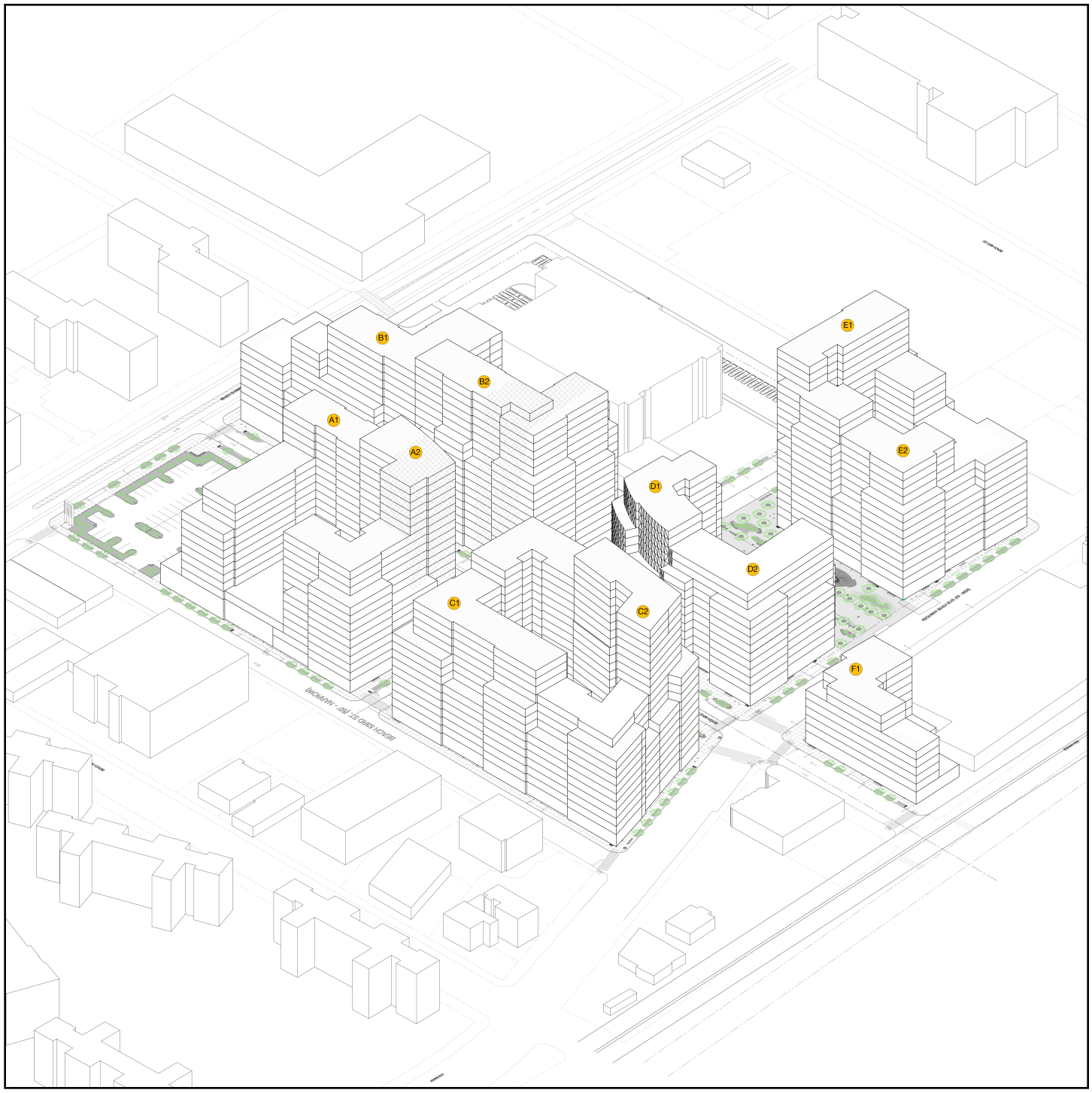
Traffic Noise

Table 15-8: Peak Hour Noise Levels, Future with Proposed Action shows the future traffic volumes and noise levels for the 2034 analysis year with the Proposed Action. The noise levels for the Future with

the Proposed Action were based on the incremental changes in traffic volumes and vehicle type obtained from the traffic study. The results of the analysis indicated that noise level increases would range between 0.2 dBA and 5.1 dBA under the With-Action Condition compared to the No-Action Condition. All sites would exceed an L_{10} of 70 dBA during at least one peak period.

The results of the impact assessment indicated that, without mitigation, potential significant adverse noise impacts are projected to occur as a consequence of traffic associated with the Proposed Project at a residential building at 334 Beach 54th Street (Block 15890, Lot 30) that has frontage on Beach 53rd Street, a residential building at 3-09 Beach 53rd Street (Block 15890, Lot 97), the future Ocean Bay Retail development at 53-01 Beach Channel Drive (Block 15890, Lot 66), Peninsula Nursing Rehabilitation Center at 51 -15 Beach Channel Drive (Block 15842, Lot 100) and at Lawrence Nursing Care Center at 3-57 Beach 53rd Street (Block 15890, Lot 42). The corner of Rockaway Beach Boulevard and Beach 50th Street also would experience a noise level increment of greater than 3.0 dBA, but no sensitive receptors are adjacent to this location.

