III. EXISTING ENVIRONMENTAL CONDITIONS, ANTICIPATED IMPACTS AND MITIGATION

J. Air Quality

1. Existing Conditions

a. Existing Ambient Air Quality

DEC measures air pollutants at more than 80 sites across the state, using continuous and/or manual instrumentation. These sites are part of the federally-mandated National Air Monitoring Stations Network and the State and Local Air Monitoring Stations Network. Real time direct reading measurements include gaseous criteria pollutants (ozone, sulfur dioxide, oxides of nitrogen, carbon monoxide), PM2.5 (fine particulate with diameter less than 2.5 microns), and meteorological data. Filter based PM2.5, lead, and acid deposition samples are collected manually and shipped to the laboratory for analysis.[1]

New York State is divided into nine Air Quality Control Regions (AQCRs) based on geographic location. The Town of Harrison is located within NYSDEC AQCR 3. The Federal criteria pollutants (parameters) currently monitored within the region include: sulfur dioxide, ozone, inhalable particulates (PM2.5), and lead, in addition to several non-criteria pollutants.

Although there is no available ambient air quality monitoring data for the Town of Harrison, regional State monitoring data is available to characterize the site. Table III.J-1 summarizes the annual report data for the five most recent years (2003 to 2007) that reports are available.

b. Existing Ambient Air Quality and Standards within the Study Area Based on Information Provided by NYSDEC

The State and National Ambient Air Quality Standards (AAQS) are summarized in Table III.J-2. In comparing the data in Table III.J-1 to the standards in Table III.J-2, ambient air quality meets State and Federal AAQSs for all parameters, with the exception of ozone. Because of the importance of ozone concentrations NYSDEC reports ozone concentrations and projections in real time. For example, in 2009 there were ozone exceedances of the 8 hour standard in White Plains on 22 May, 7 June, 16 July and 15 August.

Elevated ozone levels are found throughout the northeastern United States. Non attainment of the ozone standard is more of a regional than a local problem and cannot be resolved without coordinated regional air pollution control programs. In the event of elevated ozone levels, the State has an air pollution episode monitoring plan to issue health warnings to the public to caution those prone to health problems to remain indoors and to refrain from strenuous activities. The Site is consistent with all New

[1] (http://www.dec.ny.gov/chemical/8406.html).

Table III.J-1
Ambient Air Quality Data – 2003-2007

Pollutant	Averaging Period	Ambient Air Quality Standard	Unit	2003	2004	2005	2006	2007	Monitoring Station (NYSDEC Region 3)	Station Number
Sulfur Dioxide	Annual Average	30	ppb	2.4	2.2	2.2	1.7	1.5	Mt. Ninham	3951-01
	24 hour	140	ppb	25.0	13.8	12.2	11.0	9.0	Mt. Ninham	3951-01
	3 hour	500	ppb	45.8	41.2	22.6	18.8	19.0	Mt. Ninham	3951-01
Inhalable Particulates <2.5 ug	Annual	NA	ug/m3	11.9	11.3	12.4	11.1	11.7	Mamaronck	5956-01
	Annual - 3 year ave	15	ug/m3	12.2	11.8	12	11.6	11.7	Mamaronck	5956-02
	98% percentile	NA	ug/m3	29.9	33.5	32.8	34.4	30.6	Mamaronck	5956-03
	98% 3 year ave	35	ug/m3	33	34	34	34	29	Mamaronck	5956-04
Ozone	Annual Average	NA	ppm	0.024	0.019	0.025	0.025	0.027	White Plains	5902-04N
	4th Highest 8 hr	NA	ppm	0.091	0.078	0.095	0.083	0.095	White Plains	5902-04N
	4th High 8 hr-3 yr ave	0.08	ppm	**0.094**	**0.09**	**0.095**	**0.083**	**0.091**	White Plains	5902-04N
	One hour	NA	ppm	0.128	0.105	0.133	0.145	0.138	White Plains	5902-04N
Lead	Annual Geometric Mean	NA	ug/m3	0.07	0.07		0.05	0.02	Wallkill	3566-09
	Quarterly	1.5	ug/m3	0.24	0.24		0.08	0.06	Wallkill	3566-09
	24 hour	NA	ug/m3	0.71	1.03		0.33	0.22	Wallkill	3566-09

