## 3.13 Construction-Related Effects

### 3.13.1 Existing Conditions - Noise

The NYSDEC policy document, *Assessing and Mitigating Noise Impacts*, 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 that surround a particular site, 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 measures $L_{eq}$. 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. 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. Tables 3.13-1 and 3.13-2 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 3.13-1**
**Perception of Changes in Noise Levels**

| Change (dBA) | Average Ability to Perceive Changes in Noise Levels<br>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 3.13-2<br>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, Noise Assessment with Respect to Community Reactions, 150/TC 43. (New York: United Nations, November 1969.) | | |

Table 3.13-3 lists typical noise levels associated with various settings.

| Table 3.13-3<br>Sound Levels of Common Settings | |
|---|---|
| **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, Handbook of Environmental Acoustics, 1994.<br>Egan, David, Architectural Acoustics, 1998. | |

Town of Fallsburg Noise Standards

The Town Zoning Code establishes, in Section 310-5.15 (Noise Standards), the following noise level standards applicable to the project site. Table 3.13-4 shows these standards.

| Table 3.13-4<br>Town of Fallsburg Acceptable Sound Pressure Levels | | | | |
|---|---|---|---|---|
| **Type of Use and Proximity to Residential Development** | **Sound Pressure Limits (Decibels)** | | | |
| | **7 a.m. - 10 p.m.** | | **10 p.m. - 7 a.m.** | |
| | dB (A) | dB (C) | dB (A) | dB (C) |
| **Commercial/Industrial Uses** | 60 | 72 | 50 | 62 |
| **Within 500 feet Residences** | 55 | 67 | 45 | 67 |
| Source: Town of Fallsburg Zoning Code, 2007 | | | | |

The noise standards in this chapter are shown below:

"A. Excessive noise shall be muffled so as not to be objectionable due to intermittence, beat frequency, shrillness or volume.

B. The maximum permissible sound pressure level of any continuous, regular or frequent source of sound produced by any activity regulated by these regulations shall be established by the time period and proximity to residential land uses as shown in Table 5 below. Sound pressure levels shall be measured at all major lot lines, at a height of at least four feet above the ground surface.

(1) The levels specified may be exceeded by 10 decibels for a single period, no longer than 15 minutes, in any one day.

(2) Both dB(A) and dB(C) scales shall be used, and a violation of either standard shall be deemed to constitute a violation of these regulations. Noise shall be measured with a sound level meter meeting the standards of the American National Standards Institute (ANSI S1.401961), American Standard Specification for General Purpose Sound Level Meters. The instrument shall be set to the appropriate weight response scales and the meter to the slow response. Measurements shall be conducted in accordance with ANSI S1.2-1962, American Standard Method for the Physical Measurement of Sound.

C. Noise shall be measured with a sound level meter meeting the standards of the American National Standards Institute (ANSI S1.401961), American Standard Specification for General Purpose Sound Level Meters. The instrument shall be set to the appropriate weight response scales and the meter to the slow response. Measurements shall be conducted in accordance with ANSI S1.2-1962, American Standard Method for the Physical Measurement of Sound.

D. No person shall engage in, cause, or permit to be engaged in very loud construction activities on a site abutting any residential use between the hours of 9:00 p.m. one day and 7:00 a.m. of the following day. Construction activities shall be subject to the maximum permissible sound level specified for business use for the periods within which construction is to be completed pursuant to any applicable building permit. The following uses and activities shall be exempt from the sound pressure level regulations:

**[Amended 5-11-2010 by L.L. No. 7-2010]**

(1) Noises created by construction and maintenance activities between 7:00 a.m. and 9:00 p.m. (Monday through Friday) and 8:00 a.m. and 5:00 p.m. (Saturday, Sunday and holidays).

(2) The noises of safety signals, warning devices and emergency pressure relief valves and any other emergency activity.

(3) Traffic noise on existing public roads, railways or airports.

E. Activities of a temporary nature unable to meet these requirements, upon approval following development review by the Planning Board.

F. Exemptions. The maximum permissible sound levels of this section shall not apply to any of the following noise sources:

(1) Sound needed to alert people about an emergency or building, equipment, or facility security alarms.

(2) Repair or construction work to provide electricity, water or other public utilities between the hours of 7:00 a.m. and 9:00 p.m., except for emergency repairs which shall not be restricted by time.

(3) Construction operations (including occasional blasting in construction) and repairs of public facilities between the hours of 7:00 a.m. and 9:00 p.m., except for emergency repairs which shall not be restricted by time.