Measures to mitigate potential significant adverse impact locations will be examined between the Draft and Final EIS, including a survey of existing buildings for window assessments and alternate means of ventilation.



Source: Aufgang Architects
Note: For illustrative purposes only

EDGEMERE, QUEENS

AXONOMETRIC VIEW OF PROPOSED PROJECT

Figure 15-2

Peninsula Hospital Site Redevelopment

Table 15-8: Peak Hour Noise Levels, Future with Proposed Action

ID	Intersection	Time Period	No-Action			Action				Category
			L_{eq}	L_{10}	PCEs	PCEs	Noise Increase	L_{eq}	L_{10}	
1	Beach Channel Drive: between Beach 53rd and Beach 51st Sts.	AM	71.2	75.3	4,090	4,603	0.6	71.8	75.9	MUII
		MD	71.0	74.1	3,326	3,545	0.3	71.3	74.4	MUII
		PM	70.2	73.8	2,660	2,775	0.2	70.4	74.0	MUII
		SAT	66.9	70.6	1,496	1,608	0.3	67.3	71.0	MUI
2	Beach 53rd Street between Beach Channel Drive and Rockaway Beach Blvd.	AM	69.9	72.6	286	937	**5.1**	75.0	77.7	MUIII
		MD	67.8	68.9	354	600	2.3	70.1	71.2	MUI
		PM	69.5	70.9	332	463	1.4	70.9	72.3	MUI
		SAT	63.4	65.4	144	312	**3.4**	66.7	68.7	MA
3	Rockaway Beach Blvd. between Beach 52nd and Beach 51st Sts.	AM	73.3	76.5	2,122	2,252	0.3	73.5	76.7	MUIII
		MD	68.0	71.5	1,136	1,208	0.3	68.2	71.7	MUI
		PM	76.1	73.4	2,005	2,090	0.2	76.2	73.5	MUII
		SAT	68.6	72.4	964	1,050	0.4	69.0	72.8	MUI
4	Beach 51st St. at Rockaway Freeway	AM	71.7	74.7	820	893	0.4	72.1	75.1	MUII
		MD	67.8	70.8	397	463	0.7	68.4	71.4	MUI
		PM	70.2	73.8	838	900	0.3	70.5	74.1	MUII
		SAT	69.2	73.3	460	521	0.5	69.7	73.8	MUII
5	Beach 50th St. at Rockaway Beach Blvd.	AM	68.6	72.1	1,179	2,495	3.3	71.9	75.4	MUII
		MD	52.5	55.7	585	1,180	**3.1**	55.5	58.7	Acceptable
		PM	70.2	73.6	859	1,726	3.0	73.2	76.6	MUIII
6	Rail Noise: 60th WB Platform	AM	71.4	66.3				71.4	66.3	MUI
		MD	72.2	67.6				72.2	67.6	MUI
		PM	74.1	71.7				74.1	71.7	MUI
		Off Peak PM	57.9	60.0				57.9	60.0	Acceptable
7	Electrical Substation-Rockaway Beach Blvd and Beach 53rd Street.	Off Peak AM	55.5	57.0				55.5	57.0	Acceptable

Notes: MA = Marginally Acceptable; MU I = Marginally Unacceptable I; MU II = Marginally Unacceptable II

Window/Wall Attenuation

Because the Proposed Project would place sensitive receptors in an area with L_{10} noise levels that exceed 70 dBA, a potential significant adverse impact would occur unless the Proposed Project incorporates mitigation measures. Therefore, window/wall noise attenuation measures are required to ensure that L_{10} interior noise levels would be 45 dBA or less (50 dBA for commercial uses). Accordingly, the Project Site will be mapped with (E) Designations for the proposed buildings in order not to have a significant adverse noise impact. This also requires alternate means of ventilation, such as air conditioning, so that windows may remain closed during warm weather conditions. The minimum required attenuation for the Proposed Project buildings is shown in **Table 15-9: Required Attenuation for Proposed Project.** The table shows the required attenuation for the new buildings. The attenuation needed for facades facing interior buildings and roadways would be affected by interior traffic, and their recommended attenuation will be reevaluated between the DEIS and FEIS using the TNM (FHWA Traffic Noise Model**).**

Table 15-9: Required Attenuation for Proposed Project

Monitoring Site ID	Location	Maximum L_{10}	CEQR Category	Minimum Required Attenuation	Affected Buildings
1	Beach Channel Drive	75.9	MUII	31	A1, B1, B2
2	Beach 53rd Street	77.7	MUIII	33	A1, A2, C1, C2, D1, D2
3	Rockaway Beach Boulevard	76.7	MUIII	33	A2, C2, D2, E2, F
4	Rockaway Freeway/Beach 52nd Street	75.1	MUII	31	F
5	Rockaway Beach Boulevard/Beach 50th Street	76.6	MUIII	33	E1, E2

Notes: MA = Marginally Acceptable; MU I = Marginally Unacceptable I; MU II = Marginally Unacceptable II; MU III – Marginally Unacceptable III; MU IV = Marginally Unacceptable IV.