Source: NYSDEC

Table III.J-2
National and State Ambient Air Quality Standards

Pollutant	Ave Period	Federal Ambient Air Quality Standards				NYS AAQS (1)	
		Primary Standard		Secondary Standard			
		Level (3)	Statistic (2)	Level	Statistic	Level	Statistic
Carbon Monoxide	8 hour	9 ppm	Maximum	None		9 ppm	Maximum
	1 hour	35 ppm	Maximum			35 ppm	Maximum
Lead (4)	Rolling 3 month average	0.15 ug/m3	Maximum	Same as Primary		None	
Nitrogen Dioxide	Annual	0.053 ppm	Arithmetic Mean	Same as Primary		0.05 ppm	Arithmetic Mean
Total Suspended Particulates (TSP) (5)	12 consecutive months	None		None		75 ug/m3	Geometric Mean
	24 hours	260 ug/m3	Maximum	150 ug/m3	Maximum	250 ug/m3	Maximum
Particulate Matter (PM10) (6)	24 hour	150 ug/m3	Maximum	Same as Primary		None	
Particulate Matter (PM2.5)	Annual	15 ug/m3	Arithmetic Mean	Same as Primary		None	
	24 hour	35 ug/m3 (7)	3 year average	Same as Primary			
Ozone (8)	8 hour (2008 std)	0.075 ppm	3 year average	Same as Primary		None	
	8 hour (1997 std)	0.08 ppm	3 year average	Same as Primary		0.08 ppm	Maximum
	1 hour	0.12 ppm	Not Applicable in NYS	Same as Primary		0.12 ppm	Maximum
Sulfur Dioxide	Annual	0.03 ppm	Arithmetic Mean	None		0.03 ppm	Arithmetic Mean
	24 hour	0.14 ppm	Maximum			0.14 ppm	Maximum
	3 hour			0.5 ppm	Maximum	0.50 ppm	Maximum
Hydrocarbons (non-methane)	3 hour (6-9 am)			None		0.24 ppm	Maximum

Notes:
1. NYS 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 hr ozone standard not to be exceeded more than 3 days in 3 calendar years.
3. Gaseous concentrations for Fed standards are corrected to a reference temperature of 25C and to a reference pressure of 760 millimeters of mercury.
4. Fed. standard for lead not yet officially adopted by NYS, but is currently being applied to determine compliance status. The 0.15 ug/m3 standard is effective 1/12/09 and replaces the previous level of 1.5 ug/m3.
5. NYS also has 30, 60, and 90-day standards as well as geometric mean standards of 45, 55, and 65 ug/m3 in Part 257 of NYCRR. While these TSP standards have been superseded by the above PM10 standards, TSP measurements may still serve as surrogates to PM10 measurements in the determination of compliance status.
6. Federal standard for PM10 not yet officially adopted by NYS, but is currently being applied to determine compliance status.
7. Federal standard was changed from 65 to 35 $\mu g/m^3$ on December 17, 2006. Compliance with the Federal standard is determined by using the average of 98th percentile 24 hour value during the three years, which cannot exceed 35 ug/m3.
8. 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 3 years- which can not exceed 0.084 ppm, or 0.075 ppm effective May 27, 2008).

York State Department of Transportation (NYSDOT) regional transportation control programs, including the State Implementation Plan established to bring the area into compliance with the ozone AAQS. The NYS emission control strategies include: low emission vehicles (NYS has fully adopted the California Low Emission Vehicle Program in legislation and regulation); enhanced inspection and maintenance programs to ensure vehicles are properly maintained; reformulated gasoline; oxygenated fuels; and alternative fuels for fleet vehicles.

