

### 3.8 Air Resources

#### **3.8.1 Existing Conditions**

##### Air Quality Standards and Compliance

The United States Environmental Protection Agency (EPA) and the New York State Department of Environmental Conservation (NYSDEC) have promulgated Ambient Air Quality Standards (AAQS) intended to protect the public health and welfare. These standards are designed to protect the most vulnerable segment of the population, which are the elderly, the chronically ill and the very young.

The proposed Yorktown Farms subdivision project site is located in the Hudson Valley Air Quality Control Region, one of nine regions in New York State monitored for compliance with Federal and State AAQS. The most recent data, compiled for the region during the 1990's, demonstrated general compliance with AAQS (Source: NYSDEC).

Table 3.8-1 presents a summary of 2001 data for the two monitoring stations closest to the subject site, the White Plains station in Westchester County and the Mt. Ninham station in Putnam County. Based upon 2001 data, all criteria contaminants have achieved acceptable levels within Putnam and Westchester Counties.

<b>Table 3.8-1 Summary of Westchester County Air Quality Data</b>				
POLLUTANT	UNITS	MONITORING STATION	2001 Data	AAQS
<b>Ozone</b>		<b>Mt. Ninham</b>		
1-hour average (highest)	ppm		0.126	0.12
12-month average	ppm		0.033	----
# Days with average >0.12 ppm	---		2	1 per year / 3 years
<b>Inhalable Particulates</b>		<b>White Plains</b>		
Annual Arithmetic Mean	ug/m <sup>3</sup>	12.5	11.2	50 ug/m <sup>3</sup> / 3 years
<b>Sulfur Dioxide</b>		<b>Mt. Ninham</b>		
3-hour average (highest)	ppb		32.1	>500 once per year
24-hour average (highest)	ppb		14.5	>140 once per year
12-month average	ppb		2.6	30
# Days >140 ppb	---		0	1/year
ppm = Parts per Million ppb = Parts per Billion ug/m <sup>3</sup> = Micrograms per cubic meter				
Source: New York State Air Quality Report for the Ambient Air Monitoring System published by New York State Department of Environmental Conservation Division of Air Resources				

Existing Air Pollution Sources

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.

Major pollutants for which there are limited Ambient Air Quality Standards include carbon monoxide (CO), photochemical oxidants (primarily ozone), nitrogen oxides (NO<sub>x</sub>), lead (Pb), hydrocarbons (HC), total suspended particulate (TSP) and sulfur oxides (SO<sub>x</sub>); the principal sources of these pollutants are shown in Table 3.8-2. The sources of contaminants are generally characterized as mobile (transportation-related) or stationary. Westchester County currently is in compliance with AAQS, with the exception, on some occasions, of nitrogen oxides, according to the NYSDEC, Region 3.

<b>Table 3.8-2 Principal Sources of Community Air Pollutants in Urban Areas</b>	
<b>Pollutant</b>	<b>Principal Sources</b>
Carbon Monoxide (CO)	Motor Vehicles (90%) Other Combustion Sources (10%)
Oxidants (primarily Ozone)	Produced by the Action of Sunlight on HC and NO <sub>x</sub> Compounds in the Atmosphere
Nitrogen Oxides (NO <sub>x</sub> )	Stationary Source Combustion (50%) Mobile Sources (50%)
Hydrocarbons (HC)	Motor Vehicles (60%) Industrial Process and Evaporative Losses from Storage Facilities (40%)
Particulates (part)	Many Sources (Stationary and Mobile) Including Crushing and Grinding Operations and Natural Resources
Sulfur Dioxide (SO <sub>2</sub> )	Electric Power Generation (40%) Space Heating (30%) Other Combustion of Fuels in Industrial Processes (30%)
Sources: DGEIS for IBM - Proposed Re-zoning, IBM Properties, Town of Fishkill, October 3, 1983, prepared by Ronald A. Freeman Associates, P.C. Consulting Engineers NYSDEC Region 3, NYS Air Quality Report, Ambient Air Monitoring System Annual Report 1992-DAR-93-1 Note: The percentage figures represent approximate contributions for the sources identified in middle-latitude areas. For more specific information, refer to the annual reports of the Council on Environmental Quality.	

Land use in the vicinity of the project site is primarily single-family residential, commercial and undeveloped open space. There are no major sources of stationary air pollution emissions in the vicinity of the project site. Automobile emissions are a non-point source of air pollution and currently do not violate or threaten AAQS for this region.

### **3.8.2 Potential Impacts**

#### General Air Quality

Potential short-term adverse air quality impacts that may result from the proposed project include fugitive dust and particulate matter from the project site, and emissions from construction equipment and vehicles. However, no sensitive receptors such as schools, hospitals, senior living facilities, or churches exist in the immediate vicinity of the project site.

No long-term air quality impacts are expected to result from the proposed residential development and its associated recreational uses. All of the proposed residences comply with applicable zoning size and lot setback requirements. The air emissions generated by the proposed single-family residences will be similar to those generated by other residences in area neighborhoods. Traffic accessing the proposed soccer field would be seasonal and would not be expected to result in significant air quality impacts.

The primary generators of air emissions from construction of the proposed residences include passenger vehicles, gas-powered equipment, and heating systems. Given the proposed density of the project, the projected volume of traffic, the anticipated quantity of lawn areas to be mowed, the installation of new and efficient heating systems, and the overall amount of undisturbed vegetation proposed, no air quality impacts are expected to result from the proposed Yorktown Farms subdivision.

The emissions of NO<sub>x</sub> (Nitrogen oxides) from the house furnaces that will be used for many of the new homes in the Yorktown Farms subdivision will not adversely affect the local AAQS, according to the NYSDEC New Paltz and Tarrytown offices. Westchester County currently is in compliance with AAQS, Region 3.

#### Short-term Fugitive Dust Emissions and Odors

The construction of the proposed project will involve land clearing, grading, and blasting activities that may result in the release of fugitive dust and particulate matter from the project site. Construction activity will be limited to daylight hours, Monday through Saturday. During this period, dust and particulate matter from the project site may be released into the air and carried off-site by wind. Construction-related air emissions will 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. No significant impacts to neighboring residences are expected to result from the construction-related dust emissions.

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 a 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.

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.

### **3.8.3 Proposed Mitigation Measures**

#### Dust Control Measures During Construction Activities

Methods to control dust that will be employed during construction of the proposed project include minimizing the area of the site that 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 to prevent dust emissions while they are in transit to a disposal site. All debris will be thoroughly wet down before loading, or before being dumped into trucks or other containers. During dry weather conditions, spraying water on unpaved areas subject to heavy construction vehicle traffic will help control dust. Paved areas will also be kept clear of loose dirt that can be re-entrained into the air during vehicle passage. The use of stone tracking pads at access points to the site or washing of vehicle tires will greatly lessen the tracking of soil onto adjacent roadways. All vehicles exiting the site to transport excess material will be covered.

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