3.10 Air Quality

The proposed Orchard Ridge residential development will result in minor long term potential impacts to air quality resulting from residential heating and air conditioning equipment and the additional traffic entering and exiting the site (see Section 3.5 Transportation). The project will result in potential short term air quality impacts related to soil particulates (dust) and to diesel exhaust from construction equipment. This section evaluates the short term air quality impacts related to construction, per the Scoping Document.

3.10.1 Existing Conditions

Air Quality Standards

Several air contaminants have been identified by the U.S. Environmental Protection Agency (EPA) as being of concern nationwide. These criteria 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). Particulate matter standards regulate particles with diameters less than 10 microns which are inhalable. The sources of these contaminants, their effect on human health, and their final disposition in the atmosphere vary considerably.

Air pollutants emanating from construction projects include ozone, carbon monoxide, nitrogen oxides, and lead generated by emissions from construction traffic, as well as fugitive dust, "particulate matter", generated primarily from land disturbances.

The Clean Air Act, which was last amended in 1990, requires EPA to set **National Ambient Air Quality Standards** (NAAQS) for pollutants considered harmful to public health and the environment. The Clean Air Act established two types of national air quality standards. ***Primary standards*** set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. ***Secondary standards*** set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. Except for sulfur dioxide and particulates, the primary and secondary standards are identical (refer to Table 3.5-1). The states were directed to develop state implementation plans (SIP's), which consist of emission reduction strategies with the goal of achieving the NAAQS by the legislated date.

The Act, which was adopted in 1970, was amended in 1977 primarily to set new dates for achieving attainment of NAAQS since many areas of the U.S. had failed to meet the deadlines. The 1990 amendments to the Clean Air Act in large part were intended to meet insufficiently addressed problems such as acid rain, ground-level ozone, stratospheric ozone depletion, and air toxins.

Existing Air Quality

The Clean Air Act sets forth a process for New York and all other states 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. At the present time, New York State is under mandate to develop SIPs to address ozone, carbon monoxide, and particulate matter of less than 2.5 and 10 microns.

Table 3.10-1
National Ambient Air Quality Standards

Pollutant	Primary Standard	Averaging Times	Secondary Standard
Carbon Monoxide	9 ppm (10 mg/m^3)	8-hour[1]	None
	35 ppm (40 mg/m^3)	1-hour[1]	None
Lead	1.5 µg/m^3	Quarterly Average	Same as Primary
Nitrogen Dioxide	0.053 ppm (100 µg/m^3)	Annual (Arithmetic Mean)	Same as Primary
Particulate Matter (PM_{10})	50 µg/m^3	Annual[2] (Arith. Mean)	Same as Primary
	150 ug/m^3	24-hour[1]	
Particulate Matter ($PM_{2.5}$)	15.0 µg/m^3	Annual[3] (Arith. Mean)	Same as Primary
	65 ug/m^3	24-hour[4]	
Ozone	0.08 ppm	8-hour[5]	Same as Primary
	0.12 ppm	1-hour[6]	Same as Primary
Sulfur Oxides	0.03 ppm	Annual (Arith. Mean)	-------
	0.14 ppm	24-hour[1]	-------
	-------	3-hour[1]	0.5 ppm (1300 ug/m^3)

[1] Not to be exceeded more than once per year.
[2] To attain this standard, the expected annual arithmetic mean PM10 concentration at each monitor within an area must not exceed 50 ug/m^3.
[3] To attain this standard, the 3-year average of the annual arithmetic mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 15.0 ug/m^3.
[4] To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 65 ug/m^3.
[5] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.
[6] (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is <= 1, as determined by appendix H.
(b) The 1-hour NAAQS will no longer apply to an area one year after the effective date of the designation of that area for the 8-hour ozone NAAQS. The effective designation date for most areas is June 15, 2004. (40 CFR 50.9; see Federal Register of April 30, 2004 (69 FR 23996).)
Source: USEPA, 2004.

Presently, Rockland County is in a non-attainment area for 8-hour ozone. Ozone has declined locally and regionally over the past 15 years. As required under the Clean Air Act, New York State drafted a SIP in October 2011 to achieve compliance with the ozone NAAQS. The draft SIP is currently undergoing review by the EPA for approval. The draft SIP cites strategies to be implemented at the state level for reducing ozone including limits on gasoline volatility, lower gasoline sulfur levels, annual inspections for heavy duty diesel and other measures. Table 3.10-2 presents a summary of 2006 data for NYSDEC Region 3 which encompasses Rockland, Westchester, Orange, Putnam, Sullivan, Ulster, and Dutchess counties.

