

3.5 Noise

3.5.1 Existing Conditions

Introduction

The NYSDEC policy document, *Assessing and Mitigating Noise Impacts*, defines noise as “unwanted sound.” Certain activities produce sound levels or sound characteristics that can be characterized as “noise”. The potential impacts associated with noise are dependent on the land uses that would be affected by the activity.

Most sounds heard in the environment are not composed of a single frequency, but are a band of frequencies, each with a different intensity or level. Levels of sound are measured in units called decibels (dB). Since the human ear cannot perceive all pitches or frequencies equally well, these measures are adjusted or weighted to correspond to human hearing. This adjusted unit is known as the A-weighted decibel, or dBA. Since dBA describes a sound level at just one instant and since ambient sound levels are constantly varying, other ways of describing sound levels over extended periods are needed. For purposes of this analysis, the DEIS measures L_{eq} . The L_{eq} quantifies the noise environment as a single value for a defined time period. L_{eq} is defined as the equivalent steady-state sound level which in a stated period of time contains the same acoustic energy as the time-varying sound level during the same time period. The $L_{eq(h)}$ is the hourly value of L_{eq} . For example, $L_{eq(8)}$ is the average sound over an 8-hour period.

A one decibel change in sound is the smallest change detectable to the human ear under suitable laboratory conditions. However, under normal conditions, a change in sound pressure of two or three decibels is required for the average person to notice a difference. To the average person, a noise level increase of 2 to 3 dBA is barely perceptible, an increase of 5 dBA is noticeable, and an increase of 20 dBA or more is perceived as a dramatic change. Tables 3.5-1 and 3.5-2 show community responses to increased noise levels.

Environmental noise is considered with regard to several factors, including *level* - which relates to perceived loudness of a noise - as well as character, duration, time of day and frequency of occurrence.

Table 3.5-1 Perception of Changes in Noise Levels	
Change (dBA)	Average Ability to Perceive Change in Noise Levels Human Perception of Change
2-3	Barely perceptible
5	Readily Noticeable
10	A doubling or halving of the loudness of sound
20	A dramatic change
40	Difference between a faintly audible sound and a very loud sound
Source: Bolt Baranek and Neuman, Inc. Fundamentals and Abatement of Highway Traffic Noise, Report No. PB-222-703. Prepared for Federal Highway Administration, June 1973.	

Table 3.5-2 Community Response to Increases in Noise Levels		
Estimated Community Response		
Change (dBA)	Category Description	
0	None	No observed reaction
5	Little	Sporadic complaints
10	Medium	Widespread complaints
15	Strong	Threats of community action
20	Very strong	Vigorous community action
Source: International Standard Organization, <i>Noise Assessment with Respect to Community Reactions</i> , 150/TC 43. (New York: United Nations, November 1969.)		

Table 3.5-3 lists typical noise levels associated with various activities or settings.

Table 3.5-3 Sound Levels of Common Settings/Activities	
Activity	dBA
Rock Concerts	110
Subway Platform	100
Sidewalk, Passing Truck	90
Sidewalk, Typical Highway	80
Typical Urban Area	60-70
Typical Suburban Area	50-60
Quiet Suburban Area at Night	40-50
Typical Rural Area at Night	30-40
Isolated Broadcast Studio	20
Audiometric Booth	10
Threshold of Hearing	0
Sources: Cowan, James, <i>Handbook of Environmental Acoustics</i> , 1994. Egan, David, <i>Architectural Acoustics</i> , 1998.	

Existing Noise Levels

The project site is mostly undeveloped except for an existing two-family residence. Sounds emanating from the two-family residence are the only major sources of sound levels on the project site. Typical sounds that would be generated from the existing residence would be from vehicles accessing the site, residents who may be outside the dwelling engaging in activities, maintenance activities, such as mowing, etc.. The activities that are likely to be occurring on the site presently would be typically during daytime and early evening hours, i.e., 7 a.m. to 10 p.m.

Town of Marlborough Noise Standards

The Town of Marlborough Noise Code, Chapter 105, states that it is the Town's "intent to regulate and control loud and disturbing noise." The Town defines noise as "Any sound that exceeds decibel limit as described herein at the property line from which property the sound emanates or is produced."

According to the Code (Section 105-3), any sound that exceeds 70 dbA as measured at the property line is prohibited between the hours of 10:00 p.m. and 7:00 a.m., Monday through Friday, and 11 p.m. and 7 a.m., Saturday and Sunday. Noise that is plainly audible inside a closed residence or building during these time periods is also prohibited.

In addition, sounds of machinery/equipment or any engine that exceed a duration of six continuous hours and exceed 75 dbA at a distance of 100 feet from the source are also prohibited.

Amplified sound shall also not exceed 75 dbA at the property line. Also, sounds created by individuals with the intent of causing annoyance and exceeding 75 dbA is prohibited.

The Town's noise chapter is the relevant and applicable standard by which to evaluate potential construction-related noise effects from implementation of the proposed project. Noise standards and guidelines promulgated by the U.S. Department of Housing and Urban Development are also provided to evaluate typical standards recommended by agencies for the well-being and health of residential neighborhoods and residential land uses.