2. Future Without the Project

a. Technical Background – Highway Impacts

The pollutant associated with vehicular emissions that has the potential to cause local exceedances of the AAQS is carbon monoxide (CO). Approximately 80 percent of atmospheric CO emissions are attributable to vehicular sources. These emissions, which are associated with the incomplete combustion of fossil fuel, tend to increase as vehicle speeds decrease and are maximized during idling and acceleration modes. CO emissions also increase as temperatures decrease. Therefore, roadway intersections characterized by vehicular deceleration, queuing at idle, and acceleration during winter temperature regimes represent the area where vehicular CO emissions are highest. Thus, NYSDOT has adopted procedures for the analysis of potential air quality impacts (Environmental Procedures Manual – Chapter 1 Air Quality.[2]

A traffic analysis was prepared to evaluate the impact of the project along the primary access routes in the area. This traffic analysis has been used to evaluate the potential for air quality impacts from increased traffic volumes in accordance with NYSDOT guidance.

b. Traffic Impacts

The Traffic Impact Study included in Appendix C of this DEIS and summarized in Chapter III.I of this DEIS analyzed existing conditions (2009) on the roadways in the vicinity of the site and projected traffic volumes in 2020 without the proposed improvements (No-Build) and with the proposed improvements (Build).

There are no other anticipated projects to add to the No-Build volumes. The No-Build has assumed an annual growth rate of one percent, which results in a 12 percent increase from the existing volumes. Because of increased emission controls future No-Build vehicle emissions are anticipated to be less than existing emissions. For example, at 50 mph the 2009 CO emission factor for cars is 4.57 gm/hr. In 2020 the emission factor would be 3.20 gm/hr, a 30 percent reduction. Thus, the vehicular emissions for the No-Build would be approximately 18 percent less than the existing emissions. The average emission factors were calculated by NYSDOT using EPA's MOBILE 6 emissions factor model and New York State vehicle age and operating characteristics. As older more polluting cars are retired the average emission factors will continue to decrease slightly. Based upon current emission requirements the CO emission factor for cars at 50 mph will decrease to 3.05 gm/hr in 2030 and remain constant in the future beyond that.

[2] https://www.nysdot.gov/divisions/engineering/environmental-analysis/manuals-and-guidance/epm/repository/epmair01.pdf).

3. Anticipated Impacts

a. Construction Impacts

Heavy construction is a source of emissions from the internal combustion engines (trucks and equipment as well as construction worker commutation) and fugitive dust from the construction activities.

As previously discussed the source of mobile source emissions of the greatest local concern is CO. Diesel engines (i.e. trucks) have a much lower CO emission factor than automobiles. For example the year 2009 CO emission factor for an automobile traveling at 50 mph is 4.57 gm/hour. For the largest diesel truck in 2009 it is only 2.00 gm/hour. The automobile volumes during construction by the commuting construction workers would be far less than the volumes generated by full occupancy of new buildings, which has been fully analyzed. Thus, CO emissions during construction are not significant and do not require further analysis.

However, heavy construction is a source of dust emissions that, without mitigation, may have temporary impact on local air quality. Building and road construction are two examples of construction activities with high emissions potential. Emissions during the construction of a building or road can be associated with land clearing, drilling and blasting, ground excavation, cut and fill operations (i.e., earth moving), and construction of a particular facility itself. Dust emissions often vary substantially from day to day, depending on the level of activity, the specific operations, and the prevailing meteorological conditions. A large portion of the emissions results from equipment traffic over temporary roads at the construction site (EPA, 2009).

The temporary nature of construction differentiates it from other fugitive dust sources as to estimation and control of emissions. Construction consists of a series of different operations, each with its own duration and potential for dust generation. In other words, emissions from any single construction site can be expected (1) to have a definable beginning and an end and (2) to vary substantially over different phases of the construction process (EPA, 2009).