Noise E-Designations

The analysis determined that all Proposed Project buildings would require (E) Designations that would specify the amount of noise attenuation to be provided by the buildings' windows and walls. Depending on the projected exterior noise levels at each location, attenuation of 31 dBA to 33 dBA would be required. The following (E) Designation, E-537, will be mapped on the Project Site:

> **Block 15843, Lot 1 (Proposed Project Building A1): In order to ensure an acceptable interior noise environment, future residential/commercial uses must provide a closed-window condition with a minimum of 33 dBA window/wall attenuation on all building's facades in order to ensure an interior noise level not greater than 45 dBA for residential uses or not greater than 50 dBA for commercial uses. To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, central air conditioning.**
>
> **Block 15843, Lot 1 (Proposed Project Building A2): In order to ensure an acceptable interior noise environment, future residential/commercial uses must provide a closed-window condition with a minimum of 33 dBA window/wall attenuation on all building's facades in order to ensure an interior noise level not greater than 45 dBA for residential uses or not greater than 50 dBA for commercial uses. To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, central air conditioning.**

Block 15843, Lot 1 (Proposed Project Building B1): In order to ensure an acceptable interior noise environment, future residential/commercial uses must provide a closed-window condition with a minimum of 31 dBA window/wall attenuation on all building's facades in order to ensure an interior noise level not greater than 45 dBA for residential uses or not greater than 50 dBA for commercial uses. To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, central air conditioning.

Block 15843, Lot 1 (Proposed Project Building B2): In order to ensure an acceptable interior noise environment, future residential/commercial uses must provide a closed-window condition with a minimum of 31 dBA window/wall attenuation on all building's facades in order to ensure an interior noise level not greater than 45 dBA for residential uses or not greater than 50 dBA for commercial uses. To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, central air conditioning.

Block 15843, Lot 1 (Proposed Project Building C1): In order to ensure an acceptable interior noise environment, future residential uses must provide a closed-window condition with a minimum of 33 dBA window/wall attenuation on all building's facades in order to maintain an interior noise level of 45 dBA. In order to maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, central air conditioning or air conditioning sleeves containing air conditioners.

Block 15843, Lot 1 (Proposed Project Building C2): In order to ensure an acceptable interior noise environment, future residential/commercial uses must provide a closed-window condition with a minimum of 33 dBA window/wall attenuation on all building's facades in order to ensure an interior noise level not greater than 45 dBA for residential uses or not greater than 50 dBA for commercial uses. To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, central air conditioning.

Block 15843, Lot 1 (Proposed Project Building D1): In order to ensure an acceptable interior noise environment, future residential/commercial uses must provide a closed-window condition with a minimum of 33 dBA window/wall attenuation on all building's facades in order to ensure an interior noise level not greater than 45 dBA for residential uses or not greater than 50 dBA for commercial uses. To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, central air conditioning.

Block 15843, Lot 1 (Proposed Project Building D2): In order to ensure an acceptable interior noise environment, future residential/commercial uses must provide a closed-window condition with a minimum of 33 dBA window/wall attenuation on all building's facades in order to ensure an interior noise level not greater than 45 dBA for residential uses or not greater than 50 dBA for commercial uses. To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, central air conditioning.

Block 15842, Lot 1 (Proposed Project Building E1): To ensure an acceptable interior noise environment, future residential/community facility uses must provide a closed-window condition with a minimum of 33 dBA window/wall attenuation on all building's façades to maintain an interior noise level not greater than 45 dBA for residential and community

facility uses. To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, air conditioning.

Block 15842, Lot 1 (Proposed Project Building E2): To ensure an acceptable interior noise environment, future residential/community facility uses must provide a closed-window condition with a minimum of 33 dBA window/wall attenuation on all building's facades and 37 dBA of attenuation on facades facing Beach 50th Street or Beach Channel Drive to maintain an interior noise level not greater than 45 dBA for residential and community facility uses. To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, air conditioning.

Block 15857, Lot 1 (Proposed Project Building F): To ensure an acceptable interior noise environment, future residential uses must provide a closed-window condition with a minimum of 33 dBA window/wall attenuation on facades facing Rockaway Beach Boulevard or eastern facades facing Beach 49th Street within 70 feet from Rockaway Beach Boulevard or western façades facing Beach 50th Street within 70 feet from Rockaway Beach Boulevard and 31 dBA of attenuation on all the other facades to maintain an interior noise level of 45 dBA. To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, air conditioning.

Based on the projected noise levels, these design measures would provide sufficient attenuation to satisfy CEQR requirements. With the specified attenuation measures in place, the Proposed Project would not result in significant adverse noise impacts.