HUD Standards

The US Department of Housing and Urban Development (HUD) has adopted environmental standards, criteria, and guidelines for determining acceptability of federally-assisted projects and proposed mitigation measures to ensure that activities assisted by HUD will achieve the goal of attaining a suitable living environment. Although the proposed community is not subject to HUD guidelines, they do represent general goals for a residential development. Table 3.5-4 summarizes HUD site acceptability standards based on external noise levels.

These standards reflect a U.S. Environmental Protection Agency goal that exterior noise levels do not exceed a Day-Night average noise level (L_{dn}) of 65 decibels. This goal is not a mandated standard.

Table 3.5-4 HUD Site Acceptability Standards	
Outdoor Ldn (dBA)	
Acceptable	Not exceeding 65
Normally Unacceptable	65 to 75
Unacceptable	Above 75
Source: Title 24, Code of Federal Regulations, Part 51.103 (c), Exterior Standards.	

3.5.2 Potential Impacts

Operational Noise Impacts

Following construction and occupancy, the Dockside at Marlborough will result in noise typical of residential development, including noise from vehicles and site maintenance. This noise will be varied, sporadic and will have multiple sources across the site. The character of residential noise will be comparable to existing noise levels from other medium density residential development in the Town. The project's operational noise is not expected to result in significant impacts to neighbors and nearby receptors. A suburban area has exterior noise levels in the range of 50-60 dBA. This noise level is not anticipated to have a significant impact on any adjoining land uses. To the north of the site, the elementary/intermediate school adjoin the property and are generally operational between the hours of 7:30 a.m. to 3:30 p.m. Noise emanating from a residential development is generally compatible with noise emanating from these types of schools. Also, given the topographic difference in elevation of the site development area compared to the school site, the hillside will to some extent block and attenuate noise from the development.

To the west of the project site, properties fronting on U.S. Route 9W are subjected to the vehicular noises emanating from the road - noises associated with the development would be less than noise levels for properties with highway frontage. To the south, the property is vacant and primarily in private ownership - no impacts would result to vacant land uses. Lastly, to the east, the marina and boat storage uses will not be impacted by noises emanating from a residential land use.

Interior noise levels will be consistent with typical residential interior activities. Noise within structures are attenuated by the building materials used in building construction - these materials must comply with NYS Building Code.

Construction Noise Impacts

Construction of the project would commence approximately 2-3 years in the future, and would be completed by about 2017. The construction time period would be approximately 3-4 years. Clearing and site grading over the entire site would occur early in the construction process. Clearing will be minimal as much of the site is already disturbed so noise levels will not be as significant compared to the clearing of an undisturbed site. The installation of utility lines, construction of roads and building construction would occur in phases. In the later stages of construction and development, noise will not be generated from the entire site, but from sections of the overall site.

Ambient daytime noise levels would increase in the immediate vicinity of the site during project construction. Construction activities and operation of construction equipment have been the subject of numerous noise studies completed for various projects in the region. Table 3.5-5 shows representative maximum sound levels for diesel powered equipment and other activities at a range of distances to a given location.

Table 3.5-5 Construction Noise Levels (dBA)				
Maximum Sound Level				
Equipment/Activity	50 feet	200 feet	500 feet	1000 feet
Backhoe	82-84	70-72	62-64	56-58
Blasting	93-94	81-82	73-74	67-68
Concrete Pump	74-84	62-72	54-64	48-58
Generator	71-87	59-75	51-67	45-61
Hauler	83-86	71-74	63-66	57-60
Loader	86-90	74-78	66-70	60-64
Rock Drill	83-99	71-87	63-79	57-73
Trucks	81-87	69-75	61-67	55-61
Source: Tim Miller Associates, Inc.				

Noise levels will depend on the type and number of construction equipment being operated, as well as the distance from the construction site. The noisiest period of construction would occur during site clearing and grading activities when the site is prepared for parking areas, utilities and building pads. Noise levels due to construction activities would vary widely, depending on the phase of construction activity. Occasional noise levels at the site property line are projected to range between 65 dBA and 90 dBA, depending on the actual location of construction equipment at any given time. These periods of elevated noise would occur during daytime hours and are typically sporadic during the construction period. At all times, construction equipment will only be operated to conform to the maximum allowable noise levels and during times allowed as per the Town's noise chapter.

Noise levels actually experienced on a nearby property would be expected to be lower, accounting for distance from the noise source and other attenuating factors. Table 3.5-5 above shows how noise from construction equipment is attenuated over distance.

It is anticipated that nearby residences on surrounding local roads would experience temporary elevated noise levels at occasional periods during the construction of the development. The heaviest volume of construction traffic is expected to occur at the beginning of the construction as grading and tree clearing occur. Other equipment, once on-site, is likely to be kept there during the earth moving phase of the project.

3.5.3 Mitigation Measures

Construction activity would be limited to the hours between 7:00 AM and 5:00 PM, Monday through Friday, and 7:00 AM and 5:00 PM, Saturday and Sunday, as allowed by the Town noise chapter. All construction vehicles and equipment will be maintained in proper working condition and operated in a manner that complies with the Town's regulations.

The build condition is not anticipated to result in any long-term significant adverse noise impacts. The proposed activity is residential and consistent with land uses in the project vicinity. No mitigation measures are proposed.