The quantity of dust emissions from construction operations is proportional to the area of land being worked and to the level of construction activity. By analogy to the parameter dependence observed for other similar fugitive dust sources, one can expect emissions from heavy construction operations to be higher with a higher silt content of the soil (that is, particles smaller than 75 micrometers [µm] in diameter), as well as with the speed and weight of the average vehicle, and to be lower with the higher soil moisture content (EPA, 2009).

In addition to the on-site activities additional emissions are possible because of material tracked out from the site and deposited on adjacent paved streets. Because all traffic passing the site (i.e., not just that associated with the construction) can re-suspend the deposited material, this "secondary" source of emissions may be more important than all the dust sources actually within the construction site. Furthermore, this secondary source would be present during all construction operations (EPA, 2009)

Mitigation measures may be implemented to minimize the impacts of these secondary sources of emissions on both the project site and the surrounding area. These measures are discussion in Section 4 below.

Fugitive dust emissions during construction are expected to be low for the following reasons:

- No blasting is anticipated;
- Significant grading is not necessary;
- There are woods on and adjacent to the site that would lower wind velocities and the erosive force of the wind;
- The site is relatively small and truck speeds on un-paved areas would be low.

b. Highway Impacts

Under the current NYSDOT guidelines (NYSDOT Environmental Procedures Manual, Chapter 1.A), the following hierarchical criteria are used to determine whether an air quality analysis (site specific CO modeling) is required for a proposed major development:

(1) LOS Screening - Signalized intersections with a Level of Service of A, B, or C do not require an air quality analysis. There are no special sensitive receptors such as hospitals, schools, or nursing homes that are close enough to any of these intersections that they require special screening.

(2) Capture Screening Criteria

(a) A 10% or more reduction in source-receptor distance

(b) A 10% or more increase in traffic volume.

(c) A 10% or more increase in vehicle emissions

(d) An increase in the number of queued lanes

(e) A 20% reduction in speed

(3) Volume Threshold Screening

Table 3b (of the NYSDOT Environmental Procedures Manual) would be used to screen the un-signalized intersections, and Table 3c of the same document, would be used to screen the signalized intersections if necessary.

As described in Chapter III.I Traffic, Transportation and Parking, the following intersections would operate at LOS "C" or better in 2020 with the project:

- Anderson Hill Road & PepsiCo/SUNY Purchase;
- Lincoln Avenue and PepsiCo Delivery only Driveway;
- Lincoln Avenue and Hutchinson River Parkway SB on/off Ramp;
- Lincoln Avenue and Hutchinson River Parkway NB on/off Ramp; and
- Anderson Hill Road & King Street

Thus, all of these intersections screen out on the first criterion, LOS screening. The intersection Anderson Hill Road and Purchase Street (NYS Route 120) screened out on the second criterion. The traffic volumes increased 3.8 percent

from No-Build to Build in the am peak hour and 2.6 percent in the pm peak hour, both far below the screening threshold of 10 percent.

At the intersection of Anderson Hill Road and Lincoln Avenue the increases are projected to be 11.9 percent in the am peak hour (which does not screen out based on volume), and 7.4 percent in the pm peak hour (which does screen out on volume). In evaluating Criterion 3 (Table 3c of the NYSDOT Environmental Procedures Manual) vehicle mix and year 2020 emission factors were used with Table 3c to determine the maximum approach volume of any leg of the intersection that would be permitted. The maximum allowed approach volume was determined to be 4,000 vehicles. Since the highest projected approach volume is 737 vehicles from the west, this intersection screens out based on criterion 3.

Following State and Federal requirements and the NYSDOT screening procedures, it has been determined that no further analysis is necessary and the project would not cause any adverse air quality impacts and would not result in any violations of the National or State AAQAs.

c. Site Emissions and Carbon Footprint

There would be no unusual air pollution sources on site that would adversely affect air quality.

With respect to carbon emissions, PepsiCo has been a very visible and vocal advocate for the necessity of reducing their carbon footprint as detailed below.