(4) Agricultural activities, but not exempting kennels.

(5) Motor vehicles when used on public streets in accord with state regulations.

(6) Aircraft.

(7) Public celebrations, specifically authorized by the Town, the county, state or federal government body or agency.

(8) Unamplified human voices.

(9) Routine ringing of bells or chimes by a place of worship or municipal clock."

The Town Zoning Code noise ordinance is the applicable standard by which to evaluate potential noise impacts from the proposed project. Specifically relating to times when construction is permitted to occur. However, for comparative purposes, noise standards and guidelines promulgated by the U.S. Department of Housing and Urban Development are provided in the following paragraphs.

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 valid goals for any development. Table 3.13-5 summarizes HUD site acceptability standards based on external noise levels.

These standards reflect an EPA 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 and does not account for cost or feasibility.

**Table 3.13-5**
**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 5l.103 (c), Exterior Standards.

### 3.13.2 Potential Impacts - Noise

Construction Noise Impacts

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. The Table 3.13-6 shows representative maximum sound levels for diesel powered equipment and other activities at a range of receptor distances.

**Table 3.13-6**
**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.

The level of impacts of these noise sources depends on the type and number of pieces 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 activities. 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. 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, see Table 3.13-6 above for how different pieces of construction equipment's noise can attenuate over a specific 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 proposed subdivision. 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 earthmoving phase of the project.

### 3.13.3 Mitigation Measures - Noise

Construction activity would be limited to the hours between 7:00 AM and 9:00 PM, Monday through Friday, and 8:00 AM and 5:00 PM, Saturday and Sunday, as required by the Town Zoning Code 310-5.15. All construction vehicles and equipment would be well maintained and operated in an efficient manner.

As the build condition is not anticipated to result in any long-term significant adverse noise impacts, the proposed activity is residential and consistent with the current land use in the area, no additional mitigation measures are proposed.

### 3.13.4 Existing Conditions - Air Quality

Climate

The climate of Sullivan County is typical of the interior Northeast United States. Made up of hills of about 1,600 feet in elevation and valleys under 1,000 feet, seasonal highs and lows can vary greatly depending on elevation. The upper slopes and mountain tops have greater fluctuations in temperature while the valleys have more consistent temperatures.

According to the Soil Survey of Sullivan County, New York, United State Department of Agriculture, Soil Conservation Service, the average temperature for the winter is 23 degrees (Fahrenheit) with an average daily low temperature of about 14 degrees. In the summer, the average temperature is 65 degrees with an average daily maximum temperature of 76 degrees. Seasonal highs and low can vary tremendously depending on elevation.

Rainfall during the summer months is usually confined to sporadic thunderstorms rather than spread throughout the month. Throughout the rest of the year, precipitation is generally heavy and evenly distributed. Mean annual precipitation has been recorded at 52 inches (in Liberty) in which about 26 inches falls in April through September. The average seasonal snowfall is 83 inches, with most of the county having at least an inch of snow cover for the winter months.

Air quality is a relative measure of the amount of noxious substances that occur in the air and that are caused by natural and human processes. Certain airborne gases and particles can cause or contribute to the deterioration and/or destruction of biological life as well as damage to property and other physical components of the environment. Air contaminants or pollutants can be defined as solid particles, liquefied particles, and vapor or gases, which are discharged into, or form in, the outdoor atmosphere. Air quality in any particular location is influenced by contaminants discharged into the atmosphere and by regional and local climatic and weather conditions. Atmospheric conditions such as sunlight, rainfall and humidity, air turbulence, temperature differences, and wind speed and direction can disperse, intensify or chemically change or alter the compositions of air contaminants.

Air Quality Standards and Compliance

The United States Environmental Protection Agency (EPA) and the New York State Department of Environmental Conservation (NYSDEC) have promulgated National Ambient Air Quality Standards (NAAQS) intended to protect the public health and welfare. These standards are designed to protect the most vulnerable segment of the population including children, the elderly and the infirm, who are more susceptible to respiratory infections and other air quality-related

health problems. Locations or source-receptors that would be considered are schools, hospitals and convalescent homes and related facilities.

Several air contaminants have been identified by the EPA as being of concern nationwide. These pollutants include carbon monoxide (CO), nitrogen dioxide ($NO_2$), ozone ($O_3$) (also termed photochemical oxidants), particulate matter, sulfur dioxide ($SO_2$), and lead (Pb). The sources of these contaminants, their effect on human health and the nation's welfare, and their final disposition in the atmosphere vary considerably. Particulate standards include only those particles with nominal diameters less than 10 microns which are inhalable.