Table 3.10-2
2006 Regional Air Quality Data Summary

Monitoring Location	Pollutant	Concentration	Air Quality Standard	Within Standard?
Belleayre Mtn.	Sulfur Dioxide (SO_2)	1.3 ppb **(1)**	30 ppb **(1)**	Yes
Mt. Ninham	Sulfur Dioxide (SO_2)	1.7 ppb (1)	30 ppb (1)	Yes
Belleayre Mtn.	Inhalable Particulates (PM_{10})	11.0 g/m^3 **(1)** (4)	50 g/m^3 **(1)**	Yes
Newburgh	Inhalable Particulates ($PM_{2.5}$)	11.2 ug/m^3 **(1)**	15 ug/m^3 **(1)**	Yes
Mamaroneck	Inhalable Particulates ($PM_{2.5}$)	11.1 ug/m^3 (1)	15 ug/m^3 (1)	Yes
White Plains	Inhalable Particulates ($PM_{2.5}$)	12.1 ug/m^3 (1)	15 ug/m^3 (1)	Yes
White Plains	Ozone (O_3)	0.025 ppm **(2)**	.08 ppm **(2)**	Yes
Valley Central	Ozone (O_3)	0.029 ppm (2)	0.08 ppm (2)	Yes
Millbrook	Ozone (O_3)	0.024 ppm (2)	0.08 ppm (2)	Yes
Mt. Ninham	Ozone (O_3)	0.028 ppm (2)	0.08 ppm (2)	Yes
Belleayre Mtn.	Ozone (O_3)	0.034 ppm (2)	0.08 ppm (2)	Yes
Wallkill	Lead (Pb)	0.05 ug/m^3 **(3)**	------	Yes
Scotchtown	Lead (Pb)	0.01 ug/m^3 (3)	------	Yes
Belleayre	PM Sulfate	3.11 g/m^3 **(1) (4)**	------	Yes
Belleayre	PM Nitrate	0.2 g/m^3 **(1) (4)**	------	Yes
Queens College	Nitrogen Oxides	0.023 ppm (5)	0.05 ppm (5)	Yes

NOTES:
(1) Annual Arithmetric 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 2006 was not available.
(5) 12-month average.

Monitoring stations are located at White Plains and Mamaroneck in Westchester County, Mt. Ninham in Putnam County, Valley Central, Newburgh, Wallkill (2), and Scotchtown in Orange County, Millbrook and Poughkeepsie in Dutchess County and Belleayre Mountain in Ulster County. There are presently no air quality monitoring stations within Rockland County.

Sampling information for other pollutants is not collected in NYSDEC Region 3 and is collected at locations distant from the project site. Information from distant locations would not be representative of ambient air quality conditions.

Land use in the immediate vicinity of the project site is primarily vacant, multifamily residential, commercial warehouse, or single family residential. There are no major stationary sources of air pollutant emissions in the immediate vicinity of the project site. No sensitive receptors such as nursing homes or health care facilities were observed in the vicinity of the project site.

3.10.2 Potential Impacts

The Air Quality Analysis is the same for both the Hemlock Drive Access Plan and the Meola Road Access Alternative.

Construction of the project is expected to last for a duration of approximately 12 to 18 months. The heaviest volume of construction traffic would occur at the beginning of the construction as site clearing and rough grading is conducted, and when asphalt and building materials are transported to the site.

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

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 will occur in those portions of the project site where construction activity is proposed. The heaviest concentration of trucks on site is at the beginning of construction when it is likely excavators and log skidders will be used on site.

Construction-related air emissions will 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 will be relatively low in comparison to diesel fuel consuming equipment and vehicles.

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.

3.10.3 Proposed Mitigation Measures

In accordance with the NYSDEC SPDES General Permit No. GP-0-10-001, construction activities would be phased so that no more than five acres would be unstabilized at any time during the construction period. Limiting the amount of disturbed soils on the site reduces the potential for fugitive dust generation at the site. The following practices will be followed:

- Minimize the area of grading at any one time and stabilize exposed areas with mulch and seed as soon as practicable;
- Minimize vehicle movement over areas of exposed soil, and covering all trucks transporting soil; and
- Spray unpaved areas subject to traffic with water to reduce dust generation;
- Stabilize the construction entrance to avoid tracking soil onto paved surfaces.

Methods to control dust also include the 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 construction vehicle traffic would control dust. Paved areas will 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 the two construction access points will lessen the tracking of soil onto adjacent roads. During dry conditions, haul vehicles will be covered to prevent dust emissions during soil transport.

With minimal site maintenance and careful attention to construction activities, impacts from fugitive dust can be maintained below the NAAQS. Although exhaust emissions from construction equipment is not significant, 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.

The NYS DEC, NYS DOT, and the EPA are among the primary agencies responsible for programs and policies to reduce emissions which lead to ozone formation in New York State. Stringent limits on gasoline volatility, hydrocarbon vapor control during refueling, tailpipe emission standards, inspection and maintenance programs, warning systems when emission controls malfunction and other programs have contributed to the overall downward trend of ozone in metropolitan New York since the early 1980's.

The potential for emissions from construction vehicle exhaust can be reduced by the proper maintenance of engines and air pollution controls. The applicant will conform to emission reduction measures during construction through routine vehicle inspection and maintenance, application of diesel emission controls, use of clean diesel fuel and efficient operations.

The EPA is in the process of setting new Federal standards for diesel engine emissions that will require significant reduction in air pollutants and will continue to reduce these pollutant levels in the future.