- In 2007, PepsiCo joined the U.S. Environmental Protection Agency's Climate Leaders, a voluntary partnership program that works to develop comprehensive climate change strategies, including supporting reduction in greenhouse gases. PepsiCo pledges to reduce U.S. GHG emissions by 25 percent per ton of production from 2006 to 2015.[3]

- PepsiCo is the first consumer products company to join with other concerned companies and non-governmental organizations in the U.S. Climate Action Partnership (USCAP) to encourage the federal government to enact climate legislation. USCAP is calling on the federal government to quickly enact strong national legislation to require significant reductions of greenhouse gas emissions, and has issued a landmark set of principles and recommendations to underscore the urgent need for a policy framework on climate change. [4]

- PepsiCo's first listed Purposes on its website[5] are Sustainability and Environment. Throughout the website are various changes that have been made toward the Climate Leader goal of a 25 percent reduction in greenhouse gas emissions.

[3] http://www.epa.gov/stateply/partners/partners/pepsico.html
[4] http://www.us-cap.org/index.asp

[5] (http://www.pepsico.com/Purpose.html)

It is PepsiCo's intent to reduce their carbon footprint at their World Headquarters. This would be accomplished in two ways:

- First, maintenance and rehabilitation projects at the existing campus would be done with a goal of reducing water consumption and energy demand. Because of the age of the existing structures and utility infrastructure, and the layout and use of space, energy consumption at the existing campus is more than 20% higher than for standard (non LEED certified) new construction. Based upon the energy goals of the planned renovations, it has been conservatively estimated by the project architect that energy consumption at the existing buildings can be reduced by a least 22 percent in order to be equivalent to standard new construction. This estimate was confirmed using EPA's Energy Star Target Finder website[6]. Target Finder enables architects and building owners to set energy targets and receive an EPA rating for projects during the design process.

- Second, future projects on the Headquarters campus would pursue LEED Silver certification from the United States Green Building Council, or its local or regional equivalent. The goal in future developments is to utilize current state of the art methodologies as the baseline from which to start a design. Because the detailed mechanical and electrical work for Phase I and Phase II of the Master Plan buildings have not yet been articulated, provision of a detailed analysis for carbon emissions is not feasible at this time. However, PepsiCo is committed to providing energy conservation measures for the proposed Phase I and II structures. Details on these measures are more fully described in Chapter IX of this DEIS. Based upon what is achievable for LEED certified new construction and EPA's Energy Star Target Finder website, the project architect has conservatively estimated that energy demand per square foot for the new space would be 50 percent of the current demand per square foot. The net effect is that the total square footage of the Campus would increase by 51 percent (from 453,173 square feet to 685,008 square feet yet the carbon footprint would only increase by 4 percent). The average energy consumption per square foot of space is projected to decrease by 31 percent after full build out. PepsiCo is considering a variety of building designs to conserve additional energy, as well as options for renewable energy (e.g. geothermal and solar) so the actual future carbon footprint would likely be even less.

4. Proposed Mitigation

No mitigation measures are required during facility operation because all appropriate best management practices have been incorporated into the planning and design to ensure that there would be no adverse impacts.

Although anticipated impacts during construction are expected to be low, the following mitigation measures would be employed:

[6] (http://www.energystar.gov/index.cfm?c=new_bldg_design.bus_target_finder).

- The implementation of an Erosion and Sediment Control Plan. The plan would be prepared in accordance local and New York Standards and Specification for Erosion and Sediment Control and the New York Stormwater Management Design Manual. Measures that are taken to minimize water erosion would also minimize the potential for fugitive dust.
- This plan would include a tracking pad to minimize the tracking of soil and debris onto local roadways.
- To further limit the potential for fugitive dust, improvements at the site shall take place in a phased approach to the extent possible, minimizing the amount of soils exposed at any one time.
- All trucks carrying demolition debris, fill or other unconsolidated materials would be covered with tarps. This would ensure that debris and dust would be fully contained during transport.