The NAAQS are mandated by the Federal Clean Air Act (1990). Standards promulgated by the EPA include primary and secondary standards. National Primary Standards are levels of air quality necessary, with a margin of safety, to protect the public health. National Secondary Standards are levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant, such as an adverse effect on vegetation. For all contaminants, except sulfur dioxide and suspended particulates, the primary and secondary standards are identical.

With the enactment of the Clean Air Act (the Act) and subsequent amendments, each state was required to achieve clean air through the submission of a State Implementation Plan (SIP) to the EPA for criteria pollutants which are not in attainment with the NAAQS. The SIPs describe how each state will attain and maintain air quality standards in non-attainment areas. The New York SIP adopted NAAQS from a list of seven criteria pollutants established by the EPA. These pollutants were selected by the EPA based on a list of pollutants of primary concern nationwide. Attainment of the NAAQS is required under the Act, and each State has a designated time period in which to bring nonconforming areas into compliance.

New York State drafted a SIP to achieve compliance with the ozone NAAQS by November 15, 2007. The draft SIP was prepared by the NYSDEC Air Resources Division and reviewed by the EPA for approval. The draft SIP cites strategies for reducing ozone levels including limits on gasoline volatility, lower gasoline sulfur levels, diesel fuel reformation, annual inspections for heavy-duty diesel vehicles, nitrogen oxide controls, and other measures. Table 3.13-7 provides federal and state air quality standards.

**Table 3.13-7**
**State and Federal Air Quality Standards**

| | | **New York State Standards[1]** | | | **Corresponding Federal Standards (Primary Standards)** | | |
|---|---|---|---|---|---|---|---|
| **Pollutant[1]** | **Avg. Period** | **Conc.** | **Units** | **Statistic[2]** | **Conc.[3]** | **Units** | **Statistic** |
| Sulfur Dioxide | Annual | 0.03 | ppm | Arithmetic Mean | 0.03 | ppm | Arithmetic Mean |
| | 24-hour | 0.14 | ppm | Maximum | 0.14 | ppm | Maximum |
| | 3-hour | 0.50 | ppm | Maximum | None | | |
| | 1-hour | None | | | 75 | ppb | 3-year average[4] |
| Carbon Monoxide | 8-hour | 9 | ppm | Maximum | 9 | ppm | Maximum |
| | 1-hour | 35 | ppm | Maximum | 35 | ppm | Maximum |
| Ozone[5] | 8-hour (2008 std) | None | | | 0.075 | ppm | 3-year average |
| | 8-hour (1997 std) | 0.08 | ppm | Maximum | 0.08 | ppm | 3-year average |
| | 1-hour | 0.12 | ppm | Maximum | 0.12 | ppm | NA in NYS[6] |

**Table 3.13-7**
**State and Federal Air Quality Standards**

| | | New York State Standards[1] | | | Corresponding Federal Standards (Primary Standards) | | |
|---|---|---|---|---|---|---|---|
| **Pollutant**[1] | **Avg. Period** | **Conc.** | **Units** | **Statistic**[2] | **Conc.**[3] | **Units** | **Statistic** |
| Hydrocarbons (non-methane) | 3-hour (6-9 am) | 0.24 | ppm | Maximum | None | | |
| Nitrogen Dioxide | Annual | 0.05 | ppm | Arithmetic Mean | 0.053 | ppm | Arithmetic Mean |
| | 1-hour | None | | | 0.100[7] | ppm | 3-year average |
| Lead[8] | 3 month average (rolling) | None | | | 0.15 | µg/m³ | Maximum |
| Particulate Matter ($PM_{2.5}$) | Annual | None | | | 15 | µg/m³ | Arithmetic Mean |
| | 24-hours | | | | 35[9] | µg/m³ | Maximum |
| Particulate Matter ($PM_{10}$)[10] | 24-hours | None | | | 150 | µg/m³ | Maximum |
| Total Suspended Particulates (TSP)[11] | 12 consecutive months | 75 | µg/m³ | Geometric Mean (G.M.) | None | | |
| | 24-hours | 250 | µg/m³ | Maximum | 260 | µg/m³ | Maximum |

