

**3.7 Noise**

**3.7.1 Existing Conditions**

Noise Characteristics

The noise analysis contained in this section of the DEIS has been conducted in accordance with the New York State Department of Environmental Conservation (NYSDEC) policy guidance document Assessing and Mitigating Noise Impacts.

The NYSDEC policy document defines noise as “unwanted sound.” Certain activities inherently produce sound levels or sound characteristics that have the potential to create noise. This is dependent on the existing land uses which surround the proposed project, and whether these land uses are sensitive to noise. Even though noise is somewhat subjective, it affects the full range of human activities and must be considered in local and regional planning.

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 discusses  $L_{eq}$ . The  $L_{eq}$  quantifies the noise environment as a single value of sound level for any desired duration.  $L_{eq}$  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 level of two or three decibels is required for the average person to notice a difference. Tables 3.7-1 and 3.7-2 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. The level of a noise is measured and expressed in dBA.

Table 3.7-1 Perception of Changes in Noise Levels	
Change (dBA)	Average Ability to Perceive Changes 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.	

<b>Table 3.7-2 Community Response to Increases in Noise Levels</b>		
<i>Estimated Community Response</i>		
<b>Change (dBA)</b>	<b>Category</b>	<b>Description</b>
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, *Noise Assessment with Respect to Community Reactions*, 150/TC 43. (New York: United Nations, November 1969.)

Table 3.7-3 lists noise levels associated with various activities.

<b>Table 3.7-3 Sound Levels of Common Activities</b>	
<b>Activity</b>	<b>dBA</b>
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, *Handbook of Environmental Acoustics*, 1994.  
Egan, David, *Architectural Acoustics*, 1998.

#### Local Codes

The Town of Chester and the Village of Chester do not have noise ordinances.

#### Existing Sources of Noise

Existing noise levels at the BT Holdings site are influenced by surrounding land uses since the site is vacant. The greatest source of background noise detected at the site results from vehicles traveling along Route 17M and Route 17, directly west of the site. Another main source of background noise on the site is from the major commercial development, The Chester Mall, and other nearby commercial uses, located to the west of the site and the industrial facility, Nexan Energy USA, Inc., located east of the site. Noise sources that contribute to the ambient noise levels at the project site are as follows:

- Off-site mobile source noise from Route 17M and Route 17 immediately to the west of the site;
- Off-site activities on nearby properties, including the commercial development, The Chester Mail, and other nearby highway commercial development to the west of the site and the industrial facility, Nexan Energy USA, Inc., to the east of the site;
- Typical residential activities from adjoining neighborhoods to the east, southeast and south of the site; and
- Sounds emanating from the site such as birds and the wind blowing through the trees and vegetation on-site.

There are no major sources of noise that are produced from the existing conditions of the site.

#### Sensitive Receptors

Sensitive noise receptors are uses that are dependent on a state of serenity and quiet, or are uses that are particularly sensitive to noise energy and decibel levels. Land uses that are typically considered to be sensitive to noise would be residences, schools, hospitals, churches, libraries, motels and hotels, nature preserves and outdoor recreation areas - these activities fall within activity categories "A" and "B" set forth in 23 CFR Part 772--Procedures for Abatement of Highway Traffic Noise and Construction Noise regulating activities of the Federal Highway Administration (FHWA). The FHWA guidelines are used to define sensitive receptors, since the NYSDEC policy document does not define same.

Based on the foregoing, the residence located to the north of the project site, as well as the residences located to the northeast of the project site would be considered sensitive receptors and will be considered in the impact analysis provided below. There are additional residential neighborhood areas to the east and southeast of the site but they are part of developed mixed-use hamlet/areas that include consistent street and highway traffic noise.

#### **3.7.2 Potential Impacts**

The BT Holdings proposed project would introduce residential uses that are compatible with the residential uses to the northeast, east and south of the site, and would not introduce any major stationary source of noise. The development's residences would introduce a new source of noise within the project vicinity although this noise source would have similar characteristics to adjoining residential neighborhoods and would be less of a noise impact than the commercial or industrial properties that are directly to the west, southwest and east of the site.

Sources of noise introduced by the project would include:

- Normal residential activities, including lawnmowers;
- residential vehicular traffic; and
- heating and air-conditioning equipment.