[1] New York State also has standards for beryllium, fluorides, hydrogen sulfide, and settleable particulates (dustfall). Ambient monitoring for these pollutants is not currently conducted.
[2] All maximum values are concentrations not to be exceeded more than once per calendar year. (Federal 1-hour Ozone Standard not to be exceeded more than three days in three calendar years).
[3] Gaseous concentrations for Federal standards are corrected to a reference temperature of 25°C and to a reference pressure of 760 millimeters of mercury.
[4] Final rule signed June 2, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.
[5] Former NYS Standard for ozone of 0.08 ppm was not officially revised via regulatory process to coincide with the Federal standard of 0.12 ppm which is currently being applied by NYS to determine compliance status. Compliance with the Federal 8-hour standards is determined by using the average of the 4th highest daily value during the past three years – which can not exceed 0.084 ppm or 0.075 ppm, effective May 27, 2008.
[6] (a) EPA revoked the 1-hour ozone standard in all areas, although some areas have continuing obligations under that standard ("anti-backsliding").
(b) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is < or = 1.
[7] The 0.100 ppm standard is effective 1/22/2010. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average within an area must not exceed 0.100 ppm.
[8] Federal standard for lead not yet officially adopted by NYS, but is currently being applied to determine compliance status. The 0.15 ug/$m^3$ standard is effective 1/12/2009 and replaces the previous level of 1.5 ug/$m^3$.
[9] Federal standard was changed from 65 to 35 ug/$m^3$ on December 17, 2006. Compliance with the Federal standard is determined by using the average of 98th percentile for 24 hour value during the past three years, which can not exceed 35 ug/$m^3$.
[10] Federal standard for $PM_{10}$ not yet officially adopted by NYS, but is currently being applied to determine compliance status.
[11] New York State also has 30, 60, and 90-day standards as well as geometric mean standards of 45, 55, and 65 ug/$m^3$ in Part 257 of NYCRR. While these TSP standards have been suspended by the above $PM_{10}$ standards, TSP measurements may still serve as surrogates to $PM_{10}$ measurements in the determination of compliance status.

Existing Air Monitoring Stations

The NYSDEC maintains a number of monitoring stations in the Hudson Valley to measure existing ambient air quality. Monitoring stations are sometimes operated over limited periods of time and certain stations are utilized to sample only certain parameters. Table 3.13-8 lists stations referenced in the NYSDEC *Air Quality Report* and the pollutants monitored at each. Monitoring stations are located at White Plains and Mamaroneck in Westchester County; Mt. Ninham in Putnam County; Valley Central, Newburgh (2), Wallkill (3), and Scotchtown in Orange County; Millbrook and Poughkeepsie in Dutchess County; and Belleayre Mountain, New Paltz and Saugerties in Ulster County. There are currently no air quality monitoring stations within Sullivan County.

**Table 3.13-8**
**NYSDEC Air Quality Monitoring**

| Stations | Parameters | | | |
|---|---|---|---|---|
| | Lead | Sulfur dioxide | Inhalable particulates | Ozone |
| **NYSDEC Region 3** | | | | |
| Mamaroneck | | | **P** | |
| Rockland County | | | **P** | **P** |
| Wallkill | **P** | | | |
| Scotchtown | **P** | | | |
| Mt. Ninham | | **P** | | **P** |
| Belleayre Mtn. | | **P** | | **P** |
| Newburgh | | | **P** | |
| White Plains | | | **P** | **P** |
| Valley Central | | | | **P** |
| Millbrook | | | | **P** |

P = Monitoring Location for Pollutant.
Source: *2009 New York State Ambient Air Quality Report*, NYSDEC Division of Air Resources

Table 3.11-9 summarizes 2009 data for the NYSDEC Region 3. Sampling information for pollutants not included in the table are either not collected in NYSDEC Region 3 or are collected at locations distant from the project site.

Nitrogen oxides ($NO_x$), a designation for nitrogen oxide (NO) and nitrogen dioxide ($NO_2$), are not monitored in Region 3. However, since they are precursors to the formation of ozone, they are of principal concern. The nearest monitoring station for nitrogen oxides is located in Region 2 at the Botanical Gardens in the Bronx.

**Table 3.13-9**
**2009 Regional Air Quality Data Summary**

| Monitoring Location | Pollutant | Concentration | Air Quality Standard | Within Standard? |
|---|---|---|---|---|
| Belleayre Mtn. | Sulfur Dioxide ($SO_2$) | 0.7 ppb **(1)** | 30 ppb **(1)** | Yes |
| Mt. Ninham | Sulfur Dioxide ($SO_2$) | 1.1 ppb (1) | 30 ppb (1) | Yes |
| Belleayre Mtn. | Inhalable Particulates ($PM_{10}$) | 11.0 ug/$m^3$ **(1)** (4) | 150 ug/$m^3$ **(1)** | Yes |
| Newburgh | Inhalable Particulates ($PM_{2.5}$) | 7.9 ug/$m^3$ **(1)** | 15 ug/$m^3$ **(1)** | Yes |
| Rockland Co. | Inhalable Particulates ($PM_{2.5}$) | 5.8 ug/$m^3$ **(1)** | 15 ug/$m^3$ **(1)** | Yes |
| Mamaroneck | Inhalable Particulates ($PM_{2.5}$) | 9.1 ug/$m^3$ (1) | 15 ug/$m^3$ (1) | Yes |
| White Plains | Inhalable Particulates ($PM_{2.5}$) | 7.2 ug/$m^3$ (1) | 15 ug/$m^3$ (1) | Yes |
| White Plains | Ozone ($O_3$) | 0.024 ppm **(2)** | 0.075 ppm **(2)** | Yes |
| Valley Central | Ozone ($O_3$) | 0.025 ppm (2) | 0.075 ppm (2) | Yes |
| Rockland Co. | Ozone ($O_3$) | 0.025 ppm | 0.075 ppm | Yes |
| Millbrook | Ozone ($O_3$) | 0.027 ppm (2) | 0.075 ppm (2) | Yes |
| Mt. Ninham | Ozone ($O_3$) | 0.027 ppm (2) | 0.075 ppm (2) | Yes |
| Belleayre Mtn. | Ozone ($O_3$) | 0.032 ppm (2) | 0.075 ppm (2) | Yes |
| Wallkill | Lead (Pb) | 0.044 ug/$m^3$ (3) | 1.5 ug/$m^3$ (3) | Yes |
| Scotchtown | Lead (Pb) | 0.007 ug/$m^3$ (3) | 1.5 ug/$m^3$ (3) | Yes |

Notes:
(1) Annual Arithmetic Mean in parts per billion (ppb).
(2) 4th Highest Daily Maximum 8-Hour Average in parts per million (ppm).
(3) Maximum Quarterly Average in grams per cubic meter (g/$m^3$).
(4) Data is 2004 data since 2009 was not available.
(5) 12-month average.

Based upon 2009 data, which is the most recent data released from the NYSDEC, all monitored contaminants have achieved acceptable levels within the region. A geographic area that meets or exceeds the primary standard is defined as an attainment area; those that do not meet the primary standard are identified as non-attainment areas.

### 3.13.5 Potential Impacts - Air Quality

Air quality impacts associated with the proposed development were assessed to determine whether this proposal would have an adverse impact on the surrounding general population. Air quality impacts from construction activities were assessed. Construction related impacts would vary based on the proximity of the activities to the adjacent properties and the type and amount of construction equipment used for each project phase. However, to address potential air quality impacts from construction related activities, mitigative measures have been proposed for specific construction activities to minimize the overall impact on the air quality. If mitigative measures are properly applied, adverse air quality impacts should be minimized; therefore, a quantitative impact analysis related to construction activities has not been provided.

Construction Impacts

*Fugitive and Airborne Dust*

Construction activities with the proposed action would have a potential impact on the local air quality through generation of fugitive or airborne dust. For this project, fugitive dust would be generated during ground clearing and excavation activities as earthmoving equipment modifies grades to their final elevations. Throughout the construction period, earth moving and the passage of vehicles over temporary dirt roads and other exposed soil surfaces may also generate fugitive dust, particularly during dry and windy conditions. On-site mitigation measures are proposed as part of the project during construction to limit the dispersal of fugitive dust.

Residences along Heiden Road, closest to the proposed areas of grading, would have the greatest potential to be impacted by dust.

*Equipment and Vehicle Emissions*

Products of fuel combustion are also generated by construction equipment; however, these emissions are generally insignificant in comparison to vehicular emissions from adjacent roadways and businesses if the equipment is properly maintained and the engines tuned.