According to the NYSDEC noise guidance document, a typical air conditioning unit, at a distance of 20 feet, would have a sound level of approximately 60 dBA. However, it is unknown whether this value is for a window mounted air conditioning unit, or a central air conditioning compressor unit. Various product specification sheets were reviewed for central air conditioning compressor units. The product specification sheets for air conditioning units reflect sound levels

that range from 67 to 76 dB at the source. Noise levels for two compressor units were measured while both units were in operation.<sup>1</sup> The noise level of the compressor units measured 71 dBA. At a distance of 20 feet away from the noise source, the noise level reduced to 51.8 dBA. Thus, noise levels associated with compressor units drop off significantly with distance. At a distance of 100 feet, it is anticipated that the compressors would not be noticeable compared to other noise level sources, such as traffic along Route 17M, Route 17, the commercial property "The Chester Mall" to the west of the site, and the industrial property to the east of the site.

According to the NYSDEC guidance, a noise can only intrude if it differs in character or sound level from the normal ambient sound. The NYSDEC regulation also states that outdoor non-industrial noise sources should not raise the ambient noise level to greater than 65 dBA at receptor locations. Therefore, since the proposed development of the site is residential it can not differ from the current character of the ambient noise since the existing ambient noise is influenced by two (2) highways (Route 17M and Route 17) as well as a highly developed commercial area to the west of the site and an industrial property to the east of the site.

Short Term Noise Impacts During Construction

Local daytime ambient noise levels in the immediate vicinity of the site will increase during construction of the proposed subdivision. Construction activities and the operation of construction equipment are an expected and required consequence of any new construction project and cannot be avoided. Thus, some noise impacts would be expected. It is important to note that noise resulting from construction activities is a temporary impact, and will cease upon completion of the project. The following table shows representative maximum sound levels for diesel powered equipment and activities at a range of receptor distances.

<b>Table 3.7-4 Construction Noise Levels (dBA)</b>				
	Maximum Sound Level			
<b>Equipment/Activity</b>	<b>50 feet</b>	<b>200 feet</b>	<b>500 feet</b>	<b>1,000 feet</b>
Backhoe	82-84	70-72	62-64	56-58
Concrete Pump	74-84	62-72	54-64	48-58
Generator	71-87	59-75	51-67	45-61
Hailer	83-86	71-74	63-66	57-60
Loader	86-90	74-78	66-70	60-64
Trucks	81-87	69-75	61-67	55-61

Source: Tim Miller Associates, Inc., 2005.

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. Annoyance to people frequently results from increases of 10 dBA or more, depending upon the frequency and duration of the noise events.

<sup>1</sup> Tim Miller Associates, Inc. The units are Carrier high efficiency units.

The level of impact from these construction noise sources depends upon the type and number of pieces of construction equipment being operated, the duration of the construction activities, as well as the distance of the receptor from the construction sites. The noisiest period of construction will occur during site clearing and grading activities, when sections of the site are prepared for the buildings; although all construction activities at the site are likely to produce increased noise levels.

### **3.7.3 Mitigation Measures**

#### Construction Noise Mitigation

The anticipated duration of the construction period is approximately 36 months. Construction will occur during normal working hours, approximately 7:00 AM to 7:00 PM Monday through Saturday. No work will be permitted on Sunday or on holidays. All construction vehicles and equipment would be expected to be well maintained and operated in an efficient manner, thereby minimizing noise to the greatest extent practicable.

It is anticipated that nearby properties will experience elevated noise levels at occasional periods during construction. This is a temporary, construction-related, unavoidable impact.

#### Adherence to Local Noise Standards

The Village and Town of Chester does not have a local noise standard. However, the project is proposing to adhere to the construction schedule mentioned above to reduce the impact to the surrounding residences during non-work hours.

#### Future Site Design

The Applicant proposes an annexation and zone change and development of 458 residential units. Of these 458 residential units 100 are proposed to be Senior apartments in two (2) three-story building and 358 are proposed to be Townhomes in approximately fifty-three various sized buildings located through out the site.

#### Landscaping and Buffering

A proposed Landscape Plan is shown in Figure 2-11, Conceptual Landscape and Lighting Plan. It includes shade trees, understory trees and flowering shrubs to provide an attractive environment for the site users as well as visual and acoustic buffers between the development and adjacent properties.

Some clusters of existing vegetation would be retained. Specifically, in the center of the property near the wetland, but also within the southwest corner where woods are located and along the southeast property line and the east side of the northern property line. These areas would be preserved to provide an existing buffer. Mixed evergreen and deciduous tree buffers would be provided along much of the property boundary. Within the proposed development mixed evergreen and deciduous buffer plantings would also be used between groups of buildings in the center and northern portions of the site, providing layers of screening that would in time significantly provide noise buffering within and beyond the developed site.