Construction-related air emissions would result from the use of diesel fuel as a source of energy for construction vehicles and equipment. On-site mitigation measures are proposed as a part of the project during construction to limit dispersal of particulate matter. Well maintained diesel engines are more fuel efficient than gasoline engines, however, they are a source of some air pollutants. Pollution from these engines comes from the combustion process in the form of exhaust. The major pollutants resulting from diesel fuel include the following:

- Hydrocarbons - Unburned or partially burned fuel molecules consist of hydrocarbons that can react in the atmosphere to form ground-level ozone, a major component of smog that can cause of range of respiratory health problems.
- Carbon monoxide - Emissions from diesel engines contain very low levels of carbon monoxide in comparison to gasoline engines. Carbon monoxide is a colorless, odorless gas that combines with the blood and limits its ability to transport oxygen. Carbon monoxide is the result of incomplete combustion of fuel.
- Nitrogen oxides - Because diesel engines consume fuel and air, and create heat, nitrogen from the air can be transformed into nitrogen oxides. This reddish brown gas can irritate the lungs and eyes. Nitrogen oxides react with hydrocarbons in the atmosphere to form ground-level ozone. Nitrogen oxides also contribute to acid rain.
- Particulate matter - Smoke from diesel engines contains microscopic airborne carbon particles that result from fuel combustion. The smoke from properly maintained diesel engines should not be visible. Exhaust fumes that are thick and black occur when diesel engines are poorly maintained or maintained improperly. Particulate matter can damage the respiratory system and contribute to the odor associated with diesel exhaust.

Although exhaust emissions from construction equipment is not as significant as fugitive dust generation, particulate matter from diesel exhaust emission would be controlled through proper tuning of the vehicle engines and maintenance of the air pollution controls. This would minimize additional contribution to site-generated particulate emissions during construction.

Temporary impacts on local air quality are expected to occur during the construction phase of the project from mobile source emissions of construction vehicles and equipment. These air emissions would occur in those portions of the project site where construction activity is proposed.

Construction-related air emissions would result primarily from the use of diesel fuel as a source of energy for construction vehicles and equipment. Some of the construction equipment may utilize gasoline as a source of fuel, but use of this equipment would be relatively low in comparison to equipment and vehicles using diesel fuel.

Products of fuel combustion are also generated by construction equipment; however, these emissions are generally insignificant in comparison to vehicular emissions from adjacent roadways and businesses if the equipment is properly maintained and the engines tuned. Well maintained diesel engines are more fuel efficient than gasoline engines, however, they are a source of some air pollutants. Pollution from these engines comes from the combustion process in the form of exhaust.

### 3.13.6 Mitigation Measures - Air Quality

Dust Control Measures during Construction Activities

Construction activities on the project site would have a potential impact on the local air quality through generation of fugitive or airborne dust. Fugitive dust is generated during ground clearing and excavation activities. Throughout the construction period, passage of delivery trucks and other vehicles over temporary dirt roads and other exposed soil surfaces also generates fugitive dust.

Methods to control dust include minimizing the area of the site which is subject to disturbance at any one time, use of mulch or other temporary covers on exposed soil areas, limiting the movement of trucks and construction equipment over exposed soil surfaces and covering haul trucks. During dry weather conditions spraying water on unpaved areas subject to heavy construction vehicle traffic would help control dust. Paved areas should also be kept clear of loose dirt that can be re-entrained into the air during vehicle passage. The use of stone tracking pads or tire washing stations at access points to the site would greatly lessen the tracking of soil onto adjacent roadways. Haul vehicles should always be covered to prevent dust emissions while in transit to the disposal site.

With minimal site maintenance and careful attention to construction activities, impacts from fugitive dust can be maintained below the state or Federal AAQS at off-site properties. Although exhaust emissions from construction equipment is not as significant as fugitive dust generation, particulates from diesel exhaust emission should also be controlled through proper tuning of the vehicles engine and maintenance of the air pollution controls. This would minimize additional contribution to site generated particulate emissions during construction.

- Minimizing the area of grading at any one time and stabilizing all exposed areas, including areas where work would not occur for periods longer than two weeks, with mulch and seed immediately;
- Minimizing vehicle movement over areas of exposed soil, and covering all trucks transporting soil;
- Unpaved areas subject to traffic would be sprayed with water to reduce dust generation;

- Truck vehicle washing pads would be constructed at all construction entrances to avoid the tracking of soil onto paved surfaces;
- Demolition activities would be properly staged and managed to minimize dust generation (i.e. wetting concrete during breaking and loading)

Upon project completion, the project site would be covered with landscaping, turf, buildings, pavement, or remain in its natural state thereby reducing the potential for dust generation from the project area long-term.

The potential for emissions from construction vehicle exhaust can be reduced by the proper maintenance of engines and air pollution controls.